

# Comprehensive Highway Safety Plan Update

## *Advisory Committee Meeting 3*

*presented to*

**CHSP Advisory Committee**

*presented by*

**Audrey Wennink and Joe Fish**



September 23, 2014

**CAMBRIDGE**  
SYSTEMATICS

# Agenda

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- » **Introductions**
- » **Recap of Previous Meeting and Approval of Minutes**
- » **Data by Potential Emphasis Area**
- » **Confirm Structure for Emphasis Area Organization**
- » **Performance Management**
- » **Develop Overall Plan Targets**
- » **Summit Planning**
- » **Next Steps**

# Accomplishments at Last Meeting

- » Reviewed results of Strengths, Weaknesses, Opportunities, and Threats (SWOT) Report
- » Reviewed MT Crash data by Selected Emphasis Area
- » Developed Organizational Structure for Emphasis Areas
  - Discussed Appropriate Emphasis Areas for Further Analysis

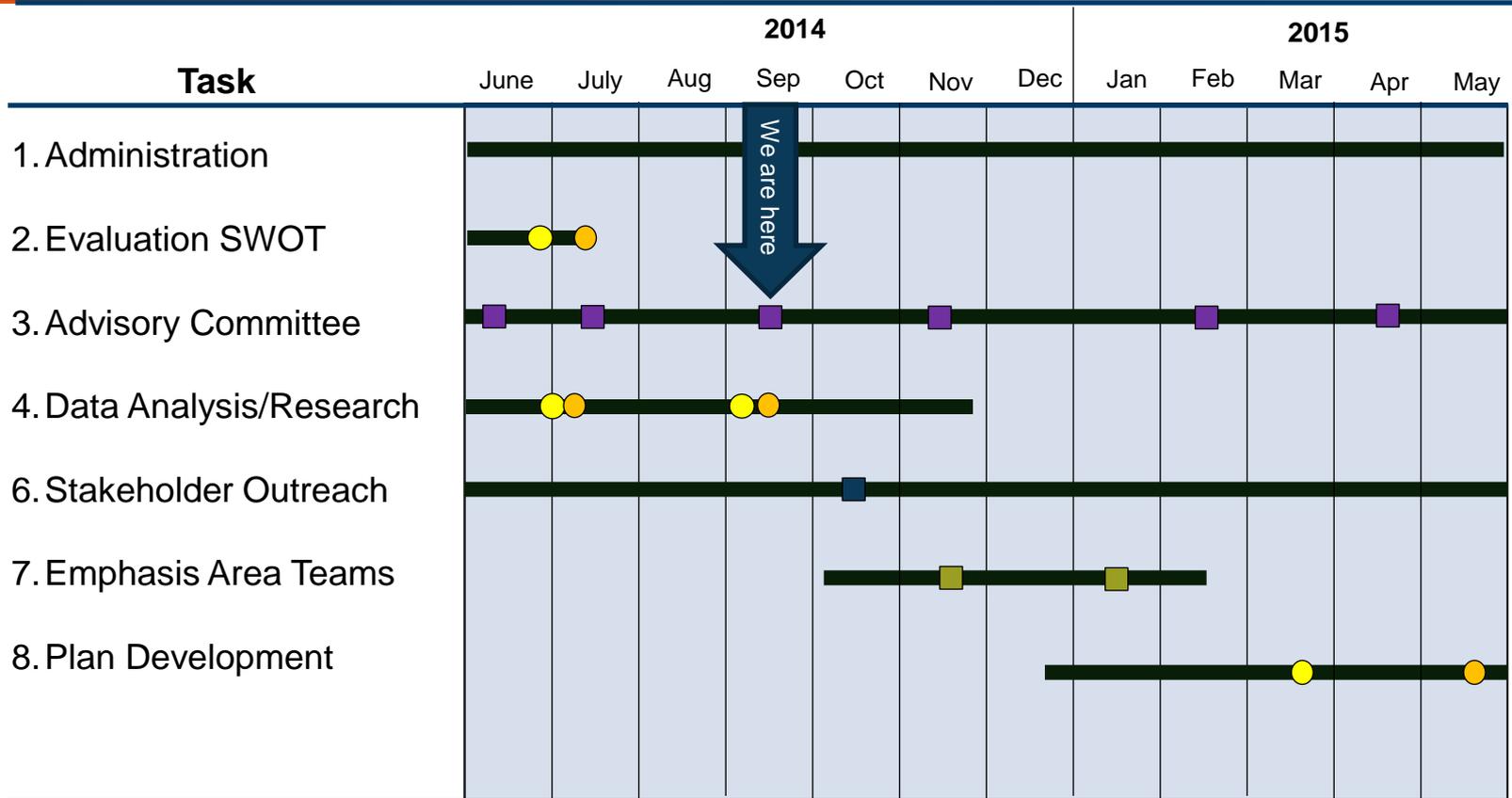
# Montana CHSP Purpose

**Implement a collaborative process to reduce fatalities and serious injuries in Montana utilizing engineering, enforcement, education, and emergency response strategies. The CHSP will seek to focus resources strategically, where opportunities for safety improvements are greatest.**

# Roles and Responsibilities of AC Members

- » **Attend 6 Advisory Committee meetings**
- » **Provide active guidance on CHSP development**
  - **Be creative!**
- » **Help define problems and opportunities for improvement**
- » **Support involvement of your agency's staff in Emphasis Area teams and future implementation**

# Schedule



- Draft Deliverable    ■ Advisory Committee Meeting
- Final Deliverable    ■ Stakeholder Outreach Meeting
- Emphasis Area Team Meetings

**Emphasis  
Area  
Organization**



# Emphasis Area Organization

## » Safer Roadway Users

- **Driver Behavior**
  - Impaired
  - Unrestrained
  - Inattentive/Careless/Distracted
- **Vulnerable Users**
  - Bicycle
  - Pedestrian
  - Motorcycles

## » Safer Roadways and Roadsides

- Roadway Departure
- Intersections

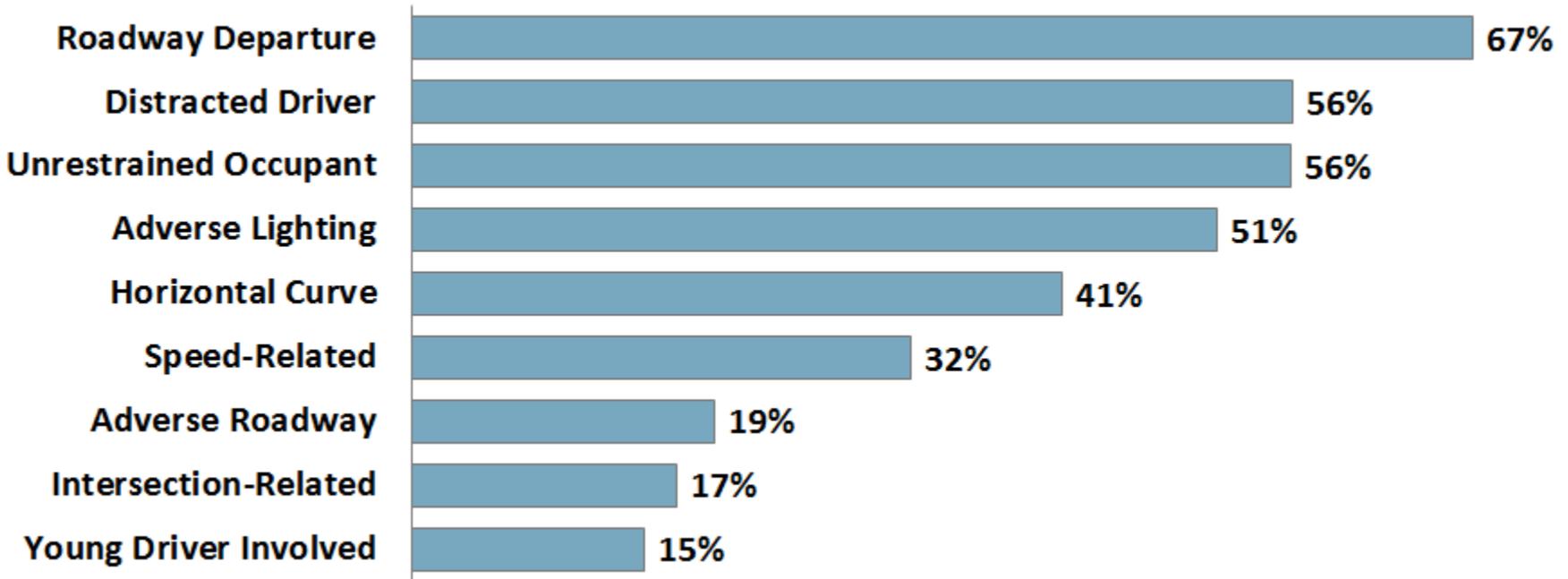
# Potential Emphasis Area: Impaired Driving (Alcohol and/or Drugs)

- For every 100 people in an impaired driving crash, 13 are killed or seriously injured.
- Impaired driving crashes account for only 8% of people involved in all crashes, but 29% of serious injuries and 43% of all fatalities.
- 59% of impaired driving fatalities and serious injuries are on Friday/Saturday
- 65% of impaired driving fatalities & serious injuries are from 6pm to 3am
- 2/3 of impaired driving fatalities and serious injuries involve ages 18 to 44.
- 2/3 of impaired driving fatalities and serious injuries involve travel lane departure.

