



Boston Today

Boston by the Numbers

Maps of Boston, modes of travel, and regular routes change each decade in this dynamic city. From narrow winding streets to gridded streetcar neighborhoods, from America's first subway to the nation's first carshare company, and from an elevated expressway to a highway covered by parks, Boston's transportation systems continue to evolve.

This chapter describes the city's transportation systems as they exist today (or at some specified point between 2010 and 2016) through data visualizations. If you live or travel in Boston today, look for yourself in the data. Does it reflect your lived experience? How are other neighborhoods served differently? What will it take to keep the city moving in the future?

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The data illustrated in these maps and charts is a snapshot of the continuing transformation of our transportation systems. The insight it provides informs the public, the City of Boston, and important local and regional stakeholders on how best to plan for population growth, build for climate resiliency, determine how to regulate ride-hailing start-ups, design and install more and safer bike lanes, anticipate how smart phones and autonomous vehicles will shape transportation in the future, and more.

Today, with a population of approximately 667,000, a daytime population of nearly 1.2 million, and a weekday MBTA ridership of 1.3 million, Boston needs new projects, policies, and other solutions to accommodate even more trips by 2030.

How Boston Travels to Work

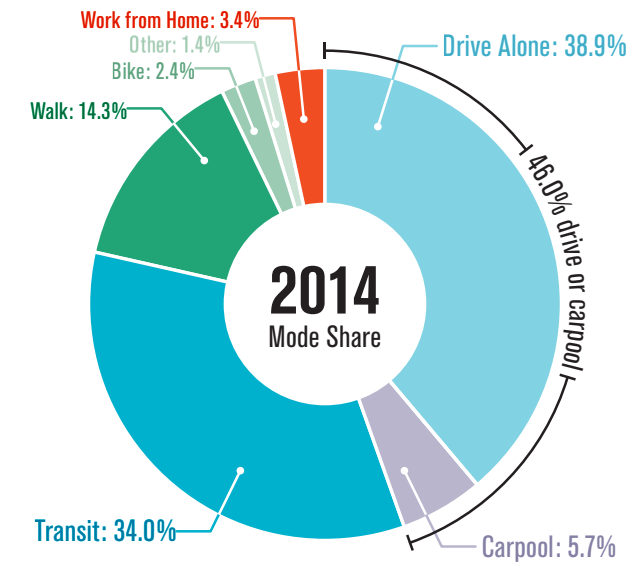
Less than half of Bostonians are taking a car to work

Since 1990, the number of people biking and telecommuting has increased steadily and significantly, entirely off-setting declines in carpooling over the same period. Trips by car now make up less than half of all commute trips by Bostonians. The impact of biking and telecommuting is small numerically, but their recent rate of growth is making a notable impact. Bicycling doubled from 1990 to 2013—then doubled again in 2014—growing from under 1% to over 2% of all work trips. Bikes make up 3% (5,000 trips) of commutes entirely within Boston.

Transit remains an essential and growing mode for commuting by Bostonians, with transit's share of all trips increasing nearly 8% since 1990 to a third of all work trips. Bostonians who work in the city use transit for 36% (60,000) of work trips.

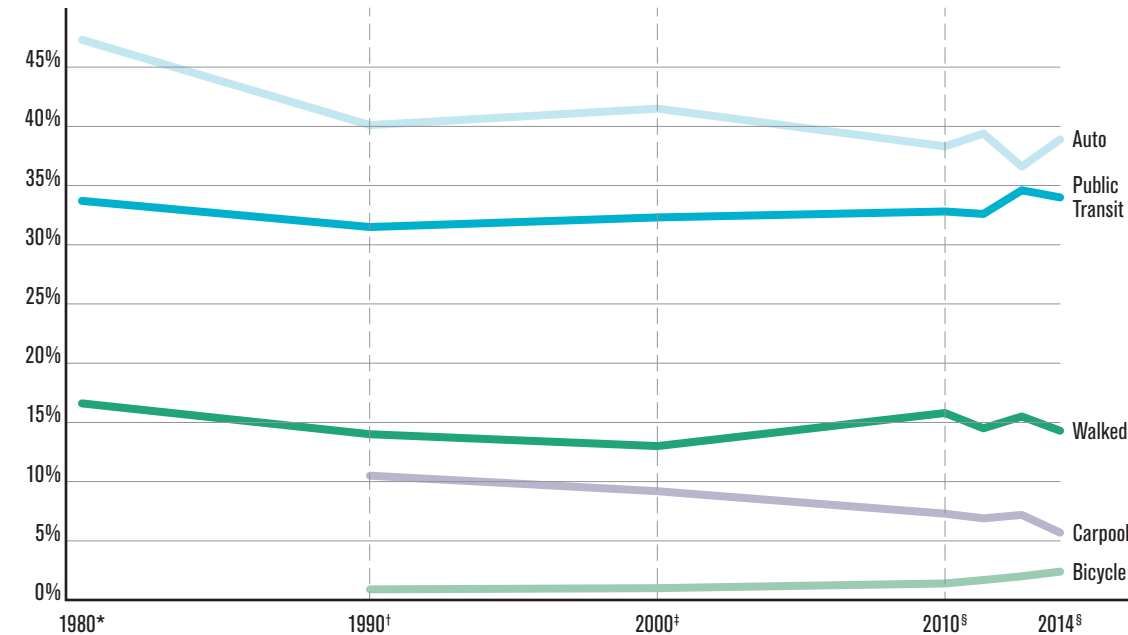
Ultimately, Boston is a walkable city and is regularly considered one of the nation's top three walking cities. While 15% of all work trips are exclusively on foot—nearly doubling to 27% for trips within the city—walking is also an essential component of most transit trips. The walk mode share declined slightly from 1990 to 2000 but has grown steadily since. As Boston's expanding job centers get closer to its neighborhoods, the percentage of commutes on foot is expected to continue to grow.

