



BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

Stephanie Pollack, MassDOT Secretary and CEO and MPO Chair
Tegin L. Teich, Executive Director, MPO Staff

TECHNICAL MEMORANDUM

DATE: January 9, 2020
TO: Boston Region Metropolitan Planning Organization
FROM: Michelle Scott, MPO Staff
RE: Federally Required Calendar Year 2020 Roadway Safety Targets

The United States Department of Transportation (US DOT) requires states and metropolitan planning organizations (MPO) to establish targets each year for federally required roadway safety performance measures, which pertain to fatalities and serious injuries from motor vehicle crashes. The Boston Region MPO has voted to support the Commonwealth's federally required annual roadway safety performance targets for these measures in 2018 and 2019. The Commonwealth has set its roadway safety targets for calendar year (CY) 2020, and the MPO is required to establish its CY 2020 targets by agreeing to support the Commonwealth's targets or setting its own by February 27, 2020. MPO staff recommends that the MPO vote to support the Commonwealth's CY 2020 roadway safety performance targets for these federally required measures, and requests that the MPO take action to do so at its January 9, 2020, meeting.

1 FEDERAL ROADWAY SAFETY PERFORMANCE MONITORING REQUIREMENTS

A series of federal rules designed to focus the federal surface transportation program on achieving performance outcomes was initiated under the Moving Ahead for Progress in the 21st Century (MAP-21) legislation and continued under the Fixing America's Surface Transportation (FAST) Act (see Appendix A for more details). The National Performance Management Measures: Highway Safety Improvement Program rule identifies five performance measures related to crashes involving motor vehicles for which targets must be set:

- 1) Number of fatalities
- 2) Rate of fatalities per 100 million vehicle-miles traveled (VMT)
- 3) Number of serious injuries
- 4) Rate of serious injuries per 100 million VMT
- 5) Number of nonmotorized fatalities and nonmotorized serious injuries

The US DOT requires states to establish and report targets for these measures for the next calendar year by August 31 each year. MPOs have 180 days—no

later than February 27 of the applicable calendar year—to establish their own targets using one of the following methods:

- *Supporting state targets.* Should the MPO select this option, it would agree to plan and program projects so that they contribute to accomplishing the Commonwealth’s targets.
- *Setting quantifiable targets specific to the MPO region.* Should the MPO select this option, it would need to estimate VMT for all public roads in the MPO region and report the methods used to produce those estimates.

In either case, the MPO will need to coordinate with the Commonwealth when setting targets. It will also need to incorporate goals, objectives, measures, and targets from the Commonwealth’s safety plans and processes into the MPO’s planning process.

The MPO has reported on these roadway safety measures and targets, along with other performance measures and targets, in its current most recent Long-Range Transportation Plan (LRTP), *Destination 2040*. In the LRTP, the MPO identified baseline values for these measures and identified recent MPO targets. The MPO also discusses roadway safety and other measures and their relationship to the MPO’s transportation investments in the Transportation Improvement Program (TIP). In the TIP, the MPO seeks to describe, to the maximum extent practicable, the anticipated effect of the TIP toward achieving performance targets identified in the LRTP.

2 MASSACHUSETTS CY 2020 ROADWAY SAFETY PERFORMANCE TARGETS

Highway safety performance targets for CY 2020 will reflect a 2016–20 rolling annual average, as required by the Federal Highway Administration (FHWA). When setting targets, the Commonwealth considered the following:

- Historic trends for these measures and their component metrics (such as annual VMT), which include an anomalous increase in total fatalities from motor vehicle crashes during CY 2016
- Draft CY 2018 values for these measures and their component metrics
- Changes in data reporting requirements, particularly those that would help law enforcement agencies report injury severity more easily and in a more objective manner¹

¹ As of April 15, 2019, states are required to define serious injuries using the definition of “Suspected Serious Injury (A),” as detailed in the Model Minimum Uniform Crash Criteria 4th

