

# Boston bicycle accidents involving motor vehicles

## Introduction

The following article analyzes the history, causes and possible methods for preventing bicycle accidents involving motor vehicles in Boston, Massachusetts. In recent years, the number of bicycle accidents, injuries and fatalities involving car accidents has increased in Boston and nationwide. Much of the nationwide bicycle accident data in this article concerns the years 1997 to 2013. Data about Boston bicycle accidents included in this article primarily concerns the years 2009 to 2013.

Based on such data, researchers discovered that a large number of bicycle accidents occurred in certain areas in Boston in recent years. Researchers, politicians, community leaders and cycling advocates have proposed various solutions aimed at reducing bicycle accidents caused by motorists. In particular, officials from the City of Boston and Boston Mayor Martin J. Walsh announced in 2015 the implementation of Vision Zero, a multi-national effort to eliminate fatal bicycle, pedestrian and motor vehicle accidents. In Boston, the goal for its Vision Zero plan is to eradicate all fatal traffic accidents by 2030. Methods aimed at reducing bicycle accidents caused by motorists in Boston include construction of bike lanes, protection for those bike lanes and amendments to the method used by police to report bicycle accidents.

This article analyzes which measures work best for reducing the number of bicycle accidents involving motorized vehicles in Boston. The article also examines steps taken by other cities in the United States and worldwide to eliminate bicycle accidents involving motorized vehicles. In general, the consensus among researchers appears to be that protected bicycle lanes are the most effective way to prevent bicycle accidents caused by motorists. However, more studies need to be done to produce a more conclusive solution.

## Geographic Focus

The geographic focus of this article concerns Boston, Massachusetts. In particular, this article includes data outlining which intersections and streets in Boston have historically had the highest number of bicycle accidents. Some of the data cited in this article concerning the location of bicycle accidents was compiled by the Harvard University School of Public Health based on bicycle accident data compiled by the City of Boston between 2009 and 2012.

## Background

Bicycle usage across the United States and in Boston has skyrocketed in recent decades. The number of trips made by cyclists nationwide increased from 1.7 billion in 2001 to 4

billion in 2009.[\[i\]](#) In addition, the number of people commuting to work on bicycles has increased dramatically nationwide, according to data collected by the U.S. Census Bureau. In 2000, approximately 488,000 people regularly bicycled to work. During the 2008-2012 period, that figure increased by 60 percent to more than 786,000 people regularly cycling to work nationwide.[\[ii\]](#) In Boston, the number of people who commute to work on bicycles has increased even more dramatically. In 2005, an estimated 0.9 percent of people in Boston bicycled to work. By 2014, that figure had nearly tripled to 2.4 percent of commuters. The number of daily bicycle trips in Boston has also increased in recent years, from 47,600 in 2010 to 56,000 in 2012, according to the **City of Boston's 2013 Cycling Safety Report**

Unfortunately, the number of bicycle accident injuries and fatalities has also steadily increased nationwide and in Boston in recent years. Between 1997 and 2013, the number of bicycle accident injuries in the United States increased by roughly 6,500 injuries per year, according to a study written by researchers from the University of California, San Francisco and **published June 2017 in "Injury Prevention" by BMJ.**[\[iii\]](#) Specifically, the study reported that 3.8 million cyclists were injured and 9,839 were killed nationwide between 1997 and 2013. More recently, 2015 was the deadliest year for cyclists nationwide in more than 20 years, with 818 cycling fatalities, according to statistics compiled by the National Highway Traffic Safety Administration[\[iv\]](#) and Insurance Institute of Highway Safety, Highway Loss Data Institute.[\[v\]](#) By year, the total number of bicycling fatalities nationwide between 1995 and 2015 were as follows:

#### YEAR / BICYCLE FATALITIES NATIONWIDE

1995 – 828

1996 – 761

1997 – 811

1998 – 757

1999 – 750

2000 – 689

2001 – 729

2002 – 663

2003 – 626

2004 – 722

2005 – 784

2006 – 772  
2007 – 701  
2008 – 718  
2009 – 628  
2010 – 623  
2011 – 682  
2012 – 734  
2013 – 749  
2014 – 729  
2015 – 818

