Boston: Ferry Expansion – Russia Wharf/South Station ($2,200,000)

Description

This project would consist of implementing a new ferry route in Boston Inner Harbor, from the existing terminal at the Charlestown Navy Yard to a new terminal at Russia Wharf, which is located in Fort Point Channel at Congress Street. The construction at Russia Wharf is a CA/T legal commitment.

Note

The cost includes the construction of Russia Wharf ($2,200,000). The legal commitment of the Commonwealth is only the construction of the Wharf. The MPO is carrying the cost of the Wharf in the expansion category. Service would be provided by others.

MAP 13-36 BOSTON – FERRY EXPANSION: RUSSIA WHARF/SOUTH STATION

Projects Included in Other MPO Areas

The Boston Region MPO has included additional projects that are funded in other MPO areas and that affect travel within the Boston region. A list of these projects with the time frame of construction, is shown in Table 13-5. The MPO has also included these projects in the travel demand model for air quality conformity purposes. A brief description of each project and its costs for the time period of construction is also provided.

TABLE 13-6

Projects Included in Other MPO Areas and Endorsed by the Boston Region MPO

RESPONSIBLE MPO	PROJECT NAME	TIMEFRAME OF CONSTRUCTION
MERRIMACK VALLEY MPO	LOWELL JUNCTION INTERCHANGE	2011–2020
SOUTHEAST MASS. MPO	FALL RIVER/NEW BEDFORD COMMUTER RAIL	2011–2020
MONTACHUSETT MPO	FITCHBURG COMMUTER RAIL	2011–2020
CENTRAL MASS. MPO	I-90/I-495 (WESTBOROUGH AND HOPKINTON)	2021–2025
CENTRAL MASS. MPO	I-495/ROUTE 9 INTERCHANGE (WESTBOROUGH AND SOUTHBOROUGH)	2026–2030

Wilmington, Tewksbury, and Andover: Lowell Junction

Description

This project includes constructing a new highway interchange on Interstate 93 between Exit 42 (Dascomb Road) and Exit 41 (Route 125). The new interchange would provide improved access from Interstate 93 to the industrial and office properties in the Lowell Junction area (at the Tewksbury/Wilmington border). The project would also include the construction of a connection to a planned extension of Burtt Road to Ballardvale Street and the widening of I-93 to four lanes from the existing lane drop at the Wilmington/Tewksbury line to Exit 42 in Tewksbury.

Project's Context/Possible Impacts, by Relevant MPO Policy Area

Land Use

The area of the proposed interchange is located where the towns of Andover, Wilmington, and Tewksbury come together. Land use in the area of the proposed interchange in Andover is currently zoned Industrial. Land in the study area in Wilmington is also zoned Industrial, while land in Tewksbury is zoned as both Residential and Industrial.

Some of the land near the proposed interchange is available for future development, while the remainder is subject to absolute development constraints, according to the Executive Office of Environmental Affairs/Metropolitan Area Planning Council buildout analysis. However, the three communities have embarked on a cooperative effort to explore a new, unified land use development plan in the area that is consistent with the Commonwealth's sustainable development goals. This approach has been undertaken because officials in each community have recognized the development opportunities that construction of an interchange will bring to the area, and have concluded that establishing a coordinated land use plan will maximize the benefit that each community would receive from the project.

In support of this effort, the communities have hired a consultant to assist them in developing a shared community vision of the area, with the goal of developing "a broad policy statement of the type and character of development which each of the three communities wishes to achieve; the underlying community benefits and impacts that each wishes to manage; and the means by which to achieve these goals."[7] The consultant team is currently working with the Junction Route 93 Development Area Task Force to define alternative land use concepts for the area with the intent of identifying a preferred development scenario.

Safety

Because this is a new interchange that has not yet been constructed, there are no crash data for this project.

Mobility

According to MassHighway's 2005 Traffic Volumes for the Commonwealth, average daily two-way traffic on Interstate 93 north of Route 62 in Wilmington was 154,900 in 2004.

Average observed travel speeds on roadways are compiled in the MPO's Mobility Management System. Average observed speeds on Interstate 93 North at the location of the proposed interchange are 60 mph or greater during the AM and PM peak periods. Average observed speeds on Interstate 93 South at the location of the proposed interchange are 30-44 mph during the AM peak period (meeting the MMS's congestion threshold), and 60 mph or greater during the PM peak period.

According to the Lowell Junction Interchange Study conducted by Vanasse Hangen Brustlin, Inc. in 2006, significant congestion occurs at

[7] The Junction/Route 93 Development Area in Andover, Tewksbury and Wilmington, Massachusetts Letter of Agreement

both the Route 125 and Dascomb Road interchanges with I-93. Access to Lowell Junction is via local roadways that connect to these interchanges. Analyses performed at intersections in the study area indicate the following:

- Route 125/Ballardvale Street operates at a deficient level of service during both peak periods. Improvements to this intersection and the surrounding area are currently included in the 2004 Boston Regional Transportation Plan.
- Dascomb Road intersections with Frontage Road and Lovejoy Road operate at an acceptable level of service (LOS) during both peak periods.
- Analyses of unsignalized intersections performed at eight study-area locations indicate that all four intersections at the I-93 ramps (Exits 41 and 42) experience LOS "E" or "F" for side street traffic during both peak periods. Three of the local intersections experience LOS "F" during the PM peak and one operates at LOS "F" during the AM peak. Only one intersection operates at an acceptable LOS during both peak periods.

Connectivity

The proposed interchange will improve access to industrial and office properties in the Lowell Junction area from I-93. The MBTA's Haverhill commuter rail line runs near the location of the proposed interchange. The communities of Andover, Tewksbury, and Wilmington have embarked on a joint planning effort to develop a coordinated land use and development plan for the area. One of the land use scenarios now being considered calls for the construction of a commuter rail stop near the new interchange. The communities of Andover, Tewksbury, and Wilmington have embarked on a joint planning effort to develop a coordinated land use and development plan for the area. One of the land use scenarios now being considered calls for the construction of a commuter rail stop near the new interchange, but there are no plans for a new station in the area at this time.

