CITY OF BOSTON TRANSPORTATION DEPARTMENT

VISION ZERO BOSTON ACTION PLAN 2023

MICHELLE WU, MAYOR

SEPTEMBER 2023

CITY of BOSTON

VISION ZERO TASK FORCE

Thanks to the leadership and commitment of the Vision Zero Boston Task Force, the City has a clearer picture of what action is needed now to make our city streets safer for everyone.

Boston Age Strong Commission

Boston Commission for Persons with Disabilities

Boston Emergency Medical Services

Boston Planning and Development Agency

Boston Police Department, data and research divisions

Boston Public Health Commission

Boston Public Schools

Boston Transportation Cabinet

Department of Innovation & Technology

Mayor's Office of New Urban Mechanics

Boston Cyclists Union

LivableStreets Alliance

WalkMassachusetts

Cover: Tremont Street Design Project, completed in 2023

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Vision Zero is not just a program, but an approach to how we design our streets and public spaces, and how we prioritize projects.

Dear Bostonians,

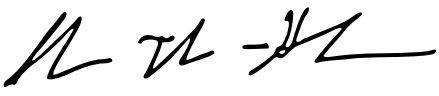
I am pleased to share with you this 2023 update to the 2016 Vision Zero Action Plan.

Vision Zero is not just a program, but an approach to how we design our streets and public spaces, and how we prioritize projects. It is reflected in the 9.5 mile expansion of the bike network announced in 2022; the safety surge announced in 2023, which includes a plan for speed humps in every neighborhood, dozens of intersection improvements each year, and a new policy for signal operations that give more time to pedestrians and reduces conflicts with turning motorists.

In 2023 we are also initiating an update to Go Boston 2030, the city's Transportation Vision and Action Plan that was initially issued in 2017. Go Boston 2030 created a new standard for equitable engagement, and included a list of priority policies and projects that are the foundation of everything we are doing today.

Compared to where we were when we started in 2016, our injury crashes[1] have been trending downward for pedestrians and cyclists, while remaining level for drivers. Fatal crashes have also decreased, but we are not yet at zero. Our work to make our streets safer must continue in earnest. As Chief of Streets, I commit to working with the Mayor to take the bold steps needed to make it safe and convenient for people to travel through the city, whether walking, biking, rolling, taking transit, or driving. I ask you to join me in this effort, to be open to change, and to remember that every life saved could be that of a family member, a dear friend, or another beloved member of our Boston community.

Sincerely,



Jascha Franklin-Hodge
Chief of Streets

[1] As measured by incidents where EMS responds to a traffic crash

VISION ZERO TIMELINE

2014

City of Boston passes first in the nation Side Guard Ordinance covering city-owned vehicles

2015

Mayor Walsh Commits to Vision Zero and establishes a Vision Zero Task Force

2016

Boston releases a Vision Zero Action Plan. The State passes legislation that authorizes cities and towns to reduce the default speed limit to 25 mph Boston reduces the default speed limit to 25 mph

Boston and nine other cities are selected to be Vision Zero Focus Cities by the Vision Zero Network, a new non-profit created to advance Vision Zero in communities across the US

2017

Boston reduces the default speed limit to 25 mph

Boston releases Go Boston 2030, a city-wide transportation and action plan that prioritizes safety and sets an aspirational target to eliminate traffic fatalities by 2030

Boston releases a resilience and racial equity strategy for the city and a framework for equitable decision making in transportation

2018

Boston participates with 5 other cities in a NACTO & Volpe working group on large vehicle design, resulting in a pair of reports by Volpe called Optimizing Large Vehicles for Urban Environments

2019

The State passes a Hands Free Driving Law that prohibits electronic messages while operating a motor vehicle

Boston releases its High Crash Network, including ~25 miles of streets for each mode

2022

The State passes An Act to Reduce Traffic Fatalities requiring side guards for state-owned vehicles, and a minimum passing distance for motorists of 4' from a vulnerable road user

Boston announces a major bike network expansion, including 9.4 miles of new bike lanes, plus 100 new Bluebikes stations, 30 new speed hump zones, and 75 raised crosswalks

2023

Boston announces a Safety Surge, including a map of streets eligible for speed humps, plus a commitment to improve safety at 25-30 intersections per year, and an updated Traffic Signals Operations Design Policy focused on pedestrian safety

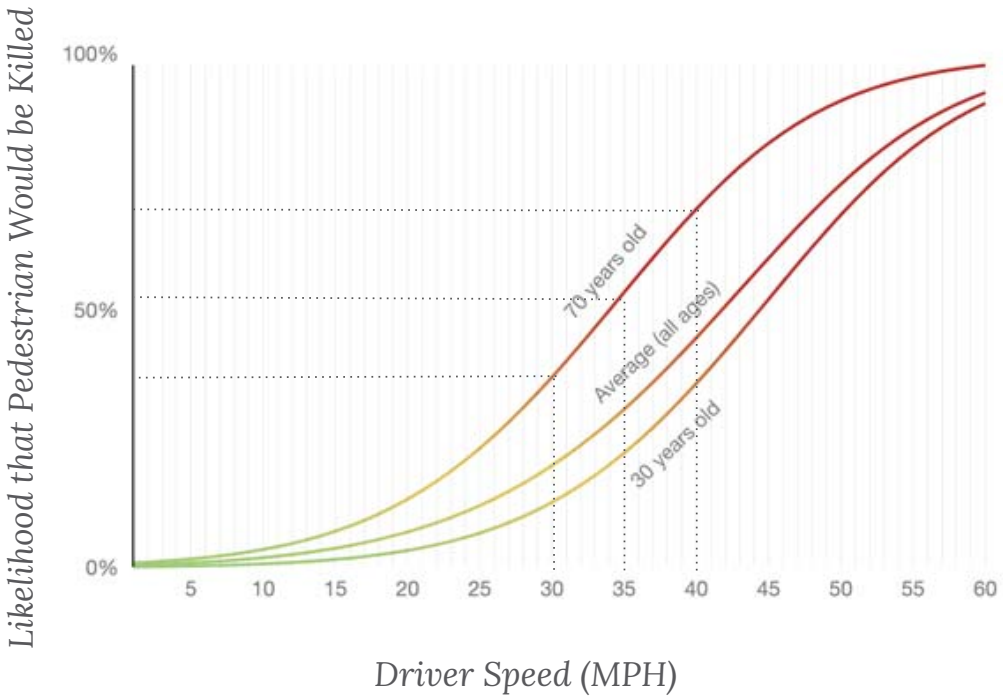
VISION ZERO BOSTON
CORE PRINCIPLES OF VISION ZERO

The Vision Zero concept was created in Sweden in 1997 and is widely credited with a significant reduction in fatal and serious crashes on Sweden's roads since that time.

Cities across the United States are adopting bold Vision Zero initiatives that share common principles:

1. Traffic deaths are preventable and unacceptable.
2. Human life takes priority over mobility and other objectives of the road system. The street system should be safe for all users, for all modes of transportation, in all communities, and for people of all ages, abilities, and backgrounds.
3. Human error is inevitable and unpredictable; the transportation system should be designed to anticipate error so the consequence is not severe injury or death. Improvements in vehicle design, right-size vehicles for city streets, minimize blind zones, andavoid the safety impacts of human errors.
4. People are inherently vulnerable and speed is a fundamental predictor of crash survival. The transportation system should be designed for speeds that protect human life.
5. Policies at all levels of government need to align with making safety the highest priority for roadways.

CHANCE OF BEING KILLED WHEN STRUCK BY A DRIVER AT VARIOUS SPEEDS BY AGE



SOURCE: *https://www.propublica.org/article/unsafe-at-many-speeds based on data from Tefft (2013)*

WHAT DOES THIS MEAN FOR BOSTON?

