

# CHAPTER 15

## FINANCIAL ELEMENT

Title 23 CFR Section 450.322 and 310 CMR 60.03(9) requires the RTP to be financially constrained. The financial element must demonstrate which projects can be implemented using current revenue sources and which are to be implemented using proposed revenue sources while the existing transportation system is being adequately operated and maintained. Projects can only be programmed up to the congressionally authorized spending amounts in any individual fiscal year.

The estimate of revenue for the region will be highly dependent upon the funding allocated to Massachusetts as part of future transportation bills. Estimates of the projected revenue sources for highway and transit projects have been made based on past historical trends and information available from the estimated apportionment of the federal authorizations contained in the Moving Ahead for Progress in the 21 Century (MAP-21) Act. Financial constraint will be maintained in the 2016 RTP Update.

### A. REVENUE

The overall RTP, and each fiscal year contained herein, is financially constrained to the annual federal apportionment and projections of state resources reasonably expected to be available during the appropriate time-frame. Projections of federal resources are based upon the estimated apportionment of the federal authorizations contained in MAP-21, as allocated to the region by the State or as allocated among the various MPOs according to federal formulae or MPO agreement. Estimates used to develop the highway component of the financial plan were developed by MassDOT. A summary of the projected highway revenue from 2016 – 2040 is presented in Table 15-1.

**Table 15-1 – Projected Highway Revenue 2016 - 2040**

Total Available for Programming in the Pioneer Valley RTP	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	GRAND TOTAL
	Total	Total	Total	Total	Total	Total
	<b>\$ 420,177,748</b>	<b>\$ 426,618,217</b>	<b>\$ 520,221,270</b>	<b>\$ 582,504,200</b>	<b>\$ 623,968,064</b>	<b>\$ 2,573,489,499</b>
<i>Statewide Interstate Maintenance</i>	\$ 29,750,182	\$ 28,157,124	\$ 35,185,257	\$ 39,841,190	\$ 42,920,276	\$ 175,854,029
<i>Statewide NHS</i>	\$ 19,572,131	\$ 18,955,373	\$ 23,686,712	\$ 26,821,085	\$ 28,893,926	\$ 117,929,227
<i>Statewide Bridge</i>	\$ 105,433,448	\$ 102,111,025	\$ 127,598,354	\$ 144,482,963	\$ 155,649,185	\$ 635,274,975
<i>Statewide Infrastructure</i>	\$ 4,219,341	\$ 4,086,381	\$ 5,106,359	\$ 5,782,064	\$ 6,228,925	\$ 25,423,070
<i>Remaining Statewide Programs</i>	\$ 96,040,886	\$ 101,493,887	\$ 126,827,176	\$ 143,609,738	\$ 154,708,473	\$ 622,680,160
<i>NFA Bridge Preservation</i>	\$ 54,049,500	\$ 54,860,243	\$ 55,670,985	\$ 56,481,728	\$ 57,292,470	\$ 278,354,926
<i>Regional Discretionary Funding</i>	\$ 111,112,260	\$ 116,954,184	\$ 146,146,427	\$ 165,485,432	\$ 178,274,809	\$ 717,973,112

- Federal and state matching funds for the period of 2016 to 2020 reflect current allocations and are inflated 1.5% per year thereafter, beginning in 2021.
- Deductions for statewide items that cannot be allocated individually to the MPOs - Central Artery GANs repayment, Planning, and Extra Work Orders/Cost Adjustments, and the Accelerated Bridge Program - are taken from total available funding, leaving an amount for the available federal funding to be allocated in the regional plans.
- Statewide Bridges, Statewide Interstate Maintenance, and Statewide National Highway System funding are attributed to each region based upon formula such as the region's % of the total number of bridges or a region's % of the total lanes miles of IM/NHS.
- In FFY2026 it is assumed that GANs payments for the Central Artery and Accelerated Bridge Program are complete. The additional revenue was equally split between statewide line items (Bridge, NHS/IM, Statewide Maintenance) and Regional Discretionary funds beginning in 2027.
- Funding availability for bridges is based upon the Commonwealth's commitment to a Statewide Bridge Program. The bridge program has two components: federal aid and non-federal aid.
- Estimated funding for Statewide Infrastructure, Remaining Statewide Programs, NFA Bridge Preservation, and Regional Discretionary Funding is allocated among the MPOs based upon the existing MARPA TIP targets.
- After 2026 the GANS repayment of the Central Artery and Accelerated Bridge Program is anticipated to be complete. This results in an increase in available transportation revenue. The MassDOT and MARPA agreed to allocate this additional revenue equally between statewide needs and regional discretionary funds.

The estimates of available transit revenue shown in this RTP were provided by MassDOT on April of 2015. Information on anticipated farebox and local revenue was developed using the funding total from the most recent data and based on historical data from the PVTA, then aggregated through the life of the RTP. A summary of estimated transit revenue during the 2016-2040 period is presented in Table 15-2.

**Table 15-2 – Estimated Transit Revenue 2016 - 2040**

Estimated Transit Operating Revenues 2016 - 2040						
	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	Grand Total
State Contract Assistance	\$ 125,723,298	\$ 145,747,760	\$ 168,961,600	\$ 195,872,803	\$ 227,070,262	\$ 863,375,723
Local Assessments	\$ 43,637,997	\$ 49,372,389	\$ 55,860,326	\$ 63,200,831	\$ 71,505,940	\$ 283,577,483
5307 Federal Urbanized Area Formula **	\$ 53,120,529	\$ 57,917,522	\$ 62,393,619	\$ 67,215,646	\$ 72,410,341	\$ 313,057,657
5339 Federal **	\$ 3,614,988	\$ 3,937,914	\$ 4,242,253	\$ 4,570,110	\$ 4,923,307	\$ 21,288,572
5310 Federal Ederly & Disabled	\$ 2,704,105	\$ 2,913,090	\$ 3,138,225	\$ 3,380,759	\$ 3,642,038	\$ 15,778,217
Farebox	\$ 41,119,964	\$ 45,399,763	\$ 50,125,006	\$ 55,342,057	\$ 61,102,103	\$ 253,088,893
Advertising, other revenue	\$ 2,948,172	\$ 3,255,020	\$ 3,593,805	\$ 3,967,851	\$ 4,380,829	\$ 18,145,677
Available for Programming in Pioneer Valley RTP	\$ 272,869,053	\$ 308,543,458	\$ 348,314,834	\$ 393,550,057	\$ 445,034,820	\$ 1,768,312,222
Estimated Capital Revenues						
	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	Grand Total
RTACAP	\$ 20,285,825	\$ 22,314,408	\$ 24,545,848	\$ 27,000,433	\$ 29,700,476	\$ 123,846,990
ITC Cap Program	\$ 1,145,277	\$ 1,259,805	\$ 1,385,785	\$ 1,524,364	\$ 1,676,800	\$ 6,992,031
Federal Matching grants	\$ 63,410,806	\$ 69,751,887	\$ 76,727,075	\$ 84,399,783	\$ 92,839,761	\$ 387,129,311
Total Transit Capital Funds for Programming in PV RTP	\$ 84,841,908	\$ 93,326,099	\$ 102,658,709	\$ 112,924,579	\$ 124,217,037	\$ 517,968,332
<b>Grand Total of Revenue</b>	<b>\$ 357,710,961</b>	<b>\$ 401,869,557</b>	<b>\$ 450,973,543</b>	<b>\$ 506,474,636</b>	<b>\$ 569,251,857</b>	<b>\$ 2,286,280,554</b>

- 5307 and 5339 have been reduced by 14% to account for Connecticut Transit's current portion of this funding.
- State Contract Assistance per MassDOT estimate provided April 2015 is increased 3% annually.
- Local assessments escalated 2.5% annually as allowed by statute.
- Federal grant program contributions (5307, 5339, and 5310) escalated 1.5% annually per MassDOT forecast provided April 2015.
- Farebox revenue estimate based on actual FY15 amount of \$7.9 million and escalated 2% annually.
- Advertising and other revenue assumed to be \$566,516 per year in FY16 and escalated 2% annually per PVTA.
- Actual RTACAP contracted (and FY16 contracted numbers are known) were arrived at and entered
- 2021-2040 used 10% escalation based on previous RTP.

The estimated revenue from both highway and transit sources is summarized in Table 15-3.

**Table 15-3 – Total Estimated Revenue**

Total Estimated Highway	\$2,573,489,499
Total Estimated Transit Capital	\$517,968,332
Total Estimated Transit Operating	\$1,768,312,223
<b>Grand Total</b>	<b>\$4,859,770,054</b>

## B. NEEDS

### 1. Operating and Maintenance

#### a) Highway Needs

The PVPC reviewed historic spending by project type to assist in identifying future regional transportation needs. This information is summarized in Table 15-4.

**Table 15-4 – Summary of Highway Spending by Project Type 2006 - 2015**

Type	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average	Average Per Year	Total 2016-2040
Congestion	0%	3%	0%	0%	4%	0%	0%	7%	14%	30%	6%	\$1,336,712	\$55,668,585
Maintenance	65%	39%	20%	83%	70%	32%	21%	34%	61%	27%	45%	\$11,649,342	\$485,147,441
*CMAQ	0%	0%	9%	6%	5%	0%	0%	3%	0%	0%	2%	\$640,387	\$26,669,486
Safety	6%	4%	0%	11%	3%	2%	35%	14%	10%	21%	11%	\$2,502,401	\$104,214,758
Bike	18%	10%	7%	0%	5%	0%	1%	0%	0%	0%	4%	\$975,280	\$40,616,438
Transit	0%	5%	0%	0%	0%	0%	0%	0%	6%	0%	1%	\$265,337	\$11,050,192
Bridge	11%	39%	63%	0%	14%	66%	43%	42%	9%	22%	31%	\$9,574,064	\$398,720,575
	<b>89%</b>	<b>61%</b>	<b>37%</b>	<b>100%</b>	<b>86%</b>	<b>34%</b>	<b>57%</b>	<b>58%</b>	<b>91%</b>	<b>78%</b>	<b>100%</b>	<b>\$ 26,943,523</b>	<b>\$ 1,122,087,475</b>

- Values based on passed 10 year regional discretionary and bridge expenditures in the PV Region.
- \*CMAQ funding does not include funds which were allocated to Bike, Congestion, Safety, or Transit projects under the CMAQ funding category.
- Average per year expenditure is based on actual discretionary and bridge funding spent in PV Region over the past 10 years.
- Total from 2016-2040 is a projection of the total investment required over the life of the RTP based on average per year expenditures a plus 4% per year inflation factor.

Over the last 10 years on average the region has spent less than 50% (down from 56% in the 2012 RTP) of its transportation improvement dollars on roadway maintenance projects. The average historic spending per year values were used to estimate the highway needs over the life of the RTP. These values were inflated by 4% per year to remain consist with other assumptions made as part of the Financial Plan. The estimated highway needs were summarized in five year increments and are shown in Table 15-5.

**Table 15-5 – Summary of Estimated Highway Needs over the Life of the RTP**

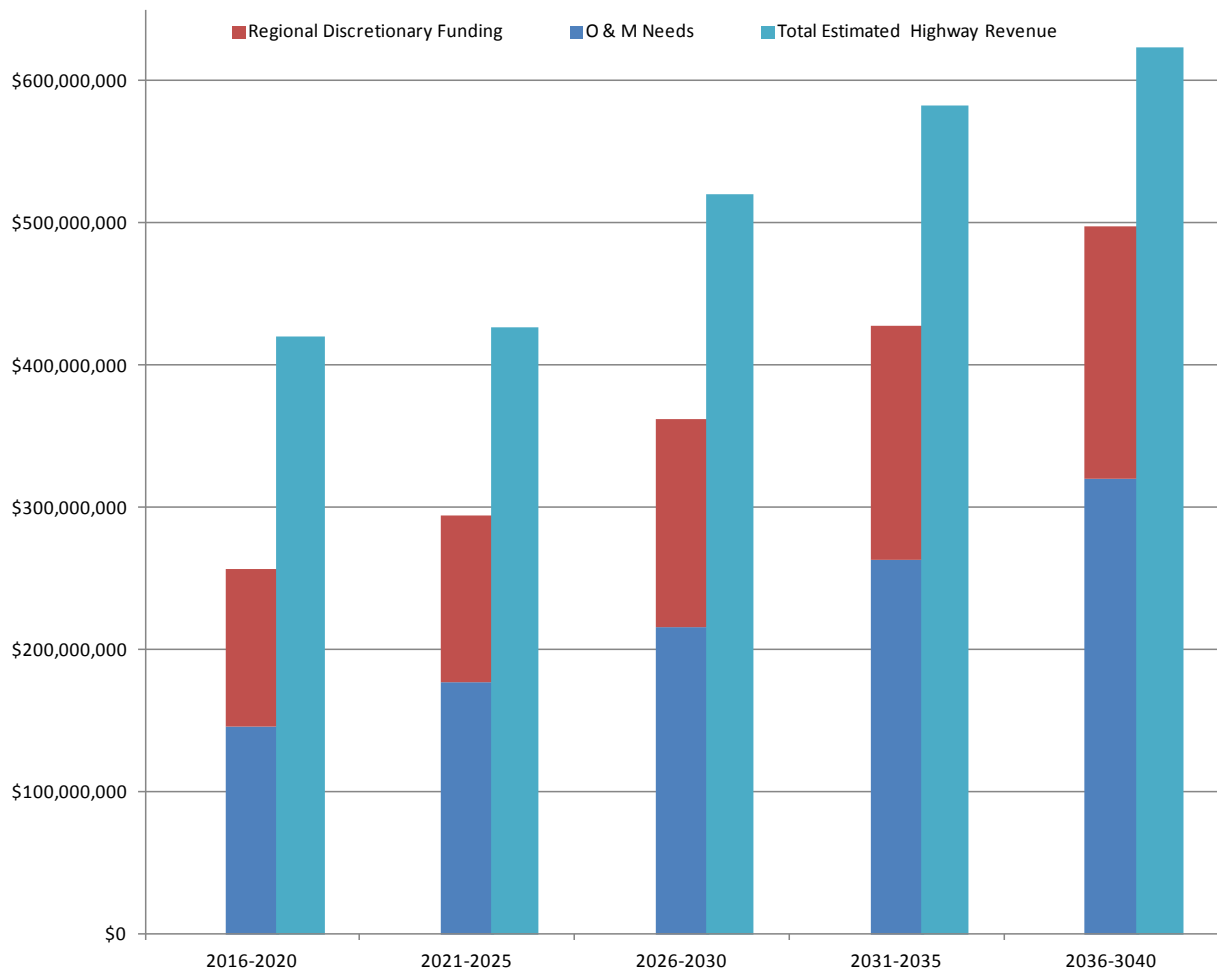
Type	2016-2020	2021-2025	2026-2030	2031-2035	2036-3040	Total
Congestion	\$7,240,063	\$8,808,644	\$10,717,062	\$13,038,945	\$15,863,870	<b>\$55,668,585</b>
Maintenance	\$63,096,596	\$76,766,656	\$93,398,375	\$113,633,404	\$138,252,411	<b>\$485,147,441</b>
*CMAQ	\$3,468,541	\$4,220,010	\$5,134,288	\$6,246,646	\$7,600,000	<b>\$26,669,486</b>
Safety	\$13,553,810	\$16,490,283	\$20,062,950	\$24,409,647	\$29,698,068	<b>\$104,214,758</b>
Bike	\$5,282,433	\$6,426,888	\$7,819,292	\$9,513,364	\$11,574,462	<b>\$40,616,438</b>
Transit	\$1,437,150	\$1,748,512	\$2,127,333	\$2,588,225	\$3,148,972	<b>\$11,050,192</b>
Bridge	\$51,856,217	\$63,091,017	\$76,759,868	\$93,390,117	\$113,623,356	<b>\$398,720,575</b>
<b>Total</b>	<b>\$145,934,810</b>	<b>\$177,552,010</b>	<b>\$216,019,168</b>	<b>\$262,820,348</b>	<b>\$319,761,139</b>	<b>\$1,122,087,475</b>

- \*CMAQ funding does not include funds which were allocated to Bike, Congestion, Safety, or Transit projects under the CMAQ funding category.
- The total investment required over the life of the RTP based on average per year expenditures a plus 4% per year inflation factor.