- Continued implementation of education and enforcement programs and transportation construction projects designed to improve safety
- Proposed policies and legislation included in the Commonwealth's 2018 Strategic Highway Safety Plan (SHSP), such as a primary seat belt law and a law requiring hands-free only use of electronic devices while driving
- Planned implementation of safety improvement strategies, including engineering, enforcement, education, awareness, data collection, and emergency response strategies

Table 1 lists Massachusetts' 2013–17 rolling average values for the fatality and serious injury performance measures, along with the Commonwealth's CY 2018 safety targets (set in August 2017), CY 2019 targets (set in August 2018), and CY 2020 targets (set in August 2019). For each performance measure, the Massachusetts CY 2020 performance target, which reflects an expected 2016–20 rolling average, is less than the 2013–17 rolling average baseline. The targets the Commonwealth has set for CY 2020 also reflect decreases compared to targets set in CY 2018 and CY 2019.

Charts showing trend data and targets for Massachusetts and trends for the Boston region for these performance measures are included in Appendix B. These charts show that based on historic trends, the average number of fatalities in the Boston region may remain steady in future years, while the average fatality rate, average number of serious injuries, and the average serious injury rate may decrease. Historic trends suggest that nonmotorized fatalities and serious injuries may increase somewhat in the Boston region in future years; this possibility will need to be addressed through coordinated planning, investment, and strategy implementation between the Massachusetts Department of Transportation (MassDOT), the Boston Region MPO, the region's municipalities, and other stakeholders.

Edition. Massachusetts Department of Transportation implemented this change in its statewide crash data system as of January 1, 2019.

**Table 1
Massachusetts Roadway Safety Performance Trends and Targets**

Highway Safety Performance Measure	2017 Safety Measure Value (2013–17 Rolling Average)	2018 Safety Target (Expected 2014–18 Rolling Average)	2019 Safety Target (Expected 2015–19 Rolling Average)	2020 Safety Target (Expected 2016–20 Rolling Average)
Number of fatalities	356.80	352.00	353.00	347.00
Rate of fatalities per 100 million vehicle-miles traveled	0.59	0.61	0.58	0.56
Number of serious injuries	2,943.00	2,896.00	2801.00	2,689.00
Rate of serious injuries per 100 million vehicle-miles traveled	4.87	5.01	4.37	4.30
Number of nonmotorized fatalities and nonmotorized serious injuries	518.16	540.80	541.00	505.40

Notes: MassDOT defines serious injuries as suspected serious injuries, which are defined in the Model Minimum Uniform Crash Criteria 4th Edition and identified through incident reporting by police and vehicle operators using the Commonwealth of Massachusetts Motor Vehicle Crash Operator Report. The Commonwealth set its 2018 targets in 2017, its 2019 targets in 2018, and its 2020 targets in 2019. All values have been rounded to the hundredths place.

MassDOT = Massachusetts Department of Transportation.

Sources: National Highway Traffic Safety Administration Fatality Analysis Reporting System, Massachusetts Crash Data System, Massachusetts Department of Transportation.

While the Commonwealth has set targets for these five measures to meet federal requirements, it also has a long-term goal to eliminate fatalities and serious injuries on Massachusetts roadways.² The Commonwealth’s 2018 SHSP identifies interim goals that the Commonwealth will work toward to advance its long-term goal. It also describes the planning, programming, and other strategies that the Commonwealth and partner entities can implement to improve safety outcomes.

FHWA will review the Commonwealth’s progress with respect to its targets once data are available and will notify the Commonwealth about whether it has met or

² Commonwealth of Massachusetts. Massachusetts 2018 Strategic Highway Safety Plan, 2019, p. 5.

made significant progress toward its safety performance targets. To make significant progress, a state must meet four out of the five roadway safety performance targets or have actual performance better than the baseline for those measures. FHWA will report on the results of its assessment of each state's progress toward its CY 2018 performance targets no later than March 2020; based on this schedule, FHWA would report on its assessment of progress toward CY 2020 targets no later than March 2022. Should a state not make significant progress, FHWA will limit that state's flexibility when spending federal transportation dollars to direct funding toward projects and initiatives that would improve roadway safety. FHWA will not review MPO progress on these performance measures directly, and the MPO will neither be penalized for not achieving roadway safety targets nor rewarded for attaining them. During quadrennial certification reviews, FHWA will examine how MPOs are implementing a performance-based planning and programming practice process and assess how MPOs are progressing toward their own targets or assisting the state in making progress toward its targets.