The National Highway Traffic Safety Administration Statistics were also available for total number of bicycle accident fatalities between 2006 and 2015 for the Commonwealth of Massachusetts. [\[vi\]](#)

#### YEAR / MASSACHUSETTS BICYCLE FATALITIES

2006 – 6  
2007 – 11  
2008 – 10  
2009 – 6  
2010 – 7  
2011 – 5  
2012 – 16  
2013 – 6  
2014 – 8  
2015 – 9

As for Boston, the number of bicycle accidents has also increased in recent years. However, statistics vary widely from one study to another. In 2009, there were 358 bicycle accidents in Boston, compared to 488 Boston bicycle accidents in 2012, according to a study conducted by Harvard University researchers and published in the December 2016 issues of the American Journal of Public Health. [\[vii\]](#) Another study reported that that an estimated 520 fatal and nonfatal bicycle accidents occurred on average every year in Boston between 2010 and 2014. [\[viii\]](#) A third, annual study conducted by the City of Boston in 2013 reported on the number of bicycle accidents involving motor vehicles between 2009 and 2012. [\[ix\]](#)

## YEAR / BICYCLE COLLISIONS IN BOSTON

2009 – 359

2010 – 481

2011 – 480

2012 – 493

The same City of Boston study noted that before 2009, the Boston Police Department did not have a separate code on accident reports for bicycles involved in accidents with **motor vehicles. Specifically, the report noted that “a large proportion of data elements were missing in the data from 2009.” As a result, statistics prior to 2009 for Boston may not provide a clear, accurate total for the number of bicycle accidents in the city.**

## Common Bicycle Accident Injuries

Bicycle accidents often result in serious injuries, especially in accidents involving collisions with motor vehicles. In particular, the most common bicycle accident injury overwhelmingly is head injuries, according to the study published in the medical journal, Injury Prevention, published in June 2017 which analyzed bicycle accident data between 1997 and 2013.

In an article in Consumer Reports magazine about the study, Fred Rivara, M.D., M.P.H., a professor of pediatrics at the University of Washington, was interviewed about which bicycle accident injuries are the most common. [\[x\]](#) **Dr. Rivara said, “Two thirds of hospitalizations and three quarters of deaths from bicycle injuries are due to head injuries.”**

## Financial Impact of Bicycle Accidents

Medical costs associated with bicycle accidents total billions of dollars annually in the United States. According to June 2017 study published in the medical journal, Injury Prevention, 3.8 million non-fatal bicycle accidents and 9,839 fatal bicycle accidents

between 1997 and 2013 totaled \$237 billion during that time period. In 2013 alone, medical costs for fatal and non-fatal bicycle accidents were \$24.4 billion.

"The costs of bicycle injuries have risen steadily since 1997, with a significant increase in emergency department visits and hospital admissions, especially with older men," said first author Thomas W. Gaither, a University of California, San Francisco medical student.

In addition, Gaither and other authors of the study noted that medical costs associated with non-fatal bicycle accidents injuries totaled \$209 billion and fatal bicycle accident injuries totaled \$28 billion between 1999 and 2013. Based on such figures and the fact that 10,570 people died nationwide in bicycle accidents between 1999 and 2013, the average cost of a fatal bicycle accident was \$2,649,000 during this 15-year period.

## Most Dangerous Boston Streets, Intersections for Cyclists

Several studies have identified the most dangerous areas in Boston for cyclists based on the frequency of bicycle accidents in certain locations. The City of Boston identified **several "bicycle crash clusters" in its annual Vision Zero Boston 2016 Review released in April 2017.** [\[xi\]](#) The Boston bicycle crash clusters identified in the report include:

- Massachusetts Avenue, including:
  - Back Bay area
  - Columbus Avenue area near Southwest Corridor Path
- Intersections with Green Line trolley tracks, including:
  - Cleveland Circle
  - Huntington Avenue at South Huntington Avenue
- Intersection of Cambridge Street and State Street

**Another study conducted by researchers from Harvard University's School of Public Health and Harvard University's Injury Control Research Center analyzed bicycle accident data between 2009 and 2012.** Researchers then created a map identifying all bicycle accidents that occurred in Boston during this four-year period. According to map, the locations where the highest number of bicycle accidents occurred in Boston between 2009 and 2012 included:

- Massachusetts Avenue (from Beacon Street to Massachusetts Avenue Connector)
- Commonwealth Avenue (from Beacon Street to Harvard Avenue)
- Tremont Street (from Massachusetts Avenue to Malcolm X Boulevard)

The 2013 Boston Cyclist Safety Report identified the most dangerous intersections for cyclists. The report based its findings on the previously-cited Harvard University study, which analyzed bicycle accidents in Boston between 2009 and 2012. The intersections with the highest number of bicycle accidents during that four-year period were:

## INTERSECTION/NUMBER OF BICYCLE ACCIDENTS

Beacon Street and Massachusetts Avenue (Back Bay, Beacon Hill) – 14

Massachusetts Avenue and Commonwealth Avenue (Back Bay, Beacon Hill) – 12

Cedar Street and Columbus Avenue, Inbound (Roxbury) – 9

Harvard Avenue and Brighton Avenue (Allston, Brighton) – 9

Harvard Avenue and Commonwealth Avenue, Outbound (Allston, Brighton) – 7

Belvedere Street and Huntington Avenue (Fenway, Kenmore) – 7

Harvard Avenue and Commonwealth Avenue, Inbound (Allston, Brighton) – 5

## Most Dangerous Times To Bike In Boston

The 2013 Boston Cyclist Safety Report identified what time of day and year bicycle accidents occurred most often in Boston. The information is based on Boston bicycle accident data between 2009 and 2012.

The hours of the day when the most bicycle accidents occurred in Boston between 2009 and 2012 were, in descending order:

5 – 6 p.m. (largest number of bicycle accidents)

6 – 7 p.m. (2<sup>nd</sup> largest)

4 – 5 p.m. (3<sup>rd</sup> largest)

8 – 9 a.m. (4<sup>th</sup> largest)

3 – 4 p.m. (5<sup>th</sup> largest)

Largest number of Boston bicycle accidents by the day of the week, 2009-2012:

Friday (largest number)

Thursday (2<sup>nd</sup> largest)

Tuesday (3<sup>rd</sup> largest)

Wednesday (4<sup>th</sup> largest)

Monday (5<sup>th</sup> largest)

The months of the year when the most bicycle accidents occurred between 2009 and 2012 were:

September (largest number)

August (2<sup>nd</sup> largest)

May (3<sup>rd</sup> largest)

June (4<sup>th</sup> largest)

October (5<sup>th</sup> largest)

### Common Causes of Boston Bicycle Accidents

The Boston Police Department Collision Report for 2009 to 2012 included in the 2013 Boston Cyclist Safety Report identified the most common causes of bicycle accidents in Boston involving other vehicles between 2009 and 2012. [\[xii\]](#)

Of the 1,813 bicycle accidents reported to the Boston Police Department between 2009 and 2012, a total of 91 percent involved collisions with a motor vehicle. An additional 7.7 percent involved falls or bicycles colliding with other bicycles. The circumstances involving the remaining 1.3 percent of bicycle accidents were unknown.

As for more specific factors, the following are the most common behaviors cited by Boston Police Officers in their accident reports between 2009 and 2012:

#### BEHAVIOR / FREQUENCY

Vehicle operator or occupant extended door – 197

Driver did not see bicyclist – 156

Cyclist rode into oncoming traffic – 108

Bicyclist ran red light – 85

Bicyclist speeding – 57

Bicyclist did not see car – 41

Driver aggressive behavior – 35

Driver not paying attention – 31

Bicyclist not paying attention – 25

Driver was speeding – 24

Driver ran red light – 23

Bicyclist ran stop sign – 22

Cyclist aggressive behavior – 22

Driver ran stop sign – 17

**The most common cause cited above (“vehicle operator or occupant extended door”) is colloquially referred to as “dooring,” which means the driver or vehicle passenger opened a vehicle door and struck a cyclist.**

## Existing Efforts to Eliminate Bicycle Accidents in Boston

In an effort to reduce the number of bicycle accidents in Boston, the City of Boston has implemented several measures in recent years. In particular, the Vision Zero Boston 2016 Review published in April 2017 highlighted recent efforts to reduce accidents involving cyclists, pedestrians and other vehicles. They include:

- Reduced speed limit citywide from 30 mph to 25 mph.
- Held 30 community meetings in Boston in 2016 promoting traffic safety.
- Installed protected bicycle lanes on a block in Beacon Street.
- Began work on additional bicycle lane improvements.

