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FUTURE FORECASTS

Air quality conformity regulations related to the latest planning assumptions require a consistent approach to estimate future population, household and employment data used in the regional transportation plan. This data is input into the regional transportation model to estimate future traffic volumes in the region which can in turn be used to analyze the effects of transportation improvement projects, identify areas where congestion could occur in the future, and perform an air quality conformity determination for the region.

The MassDOT Office of Transportation Planning (OTP) led the effort of developing forecasts for future population and employment for Massachusetts and each MPO region. This was a collaborative effort between MassDOT's Office of Transportation Planning (OTP), the Metropolitan Area Planning Commission (MAPC), and the UMass Donahue Institute (UMDI). These three entities, in consultation with the thirteen regional planning agencies, acted as the Projections Advisory Group tasked with estimating the potential for future growth and decline across the state over 30

years from 2010 to 2040. This chapter summarizes this process. A more detailed description of this process is provided in the Appendix to the RTP.

Initial municipal population and employment projection estimates were provided by MassDOT. Thereafter, PVPC staff adjusted the values by reallocating growth among each community based on current trends and local staff knowledge of the opportunity for additional growth and major development planned throughout all forecast years. The resulting forecasts for population, households and employment are shown in Tables 13-1 – 13-3. An alternate regional specific scenario for employment estimates in the 2020 forecast year was subsequently developed by the PVPC.

The regional projections presented in Tables 13-1 – 3 represent the demographic data that was included as part of the statewide model for air quality conformity. The alternate employment scenario presented in Table 13-4 was used in the PVPC regional transportation model.

A. REGIONAL EMPLOYMENT SCENARIO

PVPC developed an in-house scenario for regional employment for use in the regional transportation model and RTP. This scenario results in an additional 23,105 employees for the 2020 analysis year. It was developed based on the following assumptions:

- Employment growth out to 2020 largely mirrors that from 2010 – 2015.
- Twenty four growth communities were identified:
 - Agawam, Amherst, Belchertown, Brimfield, Chicopee, E. Longmeadow, Easthampton, Granby, Hadley, Hatfield, Holyoke, Ludlow, Monson, Northampton, Palmer, South Hadley, Southampton, Southwick, Springfield, Ware, West Springfield, Westfield, Wilbraham, Williamsburg.
- Growth communities received more growth as deemed necessary based on the actual growth in employment from 2010 – 2015.
- Non-growth communities (with the exception of Longmeadow) were allocated growth based on the actual growth rate calculated from 2010 - 2015 for that community.
- 2030 and 2040 employment estimates mirrored the projections developed by MassDOT in conjunction with UMDI.

This alternate regional employment scenario will be used in the regional transportation model but not in the statewide transportation model for air quality conformity purposes.

Table 13-1 – Population Forecast for the Pioneer Valley Region

	Population 2010	Population 2020	Population 2030	Population 2040
Agawam	28,438	28,577	29,267	29,707
Amherst	37,819	40,002	40,546	40,995
Belchertown	14,649	15,388	15,760	15,996
Blandford	1,233	1,205	1,234	1,252
Brimfield	3,609	3,727	3,817	3,875
Chester	1,337	1,313	1,293	1,273
Chesterfield	1,222	1,176	1,138	1,101
Chicopee	55,298	56,395	57,806	58,674
Cummington	872	841	828	816
East Longmeadow	15,720	16,485	17,320	17,936
Easthampton	16,053	16,091	16,480	16,727
Goshen	1,054	1,085	1,111	1,128
Granby	6,240	6,235	6,280	6,267
Granville	1,566	1,555	1,574	1,559
Hadley	5,250	5,773	6,053	6,308
Hampden	5,139	5,025	5,146	5,224
Hatfield	3,279	3,233	3,311	3,360
Holland	2,481	2,504	2,534	2,547
Holyoke	39,880	40,626	41,815	42,770
Huntington	2,180	2,112	2,070	2,029
Longmeadow	15,784	15,384	15,461	15,307
Ludlow	21,103	21,005	21,512	21,835
Middlefield	521	490	469	410
Monson	8,560	8,613	8,821	8,953
Montgomery	838	930	952	967
Northampton	28,549	28,604	29,295	29,735
Palmer	12,140	12,111	11,979	11,764
Pelham	1,321	1,257	1,287	1,306
Plainfield	648	652	668	678
Russell	1,775	1,795	1,839	1,866
South hadley	17,514	17,802	18,091	18,424
Southampton	5,792	5,941	6,421	6,482
Southwick	9,502	9,715	9,950	10,099
Springfield	153,060	155,995	161,277	165,016
Tolland	485	504	516	523
Wales	1,838	1,879	1,924	1,953
Ware	9,872	9,867	9,935	9,628
West Springfield	28,391	28,952	29,302	29,596
Westfield	41,094	41,665	42,113	42,493
Westhampton	1,607	1,629	1,772	1,828
Wilbraham	14,219	14,379	14,726	14,947
Williamsburg	2,482	2,433	2,496	2,534
Worthington	1,156	1,062	1,088	1,104
Pioneer Valley	621,570	632,012	647,277	656,992

