ONE
HUNDRED
AND FIVE
Dear Reader,

Since 2009, the Commonwealth of Massachusetts has seen upwards of one hundred cyclists killed in collisions with motor vehicles. Through archival research and keen record-keeping, the advocacy non-profit organizations MassBike and the LivableStreets Alliance have placed the number of fatalities at 105. Each rider has a story; they were a part of a family, brought joy to friends and developed hobbies that made their lives complete. For some, cycling was a recreational activity; for others it was a transportation necessity.

We cannot let ourselves become convinced that these incidents are inevitable.

This report, named for the 105 lost lives to preventable crashes, catalogues these tragic incidents, remembers the victims and simultaneously presents basic analysis as to the circumstances of the collisions; we intend the report to have dual utility as both an advocacy recommendation and a commemorative memorial. Within these pages, we hope you find a mix of these two themes, both understanding what we have lost in the past and where we must head towards in the future.

May their legacies live on through us.

Sincerely,
Noah Rowan
Intern; MassBike

Special thanks to the entire team at MassBike, VisionZero (MA), LiveableStreetsAlliance (MA), all twelve offices of the Districts’ Attorneys and the Massachusetts Crash Analysis and Reconstruction team.

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Cover Photo: Bike wheel chained to sign post
William Ward (c) 2014
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Introduction

No two crashes are the same. They span the entirety of the commonwealth, covering all 12 counties and 64 municipalities. The victims represent a variety of ages, races, hometowns and professions hailing from all corners of the world; some were temporary residents of the United States, others had never lived outside their hometowns. Each of them have family who were forced into the inescapable process of grief, who wake up and go to sleep each day with a piece of their world distinctly missing. These aren’t just statistics on a page, they are real, whole lives that have been torn from the fabric of families, workplaces and communities. This is a report about people and how data can show us the humanity within each crash. The main mission of the 105 Report is to be a roadmap for advocacy, specifically within MassBike and local cycling groups. This report should point advocates in MA towards the people and places associated with fatalities which need the most urgent intervention to save lives. One of our collective roles as bike advocates is to make sure that cyclists are included in every planning or policy conversation, and with the information provided in this report we hope to direct the energy and work of fellow advocates in their efforts to create safer environments for cyclists. For this reason, we wanted to focus on the “who” and the “where” of bike fatalities in MA. We want to tell you about what these people did for a living, how old they were, where they were from and more. From there, we can assess what populations are underrepresented or overrepresented in the data. It is important to note that this is a data collection project at heart, and this report is a presentation of a small slice of information from the collected data. This report is not the final product; data collection will continue and these statistics will change.
The Massachusetts Bicycle Coalition (MassBike) is a non-profit organization engaged in education, advocacy and community organizing centered on the bicycle. We advocate, in local and state policy, for community health, equity and safety, as well as economic vitality and sustainable development, all through the mission of improving the experience of cycling in Massachusetts. Our education programs help promote cycling safety in younger generations, promote safe driving tactics around cyclists and teach basic bike skills to all ages. As part of our advocacy work, we serve as a communication point for many families of lost cyclists and keep records of cyclist fatalities. This report comes from the advocacy desire to understand who we have lost in the window of time where we have kept records, in order to inform and target our advocacy going forward.

MassBike was the lead in this project, but we had a variety of partners, as well as multiple groups who deserve acknowledgement for indirect contribution. Our direct partners were the LivableStreets Alliance and all ten MA Offices of the District Attorneys, as well as the Hopkinton Police Department. A paramount need in our data collection is that we have access to as many police reports as possible. This is because when police officers from a crash site submit their reports, they are sent to that county’s District Attorney’s office. The DA decides on whether or not to press charges, taking all available evidence into account. Over the course of many months and many requests for police reports, all ten DA’s offices responded to our requests and agreed to process them. At the time of this report’s publishing, only the Essex County District Attorney’s office has sent full reports, while Worcester, Northwestern (Franklin/Hampshire Counties combined), Middlesex and Berkshire have sent partial records.

The LivableStreets Alliance (LSA) is a Boston-based non-profit which advocates for a wide array of transportation solutions, all with the goal of eliminating invisible barriers in cities and “connecting people to places” in equitable and sustainable ways. They lead the Vision Zero movement, which helps cities plan to eliminate motor vehicle deaths and as part of this initiative, the LSA maintains a map of pedestrian and cyclist deaths. While the LSA records and tracks pedestrian deaths, they have always been partnered with MassBike for cyclist fatality data. They were a key partner in recording and archiving cyclist fatalities, especially in the early 2010’s.