The creation of protected bicycle lanes in Boston has been cited several times by researchers as an effective way to reduce the number of bicycle accidents. There has been a dramatic increase in the number of bicycle lanes in Boston in recent years.

**According to a 2016 study conducted by Harvard University’s Chan School of Public Health, the amount of bicycle lanes in Boston increased from less than one mile of bicycle lanes in 2007 to 92.4 miles of bicycle lanes in 2014.**[\[xiii\]](#)

**The city’s bicycle lanes include a protected stretch on Commonwealth Avenue, according to the 2015 Boston Globe article about the increase in the number of fatal bicycle accidents that year.**[\[xiv\]](#) A protected bicycle lane has a physical barrier between the bicycle lane and motorized vehicles.

In the same Boston Globe article, some city officials noted that installing protected bicycle lanes can be expensive. However, some cycling advocates disagree, noting that there are many low-cost ways to install protected bicycle lanes.[\[xv\]](#)

Regardless of the cost, Boston city officials told The Boston Globe that protected bicycle lanes are necessary. Boston Transportation Department Deputy Commissioner James Gillooly noted that the city was “behind the times” when it comes to protected bicycle lanes and “started to see the wisdom of a buffered bike lane.”

## Existing Efforts to Eliminate Bicycle Accidents in Other Cities

There are many different ways to protect cyclists on the road. [\[xvi\]](#) Some of the most common solutions include:

- Protected bicycle lane (physical barrier or parked cars separate bicycle lane from traffic)
- One-way protected bicycle lane (same as above, but cyclists only travel in one direction)
- Two-way protected bicycle lane (cyclists travel in both directions on same side of road)
- Buffered bicycle lane (painted space separates bicycle lane from traffic)
- Conventional bicycle lane (bicycle lane with no additional space between traffic)
- Raised bicycle lane (bicycle lane several inches higher than roadway)
- Separate traffic lights specifically designated for bicycle lanes

In addition, an urban planning organization ranks cities around the world every two years based on their bicycle infrastructure. In 2017, the organization, Copenhagenize Design Company, ranked 122 cities worldwide. Copenhagen, Denmark finished first for bicycle infrastructure, followed by Utrecht and Amsterdam in The Netherlands. [\[xvii\]](#) In Copenhagen, the city has more than 220 miles of curbed, protected bicycle lanes; 27 miles of off-street bicycle lanes running through parks and green space; and 14 miles of on-street bicycle lanes. [\[xviii\]](#)

## Additional Proposals to Eliminate Bicycle Accidents in Boston

Many additional proposals have been suggested for continuing to improve cycling safety in Boston. The City of Boston in its Vision Zero Boston 2016 Review outlined several future projects aimed at eliminating bicycle accidents in the city. Such projects include **implementation of Boston's Bike Network Plan, a comprehensive, 30-year-plan** adopted in 2013 and aimed at increasing bicycle ridership and infrastructure in the city. [\[xix\]](#)

Other specific proposals for reducing bicycle accidents in Boston include intersection safety improvements at 11 intersections in the city. The intersections are:

- Malcolm X Boulevard at King Street
- Kittredge Street at Whitford Street
- South Street at Bussey Street
- Devonshire Street at Winthrop Square
- Dorchester Avenue at Bailey Street
- Court Street at Court Square
- State Street at Kilby Street
- American Legion Highway at Plaza Entrance (new signal)
- Fairfield Street at Newbury Street (new signal)
- Geneva Ave at Olney St (new signal)
- Blue Hill Ave at Castlegate Rd (new signal)

**Another suggestion for making Boston’s roads safer for cyclists includes modernizing the Boston Police Department’s accident report forms, which often do not contain** enough information about bicycle accidents. As a result, statistics about bicycle accidents in Boston are often not completely accurate, researchers claim. **“The goal here is to develop the world's best database for vehicle/bicycle crashes,”** said Anne Lusk, a research scientist in the Department of Nutrition at the Harvard School of Public Health. **“With good data, the environment could be made safer for car drivers and for cyclists.”** In a 2015 interview with WBUR in Boston, Lusk said details about bicycle accidents are often handwritten and drawn by Boston police officers **“on paper, with few bicycle-specific codes or diagrams.”**[\[xx\]](#)