Bostonians' Commute Trips by Mode, 1990 vs. 2014



Data source: American Community Survey, 2014

Bostonians' Commute Trips by Mode



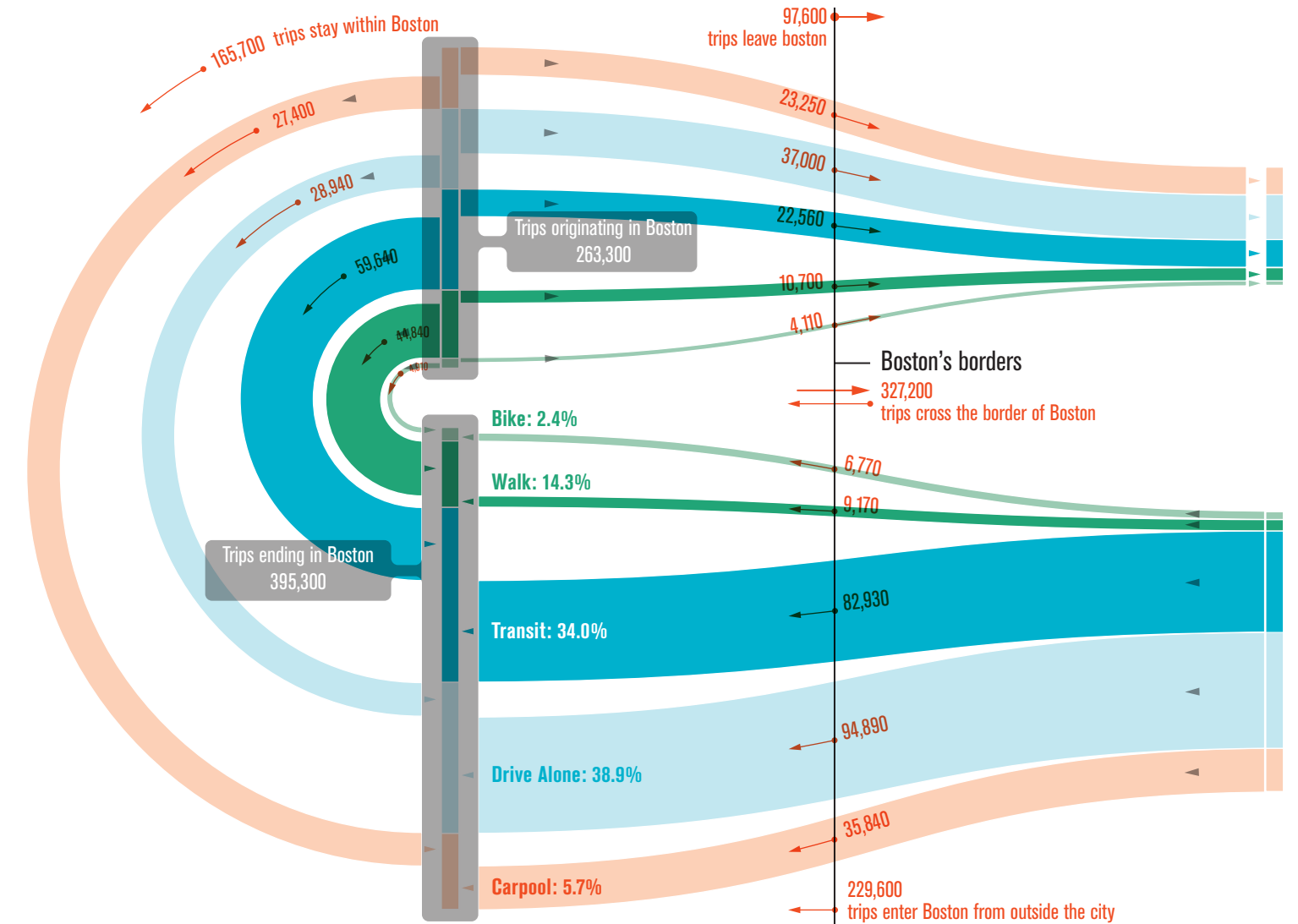
*1980 data from Census as reported by CTPS. No carpool v. single occupancy vehicle or bicycling information available.

†1990 data for drive alone and carpool as reported directly from Census data, other modes from Census via CTPS.