For the purposes of operations and maintenance, the financial plan shall estimate the costs that are reasonably expected to be needed to maintain the federal aid highways and public transportation system (23 CFR 450.324(7)(h)). In an attempt to comply with this requirement, the total estimated needs from Table 15-5 were added to the estimated regional discretionary funding from Table 15-1 and compared to the total estimated highway revenue from Table 15-1. This information is presented in Figure 15-1.

As can be seen from the figure the estimated highway revenue exceeds the estimated highway needs plus regional discretionary funding over the life of the RTP. This analysis is an indication that sufficient revenue is available to fund highway needs at a minimum at the average of historic spending levels while continuing to fund transportation improvements through the TIP using regional discretionary funding. It should be noted that while Figure 15-1 indicates available funding to support needs based on historic spending, there is still a large need for additional funding to keep the transportation system in a state of good repair over the long term as described in Chapter 1, Problem Statement a).

**Figure 15-1 – Comparison of Estimated Highway Needs to Estimated Highway Revenue**



**b) Transit Need**

Secure funding for transit operations and projects in the region is a key concern. In 2014 Massachusetts Legislation approved forward funding for the Regional Transit Authorities (RTA's). Forward funding allows the RTA's to pay for needs up front rather than being required to borrow money to pay for needs, which results in interest payments. This along with increased operating assistance has allowed PVRTA to make both service and capital improvements system wide. A summary of the estimated transit needs over the life of the RTP is presented in Table 15-6.

**Table 15-6 – Estimated Transit Need 2016 – 2040**

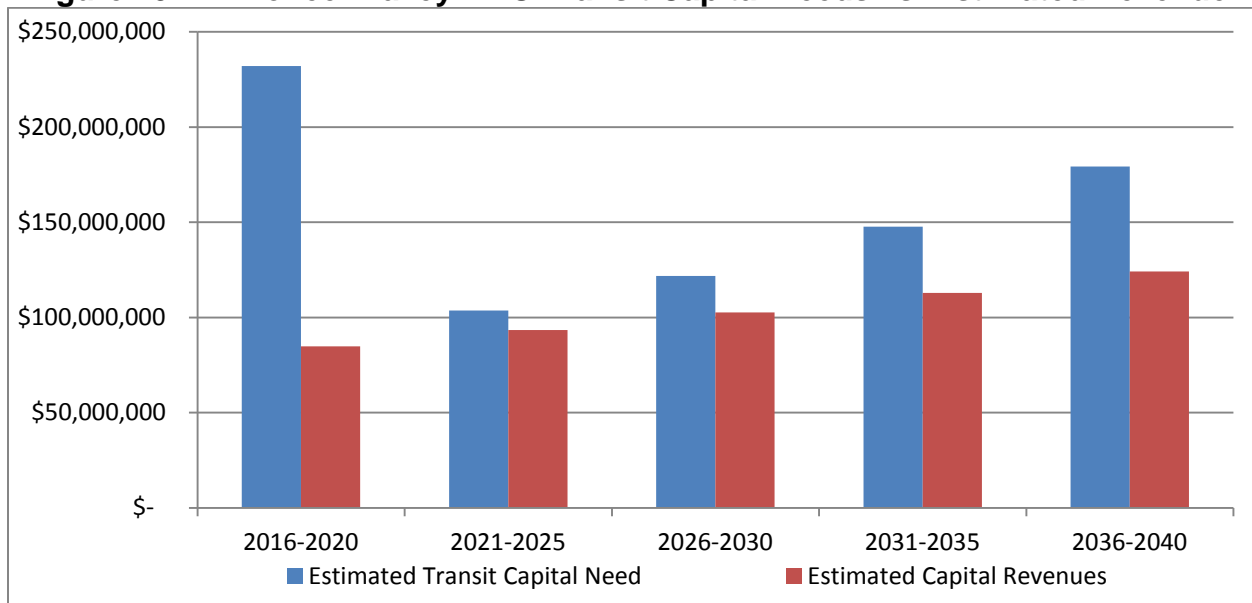
Estimated Transit Capital Need						
	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	Grand Total
Springfield Union Station Redevelopment	\$ -					\$ -
Springfield Bus Maint/Storage Facility	\$ 76,125,000					\$ 76,125,000
SATCO Rehabilitation to Paratransit Facility	\$ 4,275,000					\$ 4,275,000
Westfield Intermodal Center	\$ 4,875,000					\$ 4,875,000
Northampton Garage rehabilitation	\$ 9,975,000					\$ 9,975,000
Northampton Intermodal Center	\$ 8,950,000					\$ 8,950,000
UMTS Maintenance Facility	\$ 19,600,000					\$ 19,600,000
Holyoke Maintenance Facility	\$ 500,000					\$ 500,000
PVTA Facility maintenance/Environmental	\$ 1,080,000	\$ 4,878,466	\$ 8,338,181	\$ 10,144,672	\$ 12,342,545	\$ 36,783,864
PVTA Fleet Replacement Program	\$ 46,998,000	\$ 44,916,297	\$ 48,653,279	\$ 59,194,153	\$ 72,018,738	\$ 271,780,467
Vehicle Maintenance	\$ 35,150,000	\$ 39,749,580	\$ 48,361,442	\$ 58,839,089	\$ 71,586,749	\$ 253,686,860
Bus Shelters	\$ 332,000	\$ 1,370,675	\$ 1,667,636	\$ 2,028,934	\$ 2,468,509	\$ 7,867,754
Bus stop sign replacment	\$ 125,000	\$ 532,037	\$ 140,824	\$ 171,334	\$ 208,454	\$ 1,177,649
ITS/AVL and communication equipment	\$ 20,318,038	\$ 6,270,839	\$ 7,629,434	\$ 9,282,374	\$ 11,293,427	\$ 54,794,112
MAP van program	\$ 3,780,000	\$ 5,977,051	\$ 6,929,041	\$ 8,032,657	\$ 9,312,051	\$ 34,030,800
Available for Programming in Pioneer Valley RTP	\$ 232,083,038	\$ 103,694,945	\$ 121,719,837	\$ 147,693,213	\$ 179,230,473	\$ 784,421,506
Estimated Transit Operating Need 2016-2040						
	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	Grand Total
PVTA Fixed Route	\$ 182,859,117	\$ 214,080,151	\$ 250,238,375	\$ 292,746,063	\$ 342,753,350	\$ 1,282,677,057
PVTA Paratransit	\$ 46,545,498	\$ 54,492,592	\$ 63,696,413	\$ 74,516,445	\$ 87,245,447	\$ 326,496,396
PVTA Administration	\$ 23,429,977	\$ 27,430,369	\$ 32,063,369	\$ 37,509,934	\$ 43,917,433	\$ 164,351,082
FRTA Paratransit	\$ 3,853,014	\$ 4,510,871	\$ 5,272,758	\$ 6,168,436	\$ 7,222,136	\$ 27,027,215
Total Operating Need (4% annual Escalation)	\$ 256,687,606	\$ 300,513,983	\$ 351,270,915	\$ 410,940,878	\$ 481,138,367	\$ 1,800,551,750
Grand Total of Needs	\$ 488,770,644	\$ 404,208,928	\$ 472,990,752	\$ 558,634,091	\$ 660,368,840	\$ 2,584,973,256

- FY 2016 was arrived at from the Budget approved at the 05/27/2015 Advisory Board Meeting
- FRTA Data based off financial report <http://www.pvtaapps.com/opengov/pdfs/frta/FRTAfinal.pdf>
- 2021-2040 an estimated increase per 5 year period was calculated (% of TIP increase), plus a 4% escalation factor.
- All PVTA project cost estimates by PVTA, April 2015.

In addition, operating funding needs also include \$100,000 per year (escalated 4% annually) for FRTA paratransit in 14 outlying towns in the PVPC region that are not served by PVTA. FRTA anticipates that the cost of providing paratransit van service in the 14 PVMPO municipalities not served by PVTA will increase at a rate greater than 4% in the 2016-2020 timeframe due to the growing need to replace volunteer drivers with professional drivers in many communities.

The funding outlook with respect to capital project needs is also a significant concern. Figure 15-2 shows the anticipated transit capital project needs versus estimated revenues (2016-2040) for the region. It shows that over the life of this plan, the gap between estimated capital needs (\$784,421,506) and anticipated revenue (\$517,968,332) would be \$266 million. Therefore, transit capital needs are 50% greater than the amount of funds that are expected to be available.

**Figure 15-2 – Pioneer Valley MPO Transit Capital Needs vs. Estimated Revenue**



**c) Rail Need**

Similar to highway and transit needs, an estimate was developed of the regional rail needs based on completed study recommendations advocating for expanded passenger rail service. This information is shown in Table 15-7. It should be noted that these estimates are presented for informational purposes only as these projects are not currently part of the financially constrained RTP. Enhanced passenger rail service does however remain a high regional priority that is recommended should an adequate funding source be identified.



**Table 15-7 – Estimated Rail Need 2016 – 2040**

<b>Rail Capital Needs</b>								
<b>Project Name</b>	<b>Project Description</b>	<b>Community</b>	<b>2016-2020</b>	<b>2021-2025</b>	<b>2026-2030</b>	<b>2031-2035</b>	<b>2036-2040</b>	<b>Total</b>
High Speed Rail Capital for entire corridor	East/West high speed rail Capital entire system -Boston to Springfield to Vermont/Canada Line	Regionwide	\$785,000,000					\$785,000,000
Commuter Rail	Commuter Rail - Springfield to New Haven - Capital	Regionwide	\$30,000,000					\$30,000,000
Commuter Rail	Commuter Rail - Springfield to Greenfield - Capital	Regionwide	\$10,000,000					\$10,000,000
Freight Congestion	Freight congestion improvements	Regionwide		Further Study				\$0
Passenger Rail Operating Cost	Connecticut State Line to Greenfield - Operating Per \$2,980,000 per year	Regionwide						\$0
Track Expansion	Track Expansion Palmer Ind Park	Palmer		\$570,000				\$570,000
Westfield Industrial Park Track Expansion	Track Expansion Westfield Ind Park	Westfield		\$3,025,070				\$3,025,070
Central Corridor Passenger Rail Study	Central Corridor Passenger Rail Study	Regionwide			Further Study			\$0
<b>Total Need</b>			<b>\$825,000,000</b>	<b>\$3,595,070</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$828,595,070</b>
<b>Rail Operating Needs</b>								
<b>Project Name</b>	<b>Project Description</b>	<b>Community</b>	<b>2016-2020</b>	<b>2021-2025</b>	<b>2026-2030</b>	<b>2031-2035</b>	<b>2036-2040</b>	<b>Total</b>
Passenger Rail Operating Cost	Connecticut State Line to Greenfield - Operating Per \$2,980,000 per year	Regionwide	\$16,140,641	\$19,637,558	\$23,892,092	\$29,068,383	\$35,366,133	\$124,104,807
High Speed Rail Operating for entire corridor	East/West high speed rail Operating entire system -Boston to Springfield to Vermont/Canada Line (\$24,000,000)	Regionwide	\$158,154,830	\$192,419,532	\$234,107,783	\$284,827,913	\$284,827,913	\$1,154,337,971
			<b>\$174,295,471</b>	<b>\$212,057,090</b>	<b>\$257,999,874</b>	<b>\$313,896,296</b>	<b>\$320,194,046</b>	<b>\$1,278,442,777</b>

- East/west operating costs are based on Alternative 1 from the Intercity Rail Initiative presentation given to the stakeholders at the 10/22/14 meeting held at PVPC.
- Knowledge Corridor operating cost are based on Option 1 of the March 23, 2015 HDR Rail Service Analysis
- Operating cost for both projects are inflated by 4% annually
- East/west capital costs are based on Alternative 1 from the Intercity Rail Initiative presentation given to the stakeholders at the 10/22/14 meeting held at PVPC.
- Knowledge Corridor capital cost are based on Option 1 of the March 23, 2015 HDR Rail Service Analysis

**C. FINANCIALLY CONSTRAINED PROJECTS**

The Pioneer Valley MPO used the following methodology to populate the Operating and Maintenance Expenditure Tables. Projects were assigned to an estimated construction year based on project readiness, TEC Score, RTP Priority, and project cost unless otherwise specified.

Operating and Maintenance expenditures were developed separately for the areas of Highway and Transit planning. Cost estimates for each of the priority projects included as recommendations of the RTP were assigned a construction year for planning purposes. An inflation factor of 4% per year was applied to each project to reflect anticipated increases in construction materials over the life of the plan. Inflation factors were not applied to projects included as part of the current TIP as all of these projects have a 25% contingency applied to their current cost estimate.

Each project was assigned to the appropriate federal funding category to correspond with the revenues estimated in Table 15-1. The total cost estimates for each category were then compared to the recommended minimum investment as developed by MassDOT.

- The Statewide bridge listing was used to populate the bridge funding category.
- The MassDOT project information database was used to populate IM/NHS.
- Federal Earmarks where applicable were added to the Regional Discretionary Targets.

## 1. Funding Categories

The following provides a brief description of the how projects were assigned to each funding category to develop the financially constrained portion of the RTP.

- Statewide Bridges – Funding provided for the MassDOT bridge program, this funding cannot be used for any other program.
- Statewide Interstate Maintenance – Funding used for any Interstate improvement project.
- Statewide National Highway System – Funding used for any National Highway System improvement project.
- Non Federal Aid Bridge Preservation – Funding provided for bridges located on non federal aid roadways.
- Statewide Infrastructure – Funding used for any statewide infrastructure improvement project.
- Regional Discretionary Projects – Pioneer Valley MPO target to program any non-bridge or non Interstate Maintenance project.
- Remaining Statewide Programs – Estimated funding to be used for funding statewide CMAQ, HSIP, TAP, as well as other statewide categories.

The Pioneer Valley MPO assumed the following breakdown to allocate Regional Discretionary dollars for the FY2031-2035 and FY2036-2040 funding periods. This breakdown was developed using the historical spending data, Cartegraph analysis, and through consultation with the JTC. Table 15-8 gives the recommended distributions of the regional discretionary funds based on available funding.