# Potential Emphasis Area:

## Impaired Driving (Alcohol and/or Drugs)

Fatalities and Serious Injuries by Top Behavioral/Environmental Risk Factors



- About 2 out of 3 alcohol and/or drug-related fatalities and serious injuries result from a crash where the vehicle left the roadway or travel lane.
- Fatalities and serious injuries from impaired driving crashes often result from a combination of risk factors, such as driver distractions (56%), failure to wear seat belts (56%), adverse lighting (51%), roadway curvature (41%), and speeding (32%)

# Potential Emphasis Area: Unrestrained Occupants

- Nine out of ten unrestrained fatalities & serious injuries occur in rural areas.
- 1 out of 5 unrestrained occupants in a crash are killed or seriously injured.
- Of the passenger vehicle occupants killed in a crash, over half were not wearing a seat belt.
- Over half of unrestrained occupant fatalities & serious injuries are Friday-Sunday (53%).
- The 15 to 34 age group accounts for 60% of unrestrained fatalities & serious injuries.
- Nearly 75% of unrestrained fatalities or serious injuries involve travel lane departure.

# Potential Emphasis Area: Unrestrained Occupants

- A large number of environmental and behavioral factors contribute to unrestrained occupant fatalities and serious injuries including:
  - driver distractions (55%),
  - alcohol (48%),
  - adverse lighting (43%),
  - roadway curvature (39%), and
  - speed (33%).

# Potential Emphasis Area:

## Distracted Driving (Careless/Inattentive/Cell Phone)

- The 15-24 age group is slightly overrepresented in distracted driving fatalities and serious injuries (33%) compared to statewide totals (28%).
- 60% of distracted driving fatalities and serious injuries involve lane departure.
- Fatalities and serious injuries from distracted driving crashes often result from a combination of risk factors, such as
  - failure to wear seat belts (38%)
  - roadway curvature (35%),
  - alcohol (33%)
  - adverse lighting (29%), and
  - speeding (25%)

# Potential Emphasis Area: Motorcyclists

- For every 100 motorcyclists involved in a crash, 35 are either killed or seriously injured.
- 2/3 of motorcyclist fatalities & serious injuries are June through August.
- 40% of motorcyclist fatalities & serious injuries are on Saturdays and Sundays.
- Motorcyclist fatalities and serious injuries are most common on weekend afternoons and early evenings.
- 80% of motorcyclist fatalities and serious injuries are males
- Motorcyclists between the ages of 45 and 64 account for the greatest portion of fatalities and serious injuries.

# Potential Emphasis Area: Motorcyclists

- Over half of motorcyclist fatalities and serious injuries are roadway departure crashes.
- Motorcyclist fatalities and serious injuries often result from a combination of risk factors, such as:
  - roadway curvature (42%),
  - driver distractions (40%),
  - not wearing a helmet (33%), and
  - speeding (22%).

# Potential Emphasis Area: Pedestrians

- For every 100 pedestrians involved in a crash, around 28 are killed or seriously injured.
- Pedestrians account for 0.4% of all people in crashes, but around 6% of all fatalities.
- 1 out of every 4 pedestrian fatalities or serious injuries occurs between 9 pm and 3 am.
- Pedestrian fatalities and serious injuries are most common on weekends during the late night/early morning hours.
- 1 out of every 4 pedestrians killed or seriously injured is less than 15 years old (11%) or more than 65 years old (13%).
- Alcohol and intersections are both major factors in pedestrian fatalities and serious injuries (31% each).

# Potential Emphasis Area: Bicyclists

- For every 100 bicyclists involved in a crash, 17 are either killed or seriously injured.
- Almost 80% of bicyclist fatalities and serious injuries occur during May through October.
- The majority of bicyclist fatalities and serious injuries occur during the work week.
- Bicyclist fatalities and serious injuries are most common on weekdays from 3 pm to 6 pm.
- The 5-14 age range accounts for 16% of bicyclist fatalities and serious injuries.
- more than half of all bicyclist fatalities and serious injuries are intersection-related.

# Potential Emphasis Area: Roadway Departure

- 96% of roadway departure fatalities and serious injuries occur in rural areas.
- For every 100 people in a roadway departure crash, 10 are killed or seriously injured.
- Roadway departures account for 20% of all people in crashes, but 67% of fatalities.
- Roadway departure fatalities and serious injuries are most common Saturdays from midnight to 3 am.
- Drivers 15 to 24 years old are overrepresented among roadway departure fatalities and serious injuries (32%) compared to the statewide total (28%).

# Potential Emphasis Area: Roadway Departure

- Fatalities and serious injuries from roadway departure crashes often result from a combination of risk factors, such as:
  - driver distractions (50%),
  - roadway curvature (46%),
  - failure to wear seat belts (41%),
  - adverse lighting (36%),
  - alcohol (36%),
  - speeding (32%), and
  - adverse roadway conditions (28%).

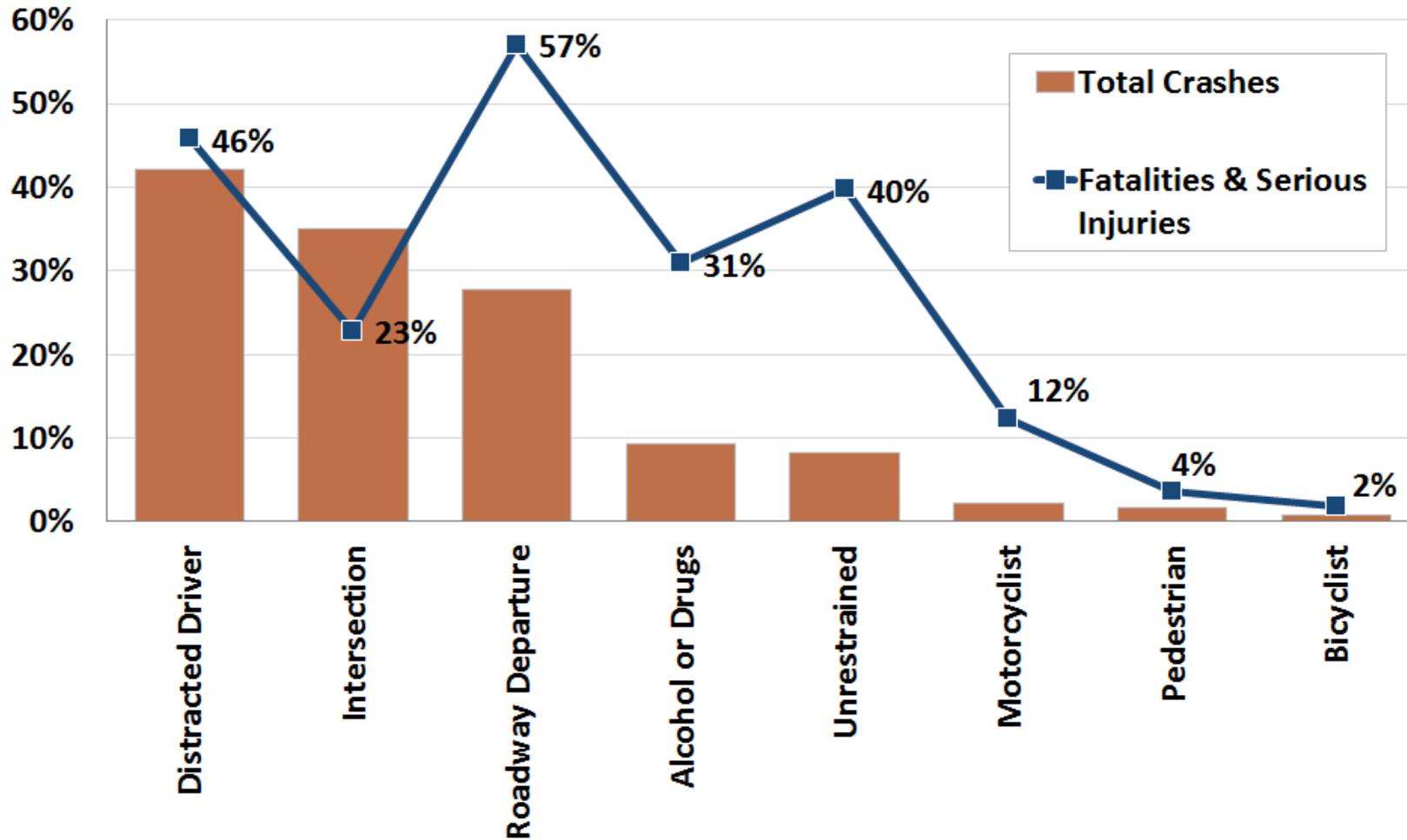
# Potential Emphasis Area: Intersections

- For every 100 people involved in an intersection crash, less than 2 are either killed or seriously injured.
- Intersections account for 43% of people in all crashes, but only 13% of fatalities.
- Weekday afternoons are the most common time for intersection crashes.
- People in intersection crashes are evenly divided by gender (51% male, 49% female).
- Distracted driving is the leading contributing factor for intersection crashes (47%).