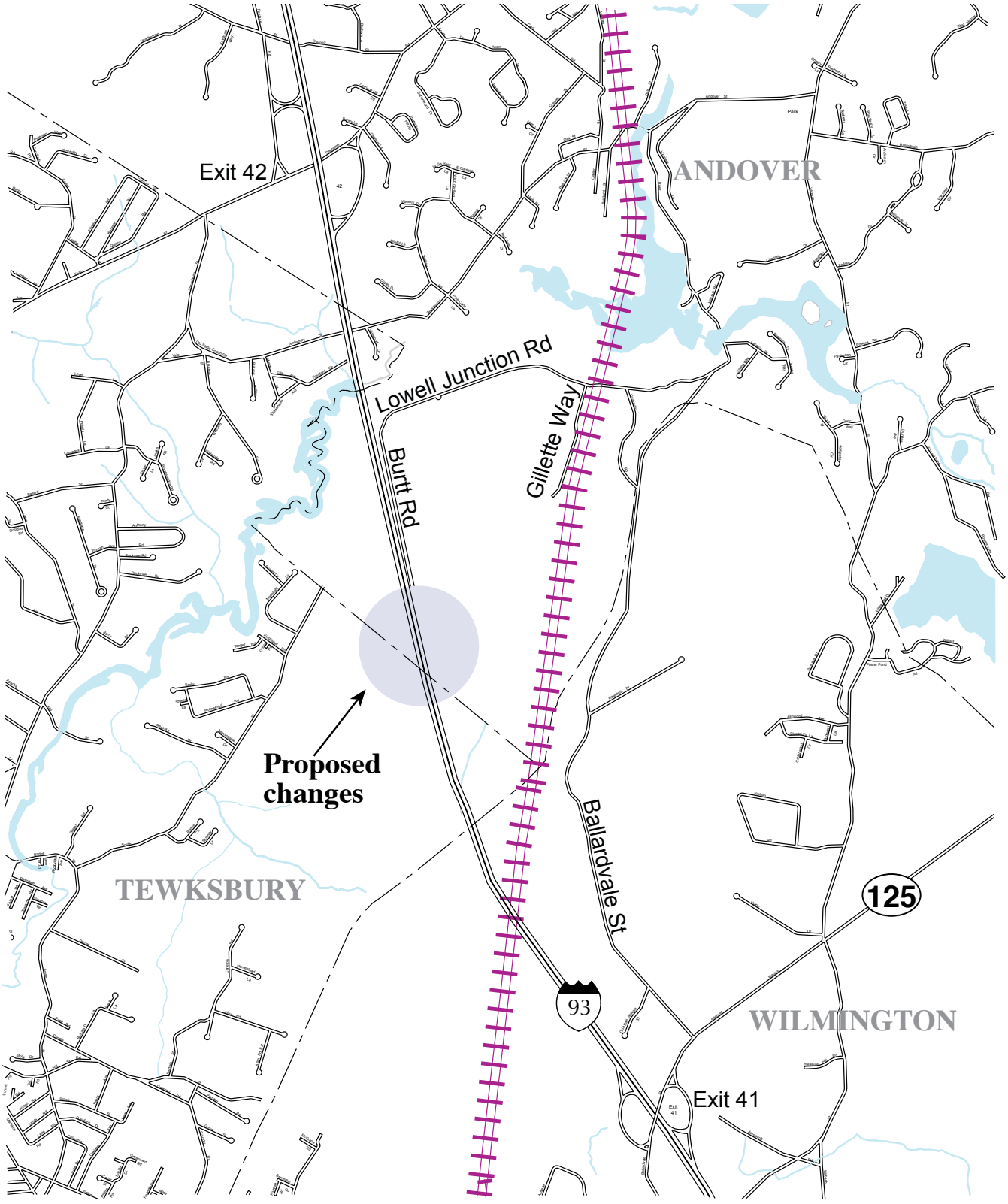
Economic Opportunities

The addition of the interchange will provide improved access to the existing industrial and commercial developments in the Lowell Junction area. It will also expand the economic base of the area by providing access to currently undeveloped land that is zoned for industrial and commercial use on both the east and west sides of I-93. Implementation of a sustainable-growth land use plan for the area could substantially increase the level of benefit that this project could provide to the three communities and to the Commonwealth.

Note

The Merrimack Valley MPO is responsible for including the funding for this project in their Transportation Plan. At this time, they are projecting that the project will be completed by 2020. The Boston Region MPO and Northern Middlesex MPO will list this project in their Plans because parts of the project fall within all three MPO areas.

