



Roadway Safety Performance Update and CY 2019 Targets

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Boston Region Metropolitan Planning Organization

Key Takeaways

- 1) US DOT requires states and MPOs to set one-year targets for **roadway safety** performance measures each year
- 2) The Commonwealth has set targets for calendar year (CY) 2019
- 3) By **February 27, 2019**, MPOs must establish CY 2019 safety targets by
 - Supporting state targets; or
 - Setting separate MPO targets

Key Takeaways

- 4) **Today:** MPO staff recommends that the MPO support the Commonwealth's CY 2019 targets
- 5) **Going forward:** MPO staff recommends that the MPO explore other measures or targets to add to its performance-based planning and programming (PBPP) process
- 6) The Commonwealth, the MPO, and other stakeholders will need to work together to improve roadway safety outcomes

Updates to Performance Targets

Federally Required Performance Measure Groups

MPO Update Approach and Schedule

<ul style="list-style-type: none">• Roadway Safety	Update annually
<ul style="list-style-type: none">• Transit Asset Management• Transit Safety (future)	Revisit annually when updating TIP
<ul style="list-style-type: none">• NHS Bridge and Pavement Condition• NHS Reliability• Interstate Truck Travel Time Reliability	Update every four years, or when state DOT updates its four-year targets
<ul style="list-style-type: none">• CMAQ Traffic Congestion Targets	Update every two years, in coordination with other parties in the Boston UZA
<ul style="list-style-type: none">• CMAQ Emissions Reduction Targets	Update every two years, depending on federal applicability determination

CMAQ = Congestion Mitigation and Air Quality Improvement Program. DOT = Department of Transportation. NHS= National Highway System. TIP = Transportation Improvement Program. UZA = Urbanized Area.

Federally Required Roadway Safety PMs

Measures

Number of fatalities

Rate of fatalities per 100 million VMT

Number of serious injuries

Rate of serious injuries per 100 million VMT

Number of non-motorized fatalities and non-motorized serious injuries

PM = Performance Measure. VMT = Vehicle Miles Traveled.

Common Roadway Safety PM Features



- Are **outcome-based** measures
- Reflect fatalities and injuries from motor vehicle collisions
- Use five-year rolling averages
- Apply to all public roads, regardless of jurisdiction or ownership

Intent:



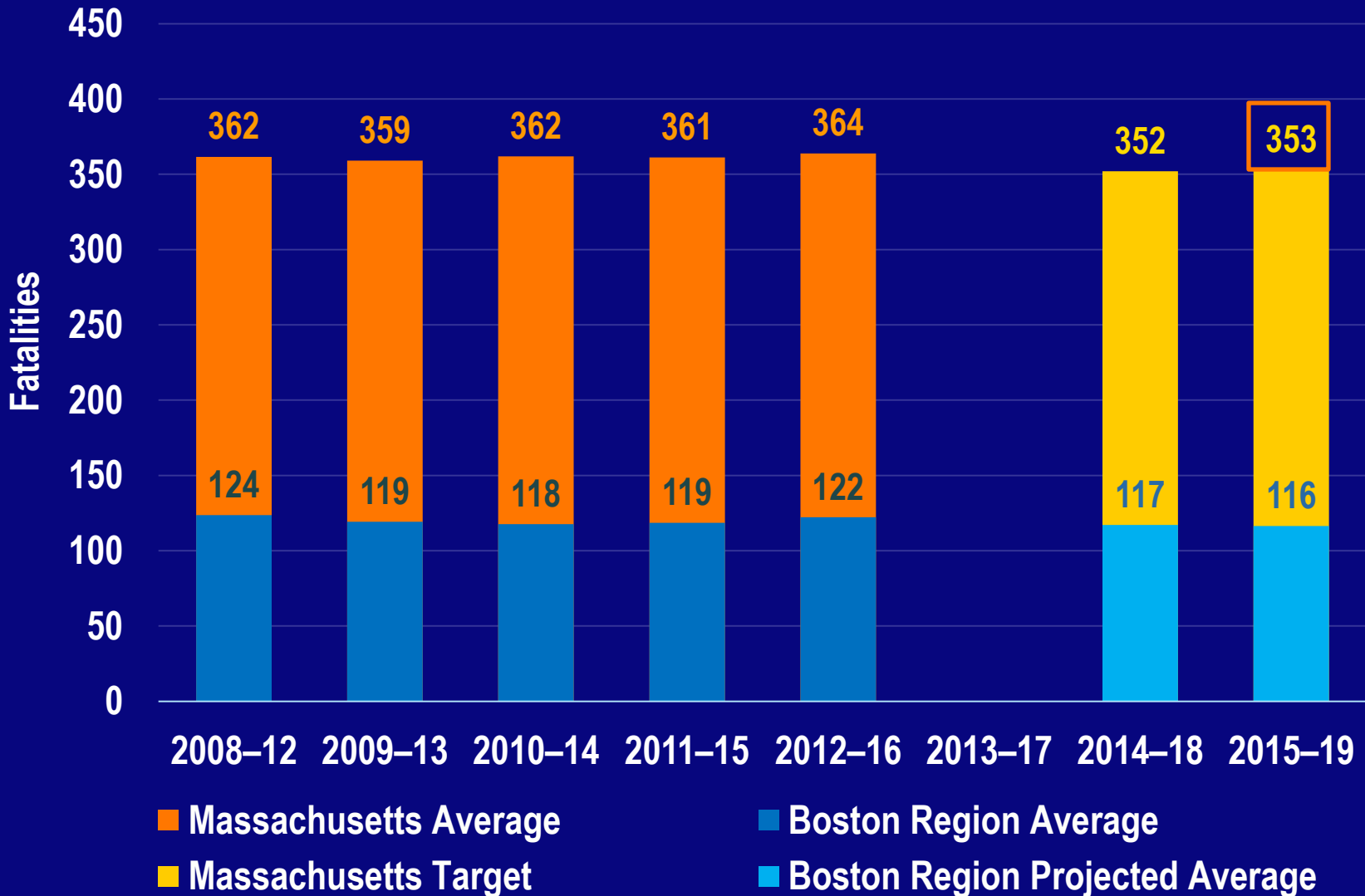
Minimize values for all measures

Commonwealth Target-Setting Process



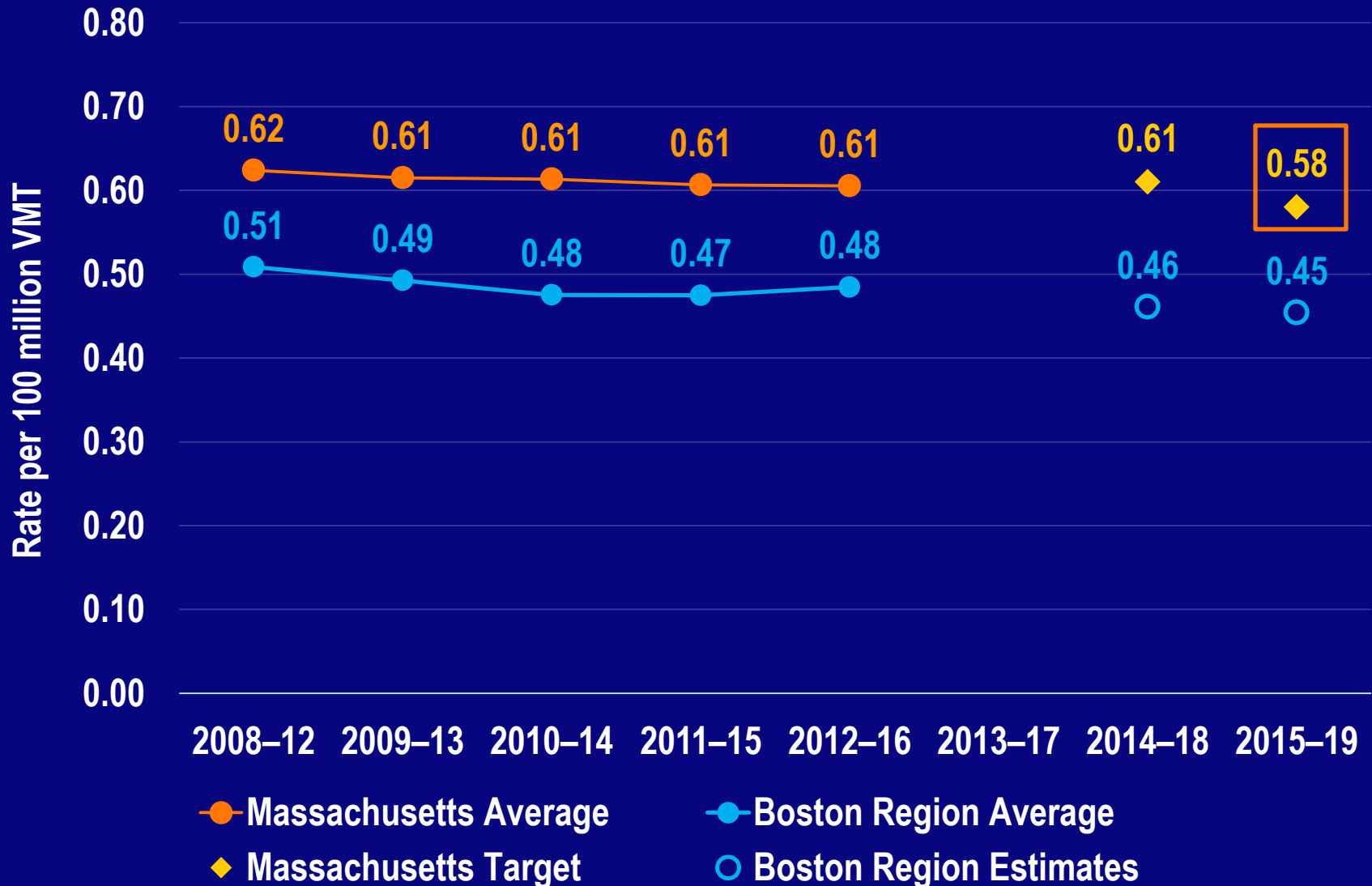
- Targets are for **CY 2019**
- Target values reflect **2015–19 rolling averages**
- **MassDOT** and the **Executive Office of Public Safety and Security (EOPSS)** coordinate to set targets
- **MassDOT** and **EOPSS** report targets to **FHWA** and **NHTSA**

