

# A2 Amendment Two to Paths to a Sustainable Region

## The Boston Region Metropolitan Planning Organization's Long-Range Transportation Plan

JUNE 20, 2013

### OVERVIEW

The Boston Region Metropolitan Planning Organization (MPO) adopted its current Long-Range Transportation Plan (LRTP), *Paths to a Sustainable Region* in September 2011. An amendment to *Paths to a Sustainable Region* was also adopted on June 28, 2012. The MPO is proposing a second amendment to the LRTP, which is explained in this document. The primary reason for Amendment Two is to provide for consistency between the LRTP and the Federal Fiscal Years (FFYs) 2014–17 Transportation Improvement Program (TIP). Primarily, the information on four of the projects in the LRTP requires updating for consistency with the information in the proposed TIP.

This amendment updates the LRTP with the latest planning assumptions and information, and changes the funding and/or time bands for four projects that are included in the TIP's time frame. The full content includes 1) the changes to the four projects; 2) updates to the financial plan to be consistent with the proposed TIP; 3) updates on information on the air quality conformity determination; and 4) updates on emissions of carbon dioxide (CO<sub>2</sub>) from the projects in the proposed Amendment Two. This information is listed below and then further described, by category of change.

- Randolph to Wellesley: The completion date for the Route 128 Additional Lane project is changed from FFY 2016 to FFY 2017. It stays in the FFYs 2016–20 time band of the LRTP, but the analysis year was changed in the air quality conformity determination in the Draft FFYs 2014–17 TIP.
- Weymouth: Route 18 Capacity Improvements will not be completed before 2015, so it changed from the FFYs 2012–15 to the FFYs 2016–20 time band of the LRTP. The analysis year was changed in the air quality conformity determination in the Draft FFYs 2014–17 TIP.
- Canton: I-95/I-93 Interchange: The funding time band for this project changed from FFYs 2021–25 to FFYs 2016–20. The project is proposed to be completed by 2020. (See the *Updated Air Quality Conformity Information* below.)
- Canton: I-95 Northbound Dedham Street Ramp Interchange: The funding time band for this project changed from FFYs 2021–25 to FFYs 2016–20. The project

is proposed to be completed by 2020. (See the *Updated Air Quality Conformity Information* below.)

Although the two Canton projects will be considered as one project for environmental and design reviews, they will be constructed in four separate phases as shown in this amendment. All phases will be constructed with non-federal-aid funding. The construction of the Dedham Street ramp and the widening of Dedham Street are the subject of a Transportation Investment Generating Economic Recovery (TIGER) V federal grant application. If TIGER funds are not awarded, MassDOT will use non-federal-aid funds for this project.

The design of this project has expanded to include the addition of travel lanes on I-95—a two-mile section of I-95 southbound from Route 128 to Neponset Street will be widened to four lanes and a one-mile section of I-95 northbound from Dedham Street to Route 128 will be widened to four lanes. A new description and map for the Canton I-95/I-93 Interchange project is attached.

## CHANGES IN FUNDING TIME BANDS

This amendment changes the funding time bands for the Canton projects. The projects, shown in four phases, are moved forward from the FFYs 2021–25 funding time band to the FFYs 2016–20 time band. These changes are reflected in Table 1 (attached). The Route 18 project in Weymouth also changed from the FFYs 2013–2015 time band to the FFYs 2016–2020 time band.

Cost adjustments were also made in Table 1 (bold, dark-blue numbers) to be consistent with the TIP. Adjustments to project totals, available revenue, and percentage of program funding at the end of the table are shown in yellow.

## UPDATED FINANCIAL INFORMATION

The financial assumptions in the LRTP for the FFYs 2014–17 are updated to be consistent with the FFYs 2014–17 TIP. The LRTP is a fiscally constrained document that includes information on costs and revenues to demonstrate the MPO's ability to fund the improvements recommended in the document. Since the adoption of the LRTP amendment in June 2012, the MPO has received federal funding estimates for FFYs 2014–17 and has used them in the TIP. This LRTP amendment applies them to the affected LRTP time bands, FFYs 2013–15 and FFYs 2016–20. Table 2, below, shows the result and incorporates it into a presentation of the projected federal funds available in all of this LRTP amendment's time bands for capital projects on the MPO area's highway system. The projected federal funding for the transit system has not changed since the LRTP was adopted.