Vision Zero Boston is our commitment to focus the city's resources on proven strategies to eliminate fatal and serious traffic crashes in the city by 2030. We are inspired by the belief that even one fatality is too many.

Since our first Vision Zero Action Plan in 2016, the 3-year rolling average of injury crashes for pedestrians and cyclists have gone down 50% and 40% respectively, while injury crashes for drivers have gone down by about 7%. Some of this change may reflect changes in COVID era commuting patterns. Fatal traffic crashes have gone from 15-20 per year in the years leading up to 2016 to 10-15 per year in recent years, but even one fatality or severe injury is too many. The goal is zero..

Vision Zero Boston looks behind the statistics at the human and economic cost of traffic crashes; the barriers created by busy, high-speed roads in the heart of our neighborhoods; and the impact of speeding on neighborhood streets that can limit access, mobility, and opportunity in communities that need it the most.

Vision Zero Boston prioritizes safety and takes a people-first approach to transportation and community building. Most trips in the City of Boston are made by people on foot, bike, or transit. Everyone, including drivers, benefits from a transportation system that's made safer for the most vulnerable road users.

VISION ZERO BOSTON PROMISES ACTION IN FOUR CRITICAL AREAS:

HOLDING OURSELVES ACCOUNTABLE FOR RESULTS

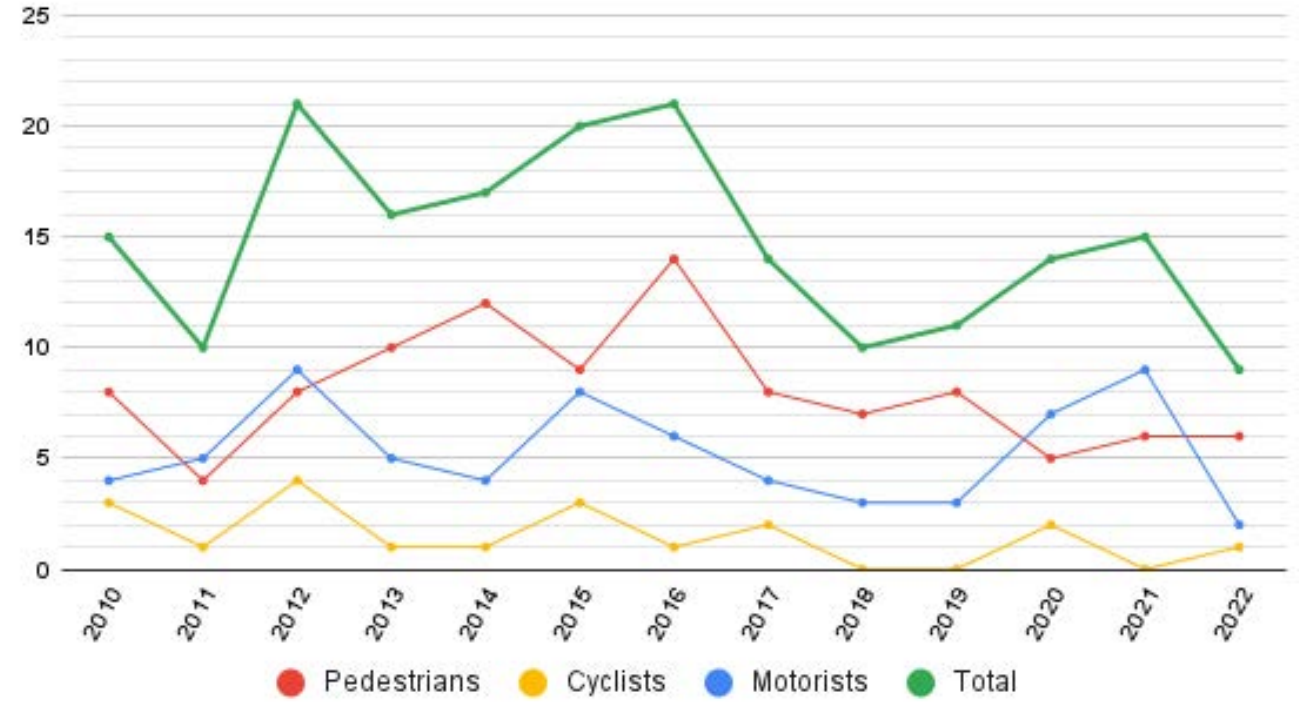
REDUCING SPEEDS AND BUILDING SAFER STREETS

ADVOCATING FOR SAFER LARGE VEHICLE DESIGN

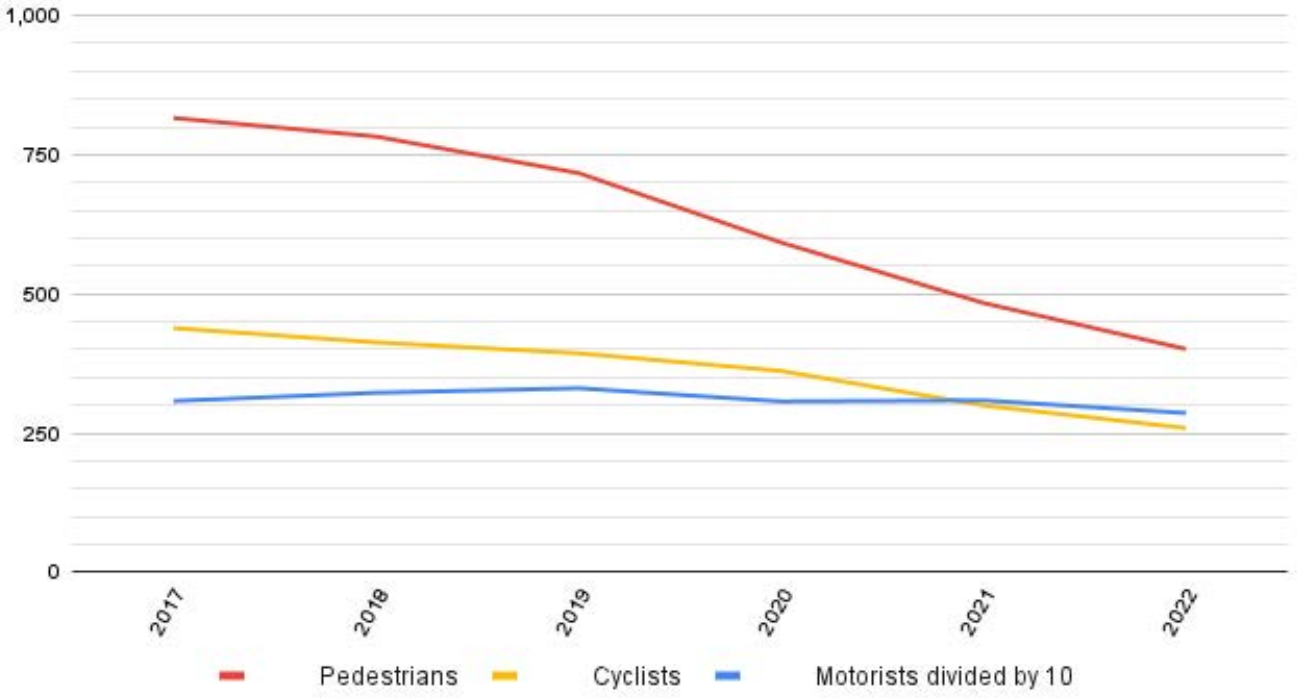
ENGAGING BOSTONIANS WITH VISION ZERO

VISION ZERO BOSTON:
PUTTING THIS INTO PERSPECTIVE

Fatal Crashes: Annual Totals



Injury Crashes: 3-Year Rolling Averages



Source: City of Boston, Vision Zero Crash Map. Fatal crash data provided by Boston Police Department. Injury crash data is taken from the city's incident reponse system and represents incidents where EMS provided a response.