Fatalities: Five-Year Averages



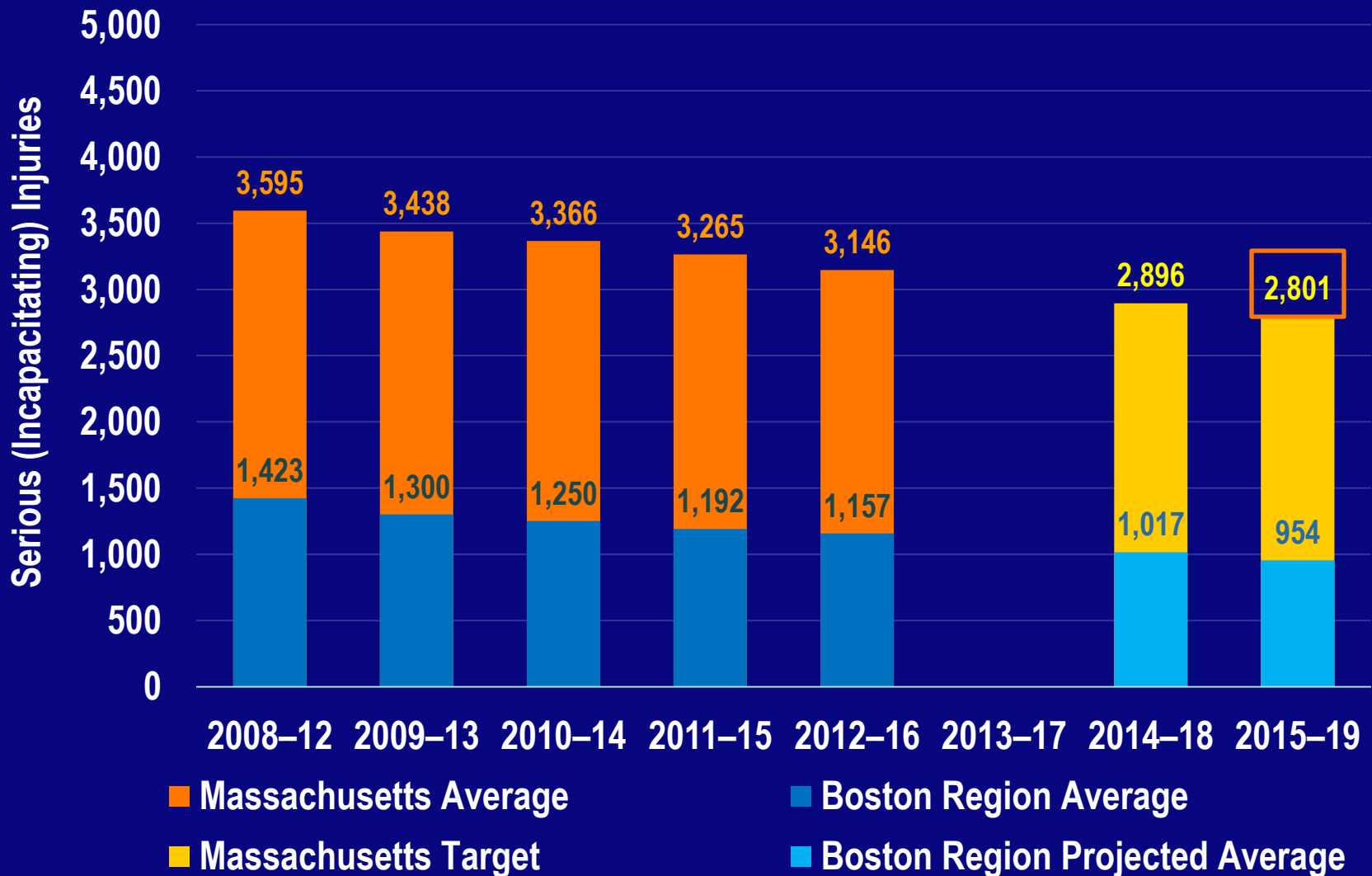
Sources: Federal Fatality Analysis Reporting System (FARS), MassDOT, Boston Region MPO staff.

Fatality Rates



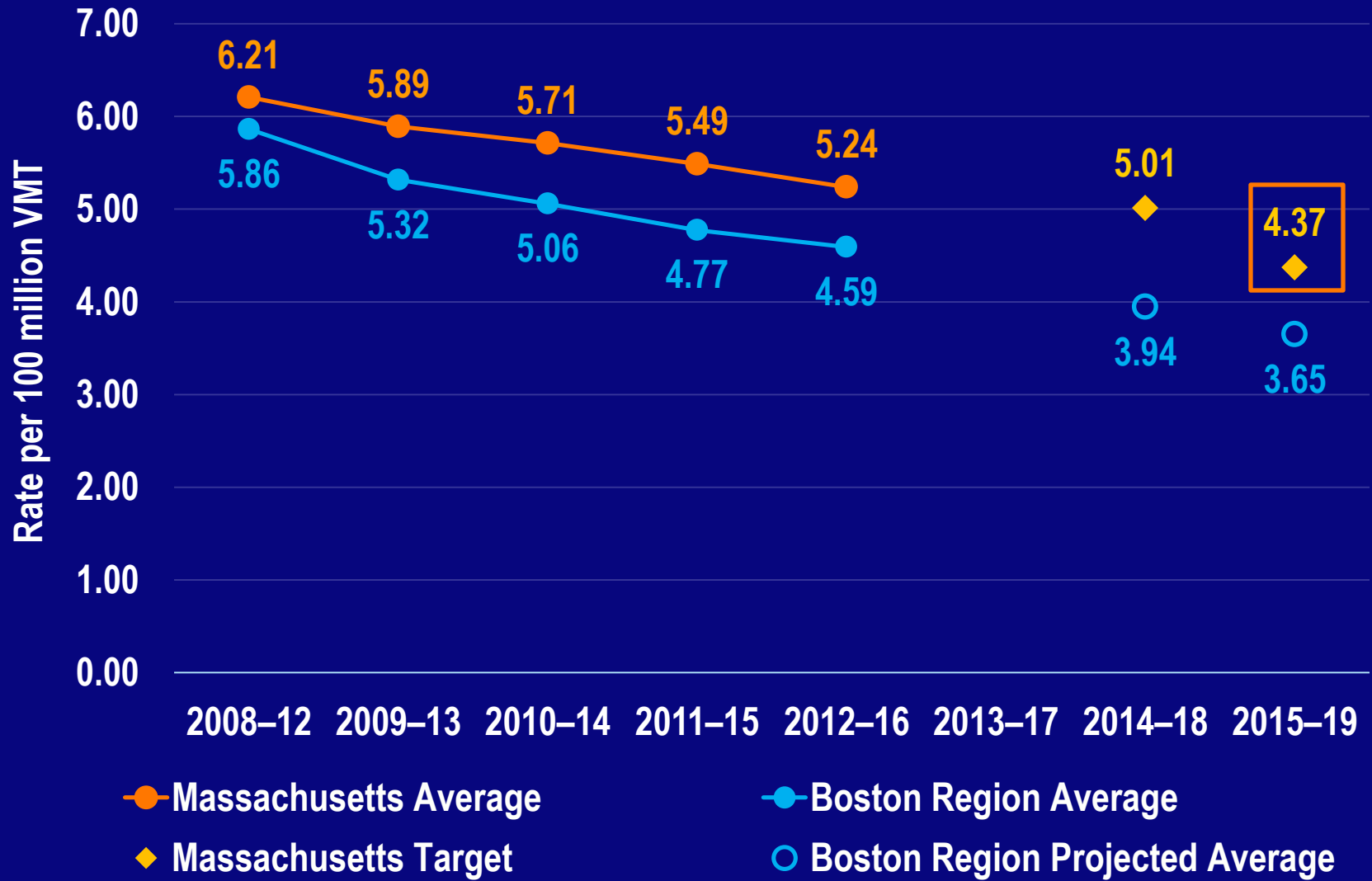
Sources: Federal Fatality Analysis Reporting System (FARS), MassDOT, Boston Region MPO staff.