3 REQUESTED ACTION AND NEXT STEPS

MPO staff recommends that the Boston Region MPO vote to support the Commonwealth's CY 2020 highway safety performance targets. This option would satisfy federal requirements and would reflect the way the MPO will need to collaborate with the Commonwealth on safety strategies to reduce fatalities and injuries in the Boston region. Should the MPO select this approach, staff will present and describe these targets in the performance chapters of the federal fiscal years 2021–25 TIP document. Going forward, MassDOT and the MPO will continue to work together to examine how planning and programming at the Commonwealth and MPO levels can support improvements in roadway safety outcomes.

To supplement these federally required targets, the MPO could explore and identify other measures or targets that it could incorporate into its planning process. For example, the MPO could monitor performance measures that focus on specific groups of roadway users, such as pedestrians. The MPO could also choose to set targets that would cover a time period longer than one year. MPO staff would provide the MPO with information that staff gathered and analyzed when developing *Destination 2040* and its Needs Assessment and through other activities. The MPO could revisit this topic after reviewing FHWA's assessment of the Commonwealth's progress against its CY 2018 performance targets, which should be available no later than March 2020.

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APPENDIX A: FEDERAL ROADWAY SAFETY PERFORMANCE RULES

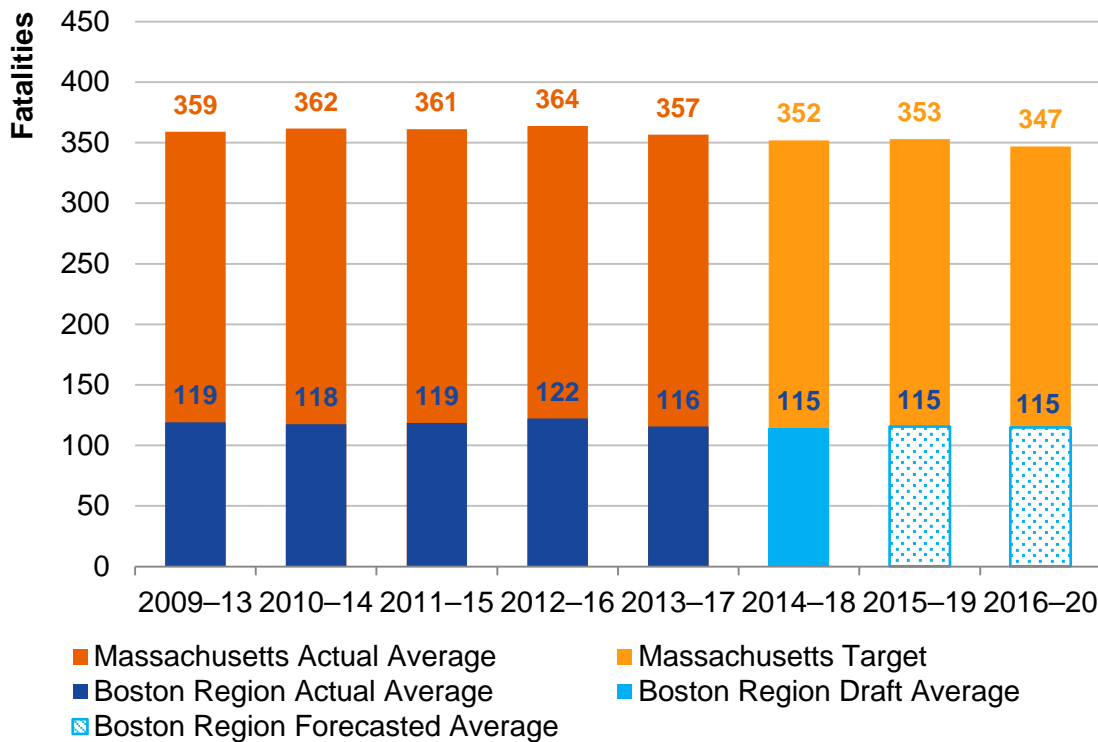
Several federal rules pertain to performance-based planning and programming (PBPP) practice for roadway safety and inform this aspect of the Boston Region's Metropolitan Planning Organization's (MPO) PBPP process:

- The Statewide and Nonmetropolitan Transportation Planning and Metropolitan Transportation Planning final rule establishes requirements for state and MPO planning processes, including those pertaining to performance-based decision making, target setting, and reporting. (23 Code of Federal Regulations [CFR] Parts 450 and 771 and 49 CFR Part 613)
- The Highway Safety Improvement Program rule includes requirements for states to report annually on targets and progress for federally identified highway safety performance measures. (23 CFR Part 494)
- The National Performance Management Measures: Highway Safety Improvement Program rule identifies the relevant performance measures. (23 CFR Part 490)

APPENDIX B: ROADWAY SAFETY PERFORMANCE TREND AND TARGET CHARTS

The five charts in this section illustrate roadway safety performance trends in Massachusetts, expressed in five-year rolling annual averages, along with the Commonwealth’s calendar year 2018, 2019, and 2020 targets. For context, Boston Region Metropolitan Planning Organization (MPO) staff has included historic five-year rolling annual averages for the Boston region for these performance measures. MPO staff has also included draft 2014–18 and projected 2015–19 and 2016–20 rolling annual averages for the Boston region for these performance measures. MPO staff used linear trend lines, historic data from 2009 to 2017, and draft estimates for 2018 to develop the Boston region projected averages shown in the charts below. More information is included in the notes below each figure.