MAP 13-37 WILMINGTON, TEWKSBURY, AND ANDOVER: LOWELL JUNCTION

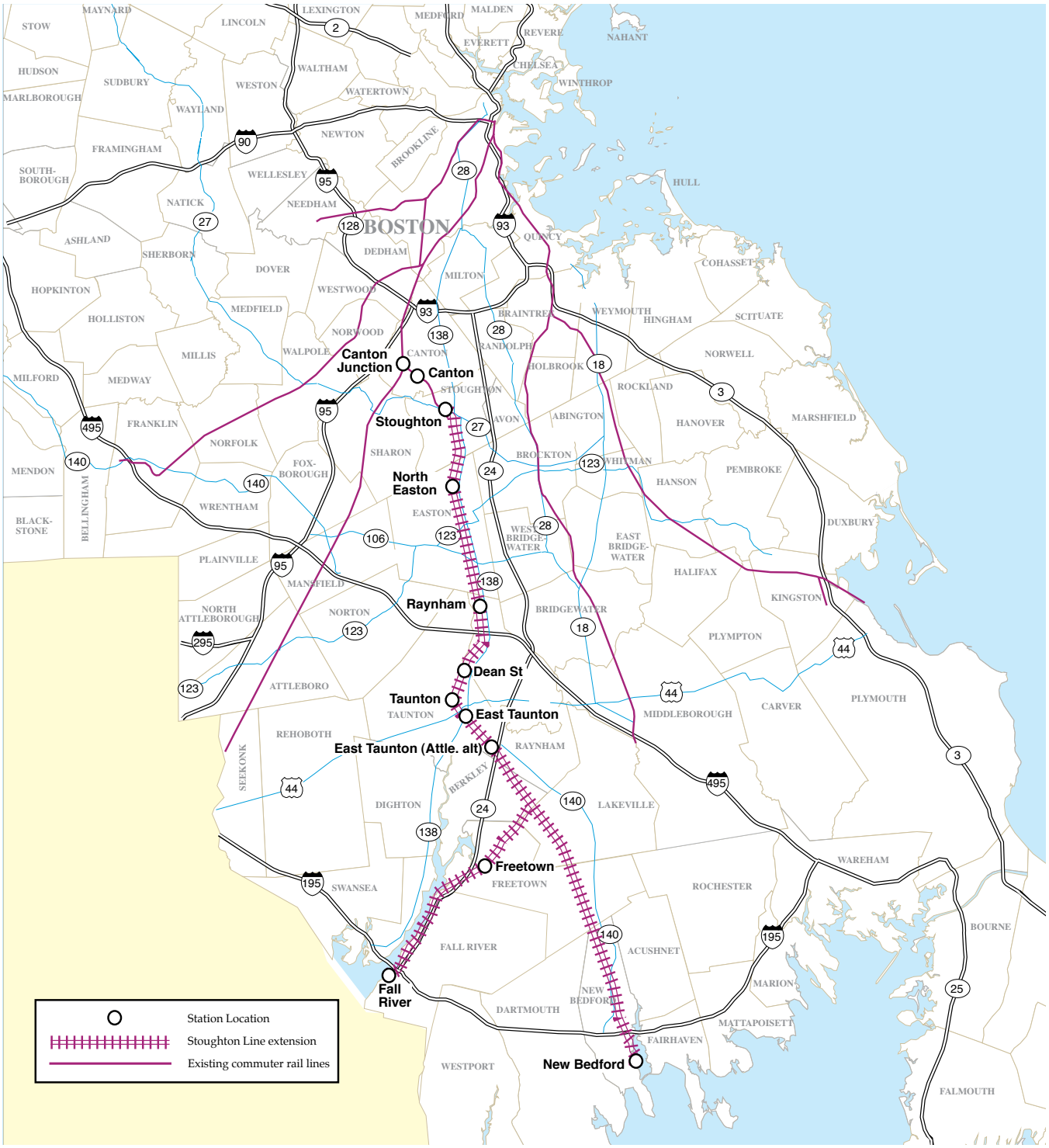


Fall River and New Bedford: Commuter Rail Extension

Description

This proposal is for an extension of MBTA commuter rail service from the cities of Taunton, Fall River, and New Bedford to Boston. Several alternate routes were evaluated by the MBTA in a series of environmental studies conducted from 1995 to 2002. The 2000 Supplemental Draft Environmental Impact Report concluded that the Stoughton alternative is the only practical alternative that would meet the project's objectives. The Stoughton Alternative would provide service through an extension of the existing Stoughton Line, which currently provides Boston service by connecting to the Shore Line. Further study of this project is currently underway by EOT.

MAP 13-38 Fall River and New Bedford: Commuter Rail Extension



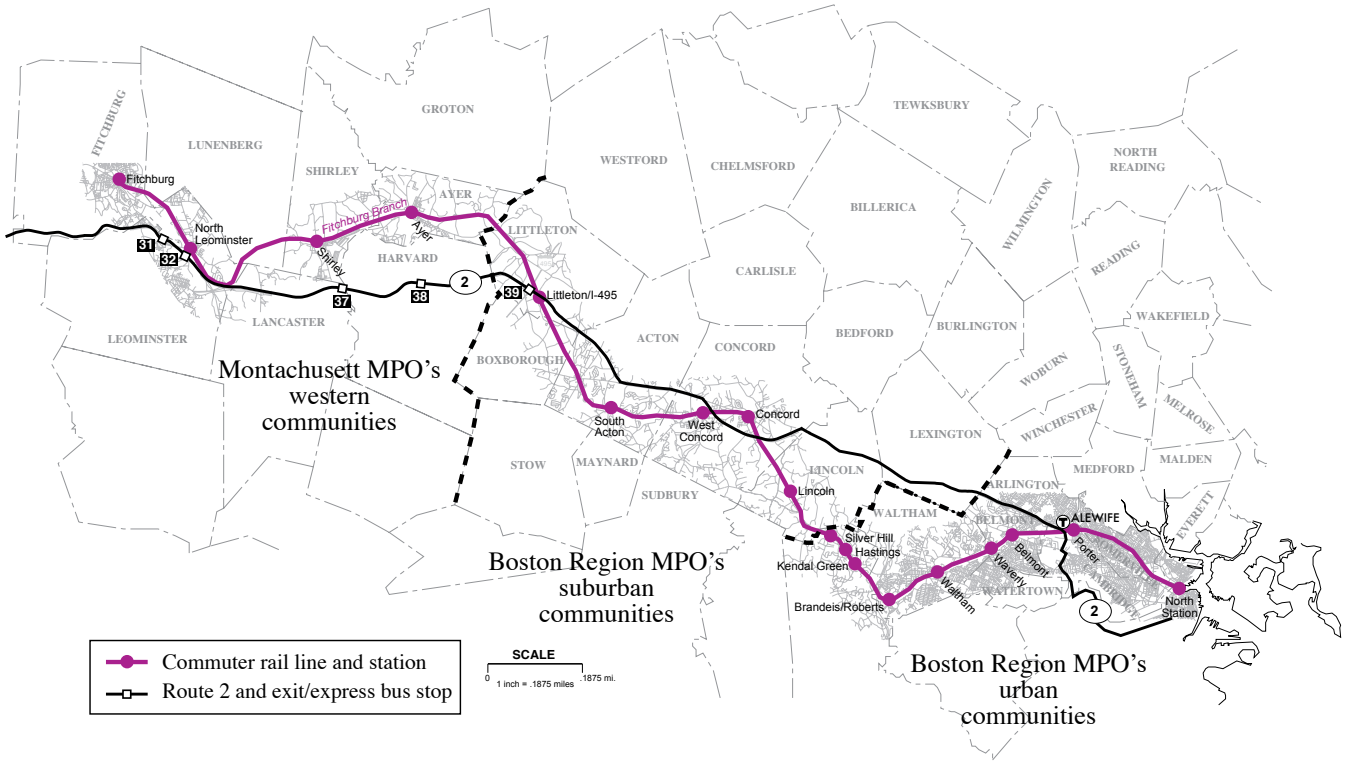
Fitchburg: Commuter Rail

Description

Improvements will be made along the Fitchburg commuter rail line to reduce the travel time between Fitchburg and Porter Square, in Cambridge, to one hour or less. The existing stations will remain and no new stations will be added. Improvements will include:

- Installation of double tracks from Ayer to South Action
- Replacement of the signal system
- Systemwide improvements to the track and right-of-way to increase speeds, as required
- Replacement of the Route 62 bridge in Concord
- Construction of a commuter rail flyover, or installation of a third track, to separate commuter and freight traffic at the Willows freight yard in Ayer
- Grade separation at key locations

MAP 13-39 FITCHBURG: COMMUTER RAIL



Westborough and Hopkinton: I-90/I-495 Interchange ($33,301,000)

Description

While there is no articulated plan for this interchange, it has been the subject of recent studies and discussions. The Arc of Innovation[8] identified this interchange as one of the 495 MetroWest Corridor's Top Ten Traffic Nightmares. A 1993 American Trucking Association Survey identified this interchange's "poor ramp design" as a structural impediment to efficient freight flow within the region. Stakeholder consultation interviews conducted for the Central Massachusetts Regional Planning Commission's (CMRPC) 2007 RTP revealed a long-term vision of an intermodal "super station" serving interstate highway traffic and the adjacent CSX rail line, which accommodates both freight movement and MBTA commuter rail service.

Project's Context/Possible Impacts, by MPO Policy Area

Safety

Between 1999 and 2001, the I-495/I-90 interchange was the site of 262 crashes, of which 192 involved only property damage and 72 involved bodily injury, none with fatalities.

Mobility

According to MassHighway traffic counts, the average daily traffic on I-495 and I-90 near this interchange is as follows:

I-90:

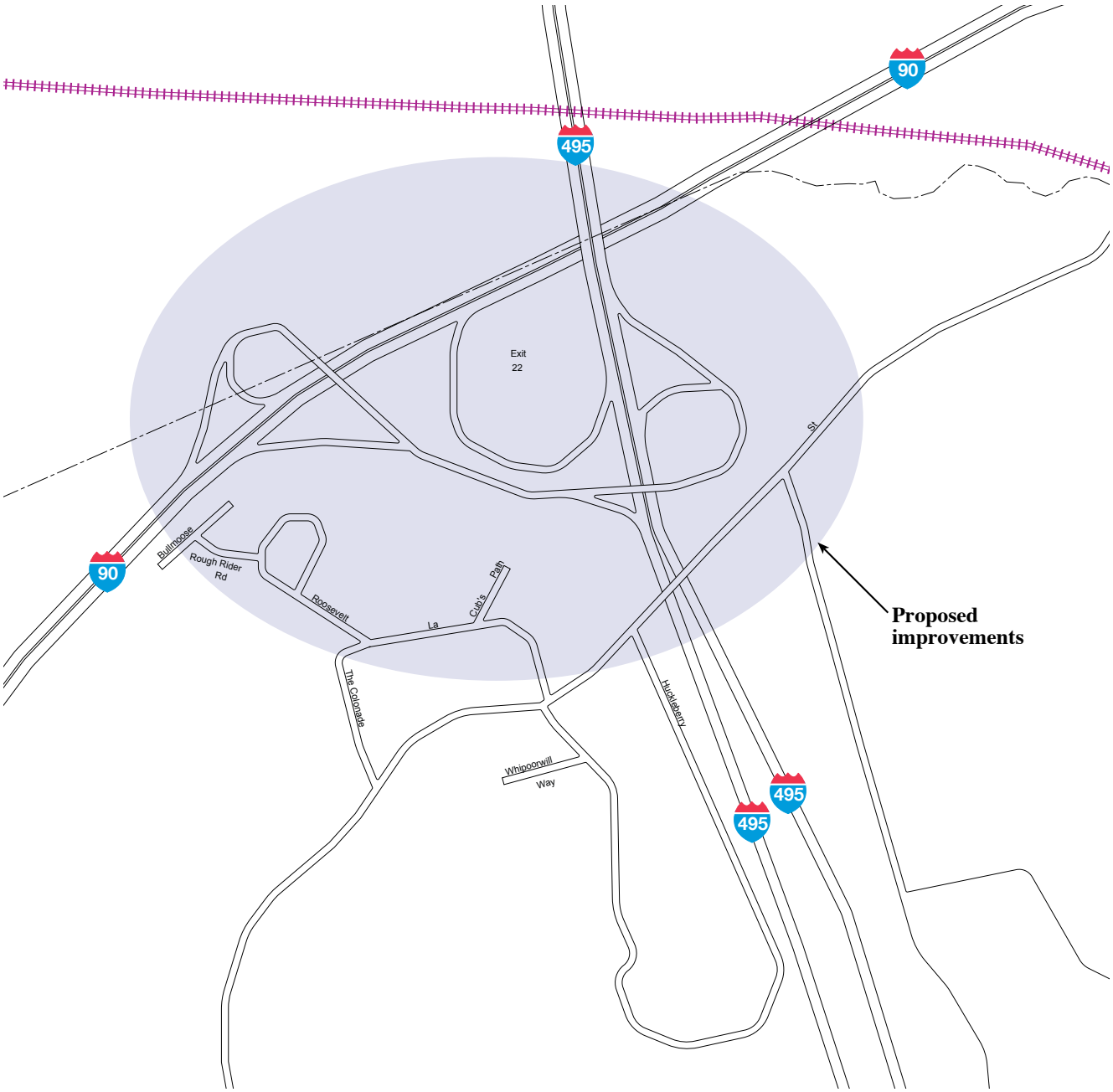
- Between Exits 11 and 11A (west of the interchange) – 87,700 (2005 counts)
- Between Exits 11A and 12 (east of the interchange) – 92,700 (2005 counts)

I-495:

- South of Route 9 (north of interchange) – 91,800 (2004 counts)
- South of I-90 – 98,900 (2004 counts)

[8] The Arc of Innovation is an economically growing region of 32 communities in the 495/ Metrowest region that has some of the state's largest and most innovative companies. These communities work through the 495/MetroWest Corridor Partnership Inc., which addresses regional needs through public/private collaboration.