We want to also acknowledge a wide array of news sources, including but not limited to: The Boston Globe, StreetsblogMASS, WBUR, WickedLocal, CBS Boston, the Sun Chronicle, the Worcester Telegram & Gazette, MassLive, the Cape Cod Times, the Berkshire Eagle, MetroWest Daily News and Salem News. These organizations provided archival information for almost every one of these crashes. Most obituaries came from local newspapers or Legacy.com.
The foundation of this report is data collection. In order to compile a spreadsheet of 30 fields for 105 victims with a total of 3,150 cells, we needed many sources of information to draw from, as there is no database or repository that has all of the fields we are looking for. The data collection process is our way of finding and verifying information, because we obviously were not present at the crash site, and cannot seemingly visit each site given the wide geographic spread. To collect new data, our process is represented on the flowchart at the bottom of the page. While not represented on the flowchart, police reports have been used on a case-by-case basis when they are sent to us, mostly as a way of gathering more context as to the conditions of the crash.

Not all of the data had to be newly collected however. Data collection on bike fatalities has been going on for years, with a spreadsheet maintained by MassBike and the LivableStreets Alliance. When this project was launched, small amounts of data had been collected for 103 confirmed collisions; by the end of the project there was comprehensive data for 105. Two fatalities occurred during the months in which this report was created, sadly bringing the number from an original 103 to 105.
A handful of methodological concerns are worth mentioning. First and foremost, our data source for this project is growing and always incomplete. In compiling our data, we only had access to public resources (news articles, obituaries, etc.) and so any gaps in reporting inevitably become gaps in our data. We sit at the end of an information chain that starts with police officers and witnesses at the scene of a crash and ends with press releases to the public from the District Attorneys Offices. Vague wording from a police officer, competing witness stories or missing context (especially prevalent in hit-and-runs) can deliver multiple different and competing timelines of what occurred, and often these competing timelines are both passed down the chain and end up telling the story differently in different sources. Most of these cases never end up in a court, wherein these competing stories could be challenged and reconciled, so all of our data is at the will of folks upstream who pass us down information. **This data chain is represented in the flowchart to the right.** Also, while we wish we could tell each of these 105 narratives, this project is not comprehensive storytelling work. In attempting to capture all 105 cyclists, we chose to take the scope of this project wider instead of deeper. We also want to explicitly acknowledge shortcomings in data collection and call on any readers to chime in with extra information they may have to offer using the link at the bottom of this report.
Each of these jobs belonged to one or more of the deceased. This is not a comprehensive list.
Demographic data is a key piece of this analysis, as it shapes our understanding of the victims, and the identities that correlate with more risk of collision. There is a fine-line to walk here, especially with age. We want to avoid victim-blaming with tropes about youthful recklessness or elderly incoordination, but we also need to recognize the role that any cyclist’s physical aptitude or riding experience can play in causing crashes. Effective and targeted outreach means understanding who we need to talk to, and what stake they have in the issue. If there are overrepresented populations in any group of fatalities, that is a primary concern for advocates. If a crash report suggests a young rider involved in a crash was going against the flow of traffic, perhaps we can surmise that more comprehensive cycling education through Safe Routes to School programs is integral in equipping younger cyclists to understand the road and ride safely.

Unlike the location of a crash, collecting demographic data involves a lot of trust in the information chains outlined earlier. News articles often cite the victim in the style of: “[Name], [age], of [town] was struck by a...” (ie. Jose Pacheco, 76, of Swansea); however these can be inconsistent between news sources. We gathered all ages, genders, hometowns and pronouns from obituaries when they were included, and turned to news articles, pictures and public genealogy records for race. Obviously these methods are imperfect, as racial identity, gender expression and the location of “home” are very personal and may not match the labels we have used. Overall, we simply hope to look into what groups are broadly represented in the fatalities data, and whether that can tell us anything about advocacy going forward.
Of all the demographics, age has the largest effect on how a person will use their bicycle. Obviously, a kindergartener, a young professional, and a retiree will use their bikes differently to get to different places. This is important to advocates. MassBike is a partner in a number of municipal Safe Routes to School programs, providing education to youth as well as advocating for improved infrastructure around schools. These initiatives protect kids on their way to school; Following the patterns of the past decade, teenagers are at higher risk than kids to fatalities, but those deaths are not distributed equally across racial groups, as will be discussed on the next page. It is also worth mentioning how highly concentrated the deaths are in certain age ranges. One in every eight cyclists was between the ages of 55 and 60, suggesting this five year period to be statistically the most dangerous time of life to be a cyclist in Massachusetts.