# Potential Emphasis Area: Intersections

- The following risk factors also contribute to intersection fatalities and serious injuries:
  - young driver involvement (26%)
  - failure to wear seat belts (24%)
  - alcohol (21%)
  - older driver involvement (21%)

# Percentage of Total Crashes and Fatalities & Serious Injuries by Emphasis Area



# Emphasis Area Organization

## » Safer Roadway Users

- Driver Behavior
  - Impaired
  - Unrestrained
  - Inattentive/Careless/Distracted
- Vulnerable Users
  - Bicycle
  - Pedestrian
  - Motorcycles

## » Safer Roadways and Roadsides

- Roadway Departure
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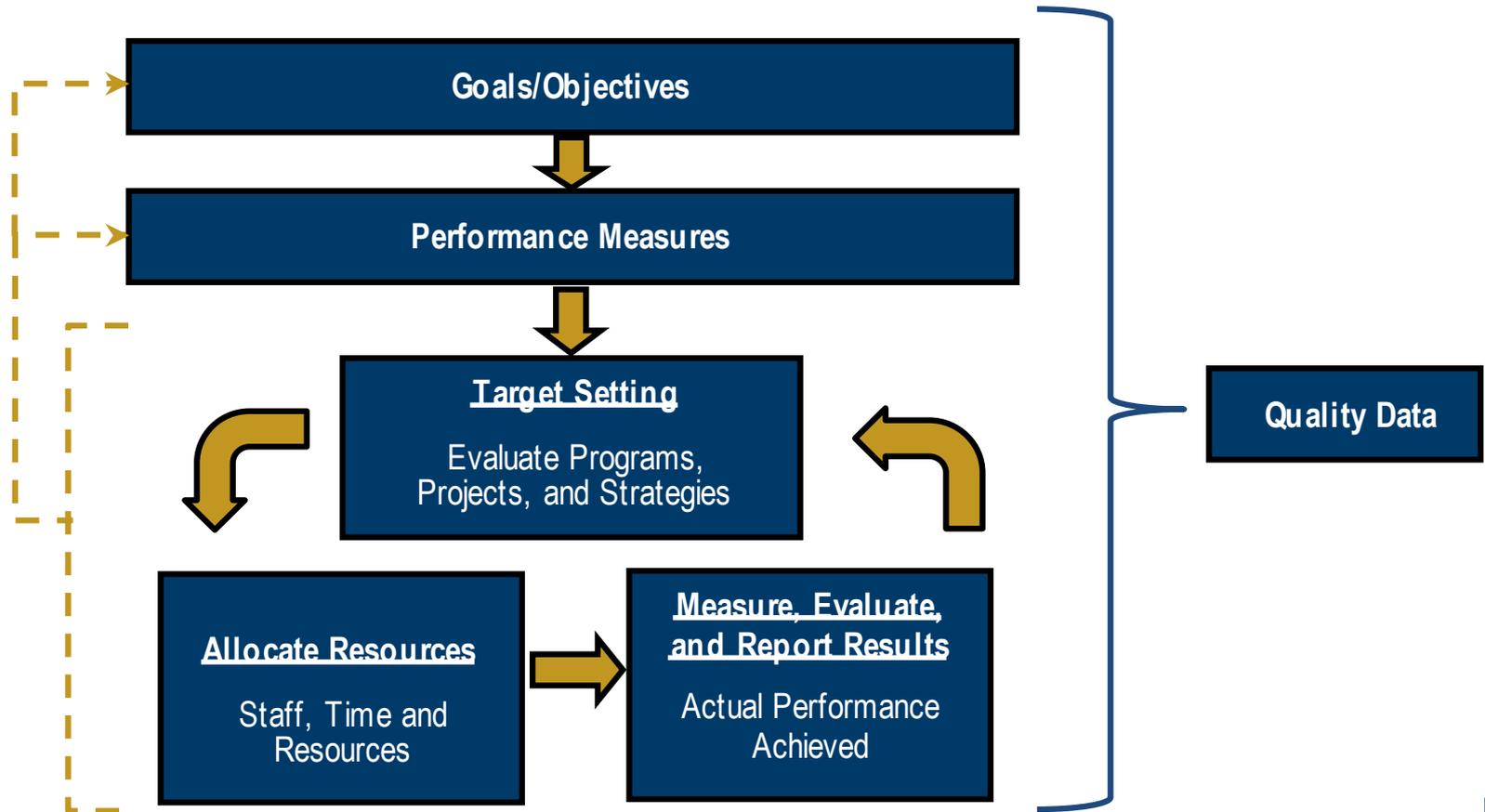
# Performance Management

A stylized graphic at the bottom of the slide features a dark blue mountain range silhouette. A road with two yellow lines curves from the bottom center towards the right. In the bottom right corner, the text 'MDT' is displayed in a bold, white, sans-serif font, followed by a white five-pointed star.

**MDT**★

**CAMBRIDGE**  
SYSTEMATICS

# Performance Management Framework



# Types of Performance Measures

- » **Outcomes**: i.e., crashes, injuries, or fatalities; may be presented as numbers, rates, percentages, or ratios.
- » **Behavior**: i.e., observed behavior on the road or self-reported behavior obtained through surveys; also may include self-reported awareness, knowledge, and attitudes.
- » **Activities** – i.e., law enforcement, courts, media, education, and other activities that may affect traffic safety.

Source: DOT HS 811 015 Traffic Safety Performance Measures for States and Federal Agencies, NHTSA, August 2008.

# Plan Performance Measures and Targets

- » **Overall Plan Performance Measures and Targets (required by MAP-21)**
  - **Fatalities**
  - **Fatality Rate**
  - **Serious Injuries**
  - **Serious Injury Rate**
  
- » **Potential Emphasis Area Performance Measures and Targets**
  - **Fatalities**
  - **Injuries**

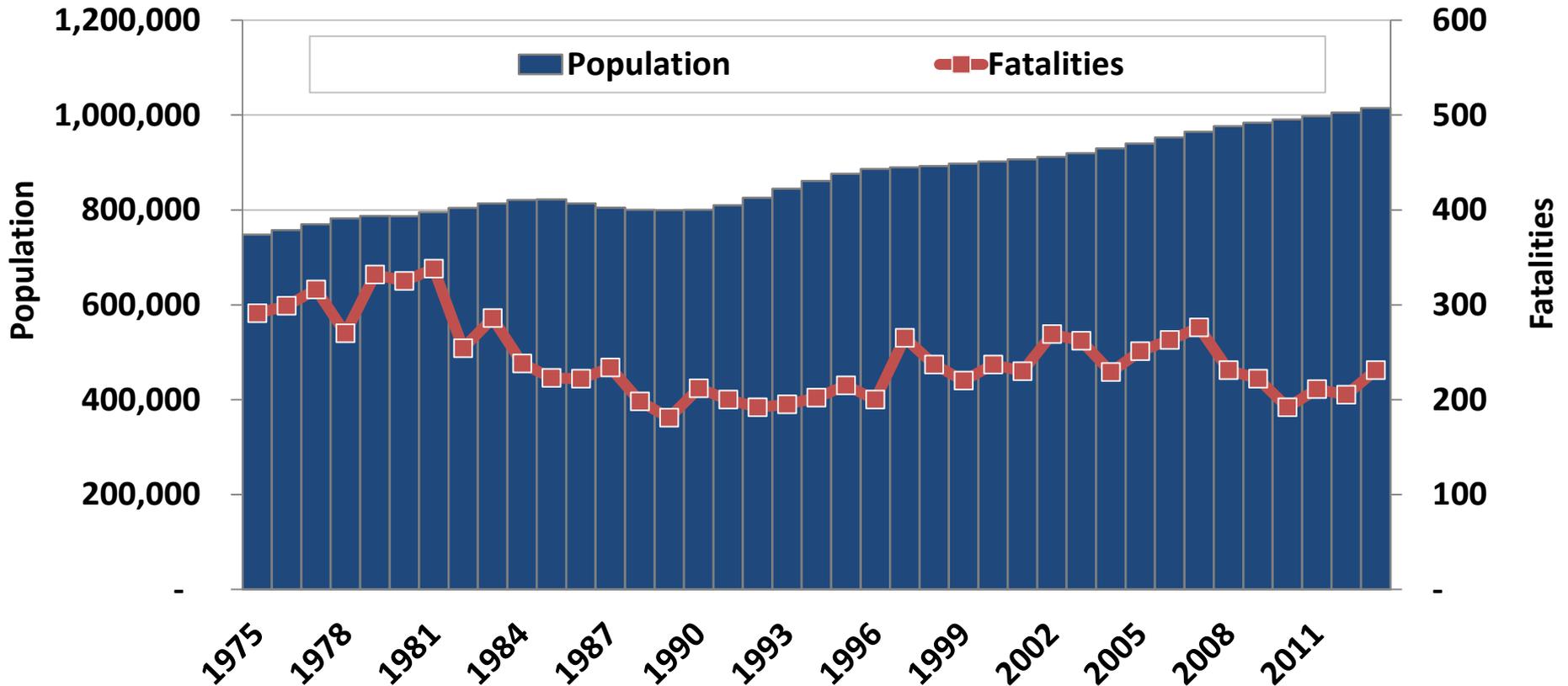
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# CHSP Target Setting