Serious Injuries



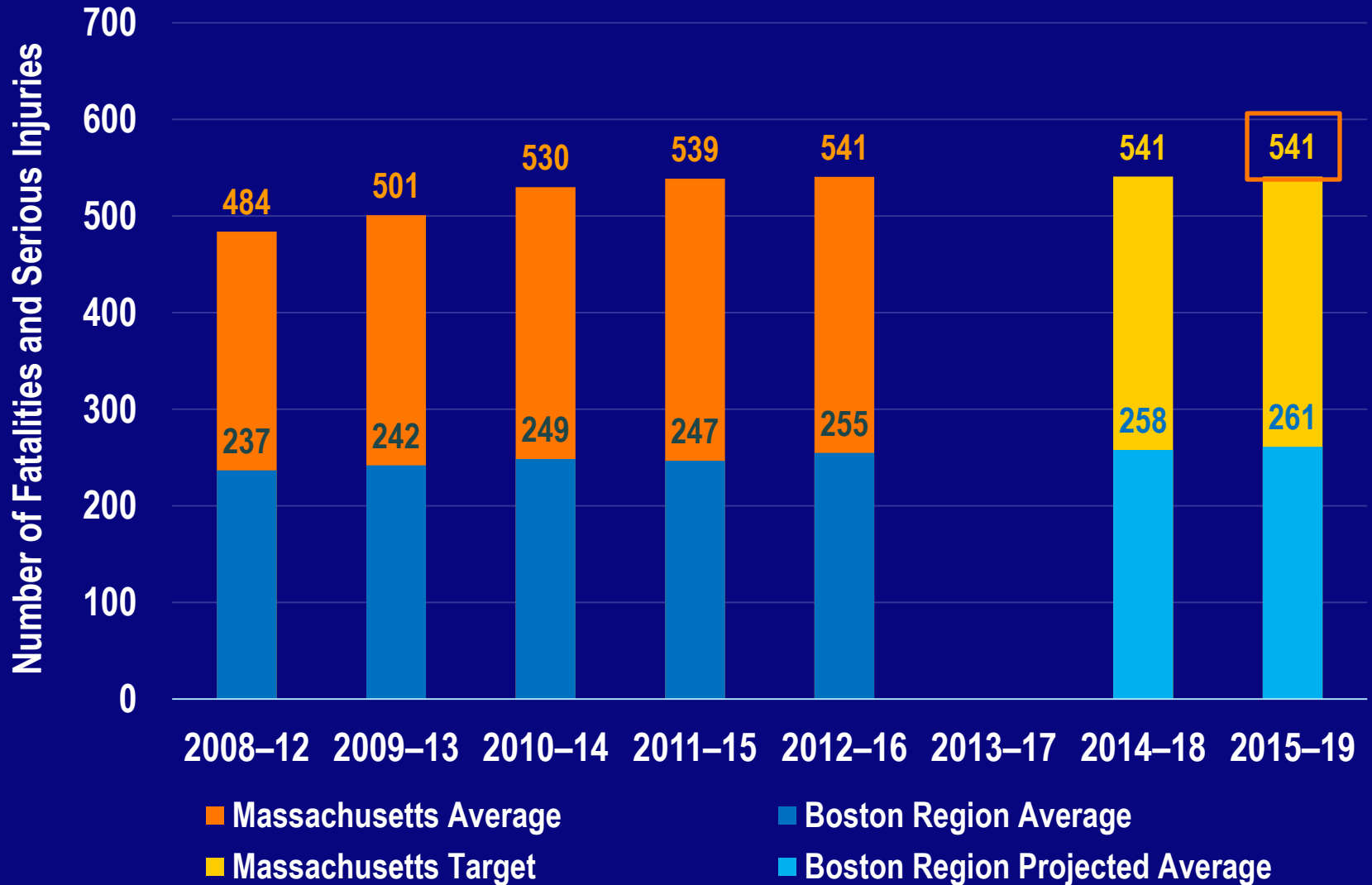
Sources: MassDOT Crash Data System, MassDOT, Boston Region MPO staff.
MassDOT uses incapacitating injuries to represent the serious injuries metric.

Serious Injury Rates



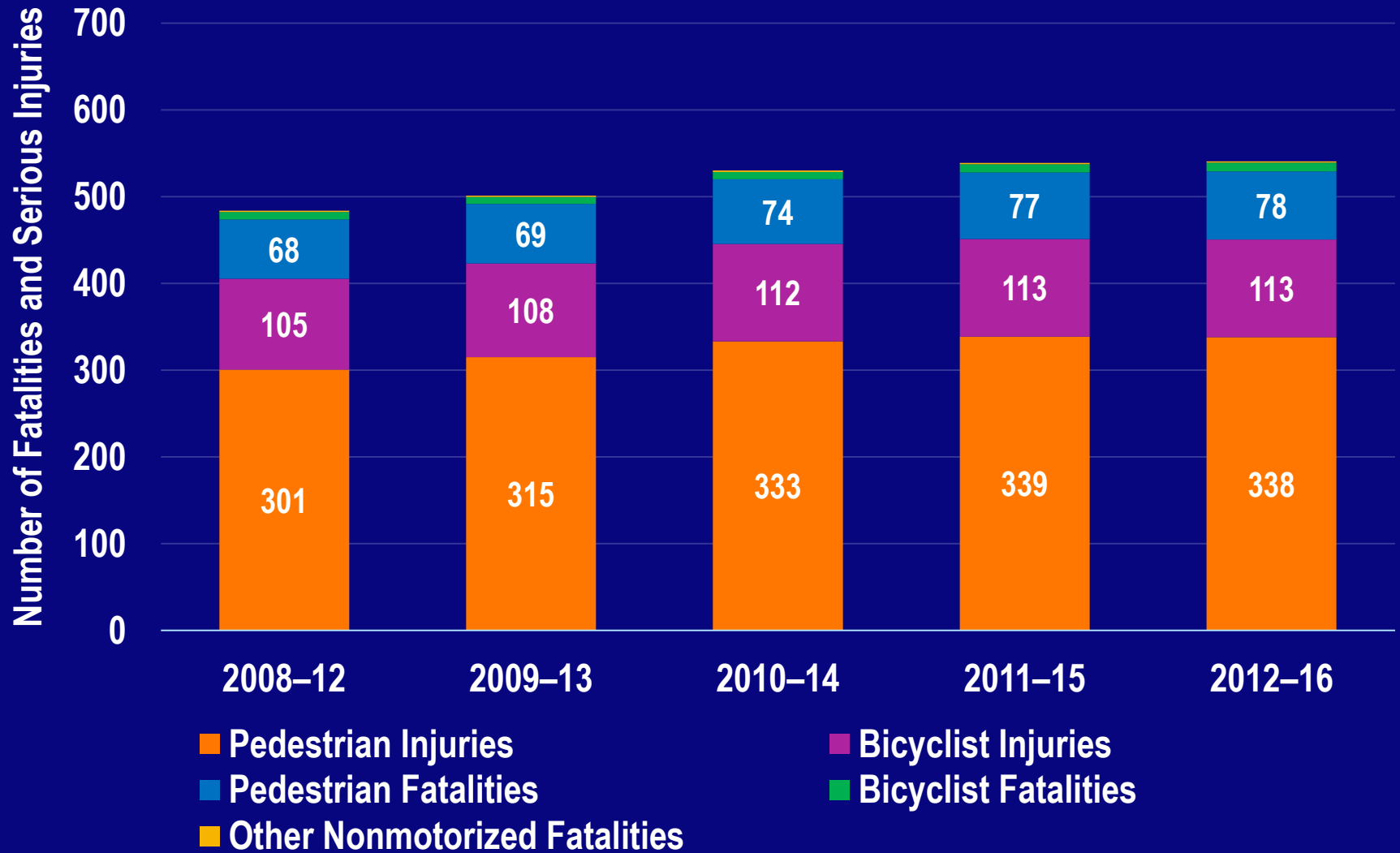
Sources: MassDOT Crash Data System , MassDOT, Boston Region MPO staff.
MassDOT uses incapacitating injuries to represent the serious injuries metric.

Nonmotorized Fatalities and Serious Injuries



Sources: Federal Fatality Analysis Reporting System (FARS), MassDOT Crash Data System, MassDOT, Boston Region MPO staff.
MassDOT uses incapacitating injuries to represent the serious injuries metric.