Table 13-2 – Household Forecast for the Pioneer Valley Region

	Households 2010	Households 2020	Households 2030	Households 2040
Agawam	11,664	12,373	13,183	13,518
Amherst	9,259	11,409	11,955	11,980
Belchertown	5,595	6,370	6,953	7,185
Blandford	492	528	577	616
Brimfield	1,429	1,643	1,826	1,942
Chester	543	585	624	653
Chesterfield	511	530	557	590
Chicopee	23,739	24,946	26,048	26,735
Cummington	404	413	429	457
East Longmeadow	5,851	6,442	7,025	7,360
Easthampton	7,224	7,632	8,175	8,508
Goshen	416	446	477	490
Granby	2,374	2,478	2,598	2,644
Granville	608	666	713	714
Hadley	2,107	2,340	2,479	2,607
Hampden	1,898	2,002	2,171	2,248
Hatfield	1,483	1,555	1,671	1,731
Holland	994	1,101	1,176	1,202
Holyoke	15,361	16,481	17,491	18,202
Huntington	868	925	977	1,019
Longmeadow	5,741	5,957	6,333	6,324
Ludlow	8,080	8,561	9,239	9,633
Middlefield	230	233	241	220
Monson	3,279	3,527	3,771	3,886
Montgomery	330	389	406	411
Northampton	12,000	12,448	13,234	13,576
Palmer	5,099	5,361	5,516	5,538
Pelham	549	546	570	578
Plainfield	269	294	328	349
Russell	656	695	738	747
South hadley	6,793	7,088	7,504	7,658
Southampton	2,249	2,473	2,801	2,867
Southwick	3,710	4,145	4,466	4,669
Springfield	56,753	59,867	62,896	64,996
Tolland	197	219	224	220
Wales	736	819	870	869
Ware	4,120	4,408	4,722	4,772
West Springfield	12,124	12,795	13,228	13,531
Westfield	15,335	16,512	17,314	17,770
Westhampton	623	669	763	792
Wilbraham	5,309	5,719	6,116	6,264
Williamsburg	1,118	1,169	1,258	1,328
Worthington	510	567	650	695
Pioneer Valley	238,630	255,326	270,293	278,094

Table 13-3– Employment Forecast for the Pioneer Valley Region

	Employment 2010	Employment 2020	Employment 2030	Employment 2040
Agawam	11,668	10,830	10,777	10,801
Amherst	14,733	15,433	15,358	15,392
Belchertown	2,619	2,629	2,616	2,622
Blandford	223	184	183	184
Brimfield	540	471	468	469
Chester	110	113	112	113
Chesterfield	123	135	134	134
Chicopee	19,003	17,921	17,834	17,874
Cummington	208	137	136	136
East Longmeadow	7,927	7,365	7,329	7,346
Easthampton	4,341	4,469	4,447	4,457
Goshen	158	155	154	154
Granby	753	894	889	891
Granville	157	163	162	163
Hadley	5,307	6,145	6,115	6,129
Hampden	821	879	875	877
Hatfield	1,965	1,806	1,797	1,801
Holland	147	118	117	117
Holyoke	21,164	20,849	20,747	20,794
Huntington	420	403	401	402
Longmeadow	3,376	3,483	3,466	3,473
Ludlow	6,431	6,510	6,478	6,493
Middlefield	39	41	41	41
Monson	1,295	1,246	1,240	1,242
Montgomery	26	37	37	37
Northampton	18,130	17,782	17,696	17,735
Palmer	4,986	4,498	4,476	4,486
Pelham	155	133	132	132
Plainfield	40	37	37	37
Russell	182	151	150	150
South hadley	4,441	4,274	4,253	4,262
Southampton	1,085	1,119	1,114	1,116
Southwick	2,533	2,520	2,507	2,513
Springfield	74,927	87,255	86,830	87,025
Tolland	37	35	35	35
Wales	150	151	150	150
Ware	2,728	2,457	2,445	2,451
West Springfield	16,922	15,612	15,536	15,571
Westfield	16,736	17,149	17,065	17,103
Westhampton	291	306	305	306
Wilbraham	4,510	4,913	4,889	4,900
Williamsburg	555	555	552	553
Worthington	194	168	167	167
Pioneer Valley	252,156	261,527	260,253	260,838