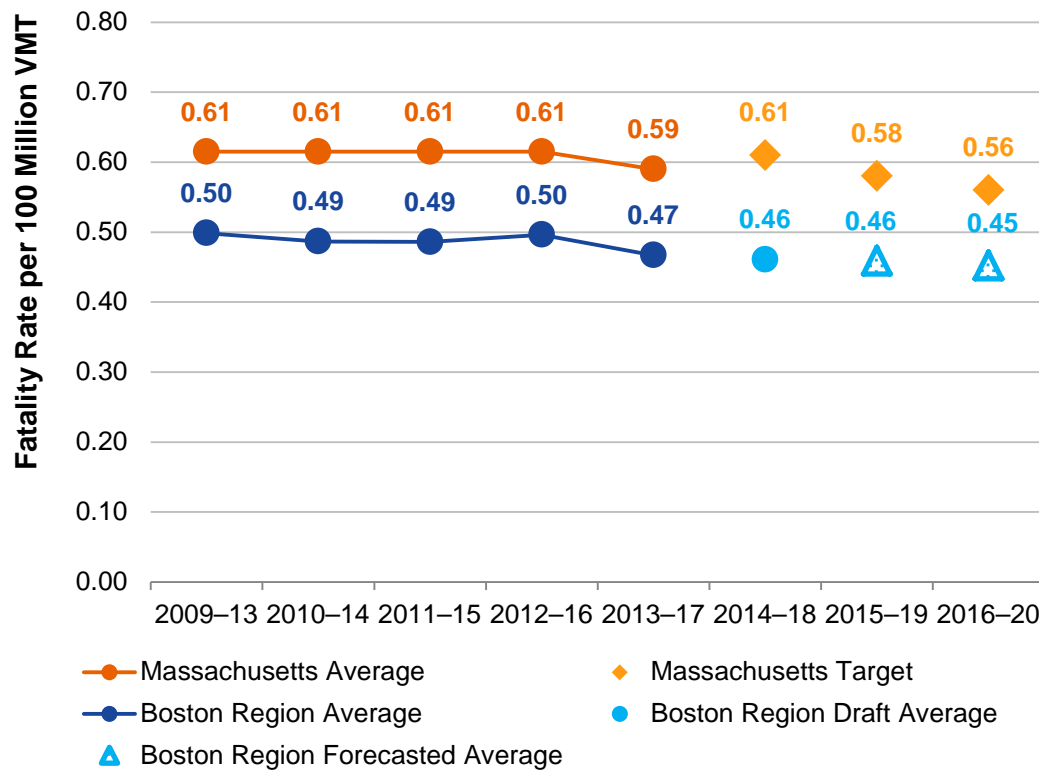
**Figure B-1
Number of Fatalities**



Notes: Values reflect five-year rolling annual averages and have been rounded to the nearest integer. MPO staff developed projections for the Boston region using a linear trend line based on actual fatality values for CYs 2009 through 2017 and a draft estimate of 98 fatalities for CY 2018. The draft 2014–18 and the forecasted 2015–19 and 2016–20 average numbers of fatalities in the Boston region are smaller than the historic averages shown in the chart; however, some of these differences do not appear at the integer level. CY = Calendar Year. MPO = Metropolitan Planning Organization.

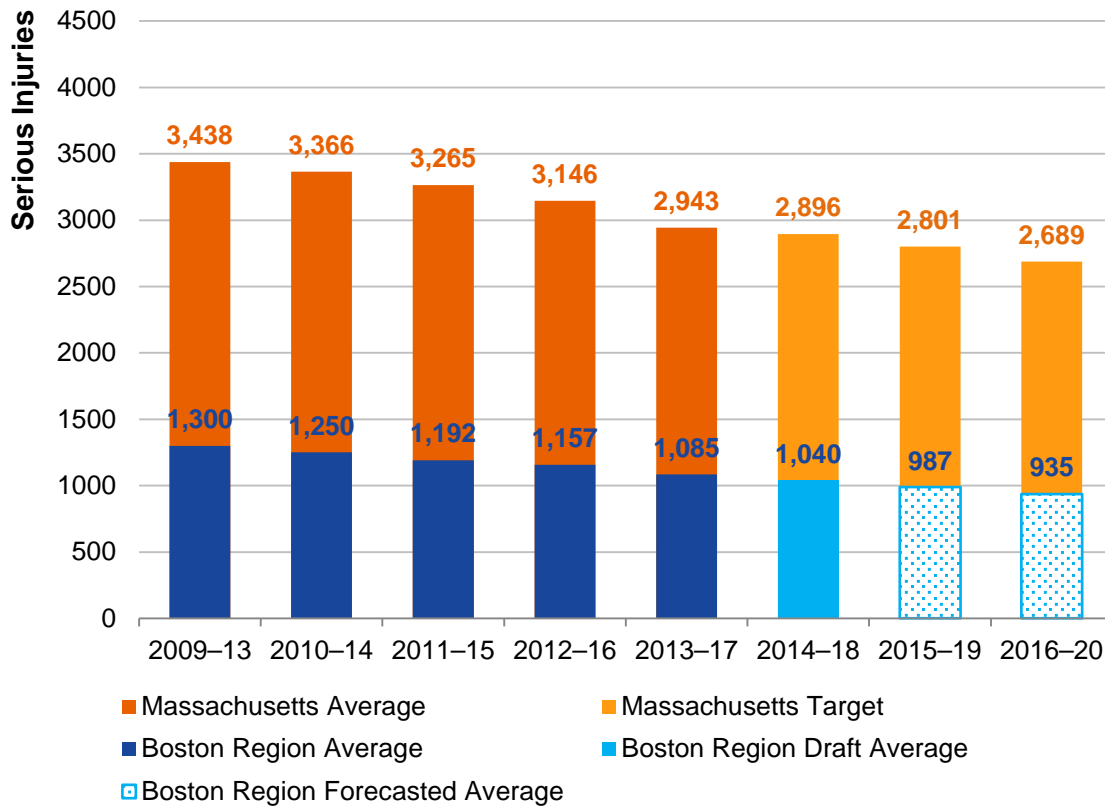
Sources: National Highway Traffic Safety Administration Fatality Analysis and Reporting System, Massachusetts Department of Transportation, Boston Region MPO staff.