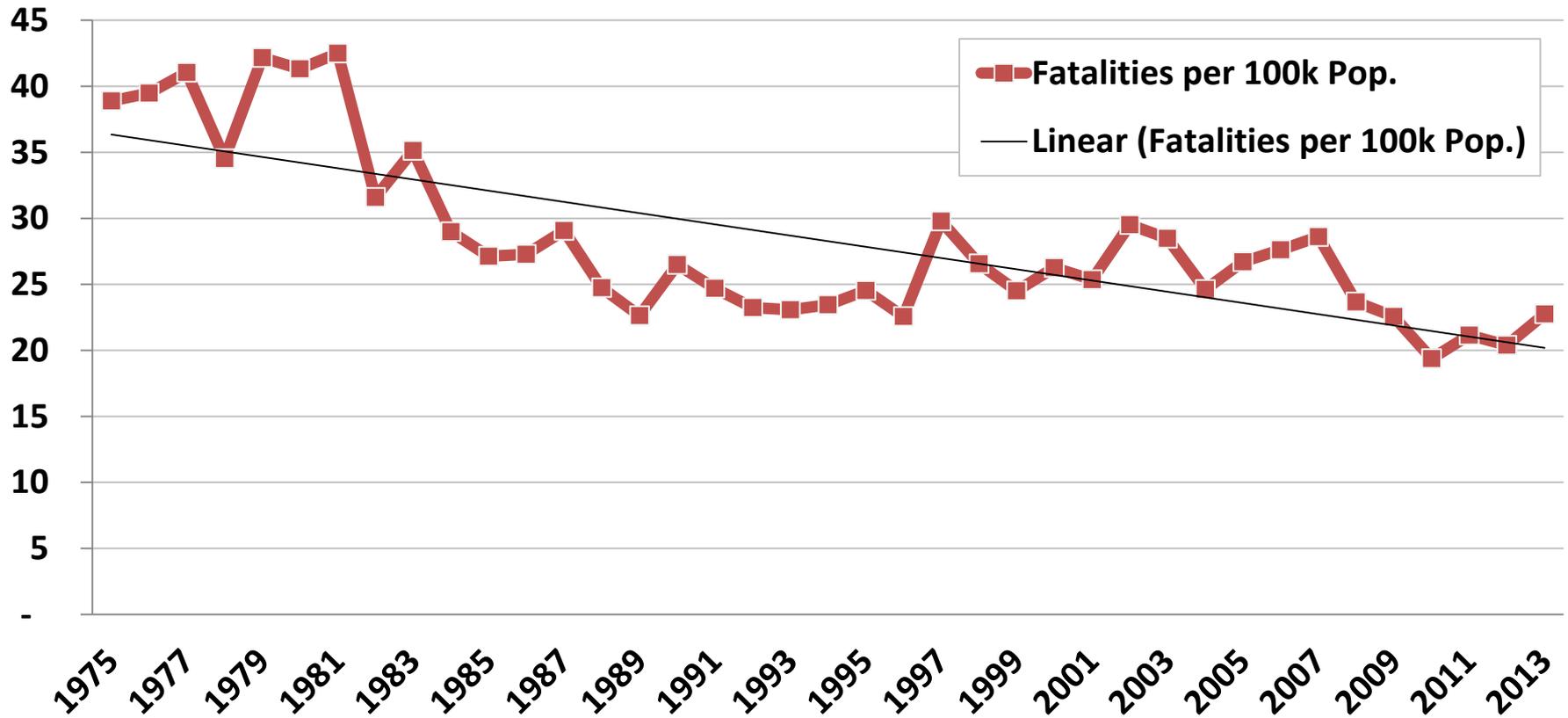
# Target-Setting

- » **MAP-21 Proposed Rule:**
  - Total fatalities
  - Total serious injuries
  - Fatality rate (fatalities per 100 million vehicle miles traveled)
  - Serious injury rate (serious injuries per 100 million vehicle miles traveled)
  
- » **Historic trends over 10-year period (2004-2013)**
  
- » **Account for population, VMT, demographics, and Advisory Committee input**

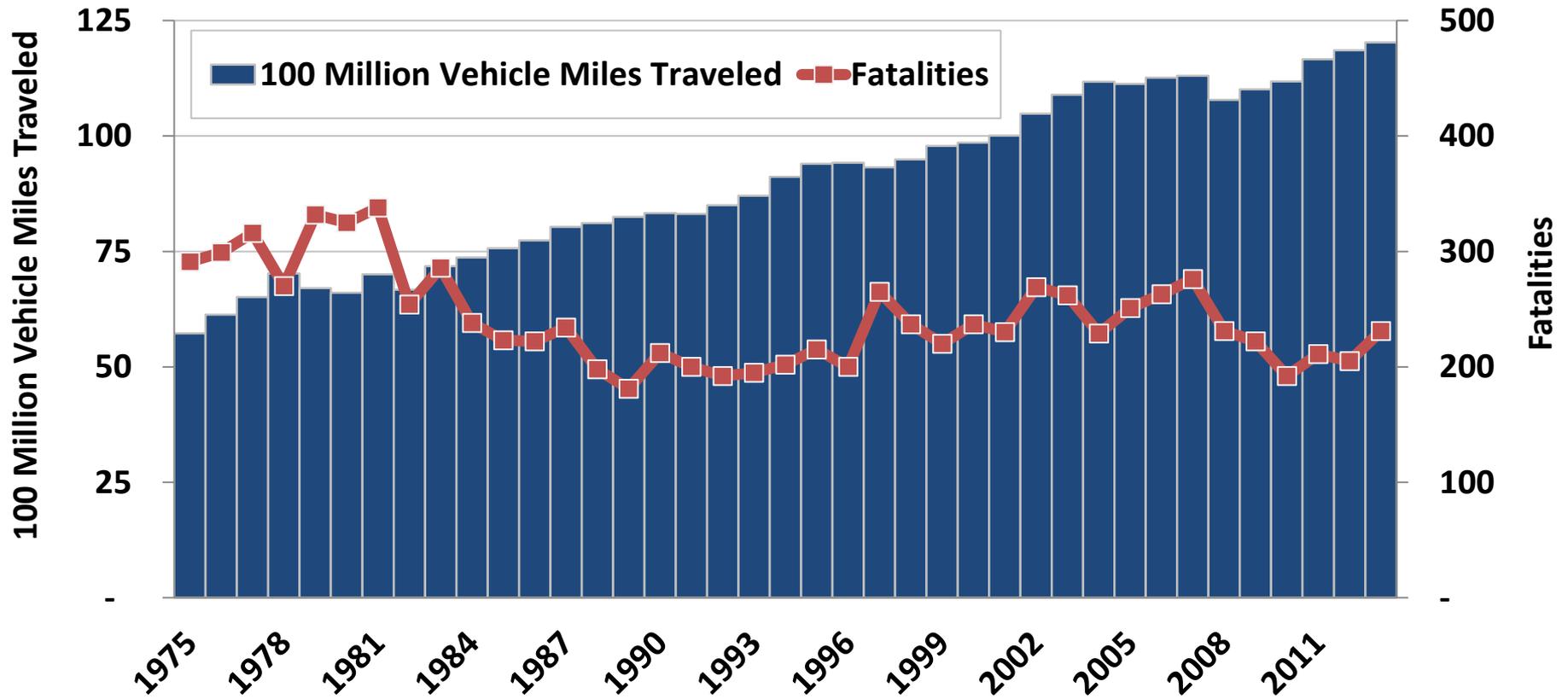
# Fatalities vs. Population, 1975 - 2013



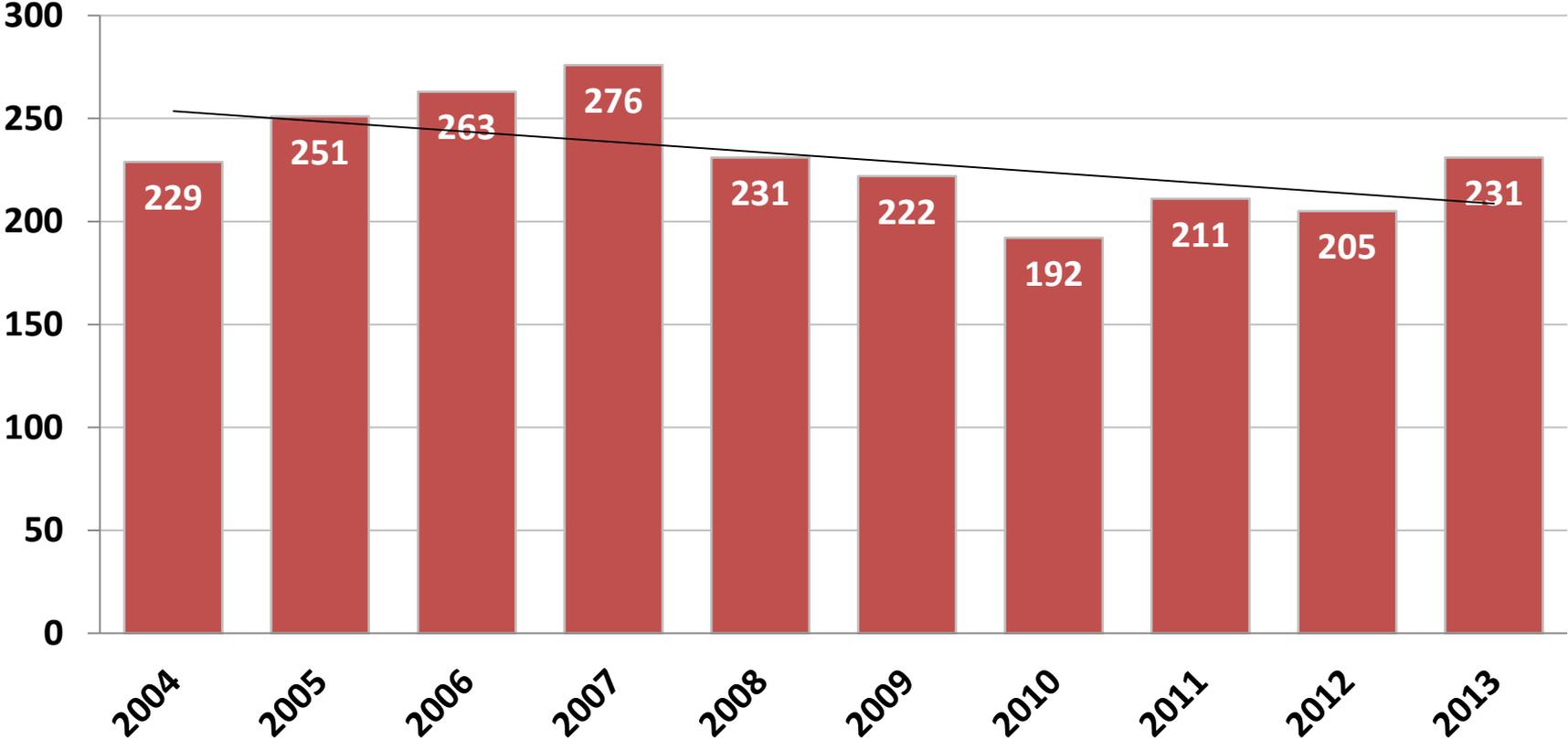
# Fatalities per 100,000 Population, 1975-2013