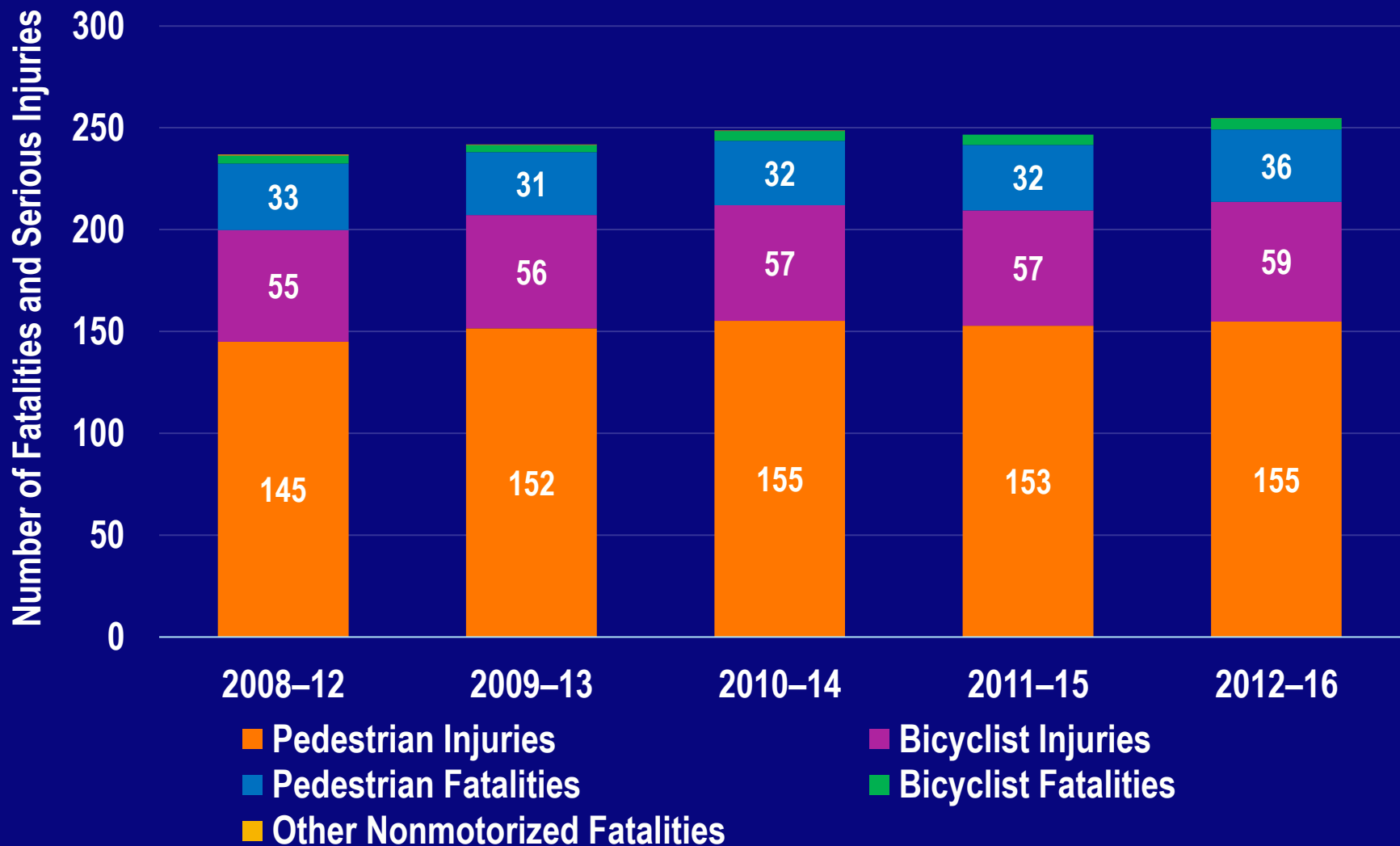
Massachusetts Nonmotorized Fatalities and Injuries



Source: Fatality Analysis and Reporting System, MassDOT Crash Data System.

MassDOT uses incapacitating injuries to represent the serious injuries metric. The 2013-17 average includes draft 2017 values for each category.

Boston Region Nonmotorized Fatalities and Injuries



Source: Fatality Analysis and Reporting System, MassDOT Crash Data System.

MassDOT uses incapacitating injuries to represent the serious injuries metric. The 2013-17 average includes draft 2017 values for each category.

MPO Target-Setting Options

Support a Statewide Target

- No quantifiable target needed for the MPO area
- Agree to plan and program projects to help reach statewide target
- Work with MassDOT on target narratives for LRTP and TIP

Set a Separate Target for the MPO Area

- Commit to a quantifiable target for the MPO area
- Coordinate with MassDOT on target development
- Report targets to MassDOT and in LRTP and TIP

Target-setting approach can vary for each performance measure

Requested MPO Action for Today

- Establish CY 2019 safety targets by
 - Supporting state targets; or
 - Setting separate MPO targets
- **Staff Recommendation:** Support statewide CY 2019 roadway safety targets
- Next step: MPO staff would incorporate these targets into the MPO's TIP and LRTP



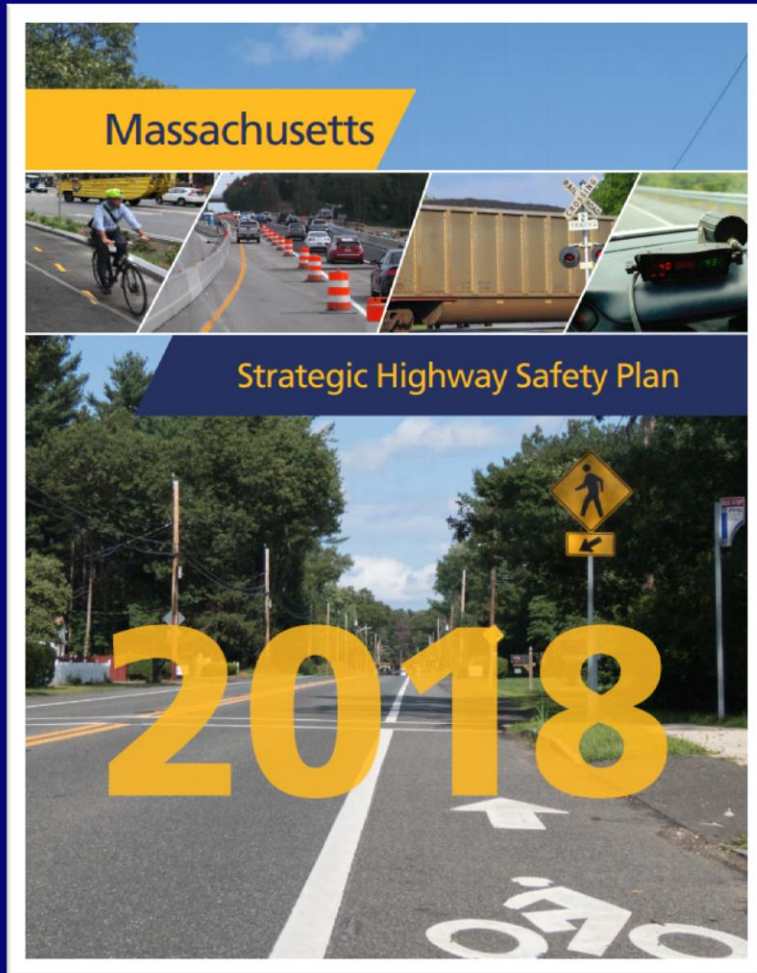
Future Action: Other MPO PBPP Activities

**The MPO
must meet
federal
requirements**

The MPO can also

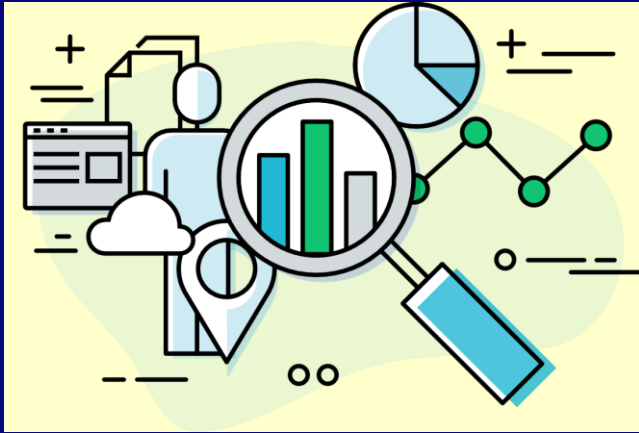
- Track federally required and other measures at MPO level
- Set longer-term or aspirational targets for planning processes
- Set targets for other measures that are not federally required

Strategic Highway Safety Plan (SHSP)



- Describes the Commonwealth's long-term and medium-term roadway safety goals
- Identifies safety emphasis areas and improvement strategies
- Will be integrated into the Commonwealth's and MPOs' transportation planning processes

Strategies to Improve Roadway Safety



Data and Analysis

- **MPO:** Analyzes safety issues, trends, and project impacts
- **MassDOT and municipalities:** Manage crash data and analyze safety information



Engineering and Infrastructure

- **MPO:** Studies locations and recommends improvements, and invests in safety projects
- **MassDOT and municipalities:** Design and invest in safety improvements

Strategies to Improve Roadway Safety



Policy and Legislation



Enforcement



Education and Awareness



Emergency Response

Roadway Safety Targets Summary

Measure	CY 2012–16 Average	Commonwealth CY 2018 Target (2014–18 Average)	Commonwealth CY 2019 Target (2015–19 Average)	Commonwealth Long-Term Target
Number of Fatalities	363.8	352.0	353.0	Move Toward Zero
Fatality Rate per 100 Million VMT	0.610	0.610	0.580	Move Toward Zero
Number of Serious Injuries	3,145.8	2,896.0	2,801.0	Move Toward Zero
Serious Injury Rate per 100 Million VMT	5.238	5.010	4.370	Move Toward Zero
Number of Non-Motorized Fatalities and Serious Injuries	540.6	540.8	541.0	Move Toward Zero