ACTION PLAN TO HOLD OURSELVES ACCOUNTABLE

IN 2017, our Department of Innovation and Technology (Doit) partnered with Boston Emergency Medical Services (EMS) and researchers in the Boston Police Department (BPD) to create an interactive, online map of injury and fatal crashes, by mode, with data starting January 1, 2015. We use incidents where EMS responded to a crash as a proxy for injury crashes. This provides a threshold level of crash that excludes property damage only, but is consistent and broad enough to be able to track trends over time. In 2018 Doit added a dashboard feature to make it easy to compare year by year trends for each mode.

IN 2019, we used the Vision Zero crash database to create our first High Crash Network (HCN), consisting of approximately 25 miles of city-owned roadways for each mode. We used the Sliding Windows analysis technique to identify the half-mile segments with the highest densities of crashes, and combined the segments to create the network.

IN 2023 we updated the HCN using data from 2017-2020. As a next step, we plan to create a separate HCN for state-owned roadways within the city boundaries, which we will share with MassDOT to help prioritize state funded projects. The HCN is an invaluable tool for incorporating safety in priority setting for capital investments on roadways.

IN 2024 we will be working with Doit to add more features to the Vision Zero crash map, including a feature to select crashes within a geographic area to make it easier to do before/after studies of safety improvement projects. We are also planning to assess speed reductions using data from automatic traffic recorders (ATR) where available, and commercially available data from GPS devices where pre-project ATRs are not available.

GUIDING FRAMEWORK FOR EQUITABLE DECISION MAKING

When making decisions **I WILL WORK WITH OTHERS** to **VISUALIZE** how transportation projects relate to **PEOPLE** and **PLACES**; prioritize equity when making decisions; and **DISCUSS** a commitment to address inequities across the city of Boston.

DEFINING PEOPLE, PLACES, AND STREETS

PEOPLE

And equitable approach centers the experiences of people who, for various reasons, are at greater vulnerability on the street. Focusing on people reminds us that transportation does not exist for itself and allows us to consider the way that equitable street design improves access to opportunity and greater modal choice for all Bostonians. Considerations include understanding where there are higher concentrations of: children and older adults using streets, people of color, individuals with disabilities, households with incomes under $50,000, and low English proficiency households..

PLACES

Focusing on places allows us to consider where people are gathering or receiving services. These include our public access that are open to everyone: schools, libraries, Boston Centers for Youth and Families, parks, homeless shelters, and Main Street Districts. They also include places of opportunity, such as higher education campuses and job centers. These locations can be identified through reliable citywide data sources.

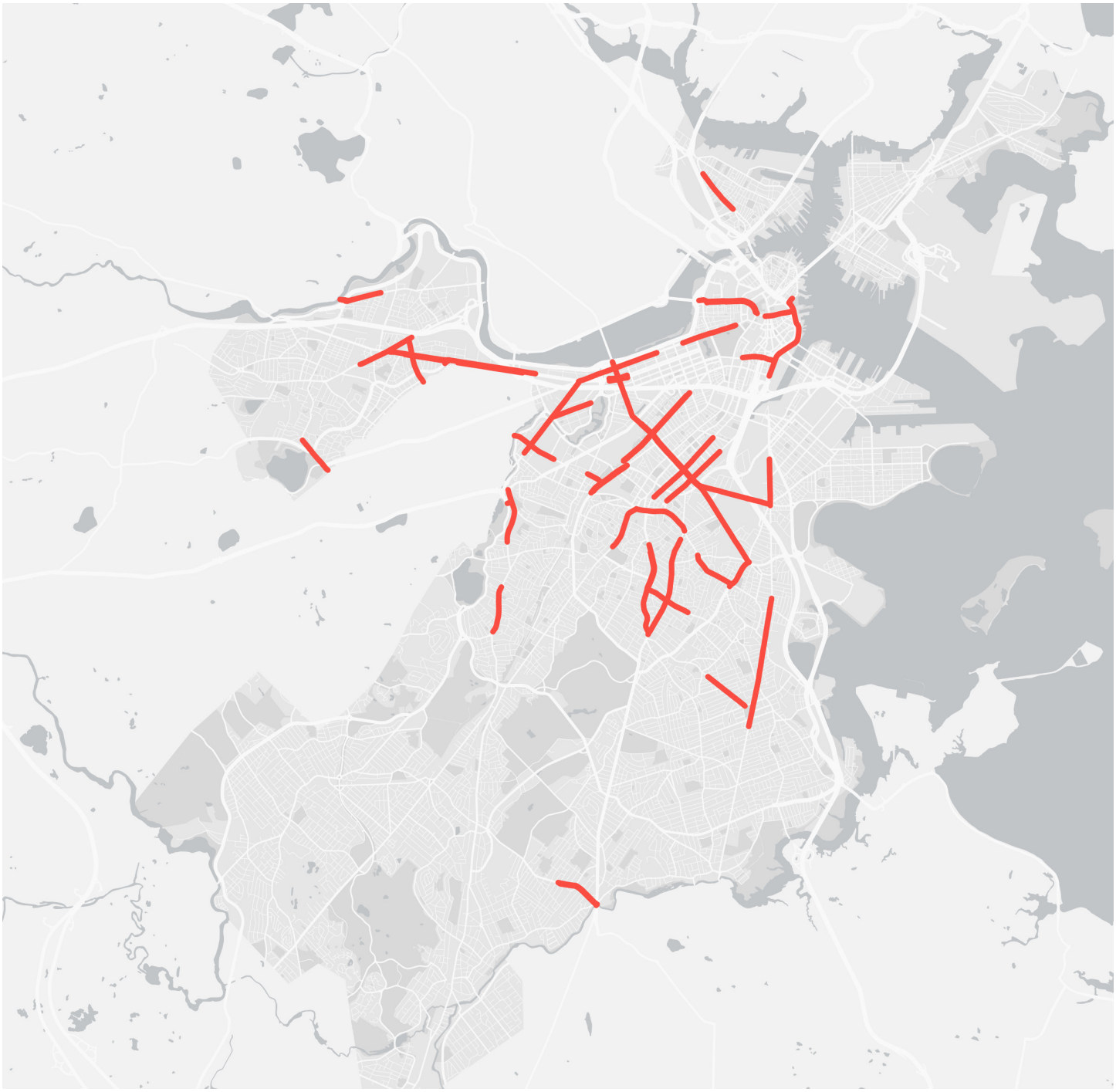
STREETS

Taking stock of the physical characteristics that are related to greater safety concerns (real, perceived, and those potentially unrelated to traffic) allows us to prioritize locations where we've seen people injured and locations with similar characteristics before people are injured. These characteristics include lane widths, the number of lanes, speeds, intersection geometries, surrounding land uses, and the presents and quality of mode-specific infrastructure.

This document was prepared by Taylor Cain, a Mayor's Office of New Urban Mechanic's Summer Fellow.