**Table 15-8 – Regional Discretionary Funding Allocation**

70%	Roadway Maintenance
12.5%	Congestion Mitigation
12.5%	Safety Improvements
2.5%	CMAQ Projects
2.5%	Bicycle and Pedestrian

**Table 15-9 – Operating and Maintenance Expenditures FY2016 - 2020**

Project Name	Project Description	Community	SID	Area of Emphasis	RTP Priority	Total Cost
<b>Statewide and NFA Bridge Preservation Projects</b>						
Bridge Reconstruction	Route 147 over Westfield River and intersection improvements at 3 locations	Agawam / West Springfield	605384	Safety and Security	High	\$13,869,440
Bridge Reconstruction/Rehab	AMHERST- BRIDGE REPLACEMENT, A-08-008, MILL STREET OVER MILL RIVER	Amherst	607528	The Movement of People	Low	\$2,158,416
Bridge Demolition	BELCHERTOWN- WARREN BRIDGE DEMOLITION, B-05-023, W-07-012,(EAST MAIN STREET/NAULTAUG BROOK)	Belchertown	607524	Sustainability	Low	\$2,477,738
Bridge Replacement	CHESTERFIELD- BRIDGE REPLACEMENT, C-12-009, IRELAND STREET OVER WEST BRANCH BRONSON BROOK	Chesterfield	607549	The Movement of People	Low	\$3,474,682
Bridge Betterment	Route 9 and Route 112 over the Westfield River	Cummington	605452	Safety and Security	High	\$4,094,505
Structures Maintenance	CUMMINGTON- BRIDGE MAINTENANCE, C-21-025, ROUTE 9 OVER THE WESTFIELD RIVER	Cummington	607939	Sustainability	Medium	\$324,480
Structures Maintenance	SYSTEMATIC BRIDGE MAINTENANCE AT VARIOUS LOCATIONS (2016) Project consists of systematic maintenance on various bridges in District Two.	District 2	607516	Sustainability	Low	\$1,712,942
Structures Maintenance	SYSTEMATIC BRIDGE MAINTENANCE AT VARIOUS LOCATIONS (2017) Project consists of systematic maintenance on various bridges in District Two.	District 2	607517	Sustainability	Low	\$1,923,977
Structures Maintenance	SYSTEMATIC BRIDGE MAINTENANCE AT VARIOUS LOCATIONS (2018) Project consists of systematic maintenance on various bridges in District Two.	District 2	607959	Sustainability	Low	\$1,776,852
Painting - Structural	LONGMEADOW-SPRINGFIELD- STRUCTURAL STEEL GIRDER PAINTING, S-24-042, S-24-043, A-05-001=S-24-005 & L-14-001, US 5 OVER I-91, RAMP C OVER RAMP A & I-91, US 5 OVER CONNECTICUT RIVER & AMTRAK & I-91 OVER EMERSON ROAD	Longmeadow / Springfield	607644	Sustainability	Medium	\$3,115,373
Bridge Rehabilitation	East Street over Chicopee River	Ludlow / Wilbraham	605618	The Movement of People	Low	\$1,000,000
Bridge Replacement	Hospital Hill Road over Quaboag Street	Monson	602178	The Movement of People	Medium	\$1,760,403
Bridge Reconstruction/Rehab	NORTHAMPTON- BRIDGE RECONSTRUCTION, N-19-059, I-91 OVER US 5/BMRR & N-19-060, I-91 OVER HOCKANUM ROAD	Northampton	606552	Safety and Security	High	\$58,494,084
Bridge Replacement	Route 10/202 Southwick Street over Little River	Westfield	400103	Safety and Security	Medium	\$10,528,727
	Other Regional Bridge Projects	Other Regional Bridge Projects				\$52,771,328
<b>Total of Recommended Projects</b>						<b>\$159,482,948</b>
<b>Recommended Investment for Statewide Bridge Projects</b>						<b>\$105,433,448</b>
<b>Recommended Investment for NFA Bridge Preservation</b>						<b>\$54,049,500</b>
<b>Statewide Interstate Maintenance</b>						
Resurfacing	PALMER- RESURFACING & RELATED WORK ON I-90 (MM 60 TO MM 66)	Palmer	606610	The Movement of People	Low	\$7,722,754
Resurfacing I-91	HATFIELD- NORTHAMPTON- WHATLEY- INTERSTATE MAINTENANCE & RELATED WORK ON I-91, FROM MM 26.9 TO MM 34.4 (7.5 MILES)	Hatfield	606577	The Movement of People	Low	\$10,335,146
INTERSTATE MAINTENANCE & RELATED WORK ON I-390	INTERSTATE MAINTENANCE & RELATED WORK ON I-391	Chicopee/Holyoke	607560	The Movement of People	Low	11,347,575
Other Statewide Interstate Maintenance Projects	Other Statewide Interstate Maintenance Projects					344,707
<b>Total of Recommended Projects</b>						<b>\$29,750,182</b>
<b>Recommended Investment for Statewide Interstate Maintenance</b>						<b>\$29,750,182</b>
<b>Statewide Infrastructure Projects</b>						
Other Projects	Other Major Infrastructure Projects	Regionwide				\$4,219,341
<b>Recommended Investment for Statewide Infrastructure Projects</b>						<b>\$4,219,341</b>
<b>Statewide National Highway System</b>						
Resurfacing Route 202	GRANBY- SOUTH HADLEY- RESURFACING & RELATED WORK ON ROUTE 202, FROM LYMAN STREET SOUTH HADLEY TO PLEASANT STREET GRANBY (2 MILES)	Granby / South Hadley	607474	The Movement of People	Low	1,466,400
Route 9 Roadway Reconstruction Phase 1	RECONSTRUCTION ON ROUTE 9 Phase 1 Middle Street to East Street	Hadley	605032	The Movement of People	High	\$5,697,211
Statewide NHS Projects	Statewide NHS Projects	Regionwide				\$12,408,520
<b>Total of Recommended Projects</b>						<b>\$19,572,131</b>
<b>Recommended Investment for Statewide National Highway System</b>						<b>\$19,572,131</b>
<b>Remaining Statewide Programs</b>						
Remaining Statewide Programs	Remaining Statewide Programs	Regionwide				\$96,040,886
<b>Recommended Investment for Remaining Statewide Programs</b>						<b>\$96,040,886</b>

**Table 15-9 – Operating and Maintenance Expenditures FY2016 – 2020 (cont.)**

Regional Discretionary Funding						
Project Name	Project Description	Community	SID	Area of Emphasis	Prop. 2016 RTP Priority	Total Cost
N. Westfield St. / S. Westfield St. (Rte. 187)	Reconstruction: Pine Street to Westfield TL	Agawam	600513	The Movement of People	Medium	\$1,752,628
Route 187/ 57 Intersection Improvements	Route 187/ 57 Intersection Improvements	Agawam	604203	Safety and Security	high	\$1,664,000
Resurfacing and Related work	AGAWAM- RESURFACING & RELATED WORK ON ROUTE 159, FROM MEADOW STREET TO 150 FT. SOUTH OF SUFFIELD STREET (1.1 MILES)	Agawam	607626	The Movement of People	Low	\$1,696,295
Resurfacing and Related work	Improvements and Related Work on Route 9 and 116 from University Drive to South Pleasant Street (0.8 miles)	Amherst	608084	The Movement of People	Medium	\$1,412,447
Resurfacing and Related work	Resurfacing and Related work on Route 20 from W. Old Sturbridge Road (MM 88.3) to Old Streeter Road (MM92.1)	Brimfield / Sturbridge	608022	The Movement of People	Low	\$3,500,000
Connecticut Riverwalk	Construction: Plainfield St. to Nash Fld.	Chicopee	602911	The Movement of People	Low	\$3,743,004
Chicopee Riverwalk	Construction: From Chicopee Center, 2.5 mi.	Chicopee	602912	The Movement of People	Low	\$3,902,850
Fuller Rd. Corridor Improvements	Reconstruction: From Rte. 33 to Shawinigan Drive	Chicopee	604434	The Movement of People	Low	\$6,716,736
Signal Upgrades on Route 33	SIGNAL & INTERSECTION IMPROVEMENTS AT 11 INTERSECTIONS ALONG ROUTE 33 (MEMORIAL DRIVE), FROM FULLER ROAD TO BRITTON STREET	Chicopee	607736	The Movement of People	High	\$4,518,556
Route 9 Resurfacing	GOSHEN- RESURFACING AND RELATED WORK ON ROUTE 9 FROM CUMMINGTON T.L. TO ROUTE 112 (CAPE STREET)	Goshen	608126	The Movement of People	Low	\$4,094,505
Route 202 Intersection Improvements - 2 locations	Route 202 Intersection Improvements 2 Locations @ 5 Corners and @ School Street	Granby	606895	Safety and Security	Medium	\$1,068,621
Route 9 Pedestrian Signals	PEDESTRIAN SIGNAL INSTALLATION AT 2 LOCATIONS ALONG ROUTE 9 NEAR WEST ST	Hadley	606547	The Movement of People	Medium	\$157,463
I-91 exit 17 at Route 141 intersection improvements	I-91 exit 17 at Route 141 intersection improvements	Holyoke	606156	Safety and Security	Medium	\$2,924,646
High and Maple Street Intersection Improvements	TRAFFIC SIGNAL UPGRADES AT 15 INTERSECTIONS ALONG HIGH & MAPLE STREETS	Holyoke	606450	The Movement of People	Low	\$1,627,462
Intersection Improvements I-91 Exit 15	IMPROVEMENTS TO LOWER WESTFIELD ROAD ON I-91 (INTERCHANGE 15)	Holyoke	606903	The Movement of People	High	\$1,072,500
Resurfacing Dwight, Front, and Heritage Street	RESURFACING & RELATED WORK ON HERITAGE STREET, FRONT STREET & DWIGHT STREET FROM MAPLE ST TO THE 1ST LEVEL CANAL (.54 MILES)	Holyoke	607256	The Movement of People	Low	\$3,213,317
Route 5 Reconstruction from Ashley Ave.	REHABILITATION OF ROUTE 5 (RIVERDALE ROAD), FROM I-91 (INTERCHANGE 13) TO MAIN STREET IN HOLYOKE & FROM ELM STREET TO NORTH ELM STREET IN WEST SPRINGFIELD (3.2 MILES)	Holyoke/West Springfield	604209	The Movement of People	High	\$3,239,608
Resurfacing Converse Street	RESURFACING & RELATED WORK ON CONVERSE STREET, FROM LAUREL STREET TO DWIGHT STREET (2.04 MILES)	Longmeadow	606445	The Movement of People	Low	\$2,851,730
Resurfacing Longmeadow Street (Route 5)	RESURFACING & RELATED WORK ON LONGMEADOW STREET (ROUTE 5), FROM THE CT S.L. TO CONVERSE STREET (2.88 MILES)	Longmeadow	607430	The Movement of People	Medium	\$2,961,204
Center Street (Route 21) reconstruction	Center street reconstruction	Ludlow	605011	The Movement of People	High	\$5,114,773
Damon Rd. Safety Improvement	Reconstruction: Rte. 9 to King St. (Rte. 5)	Northampton	180525	The Movement of People	High	\$5,200,000
I-91 Ramps at Exit 19	This study is reviewing alternatives to relieve congestion and improve safety in the transportation network near Interchange 19	Northampton	604597	The Movement of People	High	\$5,972,015
Hatfield Street @ Route 5 and 10	Intersection Improvements (Round about or Signalization)	Northampton	606555	The Movement of People	Low	\$3,033,680
King Street Intersection Improvements	INTERSECTION IMPROVEMENTS AT KING STREET, NORTH STREET & SUMMER STREET AND AT KING STREET & FINN STREET	Northampton	607502	The Movement of People	Medium	\$1,766,415
Main Street (Route 9) New South (Route 10), State, and West Street (Route 66)	NORTHAMPTON- INTERSECTION IMPROVEMENTS @ ELM STREET, MAIN STREET, WEST STREET, STATE STREET & NEW SOUTH STREET	Northampton	607893	The Movement of People	Medium	\$1,574,810
Pioneer Valley Regional Bike Share	Pioneer Valley Regional Bike Share	Northampton, Amherst, Holyoke, Springfield		The Movement of People	Medium	\$584,929
Intersection Improvements	SOUTH HADLEY- SIGNAL & INTERSECTION IMPROVEMENTS AT ROUTE 202 (GRANBY ROAD) & ROUTE 33 (LYMAN STREET)	South Hadley	607735	The Movement of People	High	\$550,000
Glendale Rd. (Phase II)	Reconstruction: Pomeroy Meadow Road to Route 10.	Southampton	604738	The Movement of People	Low	\$2,764,702
Safe Routes to School	SOUTHAMPTON- SAFE ROUTES TO SCHOOL (WILLIAM E. NORRIS ELEMENTARY)	Southampton	607453	The Movement of People	Medium	\$827,064
Route 57 Reconstruction	Reconstruction Rt. 57 (Feeding Hills Road) from Route 10/202 to Powder Mill Road	Southwick	603477	Safety and Security	Medium	\$4,366,128
Congamond Rd. (Rte. 168) Reconstruction	Roadway reconstruction: From Route 202 to 250 ft before state line (before culvert)	Southwick	604033	The Movement of People	Medium	\$5,798,520
Roosevelt Ave. @ Island Pond Rd and Roosevelt Ave @ Alden Street	Realign Island Pond Road and Roosevelt Avenue to create a three way signalized intersection signal upgrade	Springfield	605385	The Movement of People	Medium	\$2,389,267
Pedestrian Bridge	SPRINGFIELD- NORTH END PEDESTRIAN PATH CONSTRUCTION (UNDER PAN-AM RAILROAD), BETWEEN PLAINFIELD STREET AND BIRNIE AVENUE	Springfield	607589	The Movement of People	High	\$438,697