Table 13-4 – PVPC Scenario for Projected Employment Change

	Census Employment 2010	Actual Employment 2015	PV Scenario Employment 2020	PV Scenario Employment 2030	PV Scenario Employment 2040
Agawam	11,668	12,040	12,642	12,580	12,609
Amherst	14,733	16,725	18,986	18,894	18,936
Belchertown	2,619	2,771	2,979	2,964	2,971
Blandford	223	194	169	168	168
Brimfield	540	496	546	543	544
Chester	110	119	129	128	128
Chesterfield	123	142	164	163	164
Chicopee	19,003	19,257	20,220	20,121	20,167
Cummington	208	144	100	99	99
East Longmeadow	7,927	7,764	8,152	8,112	8,131
Easthampton	4,341	4,711	5,113	5,088	5,099
Goshen	158	163	168	167	168
Granby	753	942	1,178	1,173	1,175
Granville	157	172	188	188	188
Hadley	5,307	6,478	7,126	7,091	7,107
Hampden	821	927	1,047	1,042	1,044
Hatfield	1,965	1,904	1,999	1,989	1,994
Holland	147	124	105	104	104
Holyoke	21,164	22,237	23,364	23,251	23,303
Huntington	420	425	430	428	429
Longmeadow	3,376	3,671	3,708	3,690	3,698
Ludlow	6,431	6,862	7,322	7,286	7,303
Middlefield	39	43	47	47	47
Monson	1,295	1,313	1,411	1,405	1,408
Montgomery	26	39	59	58	58
Northampton	18,130	19,116	20,157	20,059	20,104
Palmer	4,986	4,741	5,097	5,072	5,083
Pelham	155	140	126	126	126
Plainfield	40	39	38	38	38
Russell	182	159	139	138	139
South hadley	4,441	4,505	4,730	4,707	4,718
Southampton	1,085	1,180	1,283	1,277	1,280
Southwick	2,533	2,656	2,785	2,771	2,778
Springfield	74,927	79,547	85,513	85,096	85,288
Tolland	37	37	37	37	37
Wales	150	159	169	168	168
Ware	2,728	2,590	2,720	2,706	2,712
West Springfield	16,922	16,907	17,752	17,666	17,706
Westfield	16,736	18,471	19,949	19,852	19,896
Westhampton	291	323	359	357	358
Wilbraham	4,510	5,179	5,593	5,566	5,579
Williamsburg	555	585	673	669	671
Worthington	194	177	161	161	161
Pioneer Valley	252,156	266,174	284,632	283,245	283,882

B. REGIONAL TRAVEL DEMAND MODEL

Travel demand forecasting is a major step in the transportation planning process. By simulating the current roadway conditions and travel demand, deficiencies in the transportation system are identified. This is an important tool in planning future network enhancements and analyzing proposed improvement projects as travel demand models are developed to simulate actual travel patterns and existing demand conditions. PVPC uses the TransCAD software for its regional travel demand model.

1. Regionally Significant Projects

Only “regionally significant” projects are required to be included in travel demand modeling efforts. The final federal conformity regulations define regionally significant as follows:

Regionally significant: a transportation project (other than an exempt project) that is on a facility which serves regional transportation needs (such as access to and from the area outside of the region, major activity centers in the region, major planned developments such as new retail malls, sport complexes, etc., or transportation terminals as well as most terminals themselves) and would be included in the modeling of a metropolitan area's transportation network, including at a minimum all principal arterial highways and all fixed guideway transit facilities that offer an alternative to regional highway travel.

“Non-Exempt” projects add capacity to the existing transportation system and must be included as part of the air quality conformity determination for the RTP.

Examples of “Non-Exempt” projects include those defined as regionally significant in addition to projects expected to widen roadways for the purpose of providing additional travel lanes.