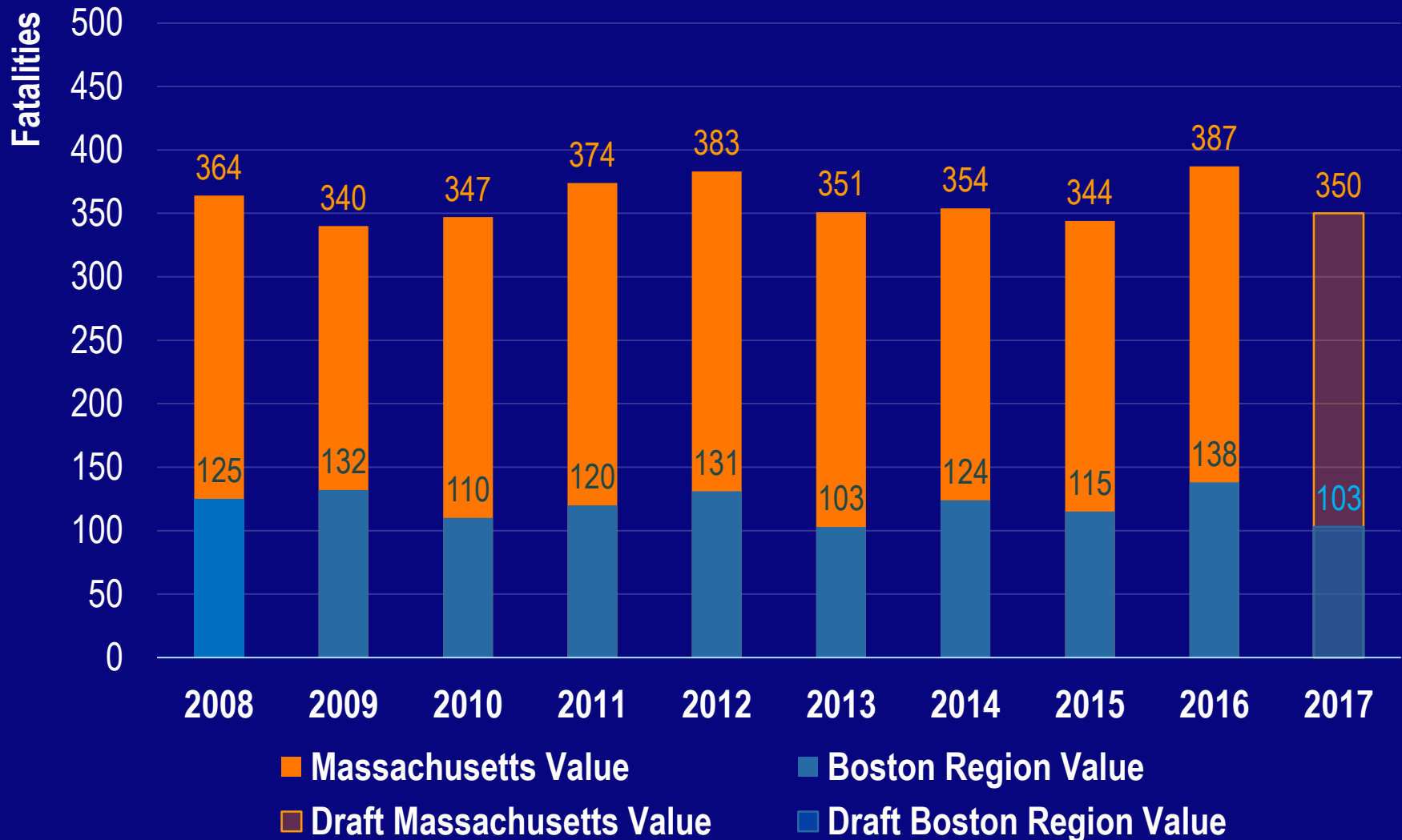
Back-up Slides



Planning to Improve Roadway Safety



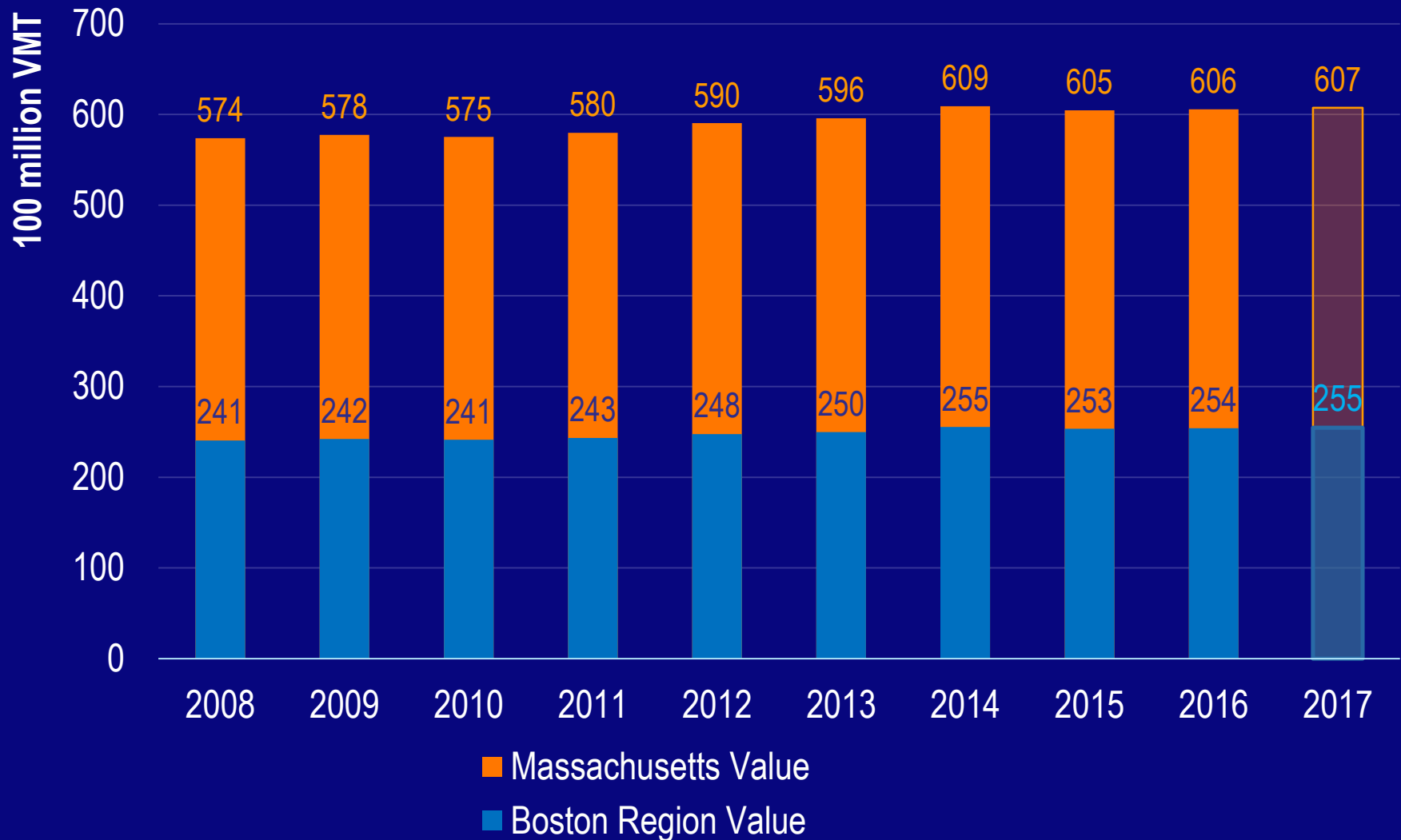
Fatalities: One-Year Values



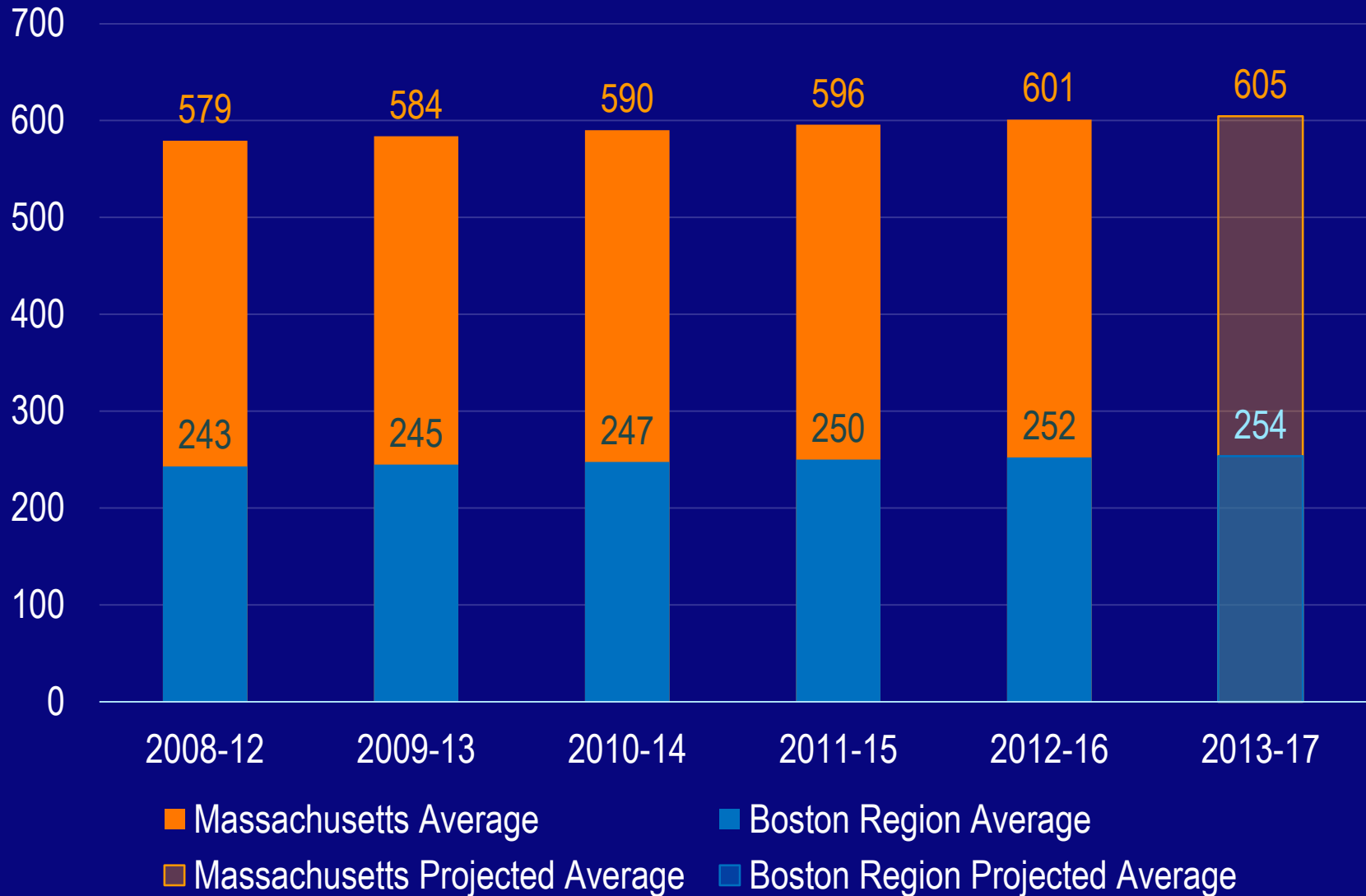
Sources: Federal Fatality Analysis Reporting System (FARS), MassDOT