**Table 15-9 – Operating and Maintenance Expenditures FY2016 – 2020 (cont.)**

<b>Regional Discretionary Funding</b>						
<b>Project Name</b>	<b>Project Description</b>	<b>Community</b>	<b>SID</b>	<b>Area of Emphasis</b>	<b>Prop. 2016 RTP Priority</b>	<b>Total Cost</b>
Intersection Improvements Ware Center	WARE- INTERSECTION IMPROVEMENTS @ MAIN STREET, WEST STREET, NORTH STREET, SOUTH STREET & CHURCH STREET	Ware	607987	The Movement of People	Medium	\$2,193,485
Memorial Ave. Complete Streets	Memorial Avenue Complete Streets Project	West Springfield		The Movement of People	High	\$17,547,878
Improvements Court Street and Western Ave (Phase II)	ROUTE 20 ACCESS IMPROVEMENTS ON COURT STREET & WESTERN AVENUE, FROM LLEWELLYN DRIVE EASTERLY TO LLOYDS HILL ROAD (PHASE I) HPP \$2,503,688	Westfield	603449	The Movement of People	Medium	\$3,040,359
Columbia Greenway Rail trail and River Walk Phase I (Middle)	1.25 miles in length and extends from the Columbia Manufacturing Company to the Cowles Court and Sibley Ave access paths in the north and includes replacement of 5 bridges, rehab of a 6th	Westfield	603783	The Movement of People	Medium	\$5,091,077
Route 187 - Little River Road reconstruction	Reconstruct Route 187 from 300 ft south of Route 20 to 260 ft North of Sherman Bridge	Westfield	604446	Safety and Security	Medium	\$6,206,561
Columbia Greenway Rail Trail Phase III (North)	Construction of the North Section - Cowles Court to Westfield River Bridge TFPC for project is \$2,696,193	Westfield	604968	The Movement of People	Low	\$300,000
Improvements Court Street and Western Ave (Phase II)	WESTFIELD- IMPROVEMENTS & RELATED WORK ON ROUTE 20, COURT STEET & WESTERN AVENUE, LLOYDS HILL ROAD TO HIGH STREET/MILL STREET INTERSECTION (PHASE II) Eastern Section	Westfield	607773	The Movement of People	Medium	\$5,723,234
Boston Rd Reconstruction (Route 20)	Reconstruction of Boston Rd and other infrastructure improvements	Wilbraham	607869	Safety and Security	High	\$1,292,428
	Additional Projects in FFY2016					\$359,931
<b>Total of Recommended Projects</b>						<b>\$111,112,260</b>
<b>Regional Discretionary Funding Guideline</b>						<b>\$111,112,260</b>
<b>Connecticut Riverwalk Chicopee SW-CMAQ</b>						<b>\$3,743,004</b>
<b>Chicopee Riverwalk - Chicopee -SW CMAQ</b>						<b>\$3,902,850</b>
<b>High and Maple Street Intersection Improvements - Holyoke - SW CMAQ</b>						<b>\$1,627,462</b>
<b>Hatfield Street @ Route 5 and 10 - Northampton - SW CMAQ</b>						<b>\$3,033,680</b>
<b>Route 57 Reconstruction - Southwick - SW CMAQ</b>						<b>\$4,366,128</b>
<b>SOUTHAMPTON- SAFE ROUTES TO SCHOOL (WILLIAM E. NORRIS ELEMENTARY) - SRS</b>						<b>\$827,064</b>
<b>Columbia Greenway Rail Trail Phase III (North) - HPP 1656</b>						<b>\$2,275,000</b>
<b>South Hadley Intersection Impr Rt 202 @ Rt 33 - 2016 SW HSIP</b>						<b>\$550,000</b>
<b>Columbia Greenway Rail trail and River Walk Phase I (Middle) - 2017 SW CMAQ</b>						<b>\$6,532,895</b>
<b>Total Investment in Regional Discretionary Projects</b>						<b>\$137,970,343</b>
<b>Recommended Investment for All Programs</b>						<b>\$447,035,831</b>
<b>Transit</b>						
<b>Capital Projects</b>						
		<b>Community</b>		<b>Area of Emphasis</b>		<b>Total Cost</b>
Westfield Intermodal Center		Regionwide		The Movement of People		\$2,800,000
Holyoke Intermodal Facility		Regionwide		The Movement of People		\$280,000
PVTA Facility maintenance, Environmental compliance, and shop equipment		Regionwide		The Movement of People		\$818,275
SATCO Rehabilitation to Paratransit Facility		Regionwide		The Movement of People		\$4,275,000
PVTA Fleet Replacement Program - Fixed Route, Paratransit, and Support Vehicles		Regionwide		The Movement of People		\$31,103,666
Vehicle maintenance		Regionwide		The Movement of People		\$26,631,808
Bus shelters and accessories		Regionwide		The Movement of People		\$450,000
Bus stop sign replacement		Regionwide		The Movement of People		\$225,000
ITS/AVL, communications equipment, and security services		Regionwide		The Movement of People		\$15,394,198
MAP van program		Regionwide		The Movement of People		\$2,863,961
<b>Total Transit Capital Projects</b>						<b>\$84,841,908</b>
<b>NFA Capital Projects</b>						
Springfield Bus Storage and Maintenance Facility - MassDOT NFA funding Commitment				The Movement of People		\$76,126,000
<b>Total NFA Capital Investment</b>						<b>\$76,126,000</b>
<b>Total All Capital Investments</b>						<b>\$160,967,908</b>
<b>Operating Revenue</b>						
		<b>Transit Agency</b>				<b>Total Cost</b>
State Contract Assistance		PVTA				\$125,723,298
Local Assessments		PVTA				\$43,637,997
5307 Federal Urbanized Area Formula		PVTA				\$53,120,529
5339 Bus and Bus Facilities Formula Grants		PVTA				\$3,614,988
5310 Federal Elderly & Disabled		PVTA				\$2,704,105
Farebox		PVTA				\$41,119,964
Advertising, other revenue		PVTA				\$2,948,172
<b>Total Operating Revenue</b>						<b>\$272,869,054</b>
<b>Total Transit Investment</b>						<b>\$433,836,961</b>

**Table 15-10 – Operating and Maintenance Expenditures FY2021 – 2025**

Project Name	Project Description	Community	SID	Area of Emphasis	RTP Priority	Total Cost
Bridge Reconstruction/Rehab	CHESTER- BRIDGE BETTERMENT, C-11-033, ROUTE 20 OVER WALKER BROOK,	Chester	605207	Safety and Security	Medium	\$326,975
Bridge Preservation	BRIDGE REPLACEMENT, H-01-017, NORTH HA	Hadley	604049	The Movement of People	Low	\$4,701,147
Bridge Replacement	BRIDGE REPLACEMENTS, H-21-014, ROUTE 141 (APPLETON STREET) OVER SECOND LEVEL CANAL & H-21-020 OVER FIRST LEVEL CANAL	Holyoke	600935	Safety and Security	Medium	\$11,612,952
Bridge Replacement	Lyman Street over First Level Canal	Holyoke	600936	Safety and Security	Medium	\$3,132,881
Bridge Rehabilitation	Route 21 (Center Street) over Chicopee River (Putts Bridge)	Ludlow/Springfield	601156	Safety and Security	Medium	\$30,128,664
Bridge Reconstruction/Rehab	MONSON- BRIDGE REHABILITATION, M-27-022, BRIMFIELD ROAD (US 20) OVER THE QUABOAG RIVER	Monson	607688	Sustainability	Medium	\$4,132,392
Painting - Structural	SPRINGFIELD- STRUCTURAL STEEL GIRDER PAINTING, PAINT REMOVAL & REPAIR ON S-24-070, S-24-071 & S-24-072, TAPLEY STREET, ST. JAMES AVENUE & RAMP P OVER I-291	Springfield	607643	Sustainability	Medium	\$6,106,065
Bridge Reconstruction/Rehab	SPRINGFIELD- WEST SPRINGFIELD- BRIDGE PRESERVATION ON I-91 CORRIDOR: S-24-042, S-24-079, S-24-085, S-24-087, W-21-037, W-21-042	Springfield / West Springfield	605417	Sustainability	High	\$11,558,385
Bridge Replacement	Mass Central RR over Route 9/32 East Main Street	Ware	601701	Safety and Security	Medium	\$12,813,788
Bridge Replacement	Route 9 (East Street) over the Ware River	Ware	604212	Safety and Security	Medium	\$2,098,726
Deck Replacement	Route 32 (Palmer Road) over the Ware River	Ware	605126	Safety and Security	Medium	\$4,679,529
Bridge Reconstruction/Rehab	WEST SPRINGFIELD- BRIDGE REHABILITATION, BRIDGE W-21- 27, ROUTE 20 (PARK AVENUE) OVER ROUTE 5	West Springfield	607443	Safety and Security	High	\$4,706,025
Bridge Reconstruction/Rehab	WESTFIELD- SUPERSTRUCTURE REPLACEMENT, W-25-021, LOCKHOUSE ROAD OVER PVRR	Westfield	607646	The Movement of Goods	Medium	\$2,182,675
	Other Regional Bridge Projects	Other Regional Bridge Projects				\$58,791,062
<b>MPO Recommended Investment</b>						<b>\$156,971,268</b>
<b>Recommended Investment Statewide Bridge Projects</b>						<b>\$102,111,025</b>
<b>Recommended Investment NFA Bridge Projects</b>						<b>\$54,860,243</b>
<b>Statewide Interstate Maintenance</b>						
Structures Maintenance	NORTHAMPTON- CULVERT REPAIR UNDER I-91, ROUTE 5 AND BMRR AT STA 245	Northampton	605617	The Movement of People	Low	\$1,879,729
Traffic Signals I-90 @ Exit 6	CHICOPEE- TRAFFIC SIGNAL IMPROVEMENTS & RAMP RESURFACING @ I-90 (INTERCHANGE 6)	Chicopee	606599	The Movement of people	Medium	\$3,691,011
Resurfacing I-90	LUDLOW- PALMER- WILBRAHAM- RESURFACING, GUARDRAIL & RELATED WORK ON I-90 (MM 55 TO MM 60)	Ludlow / Palmer	606595	The Movement of People	Low	\$8,171,936
I&M Projects	Other Interstate Maintenance Projects	Regionwide				\$14,414,447
<b>Total of Recommended Projects</b>						<b>\$28,157,124</b>
<b>Recommended Investment for Statewide Interstate Maintenance</b>						<b>\$28,157,124</b>
<b>Statewide Infrastructure Projects</b>						
Other Projects	Other Major Infrastructure Projects	Regionwide				\$4,086,381
<b>Recommended Investment for Statewide Infrastructure Projects</b>						<b>\$4,086,381</b>
<b>Statewide National Highway System</b>						
Route 9 reconstruction Phase 2	RECONSTRUCTION ON ROUTE 9 Phase 2 East Street to Lowe's Site Drive	Hadley	605881	The Movement of People	High	\$12,790,857
Statewide NHS Projects	Statewide NHS Projects	Regionwide				\$6,164,516
<b>Recommended Investment for Statewide National Highway System</b>						<b>\$18,955,373</b>
<b>Remaining Statewide Programs</b>						
Remaining Statewide Programs	Remaining Statewide Programs	Regionwide				\$101,493,887
<b>Recommended Investment for Remaining Statewide Programs</b>						<b>\$101,493,887</b>

**Table 15-10 – Operating and Maintenance Expenditures FY2021 – 2025 (cont.)**

Regional Discretionary Funding						
Project Name	Project Description	Community	SID	Area of Emphasis	RTP Priority	Total Cost
Roadway Reconstruction	RECONSTRUCTION OF ROUTE 187, FROM SOUTHWICK/SPRINGFIELD STREET TO ALLISON LANE (1.29 MILES - PHASE II)	Agawam	607316	The Movement of People	Medium	\$7,320,015
Roadway Reconstruction	Route 187 Reconstruction from Allison Ln to Westfield City Line, 1.69 miles(Phase III)	Agawam	607317	The Movement of People	Medium	\$10,802,464
Sidewalk Construction	Sidewalk Construction on Route 159 From CT Line to Woodcliff Ave and From South St to River Road	Agawam	607876	The Movement of People	Low	\$592,518
Resurfacing Route 9	RESURFACING & RELATED WORK ON ROUTE 9 FROM SOUTHEAST ST IN AMHERST THROUGH PELHAM TO THE BELCHERTOWN T.L. (2.2 MILES)	Amherst / Pelham	606230	The Movement of People	Medium	\$2,368,677
N. Washington Street Reconstruction	Reconstruction: S. Main St. to North Liberty Street	Belchertown 2021	604692	The Movement of People	Low	\$4,550,805
Route 202 Resurfacing	Resurfacing and related work on Route 202	Belchertown / Granby	604819	The Movement of People	Low	\$6,415,167
Keystone Arch Bridge Project	Restoration of two historic Keystone Arch Bridges to a condition for public access	Chester	607210	The Movement of People	Low	\$1,762,579
Route 9 Retaining Wall	Route 9 Retaining Wall	Cummington	606797	The Movement of People	Low	\$2,019,644
Route 9 reconstruction	Resurface: Rte. 112 to Williamsburg TL	Goshen	602888	The Movement of People	Medium	\$9,489,893
West Street Reclamation	Resurfacing and related work on West Street from South Maple Street to Chesterfield TL 1.8 miles	Goshen	605150	The Movement of People	Low	\$3,542,893
Route 47 Resurfacing and Culvert	RESURFACING AND RELATED WORK ON ROUTE 47 FROM COMINS DRIVE TO OLD RIVER DRIVE, INCLUDES CULVERT REPLACEMENT AT RUSSELVILLE BROOK	Hadley	607886	Sustainability	Low	\$1,094,988
Route 9 @ Route 116 Pedestrian and Bicycle Improvements	INTERSECTION, BICYCLE AND PEDESTRIAN IMPROVEMENTS @ ROUTES 9, 116 & WESTGATE CENTER DRIVE	Hadley	608089	Safety and Security	Medium	\$1,879,388
Brimfield Road improvements	Resurfacing and related work from Brimfield Town Line to Stafford Road	Holland	604962	The Movement of People	Low	\$1,824,979
I-91 Retaining wall	RETAINING WALL REPLACEMENT/REHABILITATION ON I-91 (SB)	Longmeadow / Springfield	606469	Safety and Security	Medium	\$7,474,811
Mountain Rd (Route 5) improvements	Improvements to Mt. Tom Rd	Northampton	605048	The Movement of People	Medium	\$1,460,120
Retaining Wall Replacement North King Street	NORTHAMPTON- RETAINING WALL REPLACEMENT AT CULVERT UNDER NORTH KING STREET (ROUTE 5&10), 300 FEET SOUTH OF COLES MEADOW ROAD (MM 25.4)	Northampton	608161	Sustainability	Low	\$1,751,980
Rte. 32 (Ware Road) Reconstruction Phase I	RECONSTRUCTION OF ROUTE 32, FROM 765 FT. SOUTH OF STIMSON STREET TO 1/2 MILES SOUTH OF RIVER STREET (PHASE I) (1.63 MILES)	Palmer	601504	Safety and Security	Low	\$8,394,912
Route 20 improvements	RESURFACING & RELATED WORK ON ROUTE 20 - FROM EAST OF RTE 32 INTERSECTION EASTERLY TO MM 81.7 (2.0 MILES)	Palmer	603873	The Movement of People	Low	\$1,642,283
Route 116 Resurfacing	RESURFACING & RELATED WORK ON ROUTE 116 (AMHERST ROAD), FROM WOODBRIDGE STREET TO PEARL STREET	South Hadley	606452	The Movement of People	Low	\$2,062,559
East St. Roadway Rehabilitation	Reconstruction: Rte. 10 to Holyoke TL	Southampton	604653	The Movement of People	Medium	\$6,873,227
Rail Trail Construction	GREENWAY RAIL TRAIL CONSTRUCTION, FROM COLEMAN RD TO ROUTE 10 (3.5 MILES)	Southampton	607823	The Movement of People	Low	\$7,694,053
Routes 10/202 resurfacing (northerly)	Routes 10/202 resurfacing (northerly)	Southwick	604155	Safety and Security	Medium	\$1,894,942
Highway Reconstruction	FEEDING HILLS ROAD (ROUTE 57) FROM COLLEGE HIGHWAY TO THE AGAWAM TOWN LINE	Southwick	606141	The Movement of People	Low	\$5,807,112
Resurfacing Route 9	RESURFACING & RELATED WORK ON ROUTE 9, FROM .1 MILE WEST OF THE WARE T.L. EASTERLY TO MM 64.7 IN WARE (2.1 MILES)	Ware	603874	The Movement of People	Low	\$1,742,387
Resurfacing Route 20	RESURFACING & RELATED WORK ON ROUTE 20, FROM STONY HILL ROAD TO THE PALMER TOWN LINE (4.8 MILES)	Wilbraham	607990	The Movement of People	Medium	\$8,111,938
	Additional Projects in FFY2021-2025					\$8,379,849
<b>Total of Recommended Projects</b>						<b>\$116,954,184</b>
<b>Regional Discretionary Funding Guideline</b>						<b>\$116,954,184</b>