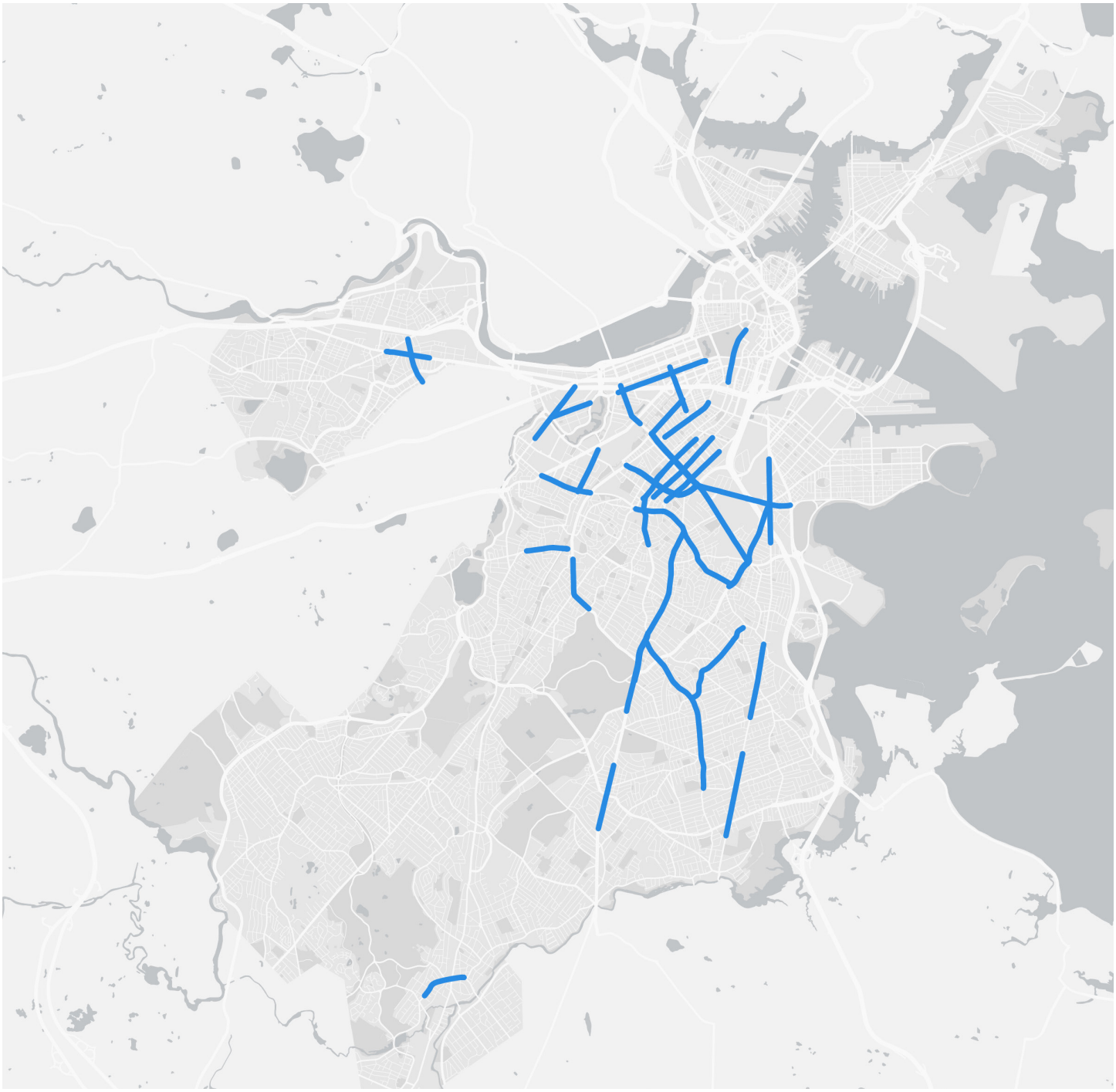
HIGH CRASH NETWORK

Cyclist crashes 2019-2021



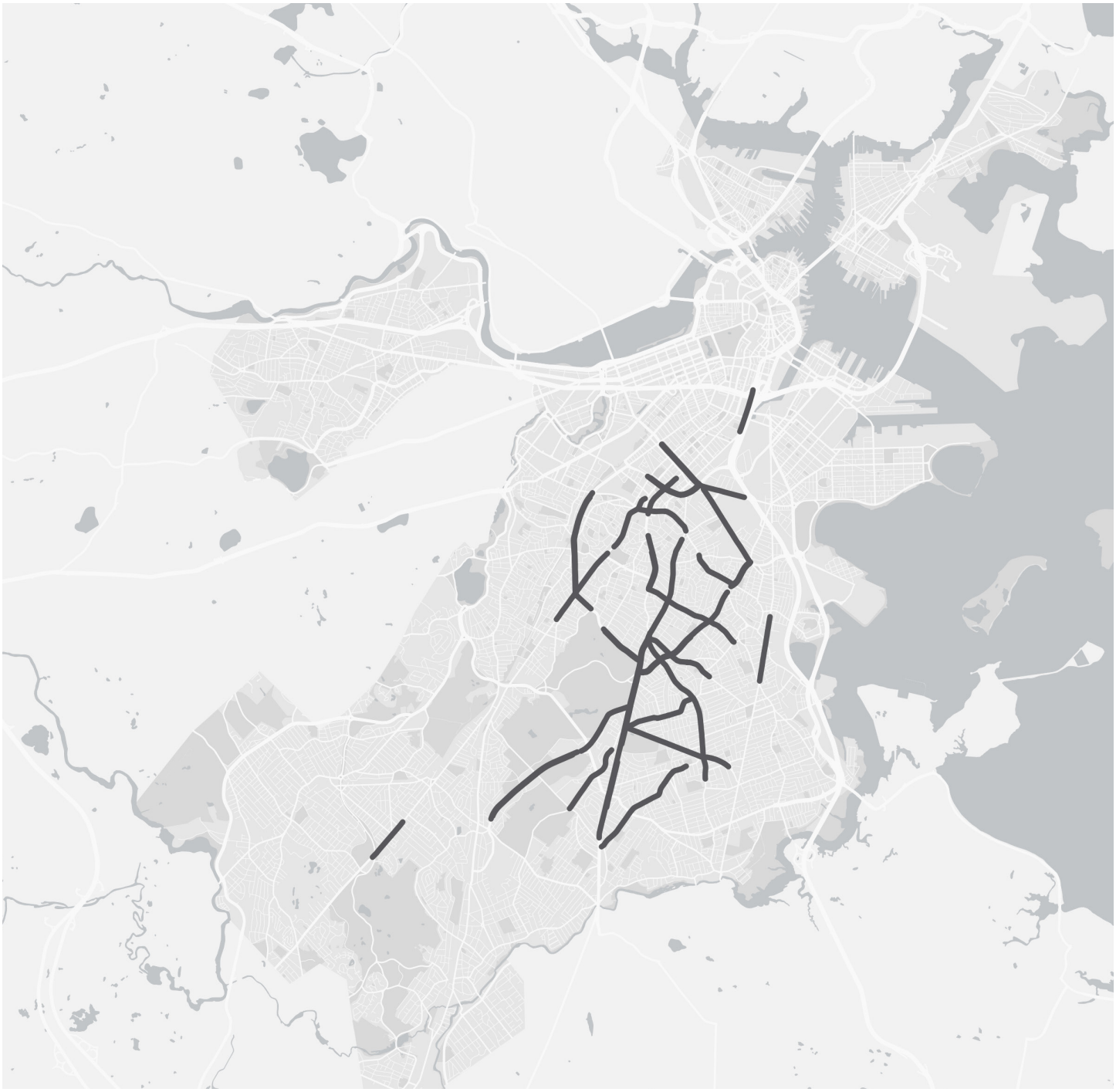
HIGH CRASH NETWORK

Pedestrian crashes 2019-2021



HIGH CRASH NETWORK

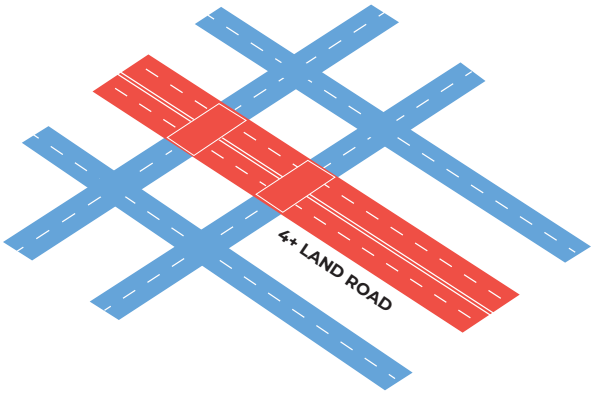
Motorist crashes 2019-2021



ACTION PLAN TO REDUCE SPEEDS AND BUILD SAFER STREETS

Reducing speeds and building safer streets continues to be a primary objective of Boston's approach to Vision Zero. Evidence-based design approaches that make our streets safer are available through federally published sources such as the US Department of Transportations' Proven Safety Countermeasures. Our colleagues at NACTO are also willing to share their cutting edge work on quick-build approaches to improve safety, such as, New York City's left turn traffic calming treatments, and Seattle's strategic use of lane reductions to reduce unsafe speeding and improve pedestrian safety.