Different counties in the commonwealth have different age breakdowns, naturally. Metro Boston, Central MA and most of the Connecticut River Valley lean younger, while the South Coast, Cape Cod and the Berkshires have older residents, with median resident ages over 41. Barnstable County, which contains all of Cape Cod, has the highest median age of residents for all MA counties. However, when looking at fatalities, it has the second lowest median age for victims. The average age of a fatal crash victim on Cape Cod is almost 20 years younger than the median age of residents. One of these young people lost was Yelmur Samarkham, who held one of the Cape’s special J-1 Visas for young adults from abroad to get seasonal work in the States. While residents of Cape Cod are not immune to the dangers of cycling, these workers are particularly vulnerable and often rely on cycling as a primary transportation method, as they do not hold a driver’s license in the USA, likely cannot afford automobiles, and are unfamiliar with Massachusetts’ distinct traffic patterns and confusing road layouts. Our research suggests that young, foreign workers are at a significantly higher risk while cycling on the Cape than older retirees who come to visit on vacation. Every single summer crash on the Cape involved someone younger than 25 being killed.
When were they born?

- 1930s
- 1940s
- 1950s
- 1960s
- 1970s
- 1980s
- 1990s
- 2000s
- 2010s

Age of Victim by 10yr Intervals

Count

0-10
11-20
21-30
31-40
41-50
51-60
61-70
71-80
81+

Average age of victim by county where collision occurred

Median Age of Residents by county, as of 2018

The 105 Report

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The racial breakdown of fatalities looks almost exactly like Massachusetts’ population at-large, but we don’t generally know the racial breakdown of cyclists. There is a need to look further into racial relationships with cycling; we don’t yet have data on racial breakdowns specifically of cyclists in MA, and that data would unlock a lot more analysis that we cannot perform right now.

A great example to look towards is a 2018 study in the San Francisco Bay Area that examined racial and geographic patterns in cycling fatalities. Barajas, et. al. found that higher non-fatal bicycle crash rates were disproportionally present in: non-white neighborhoods, neighborhoods with lower income, neighborhoods with less bike infrastructure and neighborhoods with higher immigrant populations (Barajas, 2018). Similar research around fatal crashes in MA could build on this project and go much deeper into racial and socioeconomic relationships with bike crashes.

The one racial relationship that we do have evidence of is that cyclists of color are significantly more likely to be killed in their town of residence than white cyclists. For white cyclists, the split between “killed in town of residence” and “killed outside of town of residence” is around 50/50. For cyclists of color, 82% were killed in their town of residence.

When it comes to gender, there is an 80/20 split between men and women respectively within the 105 crashes. The state at large leans 51% F to 49% M, but there is, again, no accurate data on demographics specifically within cycling communities in Massachusetts. Also, among all 105 victims, no clear public records were kept of personal pronouns, so in evaluating gender statistics, we defaulted to the pronouns used on a person’s obituary.

The intense criminalization of BIPOC (Black, Indigenous & people of color) using public spaces in the United States has created a landscape wherein bike/pedestrian infrastructure cannot be the only tool in creating safe streets for everyone. As long as BIPOC are at risk of state-sanctioned public violence, there are threats to BIPOC cyclist safety that go deeper than intersection designs. See Herbert, 2021 for more statistics on this inequity.

A note on race:
Racial identity is a complex part of self-concept, and it is easy to paint over this topic with broad brush strokes and ignore racial identities which may not be visible or recorded. For this project we chose to include the five racial groups following the US Census designations: Non-Hispanic White, Black, White-Hispanic, Indigenous and Asian.
Racial Makeup of Victims

- No data (10 victims, 9.5%)
- White (68 victims, 65.3%)
- Hispanic (11 victims, 10%)
- Asian (7 victims, 6.6%)
- Indigenous (1 victim, 1%)
- Black (8 victims, 7.6%)

Over 30% of crashes were in majority POC (people of color) cities.