**Table 15-10 – Operating and Maintenance Expenditures FY201 – 2025 (cont.)**

<b>Transit</b>				<b>\$426,618,217</b>
<b>Capital Projects</b>		<b>Community</b>	<b>Area of Emphasis</b>	<b>Total Cost</b>
PVTA Fleet Replacement Program - Fixed route, Paratransit, and Support Vehicle		Regionwide	The Movement of People	\$38,826,169
Vehicle maintenance		Regionwide	The Movement of People	\$34,360,000
PVTA Facility maintenance		Regionwide	The Movement of People	\$4,217,003
Bus shelters and accessories		Regionwide	The Movement of People	\$1,184,828
Bus stop sign replacement		Regionwide	The Movement of People	\$459,899
ITS/AVL, communications equipment, and security services		Regionwide	The Movement of People	\$5,420,586
Intelligent fareboxes		Regionwide	The Movement of People	\$3,690,981
MAP van program		Regionwide	The Movement of People	\$5,166,632
<b>Total Transit Capital Projects</b>				<b>\$93,326,099</b>
<b>Operating Revenue</b>		<b>Transit Agency</b>		<b>Total</b>
State Contract Assistance		PVTA		\$145,747,760
Local Assessments		PVTA		\$49,372,389
5307 Federal Urbanized Area Formula		PVTA		\$57,917,522
5339 Bus and Bus Facilities Formula Grants		PVTA		\$3,937,914
5310 Federal Elderly & Disabled		PVTA		\$2,913,090
Farebox		PVTA		\$45,399,763
Advertising, other revenue		PVTA		\$3,255,020
<b>Total Operating Revenue</b>				<b>\$308,543,458</b>
<b>Total Transit Investment</b>				<b>\$401,869,556</b>



**Table 15-11 – Operating and Maintenance Expenditures FY2026 – 2030**

Project Name	Project Description	Community	SID	Area of Emphasis	Prop. 2011 RTP Priority	Total Cost
<b>Bridge Projects</b>						
Structures Maintenance	DISTRICT 2- SCOUR COUNTERMEASURES & SUBSTRUCTURE MAINTENANCE OF D-06-002=G-12-003, M-27-022=P-01-033, P-01-013, W-19-005, W-39-007	District 2	603935	Sustainability	Low	\$5,027,687
Bridge Replacement	BRIDGE REPLACEMENT, H-11-025, ELM STREET OVER THE B&M R.R.	Hatfield	603608	The Movement of People	Low	\$766,075
Bridge Reconstruction/Rehab	HOLYOKE- WEST SPRINGFIELD- SUPERSTRUCTURE REPLACEMENT ON I-91: H-21-058=W-21-039 (SB), W-21-037 (NB), W-21-038 (SB) & W-21-042 & BRIDGE PRESERVATION OF W-21-040	Holyoke / West Springfield	606467	Safety and Security	High	\$43,916,998
Bridge Replacement	State Avenue over the Quaboag River	Monson / Palmer	604136	The Movement of People	Low	\$6,427,779
Bridge Rehabilitation	Bridge Street over Westfield River	Russell	606499	The Movement of People	Low	\$15,200,840
Bridge Replacement	Valley Road over Moose Brook	Southampton	603024	The Movement of People	Low	\$2,251,845
Bridge Betterment/Structures Maintenance	SCOUR COUNTERMEASURES, S-24-003=W-21-002, ROUTE 20 (PARK AVENUE) OVER CT RIVER	Springfield / West Springfield	603278	Safety and Security	Low	\$9,574,173
Bridge Reconstruction/Rehab	WEST SPRINGFIELD- BRIDGE RECONSTRUCTION, W-21-011, PROSPECT AVENUE OVER PVRR	West Springfield	607526	The Movement of People	Low	\$1,143,989
Bridge Replacement	WILLIAMSBURG- BRIDGE REPLACEMENT, W-36-011, BRIDGE STREET OVER THE MILL RIVER	Williamsburg	607675	The Movement of People	Low	\$9,371,261
	Other Regional Bridge Projects	Other Regional Bridge Projects				\$89,588,692
<b>MPO Recommended Investment</b>						<b>\$183,269,339</b>
<b>Recommended Investment Statewide Bridge Projects</b>						<b>\$127,598,354</b>
<b>Recommended Investment NFA Bridge Projects</b>						<b>\$55,670,985</b>
<b>Statewide Interstate Maintenance</b>						
I&M Projects	Other Interstate Maintenance Projects	Regionwide				\$35,185,257
<b>Recommended Investment for Statewide Interstate Maintenance</b>						<b>\$35,185,257</b>
<b>Statewide Infrastructure Projects</b>						
Other Projects	Other Major Infrastructure Projects	Regionwide				\$5,106,359
<b>Recommended Investment for Statewide Infrastructure Projects</b>						<b>\$5,106,359</b>
<b>Statewide National Highway System</b>						
Route 9 reconstruction Phase 3	Reconstruction from Middle St to E/O Mill Valley Rd (Lowes)	Hadley	605881	The Movement of People	High	\$19,391,200
Statewide NHS Projects	Statewide NHS Projects	Regionwide				\$4,295,512
<b>Recommended Investment for Statewide National Highway System</b>						<b>\$23,686,712</b>
<b>Remaining Statewide Programs</b>						
Remaining Statewide Programs	Remaining Statewide Programs	Regionwide				\$126,827,176
<b>Recommended Investment for Remaining Statewide Programs</b>						<b>\$126,827,176</b>

**Table 15-11 – Operating and Maintenance Expenditures FY2026 – 2030 (cont.)**

Regional Discretionary Funding						
Project Name	Project Description	Community	SID	Area of Emphasis	Prop. 2016 RTP Priority	Total Cost
Sidewalks on Route 10	SIDEWALK CONSTRUCTION & RELATED WORK ON ROUTE 10, FROM MM 19.9 NORTHERLY TO MM 20.9 (600' SOUTH OF SOUTH STREET)	Easthampton / Southampton	608026	The Movement of People	Low	\$676,444
South Maple Street	Reconstruction: South of Rte. 9 to Bay Rd.	Hadley	602796	The Movement of People	Low	\$7,401,221
Rte. 32 (Ware Road) Reconstruction Phase II	PALMER- RECONSTRUCTION OF ROUTE 32, FROM 1/2 MILE SOUTH OF RIVER STREET TO THE WARE T.L. (PHASE II) (2.1 MILES)	Palmer	607372	The Movement of People	Low	\$14,114,445
Routes 10/202 resurfacing (southerly)	Routes 10/202 resurfacing (southerly)	Southwick	604153	Safety and Security	Medium	\$3,848,635
Sidewalk improvements	Sidewalk reconstruction and resurfacing at various locations on Route 119	Wales	605669	The Movement of People	Low	\$500,323
Reconstruction Monson Road	WALES- RECONSTRUCTION & IMPROVEMENTS ON MONSON ROAD, FROM THE MONSON T.L. TO REED HILL ROAD (1.5 MILES)	Wales	608163	The Movement of People	Low	\$5,314,811
Union Street Underpass	BRIDGE REPLACEMENT, W-21-006, CSX RAILROAD OVER UNION STREET	West Springfield	604746	The Movement of People	Medium	\$21,800,061
Route 187 - Sherman's Mill Bridge reconstruction	Reconstruct Route 187 from 260ft north of Bridge to 800ft east of Pontoosic rd.	Westfield	604445	Safety and Security	Medium	\$10,252,483
Westfield River Levee Multi use Path	WESTFIELD RIVER LEVEE MULTI-USE PATH CONSTRUCTION, FROM CONGRESS ST TO WILLIAMS RIDING WAY (NEAR MEADOW ST) (2MILES)	Westfield	608073	The Movement of People	Low	\$7,107,733
Resurfacing High and Mountain Street	Reconstruction of High Street and Mountain Street	Williamsburg	607231	The Movement of People	Low	\$5,542,035
Resconstruction Route 143	Route 143 Reconstruction and Related Work	Worthington	606912	The Movement of People	Low	\$19,243,176
	Additional Projects in FFY2026-2030					\$50,345,060
<b>Total of Recommended Projects</b>						<b>\$146,146,427</b>
<b>Regional Discretionary Funding Guideline</b>						<b>\$146,146,427</b>
<b>Recommended Investment for All Programs</b>						<b>\$520,221,270</b>
<b>Transit</b>						
<b>Capital Projects</b>		<b>Community</b>		<b>Area of Emphasis</b>		<b>Total Cost</b>
PVTA Fleet Replacement Program - Fixed route, Paratransit, and Support Vehicles		Regionwide		The Movement of People		\$41,034,254
Vehicle maintenance		Regionwide		The Movement of People		\$40,788,119
PVTA Facility maintenance, Environmental compliance, and shop equipment		Regionwide		The Movement of People		\$7,032,435
Bus shelters and accessories		Regionwide		The Movement of People		\$1,406,487
Bus stop sign replacement		Regionwide		The Movement of People		\$118,772
ITS/AVL, communications equipment, and security services		Regionwide		The Movement of People		\$6,434,677
MAP van program		Regionwide		The Movement of People		\$5,843,964
<b>Total Transit Capital Projects</b>						<b>\$102,658,709</b>
<b>Operating Revenue</b>		<b>Transit Agency</b>				<b>Total</b>
State Contract Assistance		PVTA				\$168,961,600
Local Assessments		PVTA				\$55,860,326
5307 Federal Urbanized Area Formula		PVTA				\$62,393,619
5339 Bus and Bus Facilities Formula Grants		PVTA				\$4,242,253
5310 Federal Elderly & Disabled		PVTA				\$3,138,225
Farebox		PVTA				\$50,125,006
Advertising, other revenue		PVTA				\$3,593,805
<b>Total Operating Revenue</b>						<b>\$348,314,834</b>
<b>Total Transit Investment</b>						<b>\$450,973,543</b>

**Table 15-12 – Operating and Maintenance Expenditures FY2031 – 2035**

Project Name	Project Description	Community	Area of Emphasis	Total Cost
<b>Bridge Projects</b>				
Statewide Bridge Projects	Other Regional Bridge Projects	Regionwide		\$144,482,963
NFA Bridge Preservation	Other NFA Bridge Projects	Regionwide		\$56,481,728
<b>MPO Recommended Investment</b>				<b>\$200,964,691</b>
<b>Recommended Investment Statewide Bridge Projects</b>				<b>\$144,482,963</b>
<b>Recommended Investment NFA Bridge Projects</b>				<b>\$56,481,728</b>
<b>Statewide Interstate Maintenance</b>				
I&M Projects	Other Interstate Maintenance Projects	Regionwide		\$39,841,190
<b>Recommended Investment for Statewide Interstate Maintenance</b>				<b>\$39,841,190</b>
<b>Statewide Infrastructure Projects</b>				
Other Projects	Other Major Infrastructure Projects	Regionwide		\$5,782,064
<b>Recommended Investment for Statewide Infrastructure Projects</b>				<b>\$5,782,064</b>
<b>Statewide National Highway System</b>				
Statewide NHS Projects	Statewide NHS Projects	Regionwide		\$26,821,085
<b>Recommended Investment for Statewide National Highway System</b>				<b>\$26,821,085</b>
<b>Remaining Statewide Programs</b>				
Remaining Statewide Programs	Remaining Statewide Programs	Regionwide		\$143,609,738
<b>Recommended Investment for Remaining Statewide Programs</b>				<b>\$143,609,738</b>
<b>Regional Discretionary Funding</b>				
70%	Roadway Maintenance Projects	Regionwide		\$115,839,802
12.5%	Congestion Improvement Projects	Regionwide		\$20,685,679
12.5%	Safety Improvement Projects	Regionwide		\$20,685,679
2.5%	Bicycle/Pedestrian Improvement Projects	Regionwide		\$4,137,136
2.5%	CMAQ Projects	Regionwide		\$4,137,136
<b>Total of Recommended Projects</b>				<b>\$165,485,432</b>
<b>Regional Discretionary Funding Guideline</b>				<b>\$165,485,432</b>
<b>Recommended Investment for All Programs</b>				<b>\$582,504,200</b>
<b>Transit</b>				
<b>Capital Projects</b>				
	PVTA Fleet Replacement Program - Fixed route, Paratransit, and Support Vehicle maintenance	Regionwide	The Movement of People	\$43,401,803
	PVTA Facility maintenance, Environmental compliance, and shop equipment	Regionwide	The Movement of People	\$43,141,466
	Bus shelters and accessories	Regionwide	The Movement of People	\$7,438,185
	Bus stop sign replacement	Regionwide	The Movement of People	\$1,487,637
	ITS/AVL, communications equipment, and security services	Regionwide	The Movement of People	\$125,624
	Intelligent fareboxes	Regionwide	The Movement of People	\$6,805,938
	MAP van program	Regionwide	The Movement of People	\$4,634,294
		Regionwide	The Movement of People	\$5,889,632
<b>Total Transit Capital Projects</b>				<b>\$112,924,579</b>
<b>Operating Revenue</b>				
	State Contract Assistance	PVTA		\$195,872,803
	Local Assessments	PVTA		\$63,200,831
	5307 Federal Urbanized Area Formula	PVTA		\$67,215,646
	5339 Bus and Bus Facilities Formula Grants	PVTA		\$4,570,110
	5310 Federal Elderly & Disabled	PVTA		\$3,380,759
	Farebox	PVTA		\$55,342,057
	Advertising, other revenue	PVTA		\$3,967,851
<b>Total Operating Revenue</b>				<b>\$393,550,058</b>
<b>Total Transit Investment</b>				<b>\$506,474,637</b>