**TABLE 1  
MAJOR INFRASTRUCTURE AND EXPANSION PROJECTS PROGRAMMED WITH HIGHWAY FUNDING  
IN THE RECOMMENDED PLAN OF THE LRTP AMENDMENT TWO, WITH COSTS**

PROJECTS	CURRENT COST (2013)	2013–2015	2016–2020	2021–2025	2026–2030	2031–2035	MPO FUNDING	NON-MPO FUNDING*
<b>ONGOING NO-BUILD HIGHWAY PROJECTS</b>								
Route 128 Additional Lanes (Randolph to Wellesley)**	\$151,333,710	\$84,872,189	\$47,461,521				\$132,333,710	\$19,000,000
Crosby's Corner (Concord & Lincoln)**	\$22,471,587	\$22,471,587					\$22,471,587	
<b>RECOMMENDED HIGHWAY PROJECTS</b>								
Middlesex Turnpike Improvements, Phase III (Bedford, Burlington, & Billerica)*	\$22,691,442		\$21,691,442				\$21,691,442	\$1,000,000
Rantoul St. (Beverly)	\$15,748,820	\$15,748,820					\$15,748,820	
Sullivan Sq./Rutherford Ave. (Boston)*	\$94,000,000		\$103,562,290				\$103,562,290	\$15,377,710
Commonwealth Ave. (Boston)*	\$16,866,250	\$12,446,852					\$12,446,852	\$4,419,398
I-93/Route 3 Interchange – Braintree Split (Braintree)	\$36,000,000					\$85,320,000	\$85,320,000	

*cont.*

**TABLE 1 (CONT.)**  
**MAJOR INFRASTRUCTURE AND EXPANSION PROJECTS PROGRAMMED WITH HIGHWAY FUNDING**  
**IN THE RECOMMENDED PLAN OF THE LRTP AMENDMENT TWO, WITH COSTS**

PROJECTS	CURRENT COST (2013)	2013–2015	2016–2020	2021–2025	2026–2030	2031–2035	MPO FUNDING	NON-MPO FUNDING*
<b>RECOMMENDED HIGHWAY PROJECTS (CONT.)</b>								
I-93/I-95 Interchange (Canton)*	\$190,000,000		\$190,000,000					\$190,000,000
I-95 Northbound/Dedham St. Ramp/Dedham St. Corridor (Canton)*	\$38,000,000	\$38,000,000						\$38,000,000
<b>I-95 Interchange (Blue Hill Drive)*</b>	<b>\$5,000,000</b>	<b>\$5,000,000</b>						<b>\$5,000,000</b>
<b>I-95 Interchange (Canton St./University Ave.)*</b>	<b>\$5,000,000</b>	<b>\$5,000,000</b>						<b>\$5,000,000</b>
Bruce Freeman Rail Trail (Concord to Westford)*	\$17,769,600	\$11,088,000	\$6,681,600					\$17,769,600
Route 126/Route 135 Grade Separation (Framingham)	\$58,500,000				\$113,950,000		\$113,950,000	
Route 53 Final Phase (Hanover)	\$1,170,881	\$1,170,881					\$1,170,881	
Assabet River Rail Trail (Hudson to Acton)*	\$18,100,000	\$4,714,428	\$16,285,600				\$16,285,600	\$4,714,428

*cont.*

**TABLE 1 (CONT.)**  
**MAJOR INFRASTRUCTURE AND EXPANSION PROJECTS PROGRAMMED WITH HIGHWAY FUNDING**  
**IN THE RECOMMENDED PLAN OF THE LRTP AMENDMENT TWO, WITH COSTS**