Draft 2017 fatality values are those available in the FARS Encyclopedia as of 1/11/2019.

Vehicle Miles Traveled (VMT) Trends

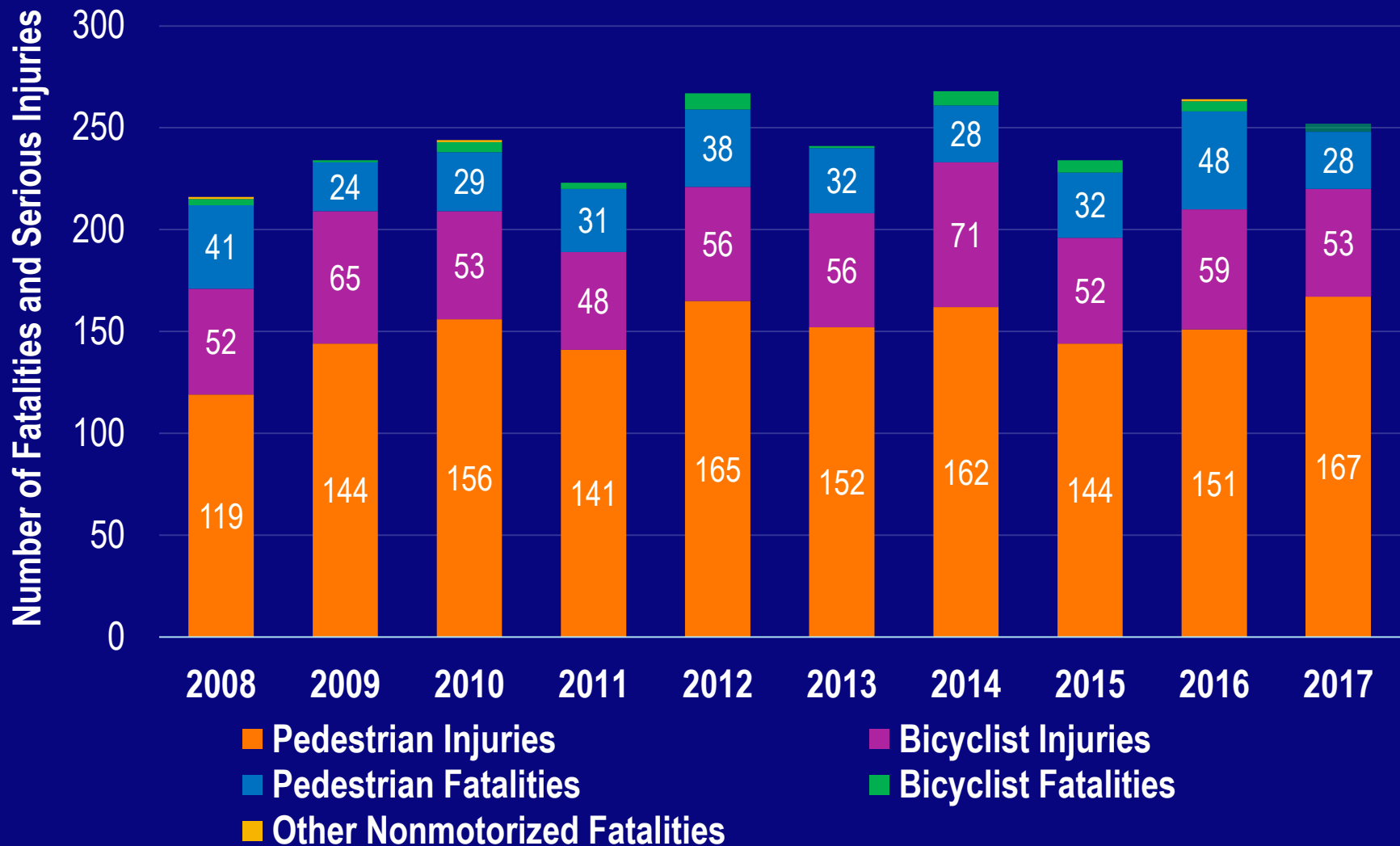


Vehicle Miles Traveled (VMT) Trends



Source: MassDOT

Boston Region Nonmotorized Fatalities and Injuries



Source: Fatality Analysis and Reporting System, MassDOT Crash Data System.

MassDOT uses incapacitating injuries to represent the serious injuries metric. The 2013–17 average includes draft 2017 values for each category.

Crash Factors / Emphasis Areas

(Based on 2011–15 data and a 101 municipality region)

Factor Involved in Crash	Percent of Fatalities		Percent of Serious Injuries	
	Massachusetts	Boston Region	Massachusetts	Boston Region
Intersections	32%	27%	40%	39%
Lane Departures (not at intersection)	47%	41%	-	-
Pedestrians	21%	23%	10%	13%
Bicyclists	3%	4%	3%	5%
Motorcyclists	13%	-	9%	-
Large Vehicles (buses and trucks)	10%	12%	6%	6%

Crash Factors / Emphasis Areas

(Based on 2011–15 data and a 101 municipality region)

Factor Involved in Crash	Percent of Fatalities		Percent of Serious Injuries	
	Massachusetts	Boston Region	Massachusetts	Boston Region
Lack of Occupant Protection (such as seat belt use)	49%	48%	12%	10%
Alcohol-impaired Driving	34%	34%	1%	1%
Speeding	28%	27%	3%	2%
Young Drivers (15-20 years old)	11%	11%	3%	14%
Older Drivers (65 and older)	20%	16%	4%	19%

Source: MassDOT.

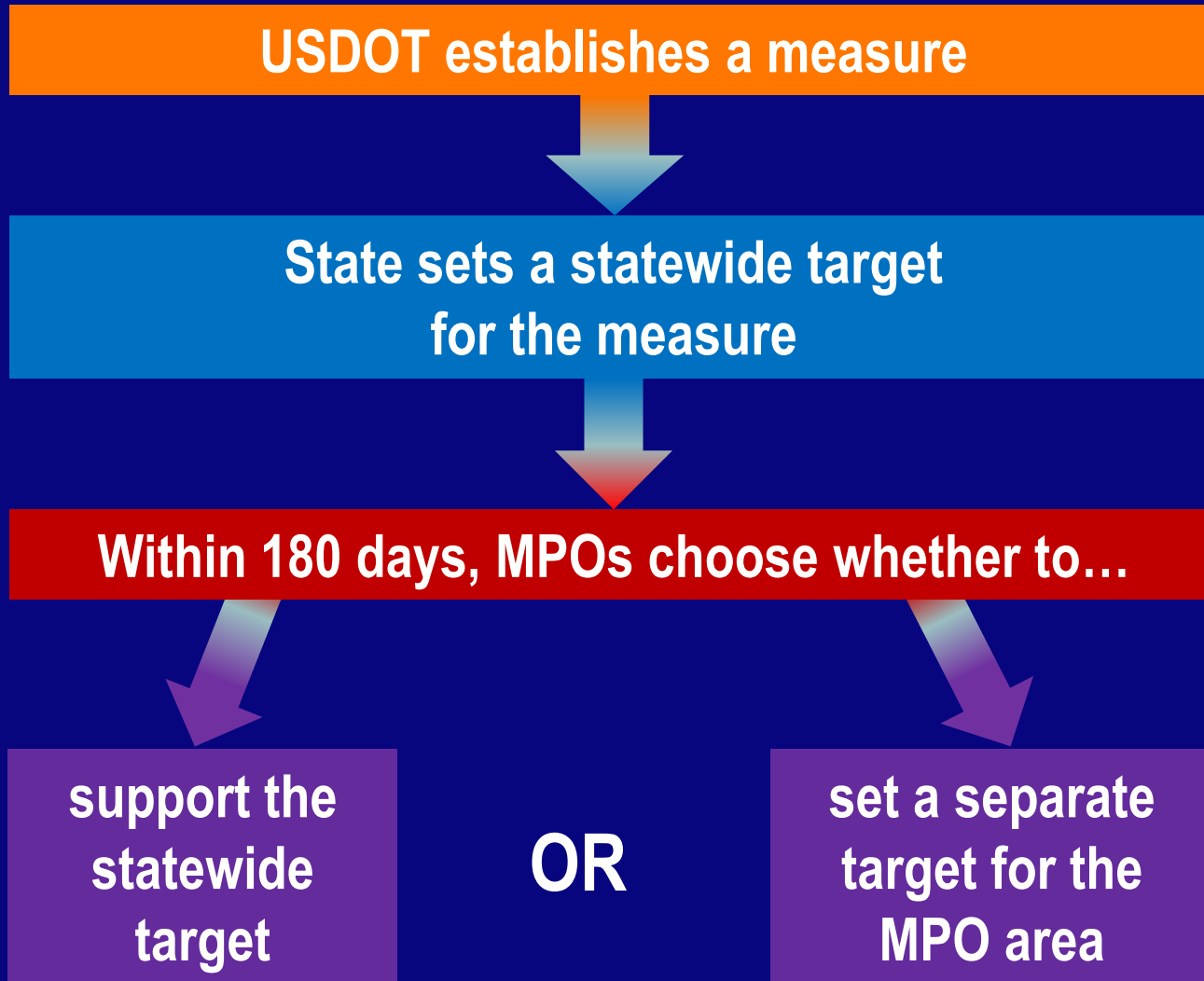
Occupant protection statistics apply to motorists only.