ANALYSIS OF BOSTON'S HIGH CRASH NETWORK (HCN) REVEALS THE FOLLOWING:



4+ lane roads make up a large proportion of HCN locations

4+ lane roads are more likely to appear on the HCN than other roads

4+ lane roads have a higher average number of severe crashes per mile than other roads

Data sources: MassDOT Roadway Inventory, City of Boston 2019-2021 HCN

A primary focus of our Vision Zero strategy is to design safer corridors, especially on 4+ lane roadways, to reduce speeds and crashes, expand our safe biking network, and create safe and reliable transit networks to encourage mode shift.

SAFER CORRIDORS

Four lane and higher roads that have excess vehicular capacity most of the day are prime candidates for lane reductions, which reduce speeds, shorten crossing distances, reduce the opportunity for passing and pedestrian "double threat", and enable repurposing of road space to expand the network of protected bike lanes, create dedicated left turn lanes, and create transit lanes to encourage mode shift.

During COVID, Boston implemented a number of quick-build Healthy Streets projects that repurposed travel lanes to reduce speeds, improve safety, and improve transit reliability, including:

- Connect Downtown: A major expansion of the downtown protected bike network
- American Legion Highway: A reduction in travel lanes to reduce excessive speeding and racing
- Huntington Avenue: Creation of a bus/bike lane along a key bus route serving the Longwood Medical area

Capital projects in construction that reallocate roadway space to improve pedestrian safety and create protected bike lanes and floating bus stops include:

- Massachusetts Avenue South, from Melnea Cass Boulevard to Columbia Road
- Tremont Street in the South End

A 9.5 mile expansion of the bike network was announced in 2022 and is shown on the maps on page 19.

Additional corridor projects are listed in Go Boston 2030, including corridors prioritized for transit improvements. An extensive expansion of the transit network is being planned in coordination with the Massachusetts Bay Transit Authority's (MBTA's) Bus Network Redesign initiative. Some transit projects in progress include:

- Tremont/Columbus Phase 2: A multimodal project that extends the Columbus Avenue bus lanes from Jackson Square to Ruggles Station
- Route 57 Transit Priority Corridor: A project to improve the safety and reliability of transit along this key bus route

SAFER NEIGHBORHOOD STREETS

In 2016, Boston changed its policy that prohibited speed humps, and initiated a Neighborhood Slow Streets program to construct speed humps and other traffic calming measures in zones of residential streets. The program was application based, and projects were prioritized using a scoring system that considered the percentage of youth, older adults, and people with disabilities (people), the presence of community destinations(places), and crash numbers (streets). 15 Neighborhood Slow Streets zones were designed and implemented under this program.

The positive response and demand for Neighborhood Slow Streets quickly exceeded the city's capacity to deliver them. Budgets and staff were increased, and in 2023, Boston announced a revised approach as part of the city's Safety Surge. The new approach proactively identifies streets that are eligible for speed humps, and identifies zones that are slated to receive them in the next three years, as shown in page **18**. Additional zones will be added on a rolling basis.

SAFETY SURGE

We're moving faster than ever before to make our City streets safer by using speed humps, signal changes, street design tools and other interventions needed to curb speeding, reduce crashes, and make neighborhoods more comfortable for walking, biking, and rolling.

SPEED HUMPS

A simple street tool like a speed hump can reduce car speeds and create a more comfortable environment for those who walk or bike in our neighborhoods. We are working to build them in more neighborhoods, more quickly.

We went through every street in Boston to find those where speed humps could be appropriate. We mapped out small, connected networks of these streets. We then evaluated each area based on demographic information and crash history. Our map shows when each street in the City will receive these safety interventions on a year-by-year basis.

SAFER INTERSECTIONS

Intersections help connect people from one route to another, but they are also where most crashes occur. We are working to reduce conflicts between people driving, walking and bicycling at intersections throughout Boston.

With our intersections program, we will design 25-30 intersections each year using street safety tools that will allow for better sightlines for all users, slower speeds, clear crossings and defined spaces for all.

These intersections will be prioritized based on safety history, demographics (higher numbers of children, older adults, and people with a disability), if there are parks, schools, community centers nearby, plans for repaving and ramp construction, and needs otherwise identified by the residents of the neighborhood.

SAFER SIGNALS

By making changes at our signalized intersections, we can increase safety for people walking, biking, and driving.

Tools like a leading pedestrian interval can give walkers a head start by providing them with a walk sign a few seconds before a driver gets a green light. This creates more visibility for pedestrians and reduces conflicts between people walking and turning drivers.

"No Turn on Red" signage is another important safety tool to reduce conflicts and increase safety at intersections. Drivers may be so intent to turn at a signal that they only look left and neglect to check for pedestrians who may be crossing. By removing the option to take a right at a red light, we can reduce the number of potential conflicts. The presence of pedestrians, especially near schools, parks, and other community facilities, sight lines, or a history of crashes are reasons that a "No Turn on Red" sign may be installed.

We have also revised our guidelines for intersection timing and phasing to make sure that safety is always a top priority. Traffic signals are very complex, but by prioritizing pedestrian safety we can have signalized intersections that keep traffic flowing while keeping everyone safe.

Local

Pedestrian-First Traffic Signals

Make walk-signals intuitive and give people walking a head start

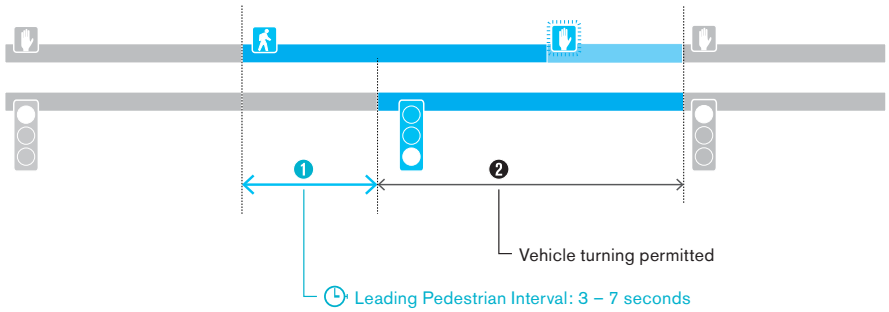
Policy Score

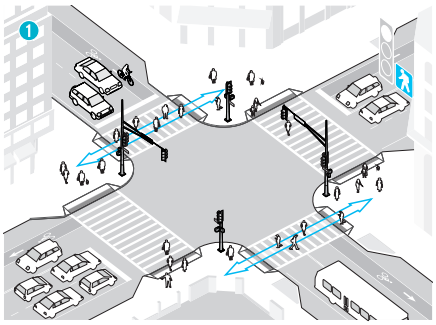
- Access 1
- Access 2
- Safety 1
- Safety 2
- Reliability
- Affordability
- Sustainability/Resiliency 1
- Sustainability/Resiliency 2
- Governance