**Table 15-13 – Operating and Maintenance Expenditures FY2036 – 2040**

Project Name	Project Description	Community	Area of Emphasis	Total Cost
<b>Bridge Projects</b>				
Statewide Bridge Projects	Other Regional Bridge Projects	Regionwide		\$155,649,185
NFA Bridge Preservation	Other NFA Bridge Projects	Regionwide		\$57,292,470
<b>MPO Recommended Investment</b>				<b>\$212,941,655</b>
<b>Recommended Investment Statewide Bridge Projects</b>				<b>\$155,649,185</b>
<b>Recommended Investment NFA Bridge Projects</b>				<b>\$57,292,470</b>
<b>Statewide Interstate Maintenance</b>				
I&M Projects	Other Interstate Maintenance Projects	Regionwide		\$42,920,276
<b>Recommended Investment for Statewide Interstate Maintenance</b>				<b>\$42,920,276</b>
<b>Statewide Infrastructure Projects</b>				
Other Projects	Other Major Infrastructure Projects	Regionwide		\$6,228,925
<b>Recommended Investment for Statewide Infrastructure Projects</b>				<b>\$6,228,925</b>
<b>Statewide National Highway System</b>				
Statewide NHS Projects	Statewide NHS Projects	Regionwide		\$28,893,926
<b>Recommended Investment for Statewide National Highway System</b>				<b>\$28,893,926</b>
<b>Remaining Statewide Programs</b>				
Remaining Statewide Programs	Remaining Statewide Programs	Regionwide		\$154,708,473
<b>Recommended Investment for Remaining Statewide Programs</b>				<b>\$154,708,473</b>
<b>Regional Discretionary Funding</b>				
70%	Roadway Maintenance Projects	Regionwide		\$124,792,364
12.5%	Congestion Improvement Projects	Regionwide		\$22,284,351
12.5%	Safety Improvement Projects	Regionwide		\$22,284,351
2.5%	Bicycle/Pedestrian Improvement Projects	Regionwide		\$4,456,870
2.5%	CMAQ Projects	Regionwide		\$4,456,870
<b>Total of Recommended Programs</b>				<b>\$178,274,806</b>
<b>Regional Discretionary Funding Guideline</b>				<b>\$178,274,806</b>
<b>Recommended Investment for All Programs</b>				<b>\$623,968,061</b>
<b>Transit</b>				
<b>Capital Projects</b>				
PVTA Fleet Replacement Program - Fixed route, Paratransit, and Support Vehicles		Regionwide	The Movement of People	\$49,913,132
Vehicle maintenance		Regionwide	The Movement of People	\$49,613,739
PVTA Facility maintenance, Environmental compliance, and shop equipment		Regionwide	The Movement of People	\$8,554,094
Bus shelters and Accessories		Regionwide	The Movement of People	\$1,710,819
Bus stop sign replacement		Regionwide	The Movement of People	\$144,471
ITS/AVL, communications equipment, and security services		Regionwide	The Movement of People	\$7,826,995
MAP van program		Regionwide	The Movement of People	\$6,453,788
<b>Total Transit Capital Projects</b>				<b>\$124,217,037</b>
<b>Operating Revenue</b>				
		<b>Transit Agency</b>		<b>Total</b>
State Contract Assistance		PVTA		\$227,070,262
Local Assessments		PVTA		\$71,505,940
5307 Federal Urbanized Area Formula		PVTA		\$72,410,341
5339 Bus and Bus Facilities Formula Grants		PVTA		\$4,923,307
5310 Federal Elderly & Disabled		PVTA		\$3,642,038
Farebox		PVTA		\$61,102,103
Advertising, other revenue		PVTA		\$4,380,829
<b>Total Operating Revenue</b>				<b>\$445,034,819</b>
<b>Total Transit Investment</b>				<b>\$569,251,856</b>

## **D. FINANCIAL CONSTRAINT**

Cost estimates for construction of transportation improvement projects included as part of the Regional Transportation Plan for the Pioneer Valley Metropolitan Planning Organization are developed in consultation with the local community, MassDOT and MassDOT Highway Divisions 1 and 2. Through this consultation process, the most up to date estimates are used in the development of the financial component of the RTP. Estimates for longer range projects that have not yet entered the design process are estimated based on the type of project and overall extent of proposed work. Estimates of future transportation revenue for the Pioneer Valley MPO were developed by MassDOT. This revenue was allocated towards various maintenance projects through consultation with MPO members.

The estimated available funds for the region must be greater than or equal to the financial needs of the region over the life of the plan in order to maintain financial constraint. As can be seen from Table 15-14, the Pioneer Valley Regional Transportation Plan is financially constrained over the life of the plan.

## **E. ALTERNATIVE FUNDING SCENARIOS**

It is estimated it will take 15 years to fund all of the current projects included in the TIP backlog for the Pioneer Valley. This is a growing concern as regional targets have not increased significantly while project costs continue to rise. This is illustrated in Figures 15-3 and 15-4. Inflation plays a big role in the number of projects and cost of projects funded per year as project costs rise significantly the further out they are programmed. As can be seen in Table 15-15 it is estimated that projects that will be ready for funding in the next 4 years will cost an additional \$1,000,000 to \$3,000,000 due to inflation by the time funding becomes available to construct the project. On average over the past 10 years the PVMPO has been able to fund 6 transportation projects per year using regional discretionary funds. As can be seen in Figure 15-3 the number of projects has not fluctuated very much from year to year, this indicates that for every project funded with regional discretionary funds, a new project takes its place in the queue for funding. The big exception is the reduction in projects from year 2010 to 2011, this was the result of two events; the first was the one-time availability of ARRA funds (American Recovery and Reinvestment Act) and the ongoing removal of inactive projects from the regional project backlog by MassDOT.

Based on this information, the region does not have enough money to fund our transportation program in a financially viable time frame. In order to identify the amount of money necessary to fund the transportation program in a financially viable time frame PVPC staff utilized scenario based planning to develop a series of four scenarios to identify the funding necessary to bring regional pavement condition to acceptable levels. This information is summarized in Figure 15-5 and Table 15-16.

**Table 15-14 – Financial Constraint Summary**

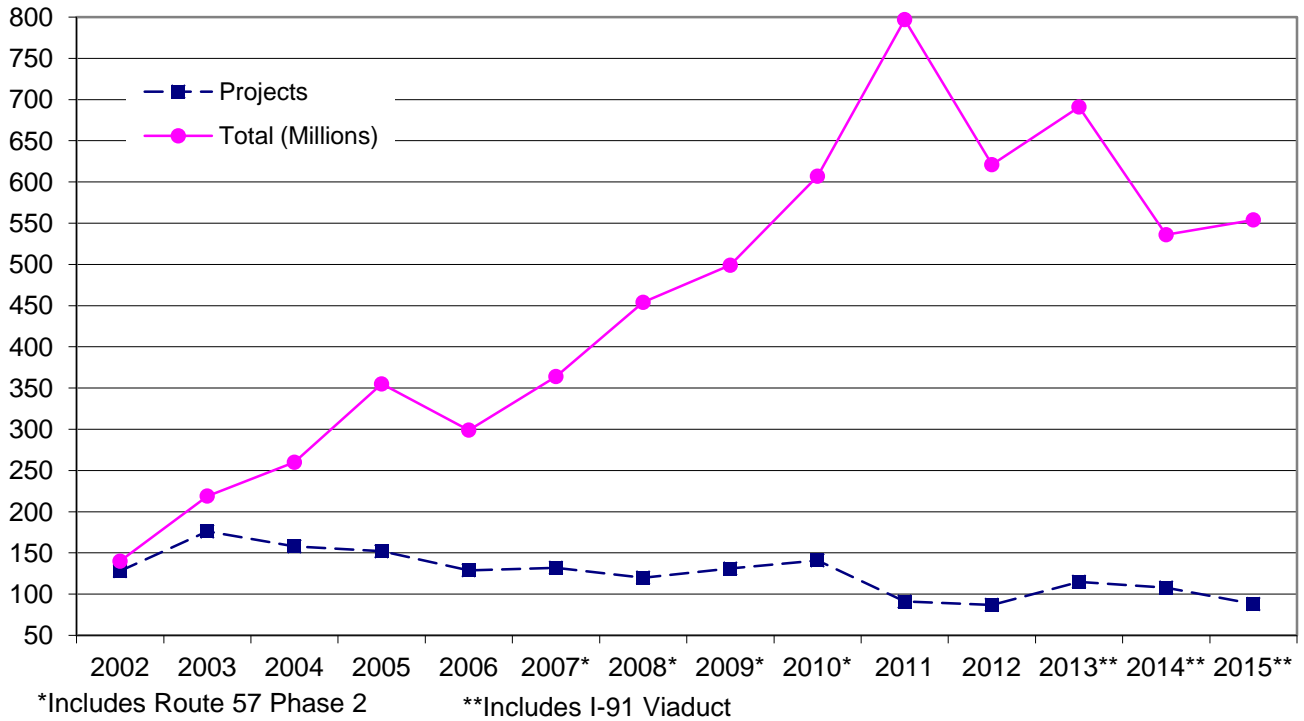
	2016 - 2020	2021 - 2025	2026 - 2030	2031 - 2035	2036 - 2040	GRAND TOTAL
<b>Total Estimated Highway Revenue</b>	\$420,177,748	\$426,618,217	\$520,221,270	\$582,504,200	\$623,968,064	<b>\$2,573,489,499</b>
<i>Statewide Interstate Maintenance</i>	\$ 29,750,182	\$ 28,157,124	\$ 35,185,257	\$ 39,841,190	\$ 42,920,276	<b>\$ 175,854,029</b>
<i>Statewide NHS</i>	\$ 19,572,131	\$ 18,955,373	\$ 23,686,712	\$ 26,821,085	\$ 28,893,926	<b>\$ 117,929,227</b>
<i>Statewide Bridge</i>	\$ 105,433,448	\$ 102,111,025	\$ 127,598,354	\$ 144,482,963	\$ 155,649,185	<b>\$ 635,274,975</b>
<i>Statewide Infrastructure</i>	\$ 4,219,341	\$ 4,086,381	\$ 5,106,359	\$ 5,782,064	\$ 6,228,925	<b>\$ 25,423,070</b>
<i>Remaining Statewide Programs</i>	\$ 96,040,886	\$ 101,493,887	\$ 126,827,176	\$ 143,609,738	\$ 154,708,473	<b>\$ 622,680,160</b>
<i>NFA Bridge Preservation</i>	\$ 54,049,500	\$ 54,860,243	\$ 55,670,985	\$ 56,481,728	\$ 57,292,470	<b>\$ 278,354,926</b>
<i>Regional Discretionary Funding</i>	\$ 111,112,260	\$ 116,954,184	\$ 146,146,427	\$ 165,485,432	\$ 178,274,809	<b>\$ 717,973,112</b>
<i>Total Estimated Remaining Earmark Funds</i>	\$2,275,000	\$0	\$0	\$0	\$0	<b>\$2,275,000</b>
<i>Estimated Statewide CMAQ</i>	\$16,673,124	\$0	\$0	\$0	\$0	<b>\$16,673,124</b>
<i>Estimated Statewide HSIP</i>	\$7,082,895	\$0	\$0	\$0	\$0	<b>\$7,082,895</b>
<i>Estimated Safe Routes to School</i>	\$827,064	\$0	\$0	\$0	\$0	<b>\$827,064</b>
<b>Grand Total</b>	<b>\$447,035,831</b>	<b>\$426,618,217</b>	<b>\$520,221,270</b>	<b>\$582,504,200</b>	<b>\$623,968,064</b>	<b>\$2,575,764,499</b>
<b>Total of Programmed Highway Projects in the 2016 RTP</b>	<b>\$447,035,831</b>	<b>\$426,618,217</b>	<b>\$520,221,270</b>	<b>\$582,504,200</b>	<b>\$623,968,064</b>	<b>\$2,575,764,499</b>
<b>Difference</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
	2016 - 2020	2021 - 2025	2026 - 2030	2031 - 2035	2036 - 2040	GRAND TOTAL
<b>Total Estimated Transit Capitol Revenue</b>	\$84,841,908	\$93,326,099	\$102,658,709	\$112,924,579	\$124,217,037	<b>\$517,968,332</b>
<i>RTACAP</i>	\$ 20,285,825	\$ 22,314,408	\$ 24,545,848	\$ 27,000,433	\$ 29,700,476	<b>\$123,846,990</b>
<i>ITC Cap Program</i>	\$ 1,145,277	\$ 1,259,805	\$ 1,385,785	\$ 1,524,364	\$ 1,676,800	<b>\$6,992,031</b>
<i>Federal Matching grants</i>	\$ 63,410,806	\$ 69,751,887	\$ 76,727,075	\$ 84,399,783	\$ 92,839,761	<b>\$387,129,311</b>
<i>Springfield O+M Facility - NFA</i>	\$76,126,000	\$ -	\$ -	\$ -	\$ -	<b>\$76,126,000</b>
<b>Total Estimated Transit Operating Revenue</b>	<b>\$272,869,054</b>	<b>\$308,543,458</b>	<b>\$348,314,834</b>	<b>\$393,550,058</b>	<b>\$445,034,819</b>	<b>\$1,768,312,223</b>
<i>State Contract Assistance</i>	\$ 125,723,298	\$ 145,747,760	\$ 168,961,600	\$ 195,872,803	\$ 227,070,262	<b>\$863,375,723</b>
<i>Local Assessments</i>	\$ 43,637,997	\$ 49,372,389	\$ 55,860,326	\$ 63,200,831	\$ 71,505,940	<b>\$283,577,483</b>
<i>5307 Federal Urbanized Area From</i>	\$ 53,120,529	\$ 57,917,522	\$ 62,393,619	\$ 67,215,646	\$ 72,410,341	<b>\$313,057,657</b>
<i>5339 Federal **</i>	\$ 3,614,988	\$ 3,937,914	\$ 4,242,253	\$ 4,570,110	\$ 4,923,307	<b>\$21,288,572</b>
<i>5310 Federal Ederly &amp; Disabled</i>	\$ 2,704,105	\$ 2,913,090	\$ 3,138,225	\$ 3,380,759	\$ 3,642,038	<b>\$15,778,217</b>
<i>Farebox</i>	\$ 41,119,964	\$ 45,399,763	\$ 50,125,006	\$ 55,342,057	\$ 61,102,103	<b>\$253,088,893</b>
<i>Advertising, other revenue</i>	\$ 2,948,172	\$ 3,255,020	\$ 3,593,805	\$ 3,967,851	\$ 4,380,829	<b>\$18,145,677</b>
<b>Grand Total</b>	<b>\$433,836,962</b>	<b>\$401,869,557</b>	<b>\$450,973,543</b>	<b>\$506,474,637</b>	<b>\$569,251,856</b>	<b>\$2,362,406,555</b>
<b>Total of Programmed Transit Projects in the 2016 RTP</b>	<b>\$433,836,962</b>	<b>\$401,869,557</b>	<b>\$450,973,543</b>	<b>\$506,474,637</b>	<b>\$569,251,856</b>	<b>\$2,362,406,555</b>
<b>Difference</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