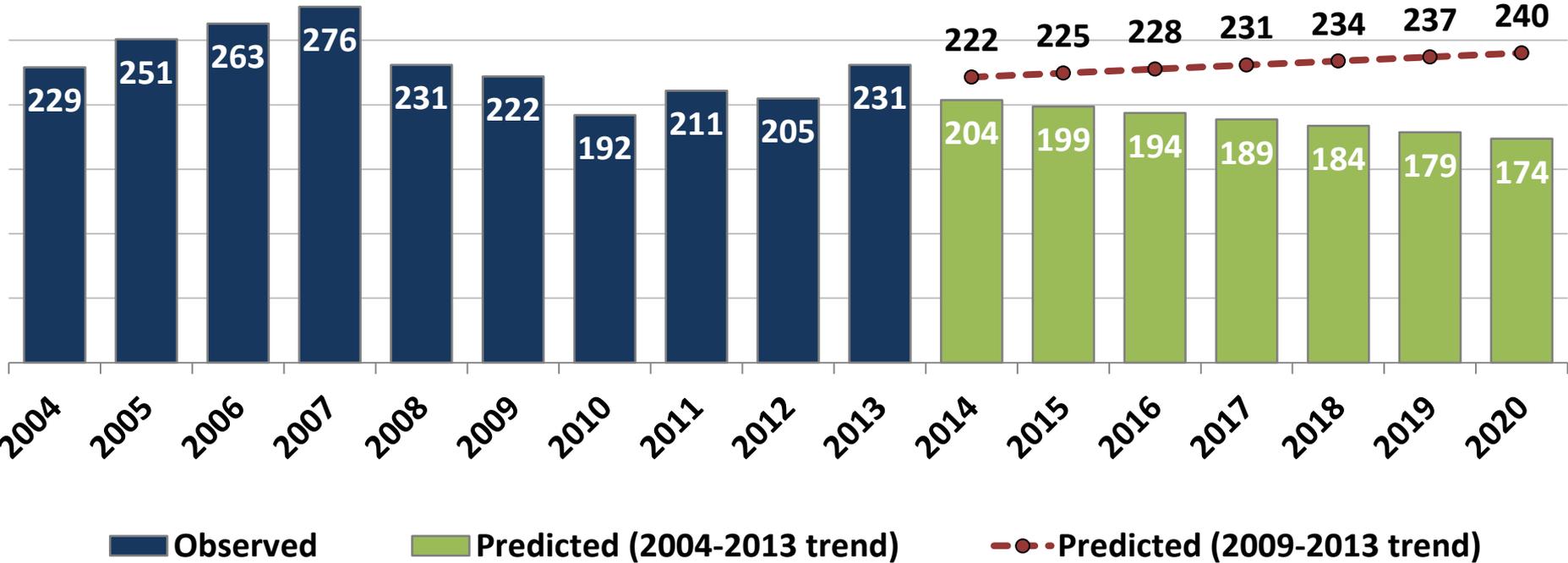
# Fatalities vs. Vehicle Miles Traveled, 1975-2013