POC make up 48% of all crashes where the cyclist died in their hometown.

White Victims vs Non-White Victims by Where Their Crash Occurred

Gender Summary

Crash Victims by MA Statewide Census 2020 Pop. by Gender

- Female: 49%
- Male: 51%

- Within city of residence
- Outside city of residence
Each dot represents the location of one fatal crash.
Before mentioning anything about road design, we should mention the progress we have made in bike infrastructure in the commonwealth. In autumn 2009, when MassBike began keeping specific records of bicycle fatalities under former Executive Director Richard Fries, there were fewer than 5 bike lanes across the entire state, none of which were protected. Today, we have hundreds of miles of “high comfort bike facilities,” which include bike trails, multi-use trails, protected bike lanes and curb separated bike paths. These networks, while built out, lack distinct connectivity. The Massachusetts Department of Transportation is aware of these concerns, and has attempted to catalog their strategies in multiple iterations of the Massachusetts Bicycle Plan; however progress has been slow, and usually favors Metro Boston over the Gateway Cities, the Connecticut River Valley, the South Coast, and other outlying areas further from the state capital. The Bicycle Plan is a good start, but unless we fully commit to safe streets in every municipality across the commonwealth, motor vehicle accidents will continue to take the lives of our family, friends, neighbors, and fellow riders.

Bicycle deaths can, for better or worse, provide political willpower towards making road changes. In Arlington, MA a suburb northwest of Boston, the killing of Charlie Proctor in 2020 has put political will behind a redesign of a historically dangerous intersection and expedited the timeline of completion, with the project seeing full implementation within 18-months of Charlie’s death. Cyclists do not die to become martyrs, or to advance the agenda of advocates, but when a preventable fatality happens at an intersection it becomes more than apparent that the physical infrastructure is not enough to protect us.

However, only 15 out of the 105 fatalities spurred changes in design. Of those 15, six were in Suffolk County alone, four were in Middlesex and only one singular road change-- in Northampton-- outside of the Boston Combined Statistical Area. Some communities are years ahead of others in familiarity with bike infrastructure; it should be an advocacy priority to show bike-unfriendly communities what options are out there.
All but two of these crashes involve a street, with two occurring on separate trails. And of those that involved a group, 94% (96/103) were on-street, car-on-bike collisions. However, on-street crashes look different depending on who administers/manages the road.

In American contexts, all roads are categorized under three distinct groups: arterial, collector and local. While some cities have separate systems, they must also adhere at a basic level to these groups. Arterial roads include highways (state and inter-state) and other high volume roads (only includes motor traffic) which allow for higher speeds and regional connections. A good example of an arterial road is Route 9, specifically between Worcester and Framingham. Collector roads are a step down, and include most larger, mid-speed roads that circulate people around a town or city. These are always managed by local governments and not the State or Federal governments who administer arterial roads. In Boston, Hyde Park Ave serves as an example of a collector; in Chicopee, Broadway is a prime example too.

The relevance of who administers the road is twofold: it comes into play when road design changes are being proposed, and it determines which police force shows up to take reports. While levels of government often share responsibilities and collaborate on projects, for roads that fall under MassDOT purview the process can look different than a road under the jurisdiction of a local municipality. All roads that were redesigned or reconfigured in any way, shape, or form following a cycling crash were locally-administered roads. In addition, the type of police officer who shows up at the scene is determined by the type of road. State roads are patrolled by State Troopers, while local roads have local officers. Crashes on state-maintained-roads are slightly less likely to result in citations, with 76% going uncited, uncharged and unconvicted. This is slightly lower with local roads, at 71%.

Zeroing in on citations and charges, only 20% of crashes resulted in driver citations and a mere 17% resulted in charges to the driver. The other 80% of drivers received no citation, no arrest, no charges and no conviction. Almost every driver who was cited ended up having charges brought against them, but only 12 of 105 resulted in convictions. This all brings the conviction rate to around 11% at the time of this report.
Out of 105 collisions, 62% occurred at **Intersections**.

Each diagram on this page represents the shape of one of these fatal intersections.
In response to fatalities, some municipalities implemented changes to street design in order to protect cyclists. These changes can be life saving.