PROJECTS	CURRENT COST (2013)	2013–2015	2016–2020	2021–2025	2026–2030	2031–2035	MPO FUNDING	NON-MPO FUNDING*
RECOMMENDED HIGHWAY PROJECTS (CONTINUED)								
Route 1 Improvements (Malden, Revere, Saugus)	\$175,196,000					\$415,200,000	\$415,200,000	
Route 109 (Medway)	<b>\$11,275,569</b>		<b>\$11,275,569</b>				<b>\$11,275,569</b>	
Needham St./Highland Ave./Winchester St. (Newton & Needham)	<b>\$21,390,000</b>			<b>\$31,662,400</b>			<b>\$31,662,400</b>	
I-93/I-95 Interchange (Reading, Stoneham, Wakefield, & Woburn)	<b>\$320,000,000</b>				<b>\$576,302,000</b>		<b>\$576,302,000</b>	
Bridge St. (Salem)	\$11,223,250		\$14,769,000				\$14,769,000	
Route 18 Capacity Improvements (Weymouth)*	<b>\$40,630,000</b>	<b>\$10,079,388</b>	<b>\$15,778,852</b>				<b>\$25,858,240</b>	\$14,771,760
Montvale Ave. (Woburn)	<b>\$4,752,838</b>		<b>\$4,752,838</b>				<b>\$4,752,838</b>	
New Boston St. Bridge (Woburn)	<b>\$8,297,198</b>		<b>\$10,094,800</b>				<b>\$10,094,800</b>	

*cont.*

**TABLE 1 (CONT.)  
MAJOR INFRASTRUCTURE AND EXPANSION PROJECTS PROGRAMMED WITH HIGHWAY FUNDING  
IN THE RECOMMENDED PLAN OF THE LRTP AMENDMENT TWO, WITH COSTS**

PROJECTS	CURRENT COST (2013)	2013–2015	2016–2020	2021–2025	2026–2030	2031–2035	MPO FUNDING	NON-MPO FUNDING*
RECOMMENDED HIGHWAY PROJECTS (CONTINUED)								
Conley Haul Rd. (Boston)*	\$25,000,000	\$25,000,000					\$0	\$25,000,000
RECOMMENDED HIGHWAY PROGRAM								
Clean Air and Mobility Program (Regionwide)	\$2,000,000 per yr	<b>\$1,871,994</b>	<b>\$7,129,870</b>	\$12,680,000	\$14,700,000	\$17,039,000	<b>\$53,420,864</b>	
RECOMMENDED TRANSIT PROJECT USING HIGHWAY FUNDING								
Green Line Extension from Medford Hillside (College Ave.) to Mystic Valley Pkwy. (Rte. 16)	\$140,608,000		\$186,900,000	\$3,200,000			\$190,100,000	
Project Total	n/a	<b>\$148,661,711</b>	<b>\$439,701,782</b>	<b>\$47,542,400</b>	<b>\$704,952,000</b>	<b>\$517,559,000</b>	<b>\$1,858,416,893</b>	<b>\$340,052,896</b>
Available Revenue		<b>\$229,830,000</b>	<b>\$557,469,000</b>	<b>\$815,610,000</b>	<b>\$1,018,440,000</b>	<b>\$1,180,650,000</b>	<b>\$3,801,999,000</b>	
Percentage of Program Funding		<b>65%</b>	<b>79%</b>	<b>6%</b>	<b>69%</b>	<b>44%</b>	<b>49%</b>	

\* Non-MPO Funding includes earmarks, with the exception of the:

- Route 128 Bridge funding
- Middlesex Turnpike partial funding from the Northern Middlesex Council of Governments
- Bruce Freeman Rail Trail partial funding with Statewide Transportation Enhancement funds and Statewide Congestion Mitigation and Air Quality (CMAQ) funds
- Assebet River Rail Trail partial funding with Statewide CMAQ funds
- The I-95/I-93 Interchange project in Canton will be funded with non-federal aid funds
- Conley Haul Road (Boston), which will be paid for by the Massachusetts Port Authority

\*\*Current cost is the remaining cost to complete project.

Dark blue numbers – cost adjustments to individual projects

Yellow numbers – cost adjustments to totals

**TABLE 2**  
**AMENDMENT TWO PATHS TO A SUSTAINABLE REGION LRTP**  
**PROJECTED FEDERAL FUNDS FOR CAPITAL PROJECTS**  
**FOR THE BOSTON REGION MPO AREA'S HIGHWAY SYSTEM**  
**2013 TO 2035**  
**(IN MILLIONS)**