#9 in public voting

Policy Description

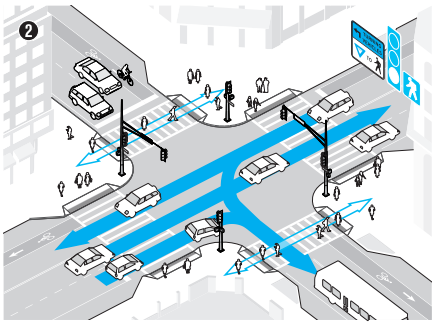
Every trip begins and ends with at least a short walk. Our traffic signals and intersection designs will recognize the importance of supporting people on foot by shortening wait times at crossings and making signals adapt in real time to pedestrian behavior and flows. Automatic pedestrian phases–not requiring people to push a button–will be standard, as will countdown timers with audible indications for those with hearing impairment. Leading Pedestrian Intervals (LPI's) will allow people to start crossing the street and be seen before cars are permitted to move or turn with a green light, reducing incidents of right-turning vehicles hitting or startling walkers. Walk signals will be shown on every intersection leg at any phase when there are not conflicts with oncoming cars. A "Don't Walk" will only be shown when the traffic is about to be released, allowing more time for more people to cross safely.





Leading Pedestrian Interval

Image source: *Boston Complete Streets*



Vehicle turning permitted

Benefits and Issues Addressed

Boston's walk-friendliness is often measured by walking distances and intersection frequency, but not all of our traffic signals provide convenient wait times, intuitive signal patterns, or minimum crossing distances. Many Bostonians regularly ignore signals if they show a "walk" too infrequently, which sometimes leads to conflicts. By reprioritizing people on foot at each intersection and making "walk" signals the norm, the City can promote walking for longer trips, create stronger perceptions of safety, reduce collisions, and create an environment where the temptation to cross the street "incorrectly" is dramatically reduced. Increased walk times can benefit older adults and people with disabilities the most.

Implementation

Who's responsible: BTD is developing new traffic signal policies to build on existing work such as installing LPIs
Time Frame: Ongoing

Best Practices

Since 2010, Washington, D.C., has installed over 160 leading pedestrian intervals (LPIs) at intersections. Anecdotally, DDOT found that these were more effective when used in concert with No Turn On Red restrictions for vehicles.
www.pedbikeinfo.org/pdf/Webinar_PSAP_120215.pdf

A study in State College, PA, found that LPI reduced pedestrian-vehicles crashes by almost 60%.
nacto.org/docs/usdg/safety_effectiveness_of_lpi_fayish.pdf

Oakland, CA, is in the process of enacting a new signal policy that will prioritize pedestrians based on signal location and pedestrian counts. The policy is aimed at eliminating the need for pedestrians to cross using a push button and instead provides a pedestrian phase as a default.
www.gjel.com/blog/oaklands-new-pedestrian-signal-policy-a-half-step-forward.html

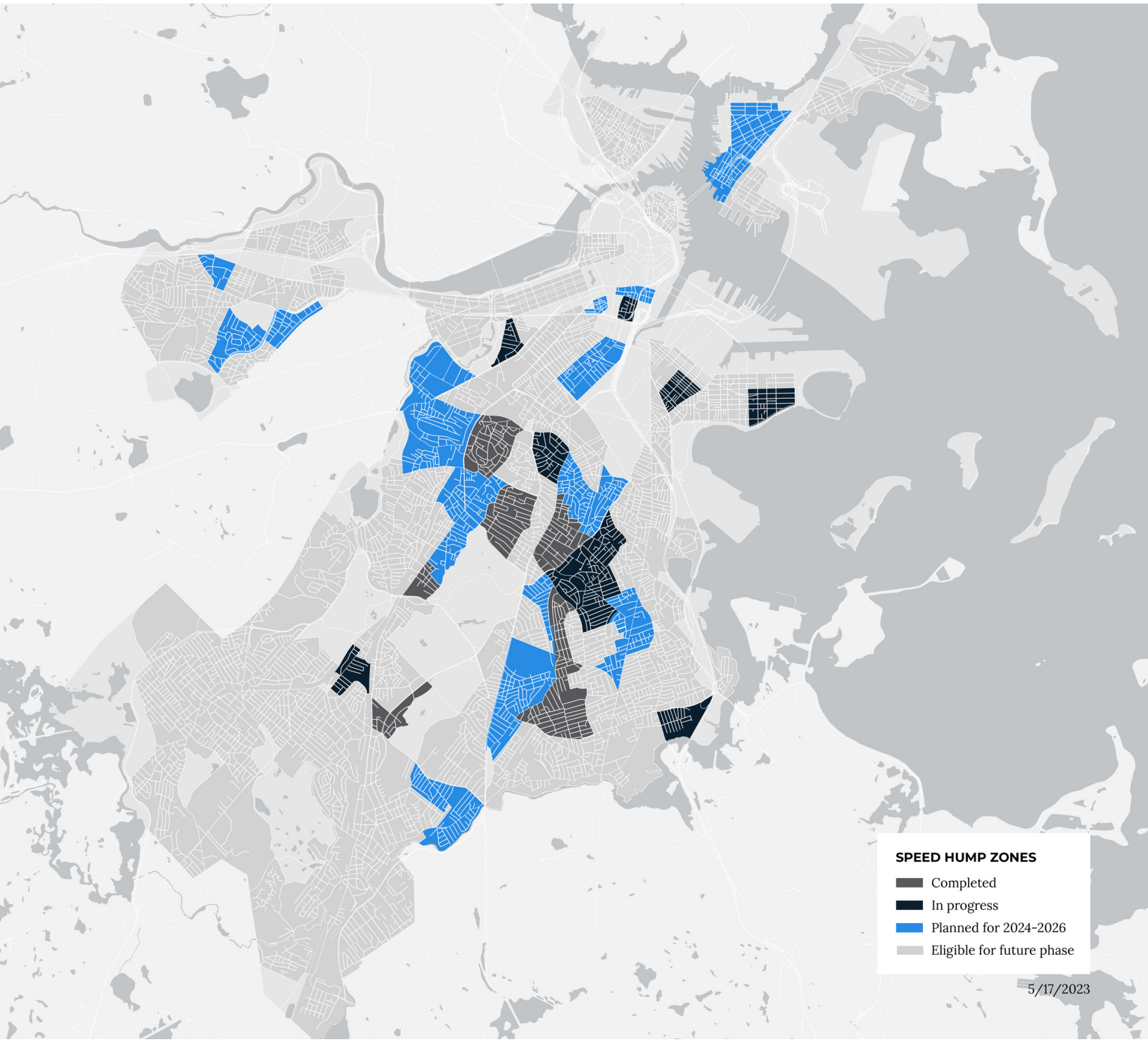
Public Input

"Maximize people (especially kids!) crossing on foot, not automobiles, at intersections."
–Roslindale roundtable