Projects considered regionally significant were included as part of the 2010 Baseline model network and subsequent future model networks based on the project's expected construction date. These projects include non exempt system expansion projects that were financially constrained.

The 2010 base year roadway network includes the following:

- Hadley: Widening Route 9 from two lanes to four lanes from West Street to Coolidge Bridge.
- Hadley/Northampton: Rehabilitation of the Coolidge Bridge with lane addition and widening from three lanes to four lanes.
- Springfield: Reverse the direction of four existing I-91 ramps.
- Westfield: Route 10/202 Great River Bridge project.
- Holyoke: Commercial Street extension project from the I-391 ramp to Appleton Street.
- Chester: Maple Street Bridge one way northbound, connecting Route 20 to Main Street.

The 2020 model network will include the following regionally significant projects:

- Wilbraham: Boston Road reconstruction. Currently one lane in each direction, will become two lanes in each direction. Project starts at the Springfield City Line and continues east to Stony Hill Road (0.28 miles), but does not include Stony Hill Road. Expected in 2016.
- Passenger Rail Service from Hartford, CT to Greenfield, MA. (Currently in operation but not modeled.)
- Extension of the North South Passenger Rail Service from Springfield to serve stations in Holyoke, Northampton and Greenfield. (Anticipated to begin this year.)
- Reduction from 2 lanes of travel to one lane of travel in each direction along Route 116 (Chicopee Street) in the City of Chicopee from Meadow Street to Springfield Street (Davitt Bridge). This occurred in 2018.

The 2030 model network will include the following regionally significant projects:

- Hadley -Route 9 widening from Middle Street to Maple Street from one lane in each direction to two lanes in each direction. Expected in 2026.

The 2040 model network does not include any regionally significant projects:

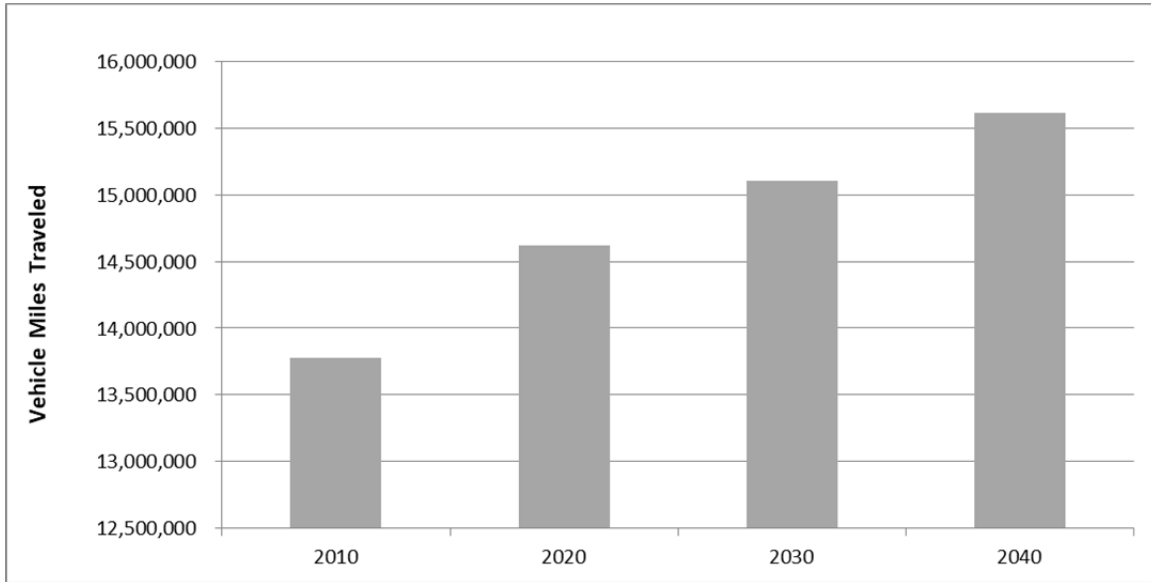
Visionary Projects are discussed in Chapter 15 of the RTP and may be included as part of the 2040 model network for analysis purposes as follows:

- MassDOT I-91 Viaduct Recommendations:
 - Interstate I-91 and South End Bridge improvements
 - The installation of collector-distributor roads alongside I-91 mainline and roundabouts at the South End Bridge and U.S. Route 5; reduction in on/off ramps; realignment of I-91; and elimination of existing lane drops in the vicinity of the South End Bridge.
 - Replacement of the Agawam Rotary with modified diamond interchange; replacement of the South End Bridge and Westfield River bridge to provide two travel lanes in each direction and a new shared-use path; new acceleration and deceleration lanes and proper left and right shoulders on both bridges; access to/from Meadow Street.
 - Replacement of the Plainfield Street bridges over I-91 and the existing railroad tracks with a third westbound travel lane.
 - Relocation of the existing left side on ramp from I-291 to I-91 SB to a more traditional right side on ramp.
- A potential new Turnpike Exit in Blandford, pending the results of a current study by MassDOT.
- East/West Passenger Rail Service to Boston pending the outcome of the current MassDOT study.

2. Estimated Regional Vehicle Miles Traveled

The total Vehicle Miles Traveled (VMT) was estimated for the model years of 2010, 2020, 2030, and 2040. The total VMT is shown in Figure 13-1. The total VMT is projected to increase by an average of 0.6% per year from 2010 to 2020 and 0.3% per year from 2020 to 2040.

Figure 13-1 – Estimated Future VMT



3. Future Traffic Volume Projections

The PVPC regional travel demand model was used to estimate the Average Daily Traffic (ADT) on key roadways throughout the region. These estimates are used to identify the potential traffic impacts of the future growth scenarios for the 2020, 2030, and 2040 analysis years. Projected changes in ADT on 5 area bridges are shown on Figure 13-2. The projected ADT along the I-91 corridor is shown on Figure 13-3. Additional projections for ADT along regional roadways are included as part of the appendix to this chapter.

Figure 13-2 - Projected Average Daily Traffic on Area Bridges

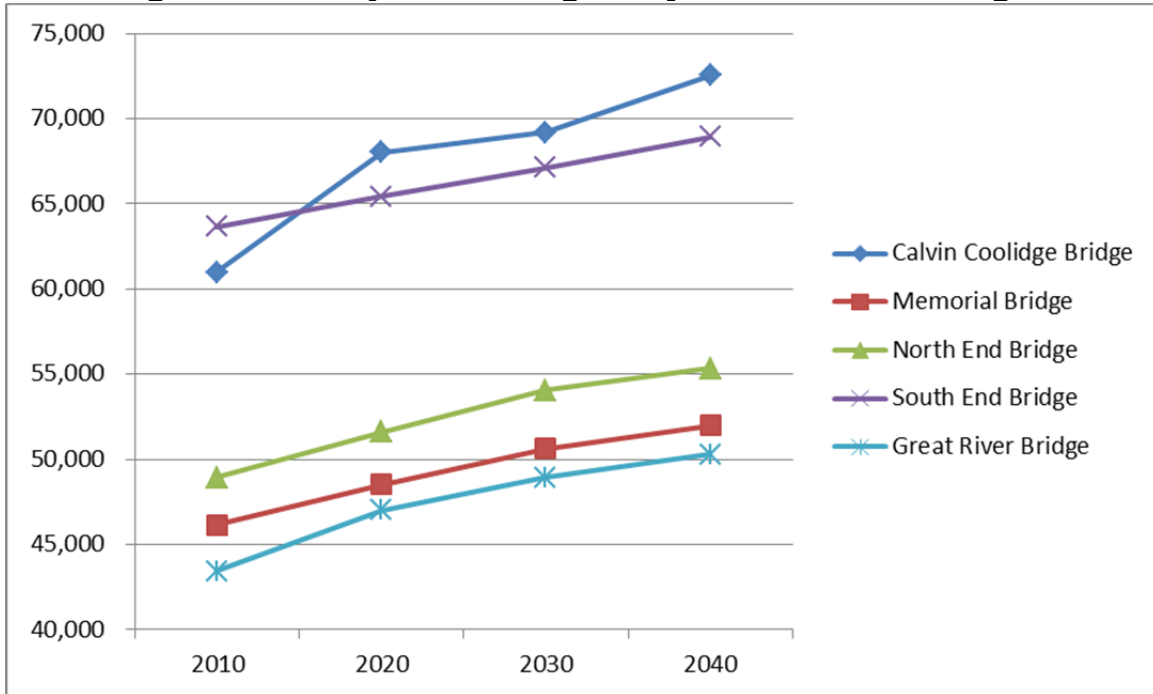


Figure 13-3 - Projected Average Daily Traffic on Interstate 91