# Annual Fatalities, 2004-2013

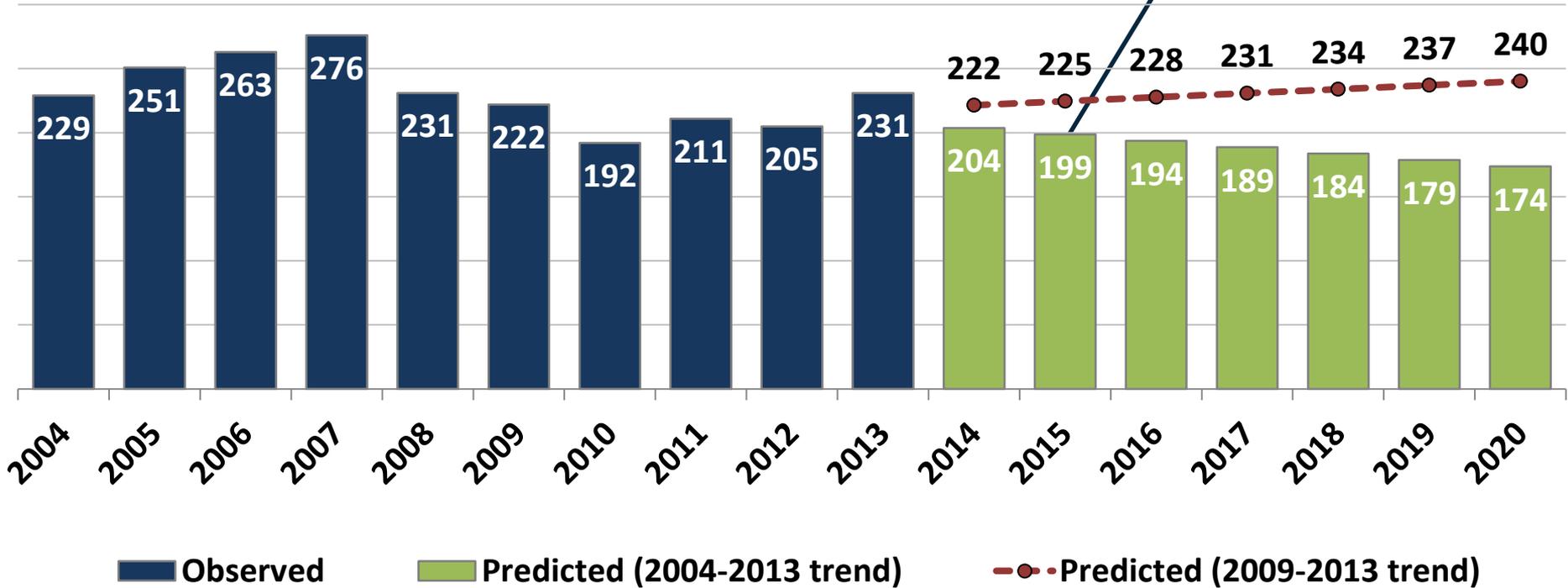


# Annual Fatalities (Linear Predictions)

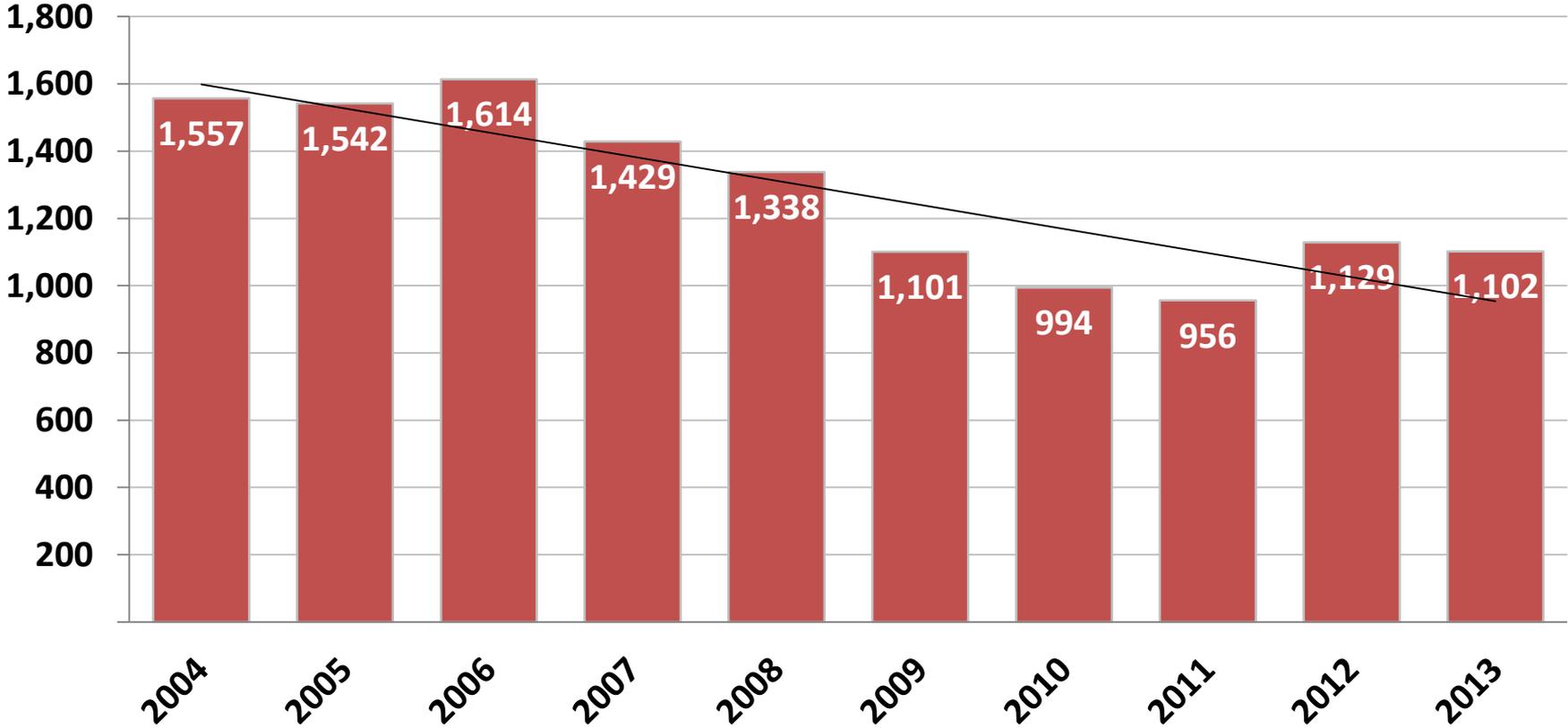


# Annual Fatalities (Linear Predictions)

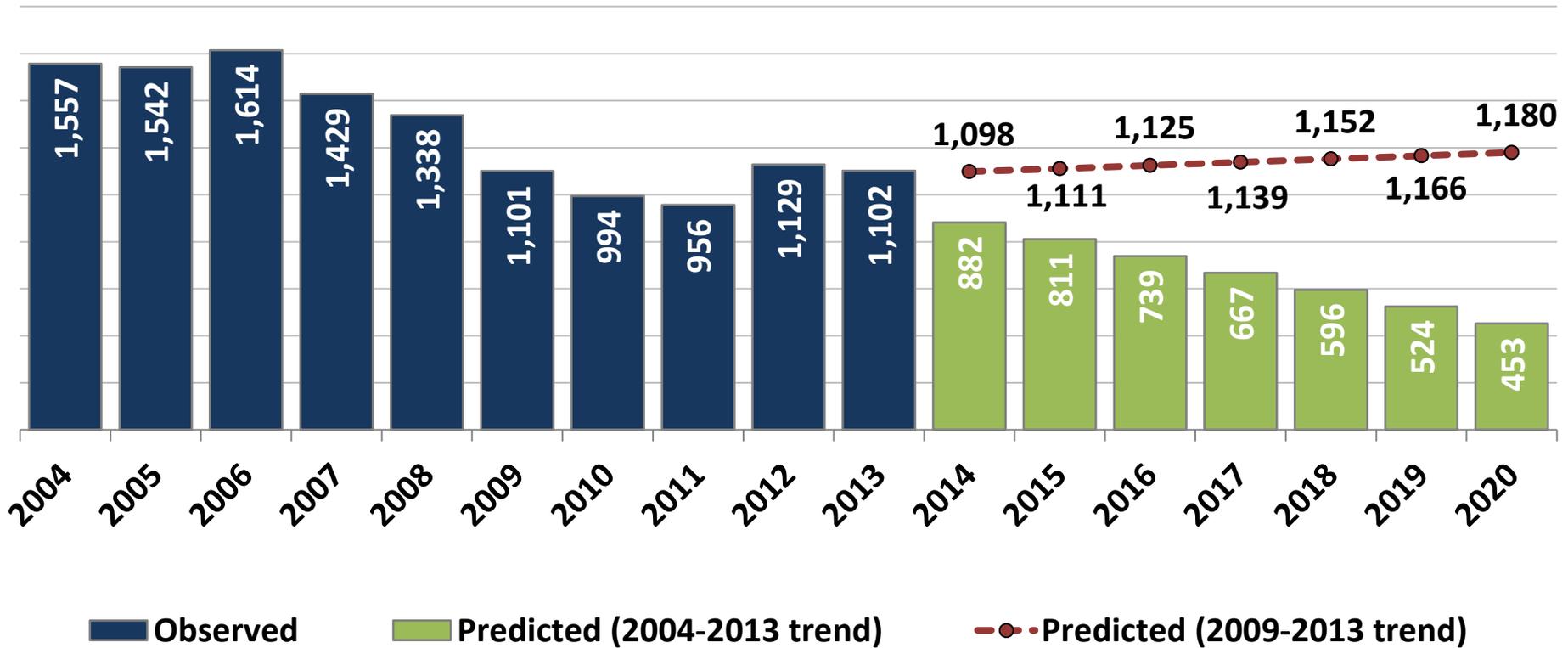
Current target:  
182 by 2015



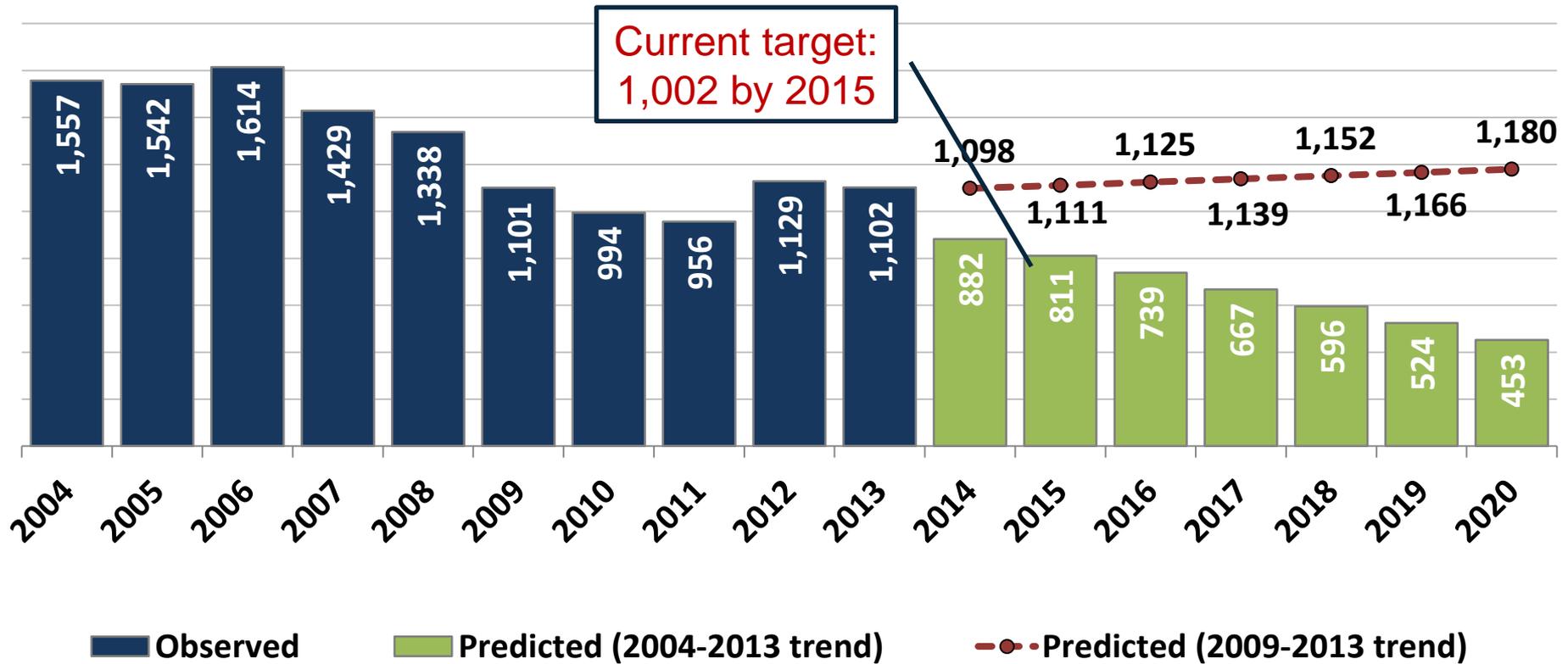
# Annual Serious Injuries, 2004-2013



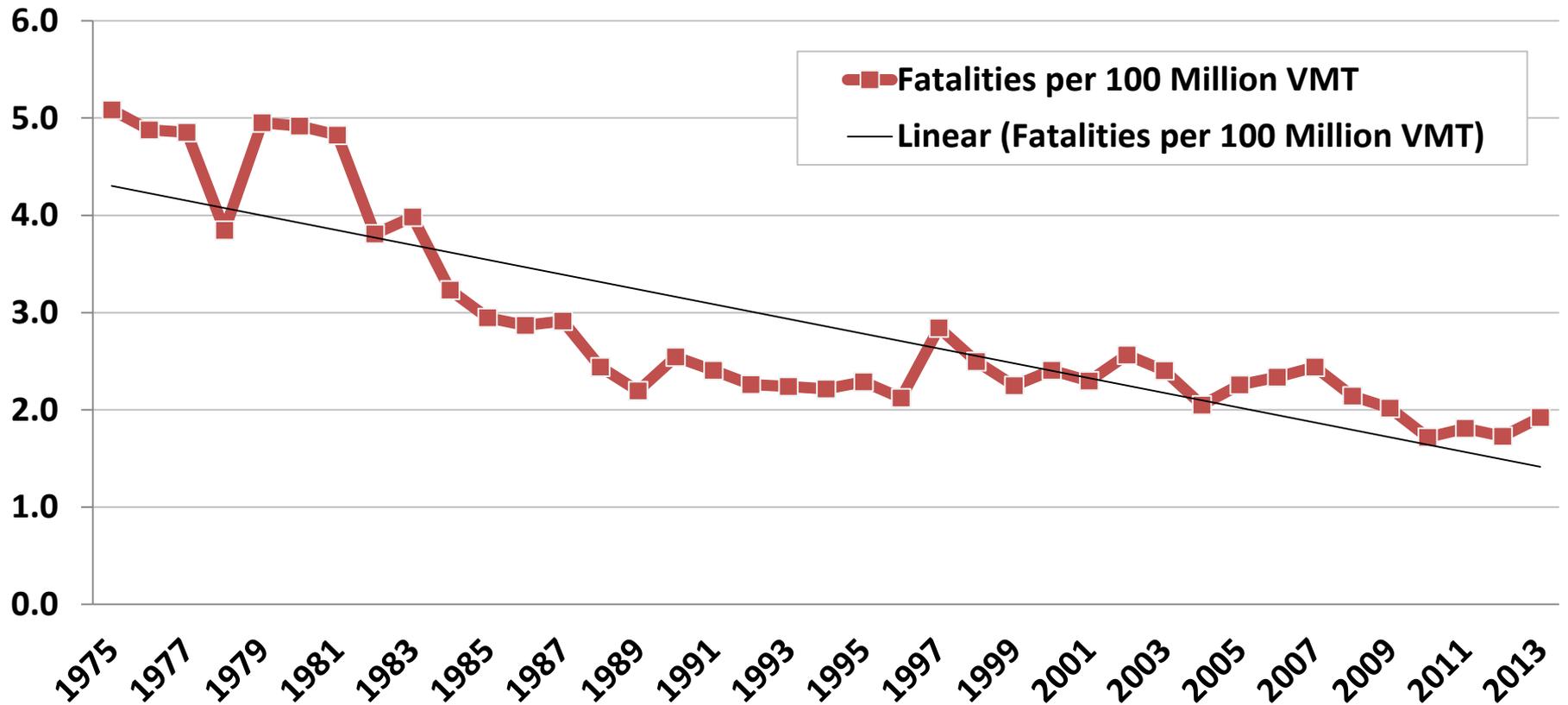
# Serious Injuries (Linear Predictions)