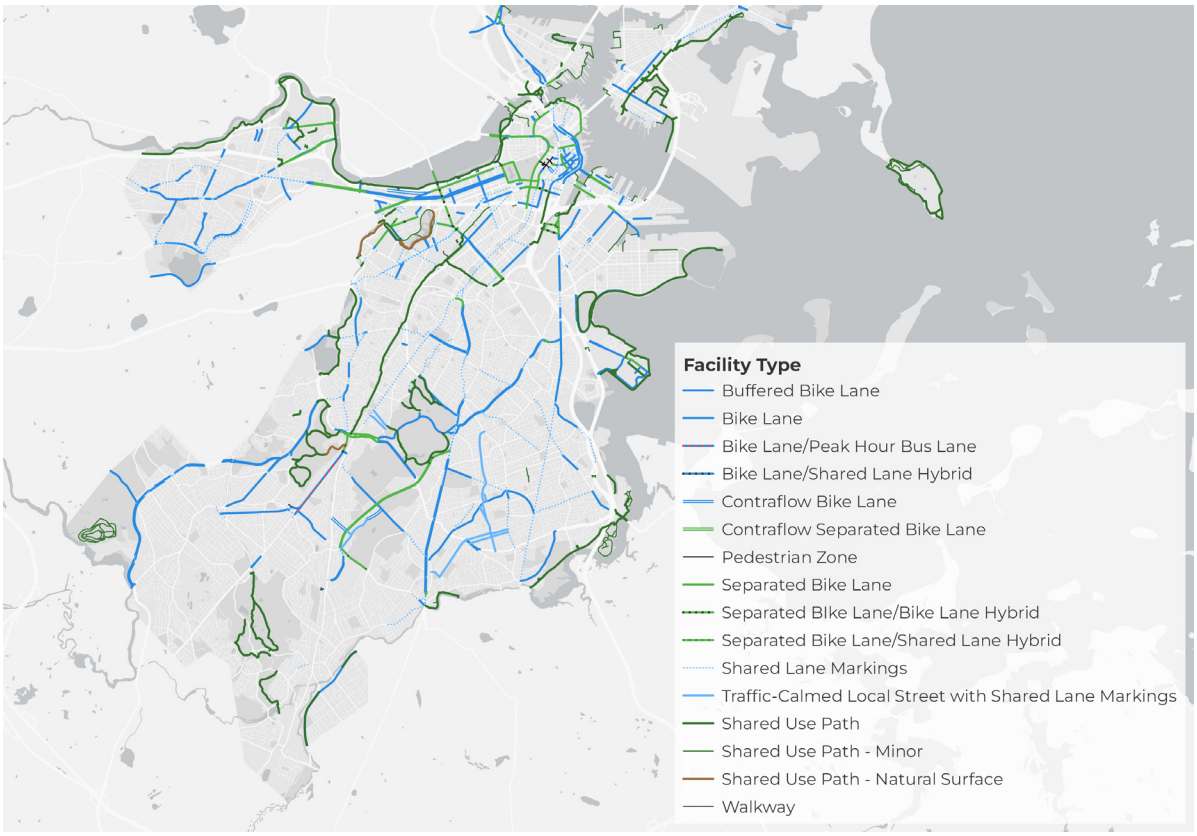
"Pedestrian safety and convenience should be #1 in Boston. ... make all pedestrian signals automatic all the time, as many big cities across the US and the world typically do. If people know they will always get a walk signal, they are more likely to wait for one, improving safety for everyone."
–02143

SAFETY SURGE

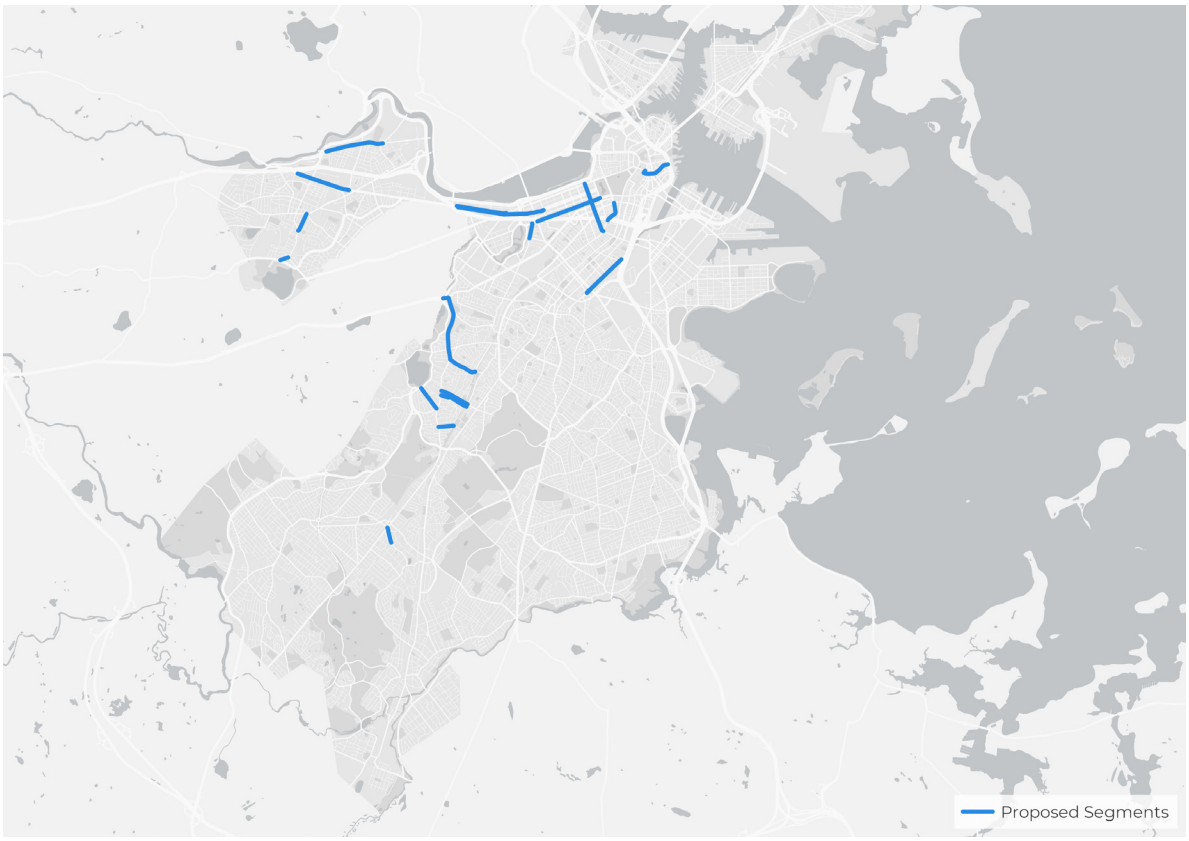
SPEED HUMPS



BIKE NETWORK



2023 PROJECTS



ACTION PLAN TO ADVOCATE FOR SAFER LARGE VEHICLE DESIGN

One of the four major goals in the 2016 Action Plan was to reduce distracted and impaired driving. Since then, the state of Massachusetts passed a Hands Free driving law (2019), after successful advocacy by Safe Roads Alliance and other members of the Massachusetts Vision Zero Coalition. We at the city will continue to support efforts by our partners at the state level and the Vision Coalition to change social norms around impaired and distracted driving.

Another problem we are working to address with the state and the Vision Zero Coalition concerns the safety of large vehicles on city streets. Trucks play a disproportionate role in fatal crashes on Boston's streets and were involved in three of six crashes where cyclists were killed between 2016 and 2022. Most trucks have large blind zones and side cavities which make them difficult to drive safely in the presence of pedestrians and cyclists.

IN 2014, the city passed an ordinance requiring the installation of side guards plus convex and crossover mirrors on large vehicles (> 10,000 lbs and semi-trailers) owned and contracted by the city. US DOT's Volpe Center (Volpe Center) collaborated with the city on this and provided supporting research and technical specifications. In 2022, the state passed similar requirements for state owned vehicles as part of An Act To Reduce Traffic Fatalities.

IN 2018 Boston participated with five other cities in a Vision Zero Large Vehicle Technology Working Group led by the National Association of City Transportation Officials (NACTO) and the Volpe Center to study large vehicle design, resulting in a pair of reports by the Volpe Center: One on Downsizing, which included a section on Direct Vision, and one on Advanced Driver Assistance Systems (ADAS). Boston will continue to take steps to share information about this important work by NACTO and the Volpe Center, and to take action on its findings.