**Table 15-15 – Project Cost Impacts Due to 4% Per Year Inflation**

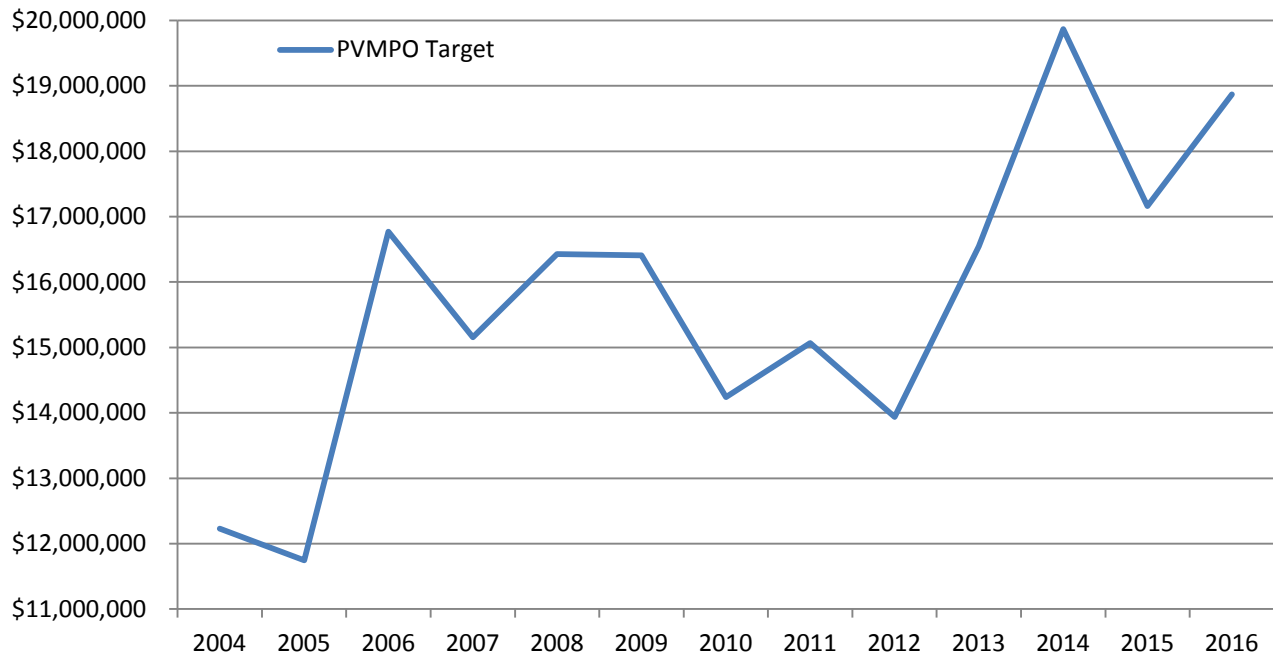
	2016-2020	2021-2025	2026-2030*
Base Project Cost	\$110,598,969	\$79,213,307	\$61,708,369
Project Cost with Inflation (4% per year)	\$120,724,219	\$104,675,303	\$95,801,367
Difference	\$10,125,250	\$25,461,996	\$34,092,998
Number of Projects	42	23	11
<b>Average Project Increase as a Result of Inflation</b>	<b>\$241,077</b>	<b>\$1,107,043</b>	<b>\$3,099,363</b>

\* Regional Discretionary Funding not fully allocated

**Figure 15-3 – Pioneer Valley Project Backlog History 2002 - 2015**



**Figure 15-4 – PVMPO Historic TIP Targets**



## 1. Summary of Identified Scenarios

### a) Scenario 1 - Use 70% of Regional Discretionary Funds and 70% of Other Statewide Funds to fund pavement maintenance

This Scenario assumes an investment of 70% of all Regional Discretionary funding and 70% of all Remaining Statewide Program funding over the life of the plan be allocated towards pavement maintenance.

### b) Scenario 2 - Fund inflation of revenue (currently 1.5%) at the same 4% applied to project cost

This scenario is based on the same allocation of 70% of Regional Discretionary funding and 70% Remaining Statewide Program funding towards pavement maintenance but increases the revenue increase to 4% per year rate starting in 2021 to match the project inflation rate (MassDOT used 1.5% inflation rate on revenue).

### c) Scenario 3 - Develop a regional revenue source to supplement existing funding (see section d for examples)

This scenario was again based on the allocation of 70% of Regional Discretionary funding and 70% Remaining Statewide Programs funding to pavement maintenance but also includes additional revenue equal to 40% per year of the combined total of Regional Discretionary and Remaining Statewide Program funding. The 40% was based on research performed by PVPC staff regarding local revenue generation in

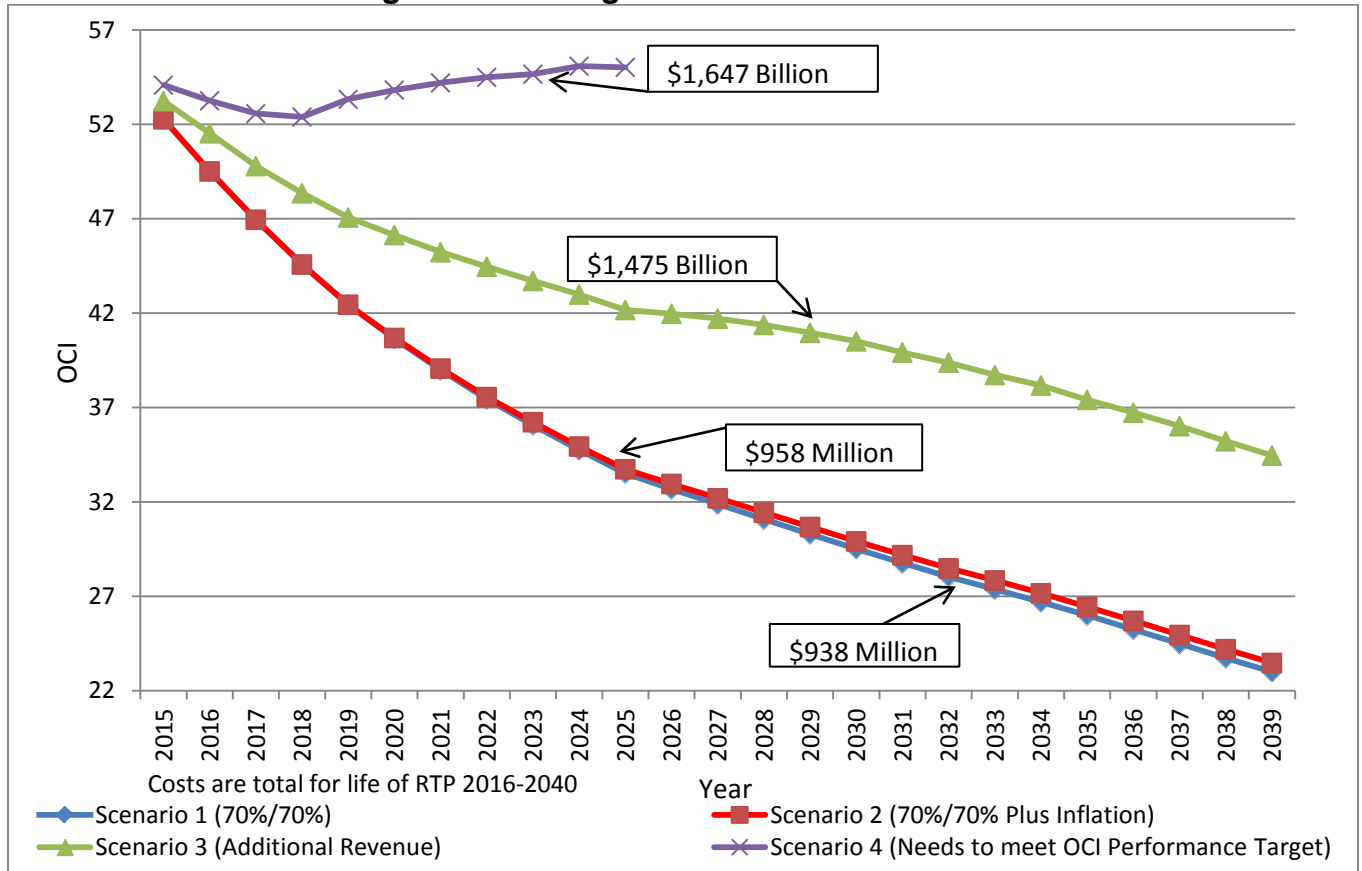


other states. Several states have approved legislation allowing for the collection of taxes or fees, which are to be spent in the region on transportation projects.

**d) Scenario 4 - Determine funding level needed to maintain a state of good repair**

This Scenario was used to determine the true investment needed to increase the OCI by 5% by 2025 as required by PVPC’s performance measures.

**Figure 15-5 – Regional OCI Forecast**



Under Scenario, 1 a significant funding commitment is being made to attempt to bring the system up to a state of good repair. A total of \$145 million is being spent in the first five years of the plan under this scenario with limited effects on slowing the deterioration of roadways. A slight decrease in the rate of deterioration can be seen starting in year 2027, this is the result of the GANS payments being complete which will allow for additional funding for roadways.

Under Scenario 2, revenue is set to match the 4% per year inflation tied to project cost. The results of this scenario show the same trend in OCI as Scenario 1 for the first ten years. The last years of Scenario 2 show slight improvement over scenario one, but the decline in OCI is still significant.

Scenario 3 allocates \$228 million dollars towards pavement maintenance in the first five years of the plan. As can be seen in Figure 13-5, there is only a slight increase in OCI over the first two scenarios for the first five years of Scenario 3, however, over the next ten years there is a significant improvement in OCI. Although an improvement over the first two scenarios, the results appear to trend in the same direction in the later years as Scenarios 1 and 2. The OCI appears to decline at a similar rate.

Under Scenario 4, PVPC staff ran a regional budget in CarteGraph based of the results of the previous three scenarios. The numbers were modified until a 5% increase in OCI by 2025 was achieved. Based on this analysis, approximately \$328 million dollars (more than double current levels of funding) would need to be spent in the first five years of the plan before a significant improvement is realized. Results from this analysis show the year 2015 unimproved OCI to be 50.00, however with improvements this increases to 54.08. In the year 2025 the improved OCI was estimated to be 55.02, this represents a 10.9% increase from the unimproved year 2015 OCI, but only 1.7% increase from the improved year 2015 OCI of 54.08. Based on these results it is believed that additional money would be needed to continue the OCI trend in the upward direction.

A summary of the investment totals by scenario is shown in Table 15-16.

**Table 15-16 – Scenario Summary**

Scenario	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	Total
1 Total 70% of all funding	\$145,007,202	\$152,913,649	\$191,081,522	\$216,366,620	\$233,088,297	\$938,457,291
2 Total 4% Revenue inflation	\$145,007,202	\$156,736,490	\$195,858,560	\$221,775,786	\$238,915,505	\$958,293,543
3 Additional Local Tax (40% of revenue)	\$227,858,371	\$240,282,762	\$300,260,823	\$339,994,524	\$366,271,420	\$1,474,667,900
4 Amount of funding needed to increase the average OCI for the Region by 5% by 2025	\$327,858,371	\$340,282,762	\$400,260,823	\$439,994,524	\$466,271,420	\$1,646,809,530

## 2. Local Revenue Options <sup>13</sup>

The ability to establish a local revenue source to fund transportation improvements in the Pioneer Valley region would first require action by the Massachusetts Legislature. It could also require a successful ballot initiative by local voters. The information below on local revenue options is provided solely to illustrate options that other states have used to raise additional revenue to fund transportation improvement projects.

1. Local Motor Fuel Tax - The revenue base provided by these optional taxes is supplemental in nature because fuel taxes in addition to state and federal fuel taxes would likely cause drivers to purchase fuel outside the local area levying the tax.

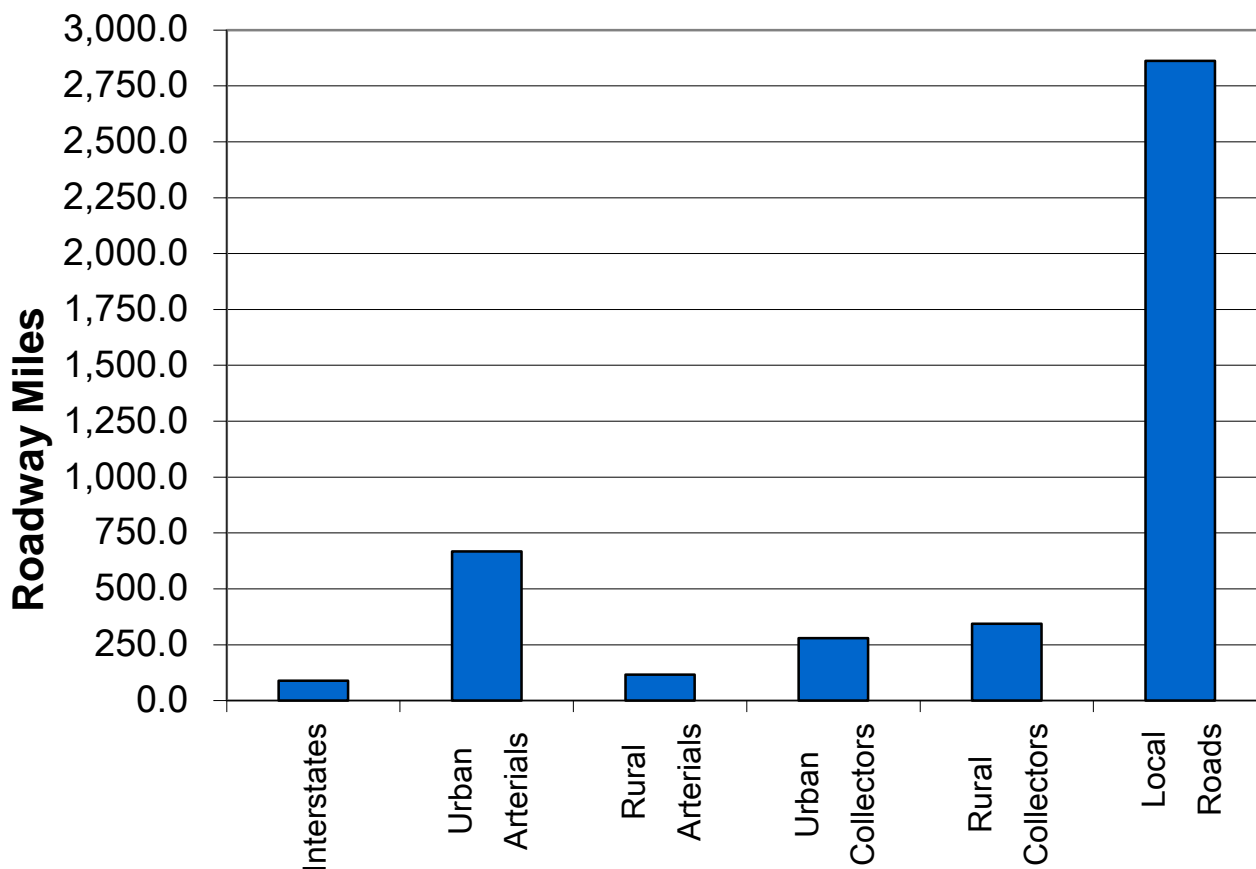
<sup>13</sup>[http://www.transportation-finance.org/funding\\_financing/funding/local\\_funding/](http://www.transportation-finance.org/funding_financing/funding/local_funding/)

2. Local Motor Vehicle Registration Fee - Local counties and municipalities are authorized by many states to levy an additional fee on motor vehicle registration. These fees are typically collected by the state and returned to the locality. Most local registration fees are used for general revenue or directed towards transportation purposes, often for pay-as-you-go routine maintenance or operations. Some specific transportation improvement programs are funded through local registration fees.
3. Local Option Sales Tax - Many states authorize localities to levy local option sales taxes for transportation purposes. The use of a local option sales tax requires a voter referendum. Spending authority varies from state to state, some granting localities the choice of earmarking funding or using it as general revenue. Other states require a specific purpose be attached to the tax, such as roadway improvement projects.
4. Local Income/Payroll/Employer Tax – Local income taxes are levied across a particular municipality. This can create differences in neighboring income tax rates that discourage residents from settling there. Payroll taxes (often referred to as commuter taxes), on the other hand, are based on the total of all salaries paid out by employers, effectively taxing a place of employment rather than a place of residence. One example of the application of these taxes would be to support transit service into a city.
5. Local Severance Taxes - A severance tax is a weight-based charge levied on operators of natural resource extraction operations such as coal, timber, or stone. It is used to fund road improvements in several rural regions of states where heavy truck operations from these activities cause a disproportionate amount of damage to remote roads.
6. Value Capture - Value capture refers to cases where the public sector is able to capture some of the increased value, usually property value, that results from public investment. Some transportation investments, such as a new freeway or interchange for example, increase the value of adjacent properties by improving access.
7. Tax Increment Financing - Tax Increment Financing (TIF) allows cities or counties to create special districts to generate extra tax revenue and to use that new income to make public improvements. The legislative process for implementing and utilizing TIF financing is a complicated process involving the creation of the special district and the public agency to act as the administrator of the funds.