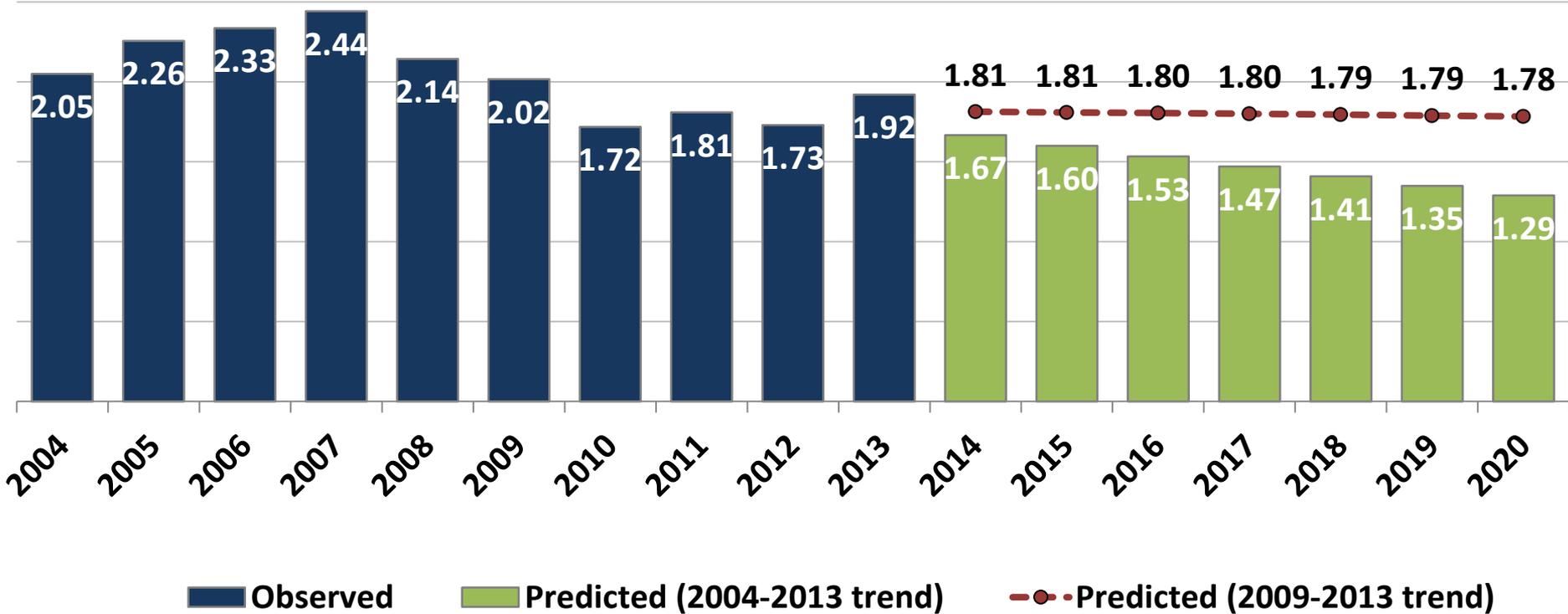
# Serious Injuries, Linear Prediction



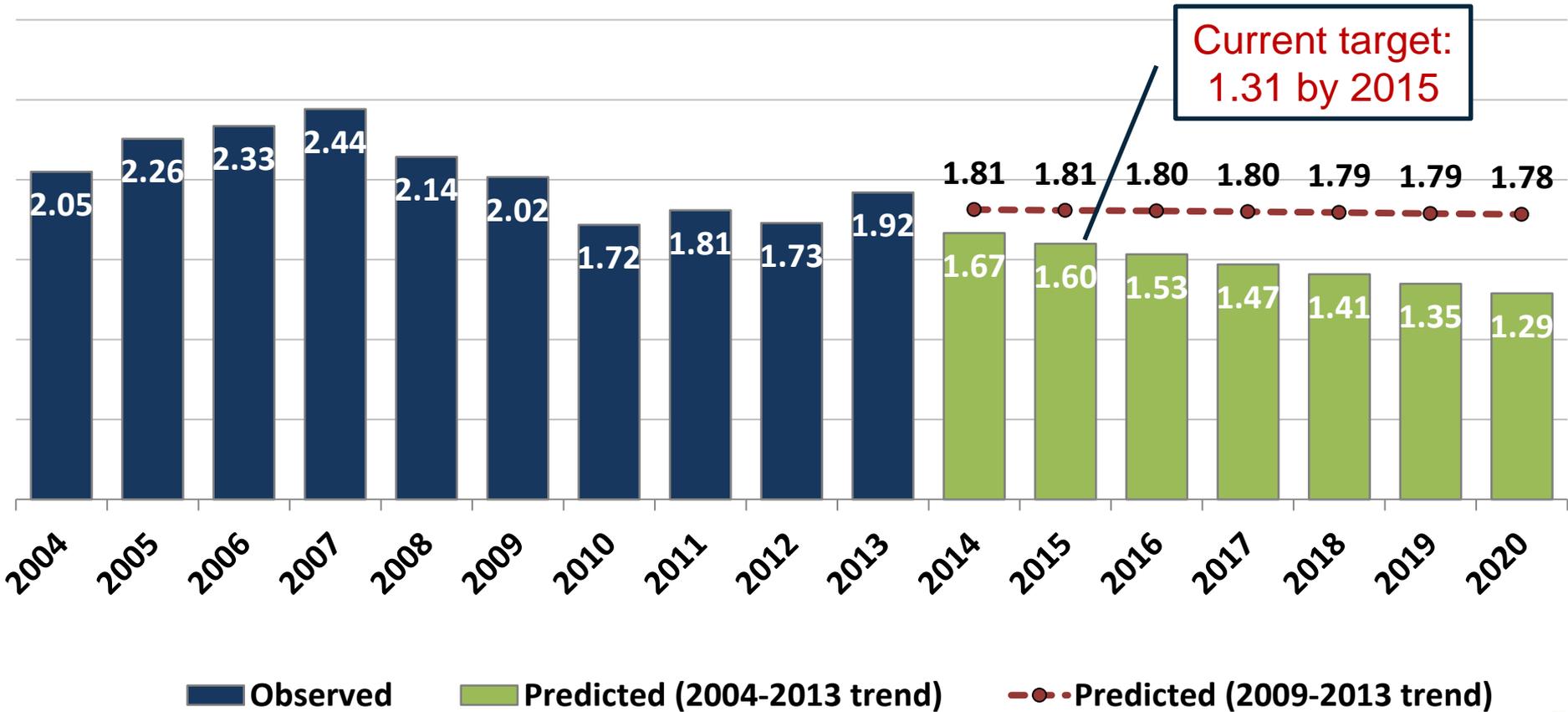
# Fatality Rate, 1975-2013



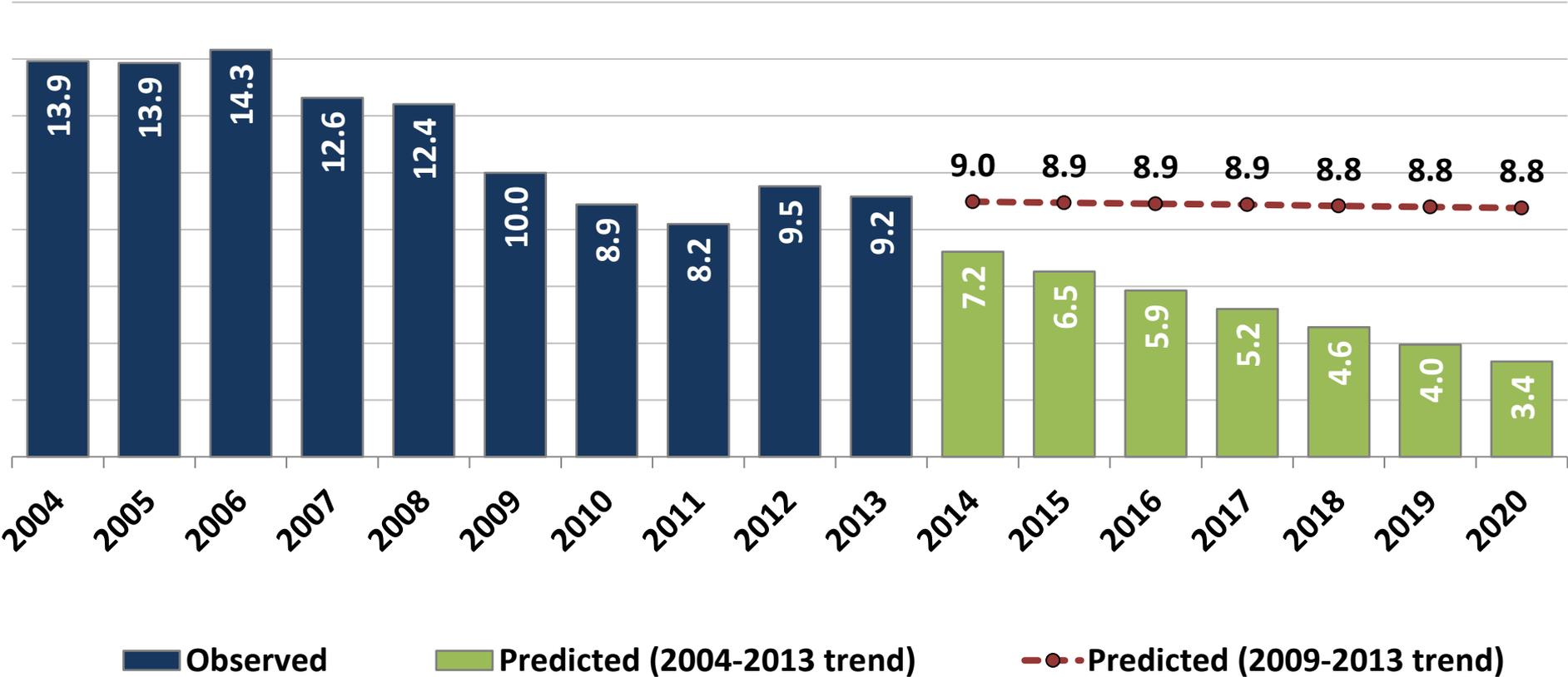
# Fatalities per 100 Million VMT (Linear Predictions)