Distribution of Land Area at the intersection of Melnea Cass Blvd and Massachusetts Ave in Lower Roxbury, Boston

66.3% Motor Traffic  
33.7% Pedestrian  
0% Bicycle-only

58.4% Motor Traffic  
33.7% Pedestrian  
7.9% Bicycle-only

Usually the changes are small improvements—shared lanes or exposed bike lanes which offer no significant improvement in safety—however they are steps in the right direction. New designs show that it is possible to summon political will for safer streets, as long as elected officials, advocates and planners are willing to try.
Of all the factors established in this report, the time of day is the most consistent factor cited in news articles as a cause of crashes. Most cases where the sun was low in the sky or the sky was dark, drivers cited the time of day or light level as reasons why they hit the cyclist. Conversations about bike lights and reflectors often turn towards victim blaming, wherein it is solely the cyclist’s fault for not wearing enough reflective gear without acknowledging the fault of a motorist going over the speed limit, or the agencies who designed the dark road with small shoulders and no lighting.

Time of day refers to more than visibility; it also speaks to times when traffic volume is heavy or light. If we assume commuting hours to be 6:30-9:30 AM and 4-7 PM, that would qualify almost half (47%) of fatal crashes as being “commute hour crashes.” These hours also represent prime recreation and exercise time in the mornings and after school hours in the afternoon, making it no surprise that more people riding bikes are out during these hours than other times in the day. More car drivers and bus trips are typically out as well, crowding the road. All of this creates the most dangerous time of day: afternoon rush hour, where the top three hourly blocks for most crashes are all concentrated.

_These blocks are, in order of crash volume: 1) 6pm-6:59pm, 2) 5pm-5:59pm & 3) 4pm-4:59pm._
Vehicle information was one of the most difficult fields to collect, but when available it offers an incredible look into crash causation. This project qualified five main vehicle designs: SUV, Sedan, Truck, Bus and other. Crashes were not distributed equally. According to Smart Growth America, the 2010’s saw the SUV becoming more popular than the Sedan in US car sales. This is a dangerous trend for cyclists. In a 2015 study, the Colorado DOT found that a pedestrian hit by an SUV is two to three times more likely to suffer fatal injuries than in a collision with a Sedan. These patterns are incredibly evident in the data; without a doubt, large cars kill more people.

There are also interesting trends with age and vehicle size together. Trucks were 4 times more likely to hit people between the ages of 20 and 25 compared to those aged 55 to 60, despite 55-60 being the most common age range for fatalities. As stated prior, one in every eight cyclists killed was in this five year age range, but they accounted for a miniscule fraction of truck fatalities. If young people are so much more vulnerable to trucks, what kind of education is necessary on both ends to eliminate these situations? Perhaps the solution lies in trucker education on urban driving and bike/ped infrastructure. This draws from the handful of truck crashes that were the fault of misunderstandings of road space, particularly crossing bike lanes and turning at intersections into cyclists who had right of way. On the cyclist side, proper lighting is far more important for trucks, who already have fewer sightlines and greater blindspots than smaller vehicles. In addition, cyclists should be familiar with where they can and cannot be seen by trucks at intersections with knowledge of mirror angles and turning radii. The burden of education should not fall solely to the cyclist, but this extra information can save lives in emergency situations.
In deepest honor of our lost riders. May we never forget their names.

Philip Moran, 47
Harry Delmolino, 18
Vincent Donnddelinger, 81
Kelsey Rennebohm, 28
Sheila Moreta, 22
Carl Rasmussen, 48
Alexander Motsenigos, 41
Doan Bui, 63
Tanya Connolly, 37
John Kurty, 86
Chung-Wei Yang, 21
Christopher Weigl, 23
Howard Beardslee, 60
Kanako Miura, 36
Michael Ryan, 7
Livingston Pangburn, 22
Miles Tibbetts, 16
Shayne Desroches, 13

Michael Dutra, 58
Eoin (Owen) McGrory, 30
[Unknown], 58
Yelmur Samarkham, 21
[Unknown], 61
Mohamed Zeidan, 29
Mark Stracuzzi, 57
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Marcia Deihl, 65
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Gerald Scott Jr., 53

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Jackson Frechette, 13
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Thomas Anderson, 41
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Gary Burke, 59
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Virginia Chalmers, 70
[Unknown], 46
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