MAP 13-40 Westborough and Hopkinton: I-90/I-495 Interchange



Westborough and Southborough: I-495/Route 9 Interchange ($30,387,000)

Description

While there is no articulated plan for this interchange, it has been the subject of recent studies and discussions. The Arc of Innovation[9] identified this interchange as one of the 495 MetroWest Corridor's Top Ten Traffic Nightmares. In 2005, the Town of Westborough discussed the potential for a slip ramp within the southwest quadrant as a mitigation measure for nearby development. The 2006 EMC development proposal includes improvements to the eastern side of the interchange.

Project's Context/Possible Impacts, by MPO Policy Area

Safety

Between 1999 and 2001, the I-495/Route 9 interchange was the site of 99 crashes, of which 66 involved only property damage and 33 of which involved bodily injury, none with fatalities.

Mobility

According to MassHighway traffic counts, the average daily traffic on I-495 and Route 9 near this interchange is as follows:

I-495:

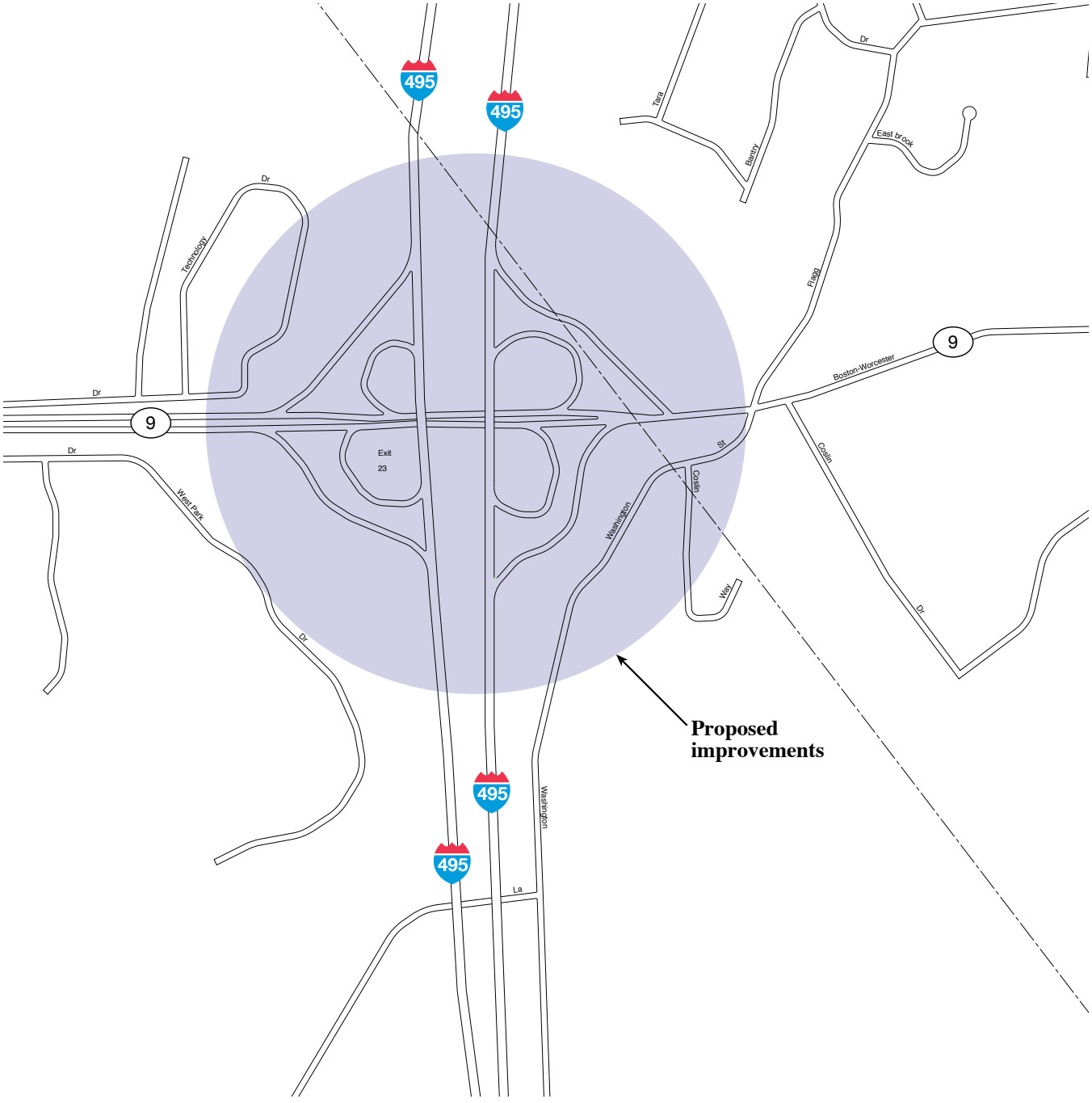
- South of Route 9, Westborough – 91,800 (2004 counts)

Route 9:

- East of Route 30, Westborough (west of the interchange) – 53,000 (2004 counts)
- West of Woodland Road, Southborough (east of the interchange) – 49,100 (2004 counts)

[9] The Arc of Innovation is an economically growing region of 32 communities in the 495/ Metrowest region that has some of the state's largest and most innovative companies. These communities work through the 495/MetroWest Corridor Partnership Inc., which addresses regional needs through public/private collaboration.

MAP 13-41 Westborough and Southborough: I-495/Route 9 Interchange



Model Results And Interpretation of the Recommended Plan

The travel demand model set used in the analysis for this Plan Amendment is based on the traditional four-step urban transportation planning process of trip generation, trip distribution, mode choice, and trip assignment. It simulates existing travel conditions and forecasts future-year travel on the entire eastern Massachusetts transit and highway system. In order to capture a more accurate picture of the travel demands within the region, an area larger than the Boston Region Metropolitan Planning Organization (MPO) area is used. This eastern Massachusetts region includes an additional 63 communities outside of the 101-municipality Boston Region MPO area, including communities east of Worcester, north to the New Hampshire border, and south into portions of Bristol and Plymouth counties. The travel demand model set is employed to estimate daily transit ridership, highway traffic volumes, and nonmotorized travel, primarily on the basis of forecasts of study-area demography and projected highway and transit improvements. The model set uses the best component models, networks, and input data available to CTPS at this time.