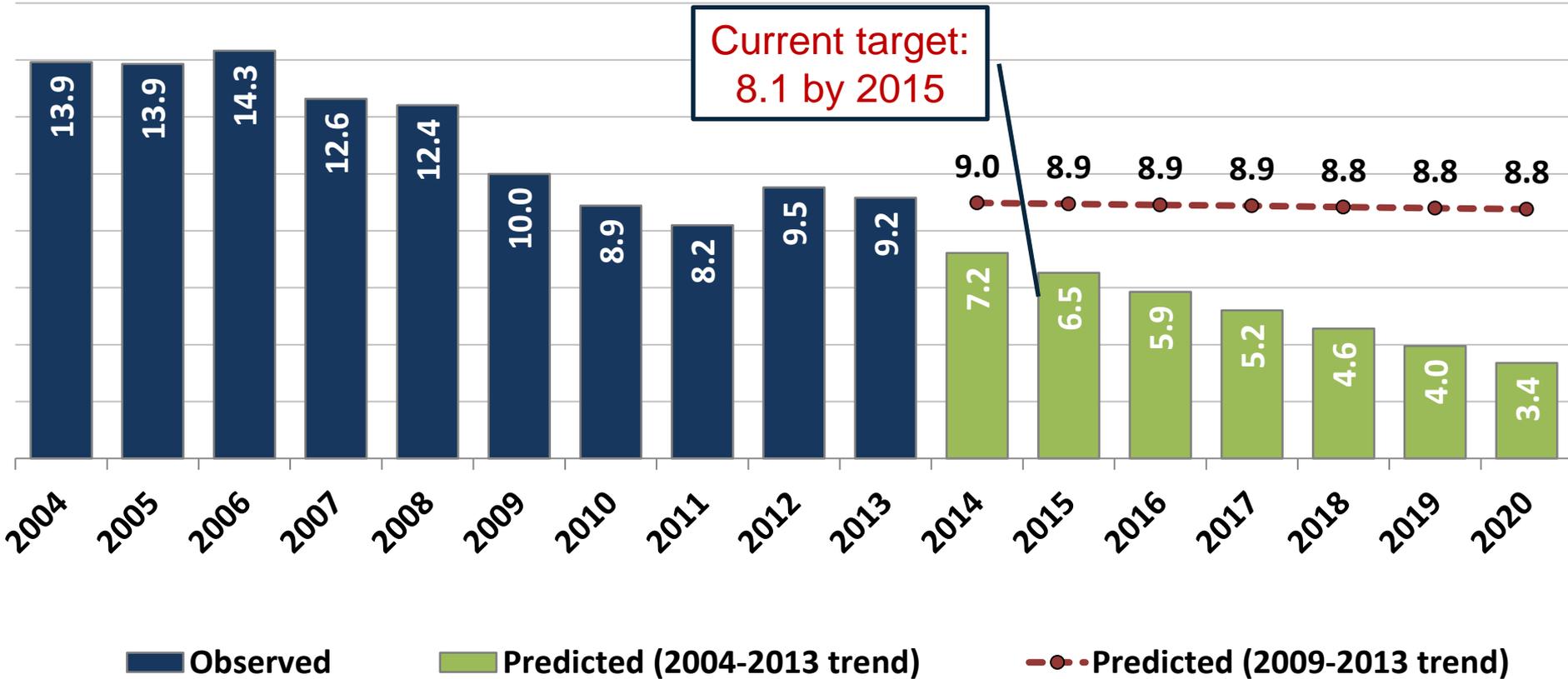
# Fatalities per 100 Million VMT (Linear Predictions)



# Serious Injury Rate, Linear Prediction



# Serious Injury Rate, Linear Prediction



# Target Setting Trend Summary

Measure	2013 Baseline	Current CHSP Target (2015)	2004-2013 Trend Projection			2009-2013 Trend Projection		
			Annual Change	Average Annual % Change	2020 Prediction	Annual Change	Average Annual % Change	2020 Prediction
Annual Fatalities	231	182	-5	-2.6%	174	+3	+1.4%	240
Annual Serious Injuries	1,102	1,002	-72	-10.1%	453	+14	+1.2%	1,180
Fatality Rate	1.92	1.31	-0.07	-4.7%	1.29	-0.02	-0.8%	1.78
Serious Injury Rate	9.16	8.1	-0.70	-12.1%	3.4	-0.09	-1.0%	8.8

# Safety Summit Planning - Logistics

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- » **Date: October 15, 2014**
- » **Time: 8:30 am – 5 pm**
- » **Location: MDT**

# Safety Summit Planning



# Safety Summit Objectives

- » **Brief stakeholders on progress since original CHSP**
- » **Confirm Emphasis Areas**
- » **Present detailed crash data by Emphasis Area for Problem Identification**
- » **Determine membership of Emphasis Area Teams**
- » **Develop strategies by Emphasis Area in workgroups**
  - **This is first of 3 EA team meetings**

# Safety Summit – Draft Agenda

Welcome
Overview of CHSP & Summit Objectives
CHSP Update Process & Federal Requirements
Crash Data Analysis
Confirm Emphasis Areas
Breakout Session 1
Lunch
Breakout Sessions 2-4
Conclusion

# Integration of Evaluation into SHSP Actions

- » **Implementation:** Were your program's activities put into place as originally intended?
- » **Effectiveness:** Is your program achieving the goals and objectives it was intended to accomplish?
- » **Efficiency:** Are your program's activities being produced with appropriate use of resources such as budget and staff time?
- » **Cost-Effectiveness:** Does the value or benefit of achieving your program's goals and objectives exceed the cost of producing them?
- » **Attribution:** Can progress on goals and objectives be shown to be related to your program, as opposed to other things that are going on at the same time?

*Source: Introduction to Program Evaluation for Public Health Programs: A Self Study Guide, Centers for Disease Control, Oct. 2011*

# Public Health Program Evaluation

- » **Implementation:** Were your program's activities put into place as originally intended?
- » **Effectiveness:** Is your program achieving the goals and objectives it was intended to accomplish?
- » **Efficiency:** Are your program's activities being produced with appropriate use of resources such as budget and staff time?
- » **Cost-Effectiveness:** Does the value or benefit of achieving your program's goals and objectives exceed the cost of producing them?
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*Source: Introduction to Program Evaluation for Public Health Programs: A Self Study Guide, Centers for Disease Control, Oct. 2011*

# Program Implementation:

- » **Implementation:** Were your program's activities put into place as originally intended?
  - Must be measurable
    - # of people reached by communications
    - # of people in target audience reached by communications
    - # of education sessions conducted and attendance

## EXAMPLES:

- » Number of viewings of bicycle safety TV PSAs
- » Number of people participating in Alive@25 programs

# Effectiveness/Outcomes

- » **Effectiveness:** Is your program achieving the goals and objectives it was intended to accomplish?
  - Changes in people's attitudes and beliefs
  - Changes in risk or protective behaviors
  - Changes in the environment, including public and private policies, formal and informal enforcement of regulations, and influence of social norms and other societal forces
  - Changes in trends in morbidity and mortality

# Effectiveness/Outcomes

## » Evaluation methods include:

- **Surveys of self-reported perceptions of risk before and after a program**
  - i.e., Perception of likelihood of being stopped for impaired driving
  - i.e., Perception of risk for driving above the speed limit
- **Surveys on perceptions of social norms**
  - i.e., Perception of whether it is socially acceptable to drink and drive in Montana
- **Surveys to identify self-reported behavior before and after a program**
  - i.e., Driving behaviors around bicycles/pedestrians before and after program
- **Observation of behavior before and after a program**
  - i.e., Safety belt survey before/after program

# Integrate Measurement into Program Development

- » Define objectives
- » Define target population
- » Define what will be evaluated
- » Define data collection methods
- » Determine how data will be analyzed

Learning what isn't working is just as valuable and learning what is working

Source: *Demonstrating Your Program's Worth: A Primer on Evaluation for Programs to Prevent Unintentional Injury*, National Center for Injury Prevention and Control, Centers for Disease Control, 2000

# Ongoing Evaluation, Refinement of Safety Program

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**Moving from**

**What did we do last year?**

**To**

**What was really effective?**

**What programs had some benefit and can be improved?**

**What programs did we pilot test that we should discontinue?**

# Next Meeting

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- » **Next AC meeting: November 20**
- » **Emphasis Area Meetings: Nov. 18-19**
  - **2-hour meetings with EA Teams established at Summit**
    - Refine strategies
    - Develop action steps
    - Identify action step leaders
    - Identify resources
    - Identify performance measures