Capital Program (Estimates for 2013 TIP)	FFYs 2013– 2015	FFYs 2016– 2020	FFYs 2021– 2025	FFYs 2026– 2030	FFYs 2030– 2035	Total
Boston Share of Discretionary Capital Program	\$212.64	\$464.00	\$673.62	\$844.95	\$979.53	\$3,174.74
Estimated Boston Share of Regional Major Infrastructure Projects	\$17.19	\$93.47	\$141.99	\$173.49	\$201.12	\$627.26
<b>Total</b>	<b>\$229.83</b>	<b>\$557.47</b>	<b>\$815.61</b>	<b>\$1,018.44</b>	<b>\$1,180.65</b>	<b>\$3,802.00</b>

### UPDATED AIR QUALITY CONFORMITY INFORMATION

The Boston Region MPO has recently been classified as attainment for the ozone standard; therefore the MPO is no longer required to perform an air quality conformity determination on its LRTP and TIP for ozone. However, the MPO is required to perform a conformity determination for the Boston Carbon Monoxide (CO) Maintenance Area (the cities of Boston, Cambridge, Chelsea, Everett, Malden, Medford, Quincy, Revere, and Somerville). The MPO is also required to continue to perform conformity determinations for the Waltham CO Limited-Maintenance Area.

In addition, the EPA developed a new emissions model to calculate emission factors for use in conformity determinations. The new model is called Motor Vehicle Emission Simulator (MOVES). New conformity regulations require that MOVES emission factors be used in all conformity determinations after March 2, 2013. The MOVES emission factors were developed in coordination with the Massachusetts Department of Environmental Protection (DEP).

A new conformity determination was performed on the draft FFYs 2014–17 TIP and is included in that document, which is now available for public review. This Amendment Two is being written to provide consistency with the TIP; therefore, a separate conformity determination is not required. The change in design of the Canton I-95/I-93 Interchange does not trigger a separate conformity determination because it is located outside of the CO maintenance areas.

## UPDATED CLIMATE CHANGE INFORMATION

In *Paths to a Sustainable Region*, the MPO documented the MPO's greenhouse gas (GHG) emissions reduction associated with the projects in the LRTP for GreenDOT Implementation (see Chapter 5 of the full LRTP document). The Boston Region MPO and the Massachusetts Department of Transportation, using the Boston MPO and the statewide travel demand models, estimated carbon dioxide (CO<sub>2</sub>) emissions resulting from the collective list of all recommended projects in all of the Massachusetts MPO's LRTPs combined. Emissions are estimated in the same way as the criteria pollutant—carbon monoxide whose reduction is required for the air quality conformity determination (see above). However, the CO<sub>2</sub> emissions shown here are part of an effort separate from the conformity analysis and are not part of those federal standards and reporting requirements.

The Massachusetts Global Warming Solutions Act legislation requires reductions of CO<sub>2</sub> by 2020 and further reductions by 2050, relative to the 1990 baseline. The project mix from this LRTP Amendment (and all other statewide MPO's LRTPs) was modeled for both 2020 and 2035 using a build versus no-build analysis to determine the CO<sub>2</sub> emissions attributed to the MPO's mix of projects and smart-growth land use assumptions. The estimates of the modeled CO<sub>2</sub> emissions are provided in Table 3, below.

**TABLE 3**  
**AMENDMENT TWO PATHS TO A SUSTAINABLE REGION LRTP**  
**MASSACHUSETTS STATEWIDE CO<sub>2</sub> EMISSIONS ESTIMATES**  
**(ALL EMISSIONS IN TONS PER SUMMER DAY)**

Year	CO <sub>2</sub> Build Emissions	CO <sub>2</sub> No-Build Emissions	Difference (Build Minus No-Build)
2020	105,768	105,856	-88
2035	115,046	115,028	18

As shown in the table above, collectively, all the projects in the statewide MPO's LRTPs and this amendment in the 2020 Build scenario provide a statewide reduction of 88 tons of CO<sub>2</sub> per day compared to the No-Build case. However, the 2035 Build scenario estimates an increase of about 18 tons of CO<sub>2</sub> emissions compared to the No-Build case. It should be noted that this current analysis measures only projects that are included in the travel demand model. Many other types of projects funded by the MPO cannot be accounted for in the model (such as bicycle and pedestrian facilities, shuttle services, intersection improvements, etc.). The CO<sub>2</sub> reductions associated with these types of projects that are funded in the Boston MPO's TIP are included in the draft 2014–17 TIP.