2000 Base-Year Scenario

The travel demand model uses the year 2000 as a starting point for model analysis. This is the latest year for which the MPO has a depth of reliable data for model inputs. The 2000 Base Case consists of those major roadway and transit projects that were built and opened for public use by April 1, 2000. Those projects' attributes were coded into the model's transportation network representation to serve as the base, or starting point, for analysis. An existing-conditions network was tested to simulate year 2000 travel conditions.

Future-Year Land-Use Scenario

The future-year land-use scenario used for this Plan Amendment is based on inputs coming from two sources. For the 101-municipality Boston Region MPO area, the Metropolitan Area Planning Council (MAPC) developed the land use scenario referred to as MetroFuture. The demographic data for this land-use scenario was also developed by MAPC. This scenario does not predict actual changes in land use in the region, but merely allocates forecasts of population, households, and employment, by transportation analysis zone (TAZ), out to the year 2030. Some of the attributes of this scenario are:

- More new population growth would occur in the Inner Core and Regional Urban Centers.
- More new jobs would be located in the Inner Core or Regional Urban Centers.
- Two-thirds of new suburban housing growth would be in or near town centers and existing commercial areas (versus only one-third under Current Trends).
- Most new suburban housing would be created through redevelopment.
- The region would build more starter homes for young families, and more apartments and condominiums for seniors and empty nesters, helping to retain two demographic cohorts that have high rates of out-migration.
- Investments in public education, community colleges, and job training would help to increase the skill level of the local workforce, fostering economic development and reducing the number of workers commuting in from outside the region.

For the 63 communities that are located outside of the 101-municipality Boston Region MPO area, the demographic data were supplied by the Executive Office of Transportation and Public Works (based on the input they received from other Regional Planning Agencies to which these 63 communities belong). The resulting combined demographic dataset is called the "Hybrid Scenario," which has more population, household, and employment than what has been considered in the past for the CTPS modeled area. For this

hybrid scenario, the population in this region is projected to increase by 17.8 percent between 2000 and 2030. During the same time period, employment is projected to grow by 17.7 percent. The households are projected to increase by 25.9 percent, whereas the average household size is projected to decrease from 2.62 persons in the Base Year to 2.45 in year 2030.

Future-Year Transportation Alternatives

The travel model analysis for the Regional Transportation Plan consists of analyzing first the future-year No-Build transportation alternative, followed by analyzing the "Build" transportation alternative, which is the Recommended Plan. The demographic dataset stays constant.

2030 No-Build Network

The No-Build network consists of: (a) all the projects that make up the Base Year network, (b) those that have already been built since year 2000 and are in operation, and (c) those projects that the MPO felt were far enough along in the programming and construction process. Some of the major transit projects that are part of the 2030 No-Build network are: Silver Line, Phases I and II; Improvements to Worcester Commuter Rail Service; Greenbush Commuter Rail; Additional Park-and-Ride Spaces; New Commuter Rail Station at JFK/UMass Station; Peabody Express to Logan Airport, and Logan Express from Anderson Regional Transportation Center; and Mishawum Station open for outbound and inbound service.

Build (Recommended Plan) Network

The Build network consists of several new transit projects and highway projects in addition to what is assumed for the No-Build network. The transit projects include a new Orange Line station at Assembly Square; Green Line Extension from Lechmere – D Line to Mystic Valley Parkway and E Line to Union Square; service improvements on the Fitchburg Line; four new stations and service improvement on the Fairmount Line; 1,000 additional parking spaces on the Newburyport/Rockport Line at Beverly (500) and Salem (500); and 500 additional parking spaces on the Blue Line at Wonderland. Highway projects in the 2030 Recommended Plan include: I-93/Route 3 Interchange Improvements; Middlesex Turnpike Improvements Phase 3 (Bedford, Burlington, and Billerica); East Boston Haul Road/Chelsea Truck Route (Boston); Rutherford Avenue (Boston); I-93/Route 3 Interchange – Braintree Split (Braintree); I-93/I-95 Interchange (Canton); I-95 Northbound/Dedham Street Ramp/Dedham Street Corridor (Canton); Route 2/Crosby's Corner Grade Separation (Concord and Lincoln); Route 85 Improvements (Hudson); Route 1 Improvements (Malden and Revere); I-93/I-95 Interchange (Reading and Woburn); Bridge Street (Salem); South Weymouth Naval Air Station Access Improvements (parkway construction); Route 18 Capacity Improvements (Weymouth); New Boston Street Bridge (Woburn); Marshfield – Route 139 Widening; Woburn – Montvale Avenue; Somerville – Assembly Square Roadway Project; Hanover – Route 53, Final Phase; Merrimack Valley – Tri-Town Interchange; and Needham Street/Highland Avenue (Needham/Newton).

Travel Model Results

The results of running the travel model are shown in Table 13-7. Several important travel statistics are summarized from the tabulated outputs for each of these model runs. Examples of these statistics are:

- Total number of daily trips made by auto, transit, and nonmotorized modes in the region
- Modal distribution (percentage of people traveling by each of the travel modes)
- Average daily transit ridership by transit mode (bus, subway, commuter rail, etc.)
- Total vehicle-miles of travel (VMT) and vehicle-hours of travel (VHT), by all vehicles, on a typical weekday for the entire eastern Massachusetts region and for specified subregions
- Average speed of highway traffic in the region

Increase in Trips

The 2030 demographic forecasts (Hybrid Scenario) project significant growth in the number of employees and residents in the eastern Massachusetts region. Because the Hybrid Scenario has more households and employment (activity), it also has more total trip-making by all modes combined. The increase in trips relates closely to the increase in households and employment. As a result of the higher percentage change in population (17.8 percent), households (25.9 percent), and employment (17.7 percent) in this region, on a typical weekday, the overall level of trip-making, regardless of mode, is estimated to increase from 16.8 million trips in 2000 to 20.5 million trips in 2030. This represents a 21.9 percent increase, which represents an average annual growth through 2030 of a little over 0.7 percent.