STARTING IN 2022, Boston has been partnering with the Volpe Center, LivableStreets Alliance, and MassBike on a study of Direct Vision and city fleet vehicles, and the creation of updated driver training materials for drivers of large vehicles. Volpe will be releasing a report in 2023 that includes a simple method that anyone can use to assess vehicle blind zones. The city will use this method to inform future purchases, and to determine which vehicles in the existing fleet should be enhanced with ADAS. LivableStreets and MassBike will be sharing the updating driving materials with the city and the state Registry of Motor Vehicles by 2024. This work is funded by a grant from the Partnership for Healthy Cities and is being managed by Boston Public Health Commission in coordination with Boston Transportation and MONUM.

3 OF 6 BICYCLIST FATALITIES FROM 2016–2022 RESULTED FROM CRASHES INVOLVING LARGER VEHICLES.

ACTION PLAN TO ENGAGE BOSTONIANS IN VISION ZERO

In 2017, under the leadership of the city's first Chief of Resilience and Racial Equity, Boston released Resilient Boston, a strategy to address systemic inequities in health, wealth, climate, transportation, and other areas.

AS STATED IN THE REPORT:

"The only way to create citywide resilience is to embed racial equity, social justice, and social cohesion within infrastructure, environmental, social, and economic aspects of resilience. We are putting people first."

Inspired by this work, and building on a process to prioritize locations for Neighborhood Slow Streets zones, a fellow in the Mayor's Office of New Urban Mechanics (MONUM) created a framework for equitable decision making in transportation that takes into account not just crash history, but also **PEOPLE**–where there are higher concentrations of people who are most vulnerable in traffic crashes; **PLACES**–where people gather for school, recreation, shopping, and jobs; and **STREETS**–physical characteristics of streets that make them more conducive to speeding and conflicts with pedestrians, cyclists, and other drivers.

As we advance transportation projects aimed at addressing inequities in safety, travel times, and access to opportunity throughout the city, we will continue to seek new ways to have honest discussions with people of all ages and backgrounds about transportation and how it intersects with other priorities such as housing, education, and economic development. We will also seek to empower youth by dedicating engagement resources to community based organizations who can help bridge the knowledge and access gaps that keep their voices from being heard when discussing the future of transportation.

MAKING IT PERSONAL

Every fatal or serious crash has a victim – not a statistic or a number, but a real person. That person has a family and friends who are deeply affected by a tragic death or debilitating injury. By putting a face and a name to these awful events, we reinforce the reality that traffic safety hits close to home for all of us – and that we all have an important role to play in achieving Vision Zero.

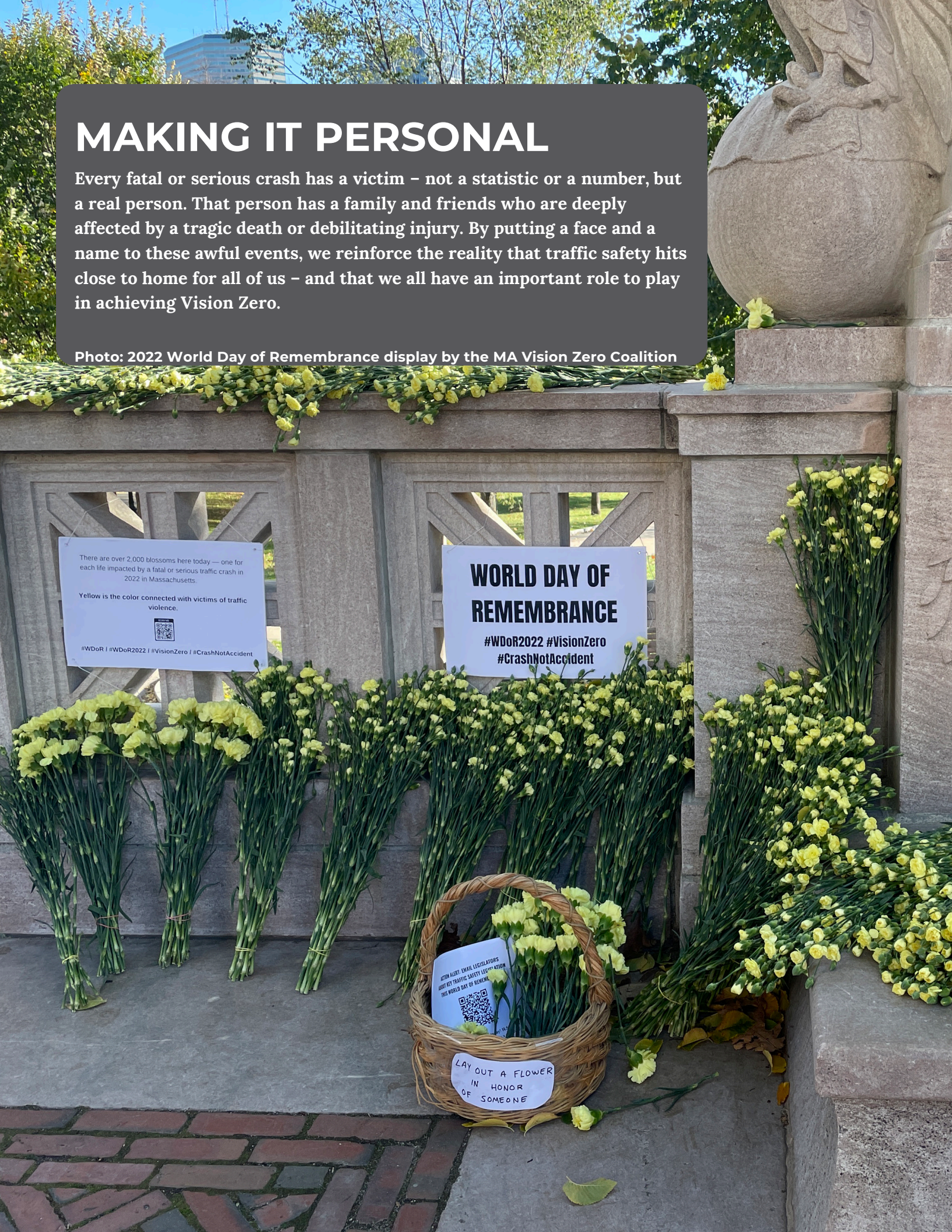


Photo: 2022 World Day of Remembrance display by the MA Vision Zero Coalition

CONCLUSION

Achieving the aspirational goal of Vision Zero – the elimination of fatal and serious traffic crashes – is a serious challenge for the City of Boston and for every single Bostonian. Meeting that challenge will result in enormous benefits to the environment, the economy, and the quality of life in Boston's tight-knit neighborhoods. Success will save hundreds of lives and prevent thousands of life-threatening injuries over the next 15 years.

We urge every Bostonian and every visitor to Boston to join the challenge and to walk, ride, and drive as if your lives and the lives of those around you depend upon it.

The City is committed to reaching these goals by focusing on those actions it can take to make a difference.

- The City can and will effectively manage the problem by ensuring a well-informed, data-driven, and community-led response to the issue of traffic safety.
- The City will continue to advocate for safer vehicle design, and raise awareness on the risks posed by vehicles with large blind zones and side cavities to make our streets safer for everyone.
- The City will use an equitable approach to prioritize projects and design safer streets to reduce both the number and severity of crashes throughout our neighborhoods.

We have the tools with which to act; we clearly have the need to act quickly.

TOGETHER, WE CAN ELIMINATE FATAL AND SERIOUS CRASHES ON BOSTON'S STREETS.