## CANTON:

### I-95/I-93 Interchange (\$238,000,000)

#### Description

The Interstate-95/Interstate-93 Interchange in Canton is proposed to be constructed in three phases. Specific phases and components of the I-95/I-93 Interchange project include:

##### *Phase 1*

Phase 1 of the project includes:

- The reconstruction of the I-95 southbound/Blue Hill Drive off-ramp.
- The reconstruction of the University Avenue/Canton Street intersection.

##### *Phase 2*

Phase 2 of the project includes:

- The construction of an off-ramp from I-95 northbound to Dedham Street.
- The widening of Dedham Street from two to four lanes, including a sidewalk on the westbound side, between Kirby Drive and a point just west of the Neponset River. This widening will require the Dedham Street bridges over Amtrak and the Neponset River to be widened and the Dedham Street Bridge over I-95 to be replaced.
- The installation of signals at four intersections.

##### *Phase 3*

Phase 3 of the project includes:

- Reconfiguration of the existing I-95 northbound loop ramp with a two-lane, direct-connect flyover ramp.
- A realigned and improved high-speed two-lane, direct connection between I-93 southbound and I-95 southbound.
- A new exit ramp from I-93 southbound to University Avenue.
- The construction of a new entrance ramp from University Avenue to I-93 northbound, including the discontinued use of the Green Lodge Street west of Elm Street.
- The abandoned I-95 stub area located north of the Interchange will be removed and the area will be restored as parkland.
- A two-mile section of I-95 southbound from Route 128 to Neponset Street will be widened to four lanes.
- A one-mile section of I-95 northbound from Dedham Street to Route 128 will be widened to four lanes.

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

### *Land Use*

The 37 acres encompassed by this project are located entirely within the Fowl Meadow/Ponkapoag Bog Area of Critical Environmental Concern. Much of the land surrounding the Interchange is permanently protected, although some of it is zoned for single residences and light industry. According to the Environmental Notification Form (ENF) that was submitted to the state's Department of Environmental Protection, the project, as proposed, will decrease roadways and other paved areas by 1.7 acres. Adjacent land to the proposed new ramp from I-95 northbound to Dedham Street is zoned for light industry and single-family residences.

### *Safety*

The I-95/I-93 Interchange is on MassDOT's list of the top-200 high-crash intersection locations for the years 2008 to 2010. During this period, I-93 at I-95 was the site of 185 crashes, of which 122 involved property damage and 63 involved bodily injury. None of the crashes was fatal. The Interchange also ranked number 35 on the list of the Boston Region MPO's rankings of high-crash intersections and interchanges. There are recurring safety problems at this site, including numerous truck rollovers, on the I-95 northbound ramp.

### *Mobility*

The ENF identifies chronic congestion and weaving problems in the I-95/I-93 Interchange area in both the morning and afternoon peak periods, with the roadways and the interchanges frequently functioning at level-of-service "F." Severe congestion at the intersection of University Avenue and Blue Hill Drive causes long queues that occasionally extend beyond the I-95 southbound exit ramp to Blue Hill Drive. Traffic volume data show that there were 156,900 vehicle-trips per day on the I-95 section of the project in 2012 and 157,200 vehicle-trips per day on the I-93 section in 2012.

The new off-ramp from I-95 northbound to Dedham Street will benefit local streets in the area by enabling I-95 northbound traffic destined for the University Avenue area to avoid local residential streets without increasing through traffic on Dedham Street. Users of the University Avenue/Blue Hill Drive area also will benefit.

### *Connectivity*

By reducing congestion and travel times, this project will enhance the attractiveness of Amtrak and MBTA commuter rail service at the Route 128 station, as well as shuttle-bus service connecting the station to residential and business centers in the area. The project also will facilitate greater recreational use of the Blue Hill Reservation trail system that runs through the area.

### *Note*

This project implements the recommendations of the University Avenue/I-95/I-93 Regional Traffic Study that was prepared by the Central Transportation Planning Staff in July 1999. It also is consistent with the Canton, Dedham, Norwood, and Westwood Municipal Growth Planning Study.

MAP 1: CANTON: I-95/I-93 INTERCHANGE