The assumed level of economic growth leads to substantial increases in the number of trips produced within and attracted within the region on an average weekday. The biggest increase in trips is expected in the Inner Core and the outer portions of the region. External stations (points of entry into and exit from the modeling region) see a tremendous increase (63.5 percent) in the number of trips.

Total intraregional person-trips within the model area (the eastern Massachusetts region) are projected to increase from 14.2 million per day in 2000 to 16.5 million in 2030. Transit and nonmotorized (walking and bicycling) trips are expected to grow faster than auto trips. Transit trips are projected to increase from 894,000 in 2000 to 1,342,400 (growth of 50.0 percent) in 2030. Nonmotorized (walking and bicycling) trips are estimated to increase from 2.37 million in 2000 to 3.08 million in 2030 (growth of 29.9 percent). Trips made by auto show a lower percentage increase, from 10.94 million in 2000 to 12.15 million in 2030 (growth of 11.1 percent).

Due to a greater concentration of activity near transit service, the transit mode share is higher in the No-Build than in the Base Year scenario (8.1 percent for 2030 No-Build vs. 6.3 percent for Base Year). Due to a greater concentration of activity, making more destinations walkable from given origins, the nonmotorized mode share is higher (18.6 percent for 2030 No-Build vs. 16.7 percent for Base-Year). The combined effect of transit and nonmotorized modes on the auto mode results in a decrease of the auto mode share (73.3 percent for 2030 No-Build vs. 77.0 percent for Base Year).

The 2030 No-Build Alternative

Transit Trips

In order to determine the true level of transit demand, both in absolute value and spatial distribution, given the underlying population/household and employment projections, the transit ridership forecasts from the transit portion of the overall travel-forecasting model have not been constrained by transit service capacity. As a result, the forecast ridership growth projected by the transit module will, in a number of cases, exceed the passenger-carrying capacity of the buses and trains currently in service.

Observed data indicate that there were approximately 894,000 linked transit trips on a typical weekday in 2000. In 2030, the number of linked transit trips is projected to reach about 1.3 million under the No-Build scenario, a 50 percent increase. This increase is a result of two factors: growth in demographics (which has a major impact as discussed above) and changes to the transportation system (for example, the addition of the Silver Line, the Airport Intermodal Transit Connector, and the Greenbush Line), shifting more people onto transit from other modes, such as auto and the nonmotorized mode.

The unlinked trips are estimated to increase from 1.20 million in 2000 to 1.82 million in the 2030 No-Build scenario, a 52 percent increase. Commuter rail is expected to increase to 129,900 trips a day in the 2030 No-Build scenario from 105,100 in 2000. This represents a 23.6 percent

increase from the year 2000 levels, which is a result of the Greenbush and Worcester Improvements projects already in operation, in addition to growth of demographics, and future traffic congestion favoring commuter rail over the auto mode. Ridership on the rapid transit system is projected to increase to 980,300 trips a day in the 2030 No-Build scenario from 672,400 in 2000. This represents a 45 percent increase from the year 2000 levels. The majority of this increase is related to demographic growth. Local bus ridership is projected to increase by roughly 56 percent; most of this is tied to the demographic growth, as well as to the projected increase in rapid transit system ridership (feeder trips). The daily ridership on the express bus system is projected to decrease by nearly 8 percent due to service reductions that have already been made on various express bus routes.

Bus-rapid-transit (BRT) service was implemented after 2000 and is operational today in the form of the Silver Line service, which is expected to have over 80,000 daily boardings in the 2030 No-Build scenario.

Ferry service shows little change. One possible reason is that the Greenbush commuter rail line, which hugs the coast and is near several ferry services. This may siphon off some of the potential ferry users to commuter rail.

Highway Trips

There are several metrics for measuring the highway transportation network. The four key ones presented in this chapter are vehicle trips, vehicle-miles of travel (VMT), vehicle-hours of travel (VHT), and average speed. Higher vehicle trips, VMT, and VHT in the 2030 No-Build scenario result directly from greater activity under the Hybrid demographic scenario. Also, when normalized by population, the Hybrid scenario leads to higher vehicle trips, VMT, and VHT.

Vehicle trips include all vehicle types, such as personal vehicles, trucks, taxis, and vehicles from outside the region. There were about 12 million vehicle trips per day using the roadway system in 2000. This number is projected to increase by 18.5 percent, to 14.2 million vehicle trips per day, in 2030. Auto-person-trips are a subset of the total vehicle trips and represent the person-trips made by regional household members in autos for different purposes on an average weekday. The auto trips are projected to increase by roughly 11.1 percent between 2000 and 2030. The explanation for the total number of vehicle trips increasing more than the auto-person-trips is a larger increase in the number of vehicle trips made by people residing outside of our modeled area.

Even with auto travel growing at a slower rate than that experienced by transit, roadway vehicle-miles traveled (VMT) is projected to increase. The total VMT on the region's highway network is projected to increase from 108 million in 2000 to 125 million (a 16.5 percent increase) in 2030 under the No-Build scenario despite the average trip length decreasing by 1.7 percent, reflecting greater average activity concentration in the 2030 No-Build scenario. All of the increase in VMT is due to the demographic growth being projected for 2000–2030.

VHT is expected to increase by 25.7 percent between 2000 and 2030. This VHT increase is larger than the increase in VMT because the additional traffic is causing more traffic congestion, which also leads to lower average speeds. The average speed on the highway system is expected to decrease by about 7.1 percent between 2000 and the 2030 No-Build scenario.

Nonmotorized Mode

The nonmotorized mode consists of walking and bicycling trips occurring within or between areas in our model called transportation analysis zones. Between 2000 and 2030, this mode is projected to increase from 2.37 to 3.08 million trips. This increase is a function of residences being located closer to work and activities.