### 3. Local Pavement Maintenance Needs

Currently, roadways classified as “local” roads are not eligible for federal funds. In the Pioneer Valley Region the vast majority of roadways (66%) are classified as local roads, meaning that over half of all roads in the region are being maintained using Chapter 90 funds or other local sources of revenue.

**Figure 15-6 – Miles of Roadway by Functional Classification**

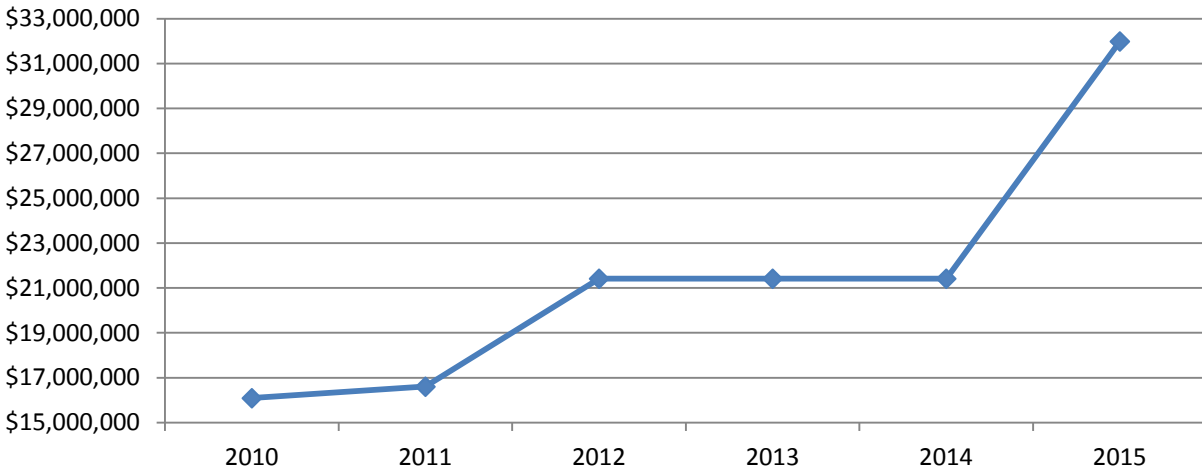


During the past several years a number of political, social, and economic trends have influenced the form and substance of local highway maintenance practices. Significant among them is the increasing pressure of fiscal austerity on local resources which place constraints on local tax revenues and make it difficult for the local highway superintendent or engineer to adequately meet the maintenance needs of local roads in the community.

The cost increase to maintain local infrastructure, the loss of local revenue, and the need for more Chapter 90 funding are common concerns of local communities in the region. The state’s Chapter 90 allocation had been level funded since the middle of the 1990s. As can be seen in Figure 15-7, in recent years Chapter 90 funding has seen a modest increase. In 2015 the Governor of Massachusetts approved an

additional \$100,000,000 (\$10.5 million to the Pioneer Valley) in Chapter 90 funding. In addition to this increase, the (Massachusetts Municipal Association) MMA as well as local officials have been lobbying to tie Chapter 90 funding to inflation to ensure rising maintenance cost do not negate increases in allotments.

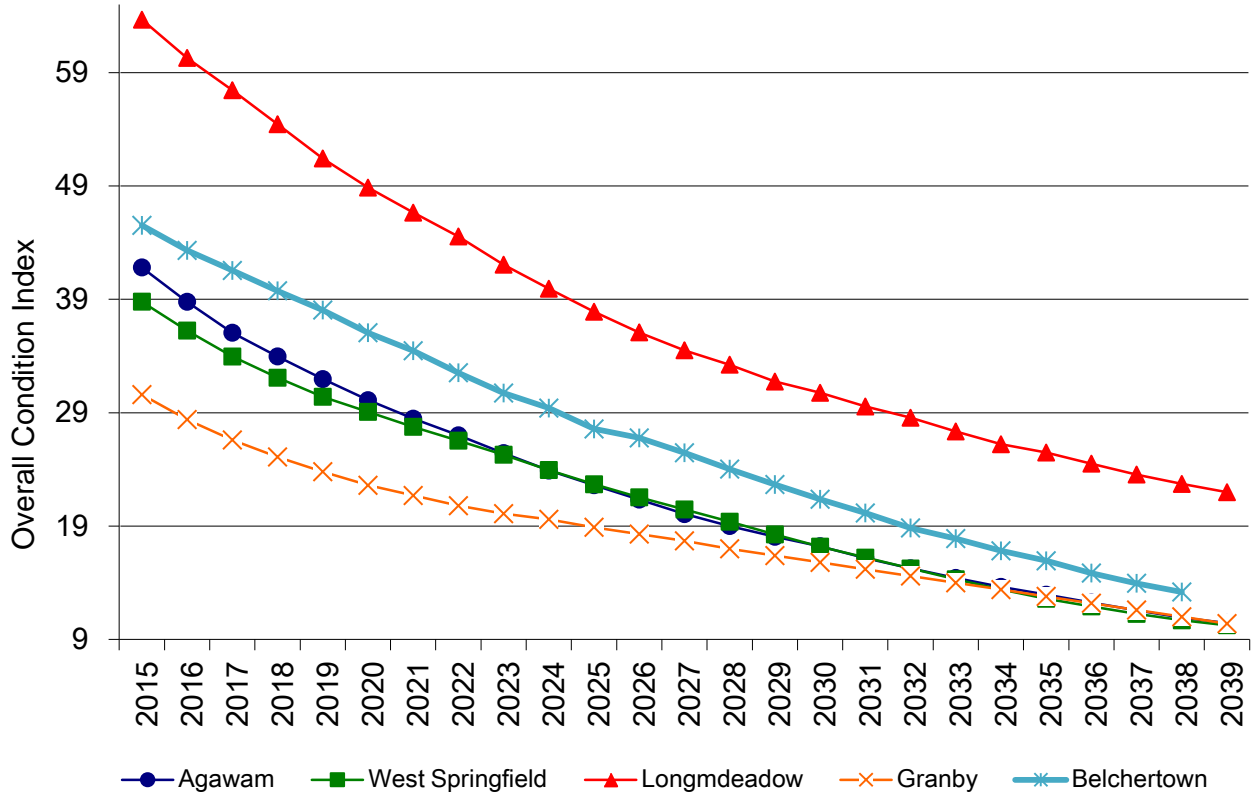
**Figure 15-7 – Pioneer Valley Municipal Chapter 90 Funding 2010-2015**



PVPC reviewed the long term impact of existing Chapter 90 Funding levels on local roadways in five communities. This information, presented in Figure 15-8, shows a clear downward trend over time indicating the current level of funding is not sufficient to maintain the condition of local roadways into the future. As the cost of construction materials continues to increase, the condition of roads will continue to deteriorate. This decline in the average OCI level is the result of the improvement rate being offset by the roadway deterioration rate. Also, the amount of needed repairs (backlog) increases as the average OCI declines.

According to the findings of a survey administered by the MMA, a Chapter 90 funding level of \$562,169,719 is needed statewide in order to bring local roads up to a state of good repair. This information was obtained from the MMA report – Making a Difference Where the Rubber Meets the Road: [https://www.mma.org/resources-mainmenu-182/cat\\_view/148-public-works-energy-and-utilities/191-transportation](https://www.mma.org/resources-mainmenu-182/cat_view/148-public-works-energy-and-utilities/191-transportation).

**Figure 15-8 – Projected Overall Pavement Condition Index at Level Funding**



In order to identify the level of need in the Pioneer Valley, PVPC staff developed 4 scenarios based off the findings of the MMA survey. Under each of the scenarios, it is assumed that 100% of local Chapter 90 funding is being applied to pavement maintenance in one local community in the Pioneer Valley region.

**a) Scenario 1 - MMA recommended \$562 million Chapter 90 funding level**

A portion of the \$562 million statewide figure was applied to one local community over the life of the plan based on the current Chapter 90 allocation formula. This resulted in a total investment \$46 Million over the life of the plan, assuming no inflation.

**b) Scenario 2 - MMA recommended local funding level with 4% revenue inflation to match project cost inflation**

A portion of the \$562 million statewide figure was applied to one local community over the life of the plan based on the current Chapter 90 allocation formula. This resulted in a total investment \$85 Million over the life of the plan, assuming a 4% per year inflation factor.

**c) Scenario 3 - Assumes Scenario 2 with an additional year 1 investment of \$8 million**

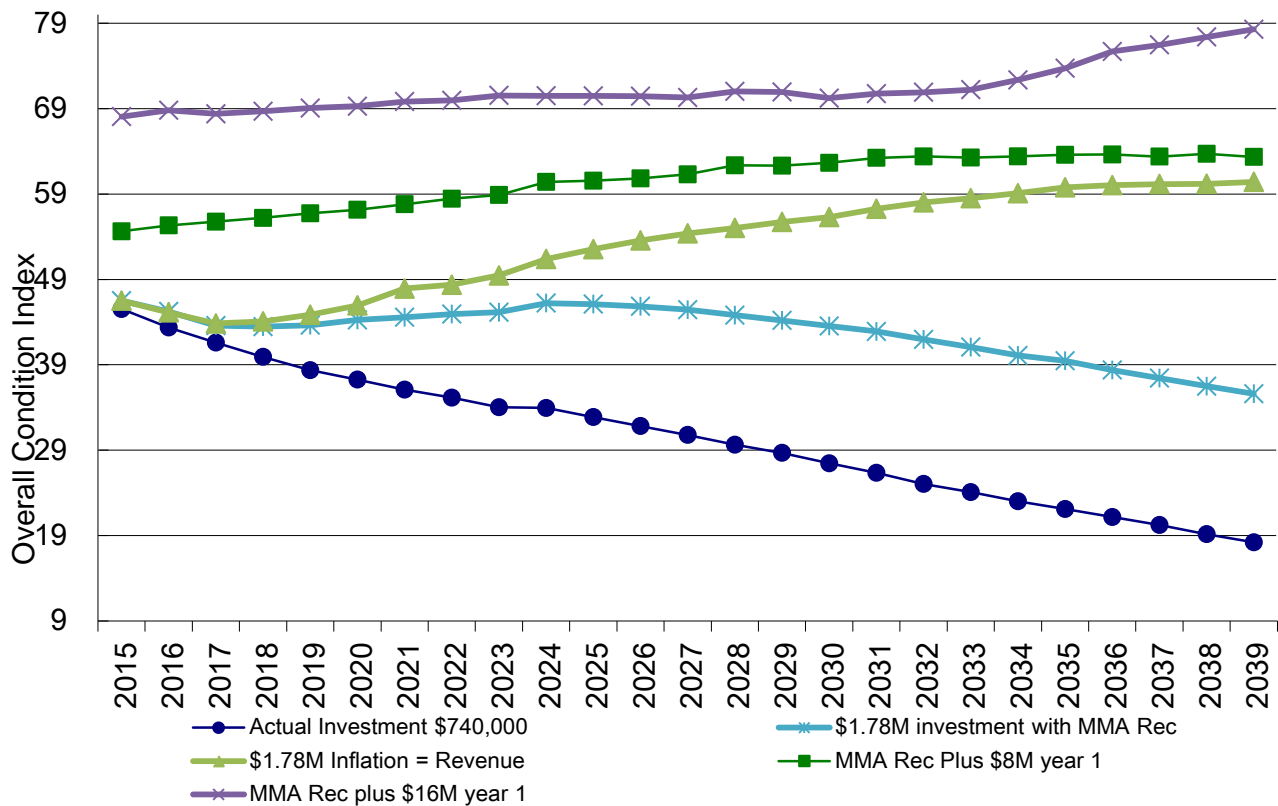
This scenario was based off the \$85 million investment from Scenario 2 with an increase in year 1 revenue from \$1.7 million to \$8 million. The \$8 million represents a quarter of the municipal backlog of improvements as calculated with Cartegraph. The total investment of this scenario is \$91 million over the life of the plan.

**d) Scenario 4 - Assumes Scenario 2 with an additional year 1 investment of \$16 million**

This scenario was based off the \$85 million investment from Scenario 2 with an increase in year 1 revenue from \$1.7 million to \$16 million. The \$16 million represents half of the municipal backlog of improvements as calculated with Cartegraph.

The results of the four scenarios as well as the baseline \$740,000 investment scenario can be seen in Figure 15-9.

**Figure 15-9 – Community OCI Scenario Planning**



Scenario 1 results in an improvement to OCI beginning in 2018 before the OCI begins to decline in 2026. This is as a result of the impact of inflation decreasing the amount of revenue available to be invested into the maintenance of the local roadway system.

Scenario 2 generally follows the trend line of Scenario 1 for the first ten years, however, the impact of increasing funding in line with inflation results in the OCI continuing to improve over the life of the plan. It appears, however, that OCI begins to level off in the later years of the plan which may indicate additional revenues would be needed to continue to improve local OCI in the future.

The impact of the increased year 1 spending of \$8 million under Scenario 3 results in the immediate improvement to the overall OCI. While the first two scenarios indicated an initial decline in OCI over the first three years, this scenario allows the municipality to fund a quarter of the backlog of roadway maintenance during year 1. This immediately improves roadway conditions and also allows a greater amount of money to be invested in preventative maintenance. As a result, the OCI improves every year for the first 20 years of the plan. Similar to Scenario 2, it appears that additional funding would be required in the last 5 years of the plan to continue increase the overall OCI into the future.

Scenario 4 is the first scenario that appears to fund the local roadway system at an adequate level. The \$16 million investment in year 1 allows the municipality to fund 50% of the project backlog resulting in an immediate increase in OCI. The OCI also continues to steadily increase over the life of the plan.

The results of the four scenarios indicate that additional revenue is required early on to begin to curtail the decline in local OCI levels. In addition, the scenarios clearly show the need to tie local funding levels to inflation in order to ensure that increased construction costs do not offset increased funding allocations. Scenario 4 had the greatest impact on local OCI levels. In order to realize the benefits of Scenario 4 on local roadways in the Pioneer Valley region, it is estimated that an additional \$343 million dollars would need to be invested in local roadway maintenance projects.