Figure B-2
Fatality Rate per 100 Million VMT



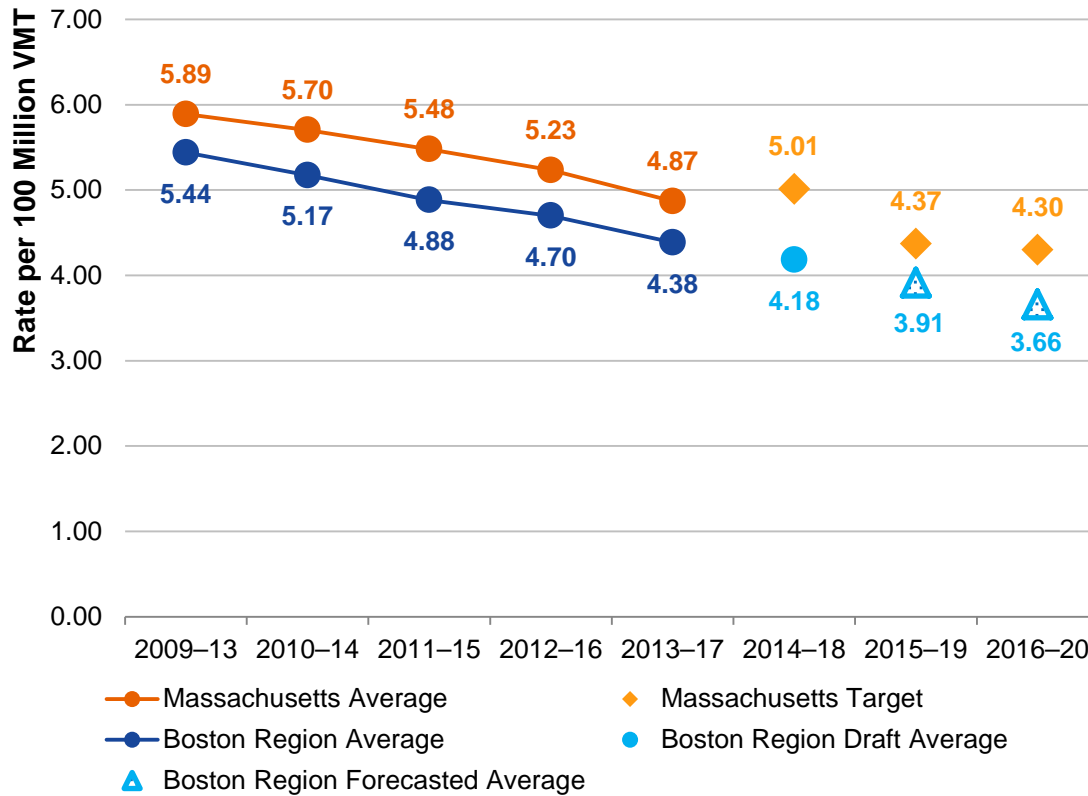
Notes: Values reflect five-year rolling annual averages and have been rounded to the hundredths decimal place. MPO staff developed projections for the Boston region using a linear trend line based on actual fatality values and VMT values for CYs 2009 through 2017, a draft estimate of 98 fatalities for CY 2018, and an estimate of CY 2018 VMT from MassDOT (approximately 24.9 billion VMT).
 CY = Calendar Year. MassDOT = Massachusetts Department of Transportation. MPO = Metropolitan Planning Organization. VMT = Vehicle-Miles Traveled.
 Sources: National Highway Traffic Safety Administration Fatality Analysis and Reporting System, Massachusetts Department of Transportation, Boston Region MPO staff.