The JOURNEY TO 2030 Recommended Build Scenario

Transit Trips

The impact of adding these new transit projects is that there would be approximately 21,000 new linked transit trips in the system above what was estimated in the 2030 No-Build scenario. About 14,100 of these would be the result of diversion from the auto mode, and the remaining 6,300 trips would be coming from nonmotorized modes. The addition of all the new transit projects described above would increase the regional transit mode share from 8.1 percent in the No-Build scenario to 8.2 percent in the Build scenario.

The unlinked trips are projected to increase from 1.82 million in the 2030 No-Build scenario to 1.86 million in the 2030 Build scenario, a 2 percent increase. As may be seen in Table 13-7, the commuter rail ridership would increase by 4 percent, from 129,900 in the 2030 No-Build scenario to 135,500 in the 2030 Build scenario. This increase is primarily related to two commuter rail improvement projects: the Fitchburg Line Run-Time Improvements, and the addition of four new stations on the Fairmount commuter rail line. The additional commuter parking in the system also plays a role. The remainder of the commuter rail increase is linked with improvements to rapid transit projects in the urban core area. The rapid transit ridership is expected to increase by about 5 percent. This increase is primarily related to two projects: the Green Line Extension and a new station on the Orange Line at Assembly Square. The BRT service will also experience a very small increase. The main reason people use BRT is that BRT service eliminates, in most instances, one or more transfers, and this translates into time savings. Local bus trips are expected to fall by about 5 percent. This relates to the expansion of rapid transit service, which will siphon off some bus ridership. Ferry service remains unchanged.

Highway Trips

As a result of the additional transit projects, the amount of highway travel is projected to decrease slightly in the Build scenario in comparison to No-Build. The number of vehicle trips and vehicle-miles traveled will each decrease slightly, whereas the number of vehicle trips per person-trip remains the same.

The cumulative effect of the new highway projects (under the Recommended Plan Amendment) and the reductions in congestion resulting from the increased use of transit lead to a slight increase (about 1 percent) in the average speed on the highway network. The VMT per capita and the average trip length decrease slightly in the Build Scenario. The average trip time decreases, and the average speed increases slightly.

Nonmotorized Mode

With the improvements in transit services and highway facilities, about 6,300 nonmotorized trips are expected to be diverted from nonmotorized modes under the Build scenario.

TABLE 13-7

2000 Base Year, 2030 No-Build, and 2030 Recommended Plan Transportation Network Model Results*

	2000 BASE YEAR	2030 NO-BUILD	% CHANGE FROM 2000 TO 2030 NO-BUILD	2030 RECOMMENDED PLAN	% CHANGE FROM 2030 NO-BUILD TO 2030 RECOMMENDED PLAN
SOCIOECONOMIC MEASURES					
POPULATION	4,309,200	5,075,400	17.8%	5,075,400	0%
HOUSEHOLDS	1,643,700	2,069,200	25.9%	2,069,200	0%
EMPLOYMENT	2,351,400	2,767,700	17.7%	2,767,700	0%
AVERAGE HOUSEHOLD SIZE	2.62	2.45	-6.5%	2.45	0%
TRIP GENERATION RESULTS (AVERAGE WEEKDAY)					
TOTAL TRIPS	16,786,600	20,459,800	21.9%	20,459,800	0%
TRIPS "TO AND FROM OUTSIDE OF OUR REGION"	2,059,300	3,367,500	63.5%	3,367,500	0%
MODE CHOICE RESULTS (AVERAGE WEEKDAY)					
TOTAL INTRAREGIONAL PERSON-TRIPS	14,211,600	16,581,300	16.7%	16,581,400	0.0%
LINKED TRANSIT PERSON-TRIPS	894,000	1,342,400	50.2%	1,363,300	1.6%
WALK ACCESS	766,500	1,196,300	56.1%	1,212,700	1.4%
DRIVE ACCESS	127,500	146,100	14.6%	150,600	3.1%
AUTO PERSON-TRIPS	10,944,600	12,157,100	11.1%	12,142,500	-0.1%
NONMOTORIZED PERSON-TRIPS	2,373,000	3,081,800	29.9%	3,075,600	-0.2%
TRANSIT MODE SHARE	6.3%	8.1%	28.7%	8.2%	1.2%
AUTO MODE SHARE	77.0%	73.3%	-4.8%	73.2%	-0.1%
NONMOTORIZED MODE SHARE	16.7%	18.6%	11.3%	18.5%	-0.5%
TRANSIT ASSIGNMENT RESULTS (AVERAGE WEEKDAY)					
UNLINKED TRANSIT TRIPS	1,199,000	1,828,900	52.5%	1,862,400	1.8%
AVERAGE TRIP LENGTH (COMMUTER RAIL AND RAPID TRANSIT ONLY)	5.59	5.27	-5.7%	5.22	-0.9%
RAPID TRANSIT LINES	672,400	980,300	45.8%	1,033,700	5.4%
COMMUTER RAIL LINES	105,100	129,900	23.6%	135,500	4.3%
LOCAL BUSES	390,000	609,400	56.3%	581,400	-4.6%
EXPRESS BUSES	26,000	23,900	-8.1%	23,900	0.0%
FERRY	5,500	5,500	0.0%	5,500	0.0%
BUS RAPID TRANSIT	N/A	79,900	N/A	82,600	3.4%
TRANSFER RATE (UNLINKED/LINKED TRIPS)	1.34	1.36	1.6%	1.37	0.7%
HIGHWAY ASSIGNMENT RESULTS (AVERAGE WEEKDAY)					
VEHICLE-TRIPS ASSIGNED	11,985,100	14,206,600	18.5%	14,199,600	0.0%
VEHICLE-MILES OF TRAVEL	107,871,000	125,719,700	16.5%	125,490,500	-0.2%
VMT/CAPITA	25.03	24.77	-0.1%	24.73	-0.2%
AVERAGE TRIP LENGTH	9.00	8.85	-1.7%	8.84	-0.1%
VEHICLE-HOURS OF TRAVEL	3,349,900	4,211,300	25.7%	4,172,900	-0.9%
AVERAGE TRAVEL TIME	16.8	17.8	5.9%	17.6	-1.1%
AVERAGE SPEED	32.2	29.9	-7.1%	30.1	0.7%

* Results shown represent 164 communities in the eastern Massachusetts model area.