Federal Performance Management Rules

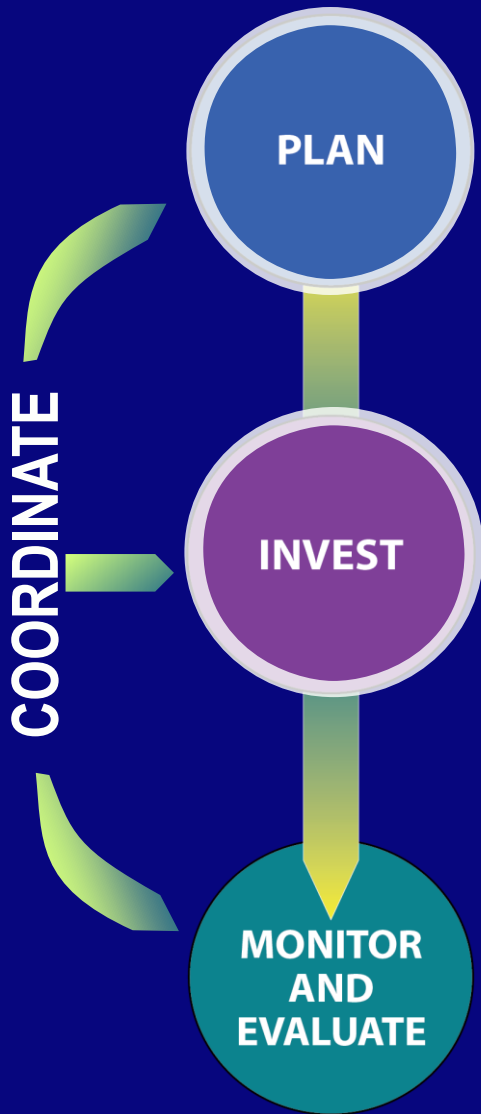
Rules	Performance Measure (PM) Topics	Final	In Effect
Statewide and Metropolitan Planning	Planning for Performance Management	✓	✓
Transit Asset Management	Transit Asset Condition	✓	✓
HSIP / Safety Performance	Roadway Safety	✓	✓
Pavement and Bridge Condition	Pavement and Bridge Condition	✓	✓
NHS Performance / CMAQ / Freight	<ul style="list-style-type: none"> • System Reliability • Freight Movement and Economic Vitality • Congestion Reduction • Mobile-source Emissions 	✓	✓
Public Transportation Agency Safety Plan	Transit Safety	✓	

CMAQ = Congestion Mitigation and Air Quality Improvement Program. HSIP = Highway Safety Improvement Program. NHS= National Highway System.

Target-Setting Process



PBPP Process

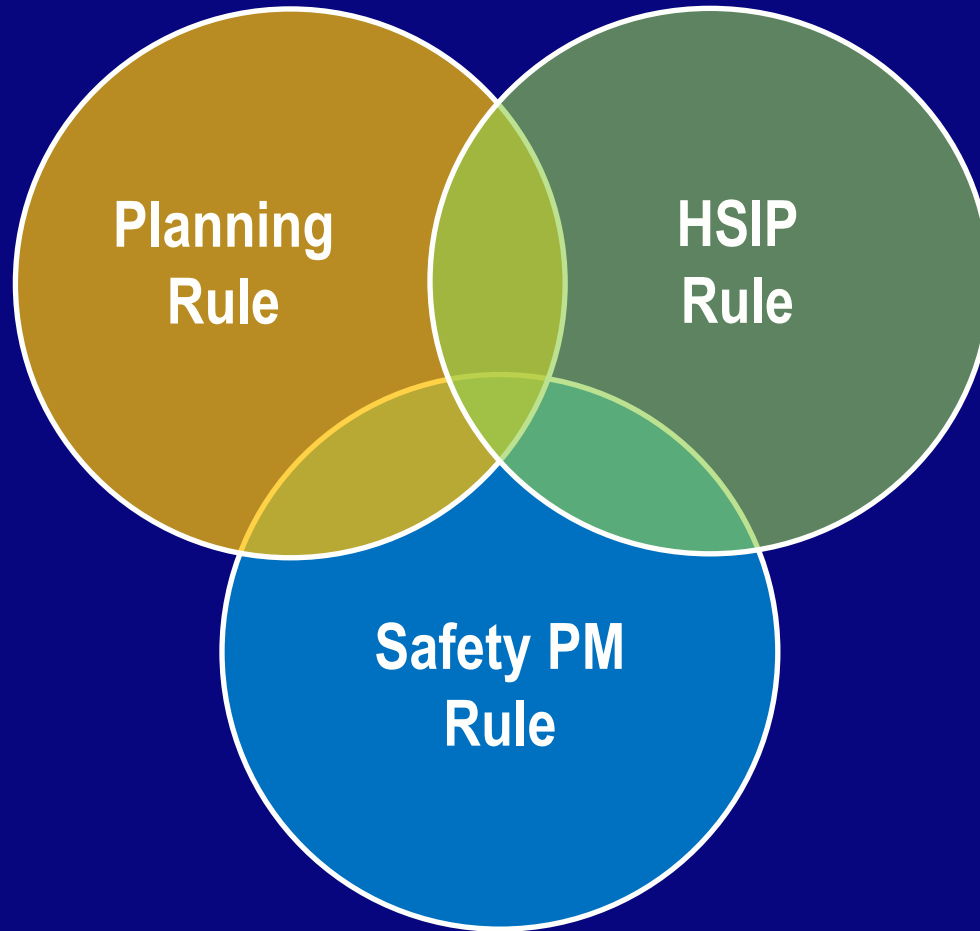


Set goals and objectives
Develop supporting and related plans (LRTP)
Select performance measures and set targets

Use measures and data to make investment decisions in MassDOT CIP and MPO TIP

Monitor, analyze, and report results
Consider changes in investment strategies

Planning requirements for states and MPOs (including PBPP)