**Figure B-3
Number of Serious Injuries**



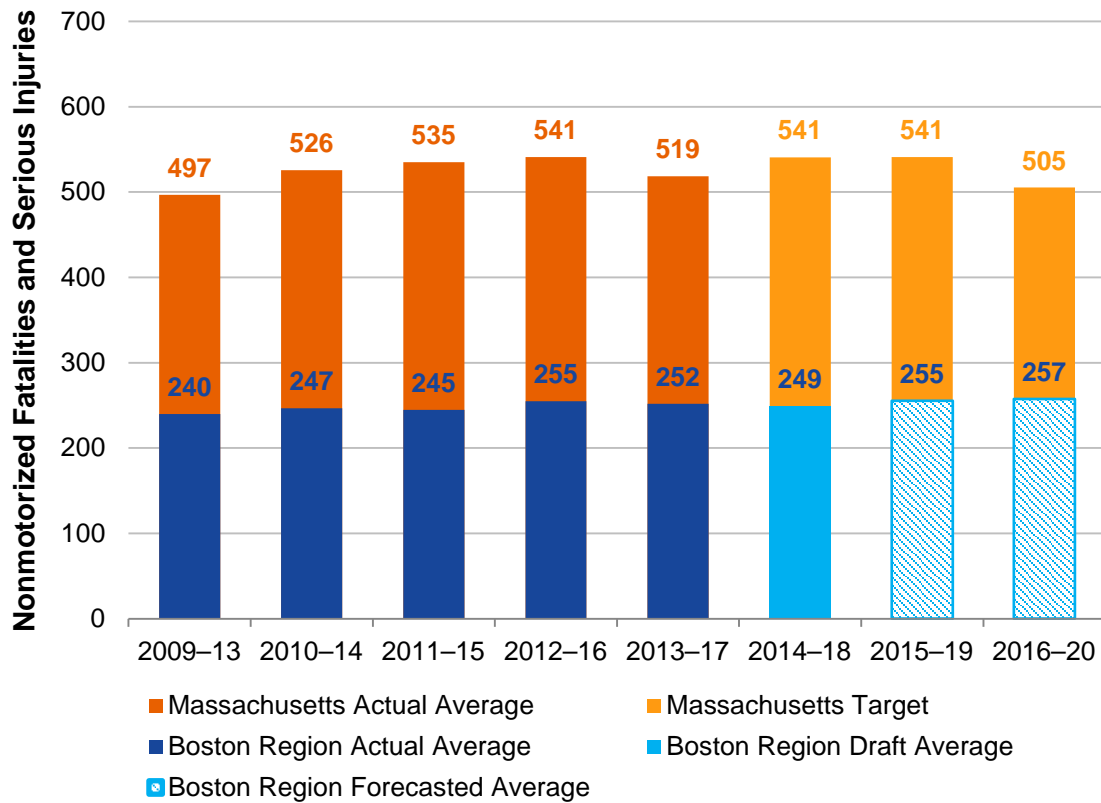
Notes: Values reflect five-year rolling annual averages and have been rounded to the nearest integer. MPO staff developed projections for the Boston region using a linear trend line based on actual serious injury values for CYs 2009 through 2017 and a draft estimate of 938 serious injuries for CY 2018. CY = Calendar Year. MPO = Metropolitan Planning Organization.
Sources: Massachusetts Crash Data System, Massachusetts Department of Transportation, Boston Region MPO staff.

Figure B-4
Serious Injury Rate per 100 Million VMT



Notes: Values reflect five-year rolling annual averages and have been rounded to the hundredths decimal place. MPO staff developed projections for the Boston region using a linear trend line based on actual serious injury values and VMT values for CYs 2009 through 2017, a draft estimate of 938 serious injuries for CY 2018, and an estimate of CY 2018 VMT from MassDOT (approximately 24.9 billion VMT).
 CY = Calendar Year. MassDOT = Massachusetts Department of Transportation. MPO = Metropolitan Planning Organization. VMT = Vehicle-Miles Traveled.
 Sources: Massachusetts Crash Data System, Massachusetts Department of Transportation, Boston Region MPO staff.

**Figure B-5
Number of Nonmotorized Fatalities and Serious Injuries**



Notes: Values reflect five-year rolling annual averages and have been rounded to the nearest integer. MPO staff developed projections for the Boston region using a linear trend line based on actual nonmotorized fatality and serious injury values for CYs 2009 through 2017, and draft estimates of 38 nonmotorized fatalities and 191 nonmotorized serious injuries for CY 2018.
 CY = Calendar Year. MPO = Metropolitan Planning Organization.
 Sources: National Highway Traffic Safety Administration Fatality Analysis and Reporting System, Massachusetts Crash Data System, Massachusetts Department of Transportation, Boston Region MPO staff.