Others advocate for construction of additional protected bicycle lanes. But more than anything, simply having more bikes on the road often results in safer conditions for cyclists, according to Pete Stidman, the former executive director of the Boston Cyclists Union. **“What we have seen everywhere, not even just in the US, is the more people who ride, the lower the risk for the individual,”** Stidman said to **The Boston Globe** in 2015.[\[xxi\]](#)

## Legal rights

Some of the most common causes of bicycle accidents cited by Boston Police Officers in accident reports between 2009 and 2012 included the following reasons: vehicle operator or occupant extended door (197 incidences) and driver did not see bicyclist (156). Such reasons might sound like innocent mistakes. However, just because a driver **claims they didn’t see a cyclist does not excuse the driver from responsible in such** accidents. Drivers can still be held liable for such actions and be responsible for compensating injured cyclists and/or their families if a cyclist dies in an accident.

However, injury victims and their families only have a limited amount of time to take legal action after their bicycle accident. In the Commonwealth of Massachusetts, the **deadline for taking legal action (known as the “statute of limitations”)** is **3 years for most** personal injury and wrongful death claims. In general, the deadline starts from the date of the accident. However, that deadline could be extended if the injured cyclist was not initially aware of his or her injuries.

## Conclusion

Boston has made significant improvements in recent years aimed at eliminating cycling accidents in the city. However, additional measures need to be implemented in order for the city to achieve its goal of zero cycling fatalities in the future. As a result, city officials, community leaders and cycling advocates need to continue to work together to achieve such goals by the target date of 2030 identified by Vision Zero Boston and Mayor Martin J. Walsh.

*For more information*

*[Contact](#) the Law Offices of Mark E. Salomone. Our law firm handles bicycle accidents and other personal injury cases throughout Massachusetts. We have 12 offices statewide, including two Boston offices as well as offices in Burlington, Chicopee Framingham, Greenfield, Holyoke, Northampton, Roxbury, Springfield, Ware and Worcester.*

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[ii] [“Biking to Work Increases 60 Percent Over Last Decade, Census Bureau Reports,”](#) United States Census Bureau, May 8, 2014.

[iii] [“Estimated total costs from non-fatal and fatal bicycle crashes in the USA: 1997–2013,”](#) Injury Prevention, BMJ, June 2017.

[iv] [“Traffic Safety Facts, 2015 Data: Bicyclists and Other Cyclists,”](#) National Highway Traffic Safety Administration, March 2017.

[v] [“Pedestrians and bicyclists,”](#) Insurance Institute of Highway Safety, Highway Loss Data Institute, Statistics as of June 2017.

[vi] [“Traffic Safety Performance \(Core Outcome\) Measures For Massachusetts,”](#) National Highway Traffic Safety Administration, Statistics as of June 2017.

[vii] [“Bicycle Use and Cyclist Safety Following Boston’s Bicycle Infrastructure Expansion, 2009–2012,”](#) Felipe E. Pedroso, Federico Angriman, Alexandra L. Bellows Kathryn Taylor, American Journal of Public Health, December 2016.

[viii] [“Death toll mounts for bicyclists on Boston’s Streets,”](#) The Boston Globe, Aug. 12, 2015.

[ix] [“Boston Cyclist Safety Report 2013,”](#) City of Boston, May 15, 2013.

[x] [“Rising Number of Bicycle Crashes Highlights Importance of Wearing a Helmet,”](#) Consumer Reports, June 2, 2017

[xi] [“Vision Zero Boston 2016 Review,”](#) Boston Mayor Martin J. Walsh, April 2017.

[xii] [“Boston Police Department Collision Report, 2009-2012,”](#) City of Boston, May 15, 2013.

[xiii] [“Better Days for Boston Cyclists,”](#) Harvard Gazette, Dec. 15, 2016.

[xiv] [“Death toll mounts for bicyclists on Boston’s Streets,”](#) The Boston Globe, Aug. 12, 2015.

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[xxi] [“Death toll mounts for bicyclists on Boston’s Streets,”](#) The Boston Globe, Aug. 12, 2015.