Highway Safety Improvement Program policies and structure

Safety Performance Measures

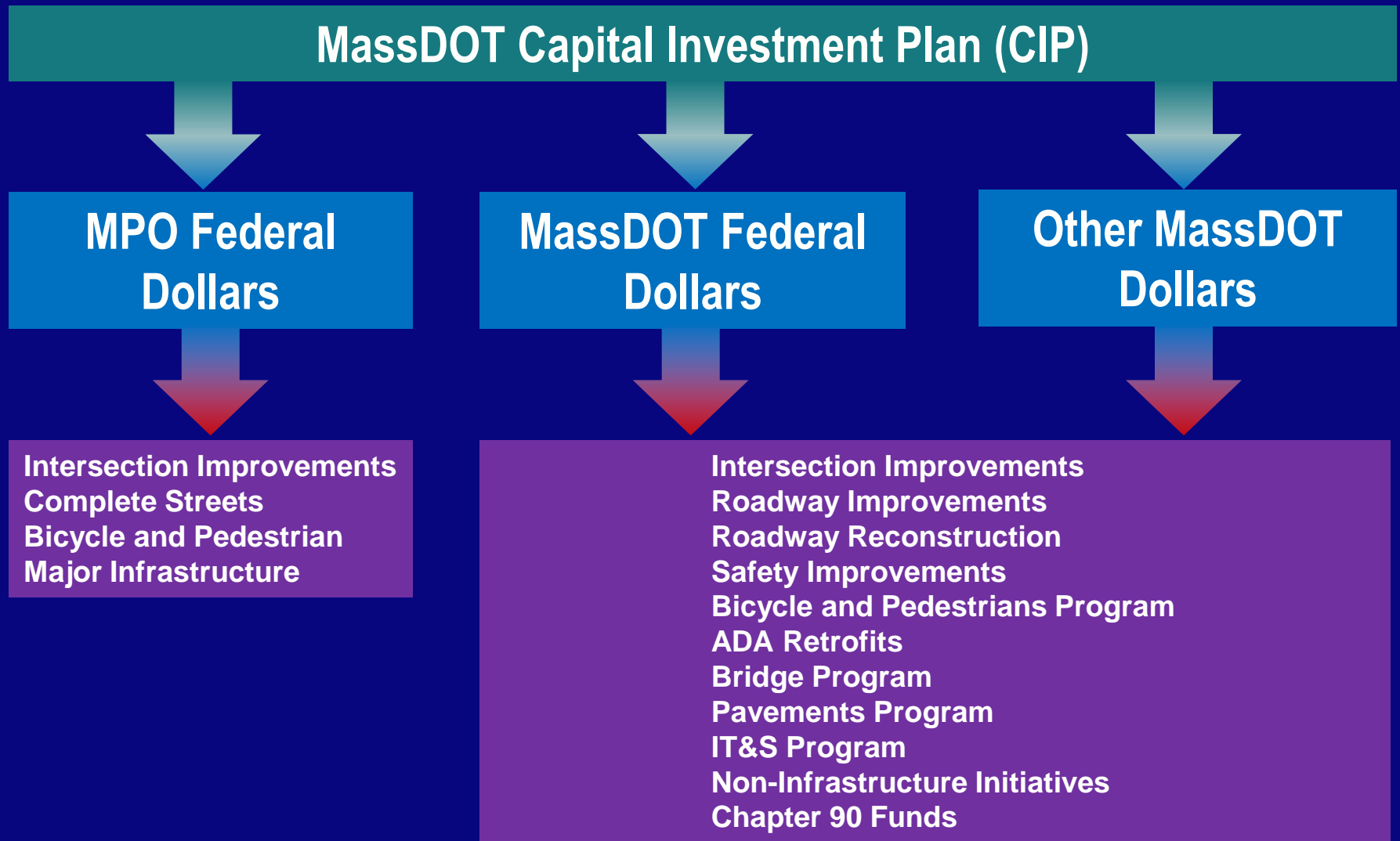
Purpose: Improve Safety Performance

Using Targets for Course Correction



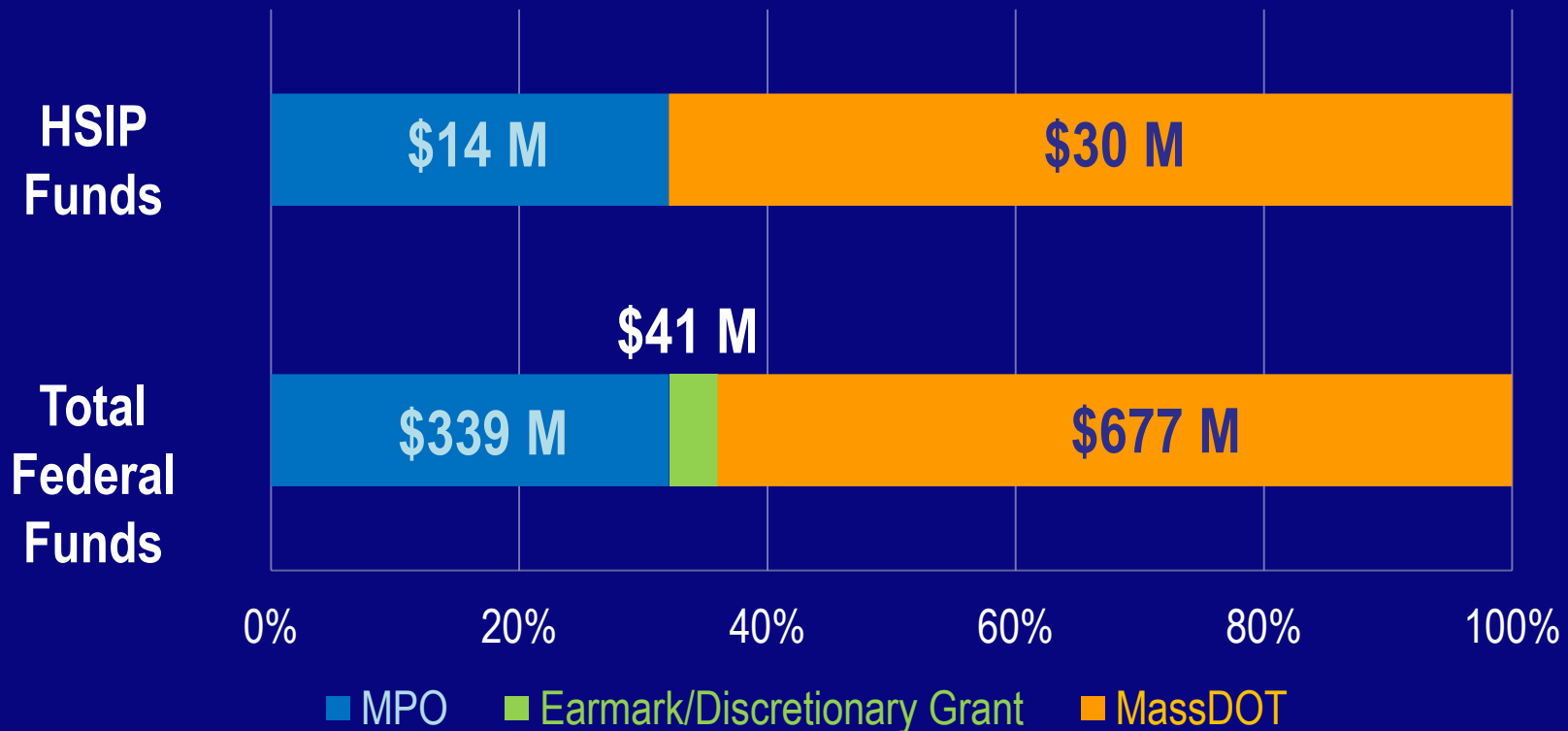
Frequent chances to check progress and make changes

Programming to Improve Highway Safety



Programming for Highway Safety

Federal Funds for Roadway Capital Projects in the Boston Region from FFYs 2018-22 STIP

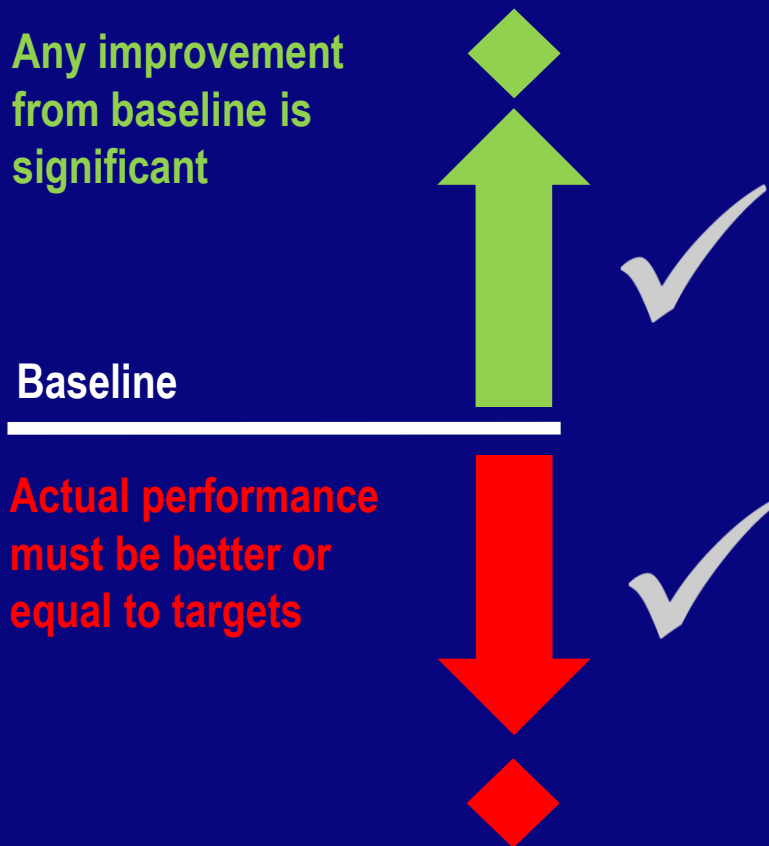


Source: FFYs 2018-22 State Transportation Improvement Program (STIP) as of November 2017

Note: Federal funds include a local match. The chart excludes Boston Region MPO funding for Green Line Extension Phase 1 and the Community Transportation Program, funds for statewide items, and other planning, adjustment, or pass-through funds.

FHWA Progress Evaluation

Significant Progress Determination



- FHWA evaluates state performance only
- If significant progress is not achieved, states must document actions they will take to achieve targets
- FHWA reviews how MPOs are addressing PBPP and targets as part of certification reviews

FHWA Progress Evaluation

ILLUSTRATIVE EXAMPLE			
Measure	State Performance Meets or Surpasses Target?	State Performance Better than Baseline?	Progress Criteria Met?
Number of fatalities	✓	✓	Yes
Rate of fatalities per 100 million VMT	✓	✓	Yes
Number of serious injuries		✓	Yes
Rate of serious injuries per 100 million VMT		✓	Yes
Number of non-motorized fatalities and non-motorized serious injuries			No

Significant Progress = At least 4 out of 5