‡2000 data for all modes except Bicycle and Other Means from Census data, other modes from Census via CTPS.

§Data from ACS—may overreport walking/biking as sample taken during the summer months.

Morning In- and Out-flow of All Trips across Boston's Borders by Mode



Data source: Central Transportation Planning Staff, 2010

Morning commutes starting in Boston rely on all modes

During the peak hour of the morning commute, 395,000 people head to destinations in Boston. Of these trips, 229,600 (60%) originate outside of Boston while the remainder start within the city. Of the workers entering Boston, 95,000 drive alone, 83,000 take transit, and 36,000 carpool. It should be noted that those transit trips represent a 36% mode share for trips entering Boston—higher than Bostonian's own transit mode share for commute trips of 33%.

Meanwhile, during that same morning peak commute hour, 263,000 people take a trip that originates in Boston. Of these, 98,000 people head out of the city for work. A majority of these out-flow trips are car trips, with 37,000 (38%) people driving alone and 23,000 (23%) carpooling.

Only 165,700 morning peak hour work trips originate and end in Boston, the commutes of people who live and work in the city. Of these, 59,600 (36%) are riding transit and 44,840 (27%) are walking to work. Combined, more Bostonians are taking transit and walking than using a car.

While commute trips only represent about one-fifth of the trips taken in Boston and many people use a combination of modes to get to work, US Census commute data is shown on these pages because it is the most robust source, the easiest to understand, represents a trip that most people take ten times a week, and shows how travel systems perform when the pressure is at its peak.

How Boston Travels to Work

Commute times vary less significantly across the city

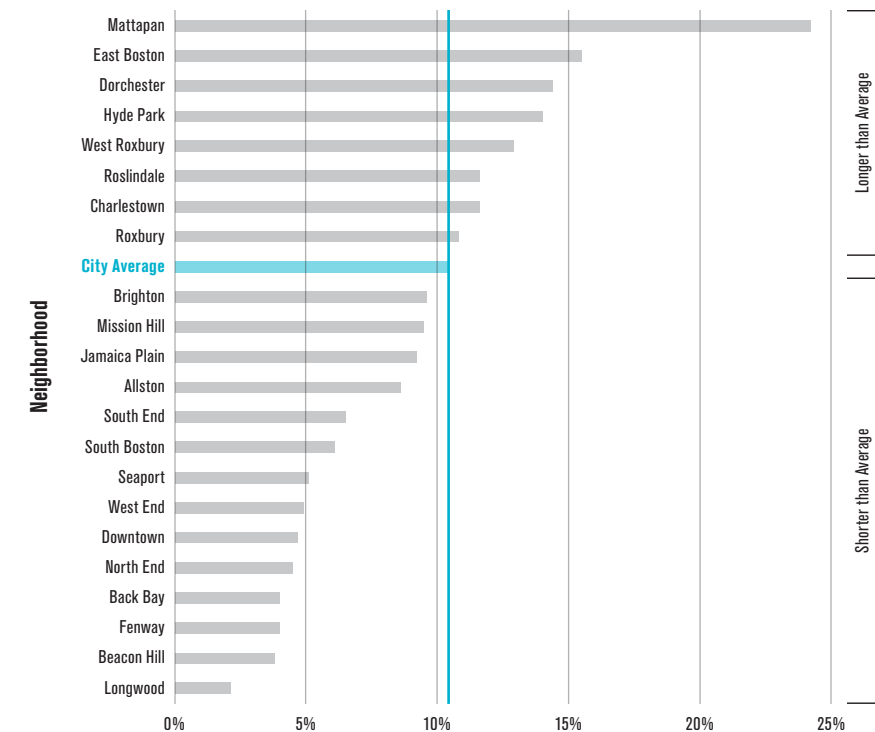
The citywide average commute time of 29 minutes is exceeded only marginally in just eight neighborhoods, with Mattapan clocking in the longest average at 34 minutes. Only four neighborhoods have average commutes of less than 20 minutes. One of these is Downtown, which has an average commute just below 20 minutes, showing that not all jobs are concentrated in the downtown. The shortest commute of just over 15 minutes belongs to those living in the Longwood Medical Area.

The prevailing mode of travel in a neighborhood does not necessarily correlate to commute time. While West Roxbury residents commute mostly by car and less than half of Mattapan commuters drive, their average commute times are both above the city-wide average (32 and 34 minutes respectively). Similarly, although both Allston and Jamaica Plain have commute times close to average (28 and 30 minutes respectively), JP residents drive at twice the rate of Allston's (42% versus 19%) and nearly 30% of Allston commuters walk to work.

Ultimately, the citywide average commute is heavily driven by the city's most populous neighborhoods. Four of the five—Dorchester, Brighton, Jamaica Plain, and South Boston—have driving and transit mode shares and average commute times that are right at the citywide average. (Transit-reliant East Boston is the exception.) Each of these big neighborhoods has different access opportunities, incomes, and racial profiles, indicating that no matter who you are, Bostonians regularly travel less by car and use transit at some of the highest rates in the nation.

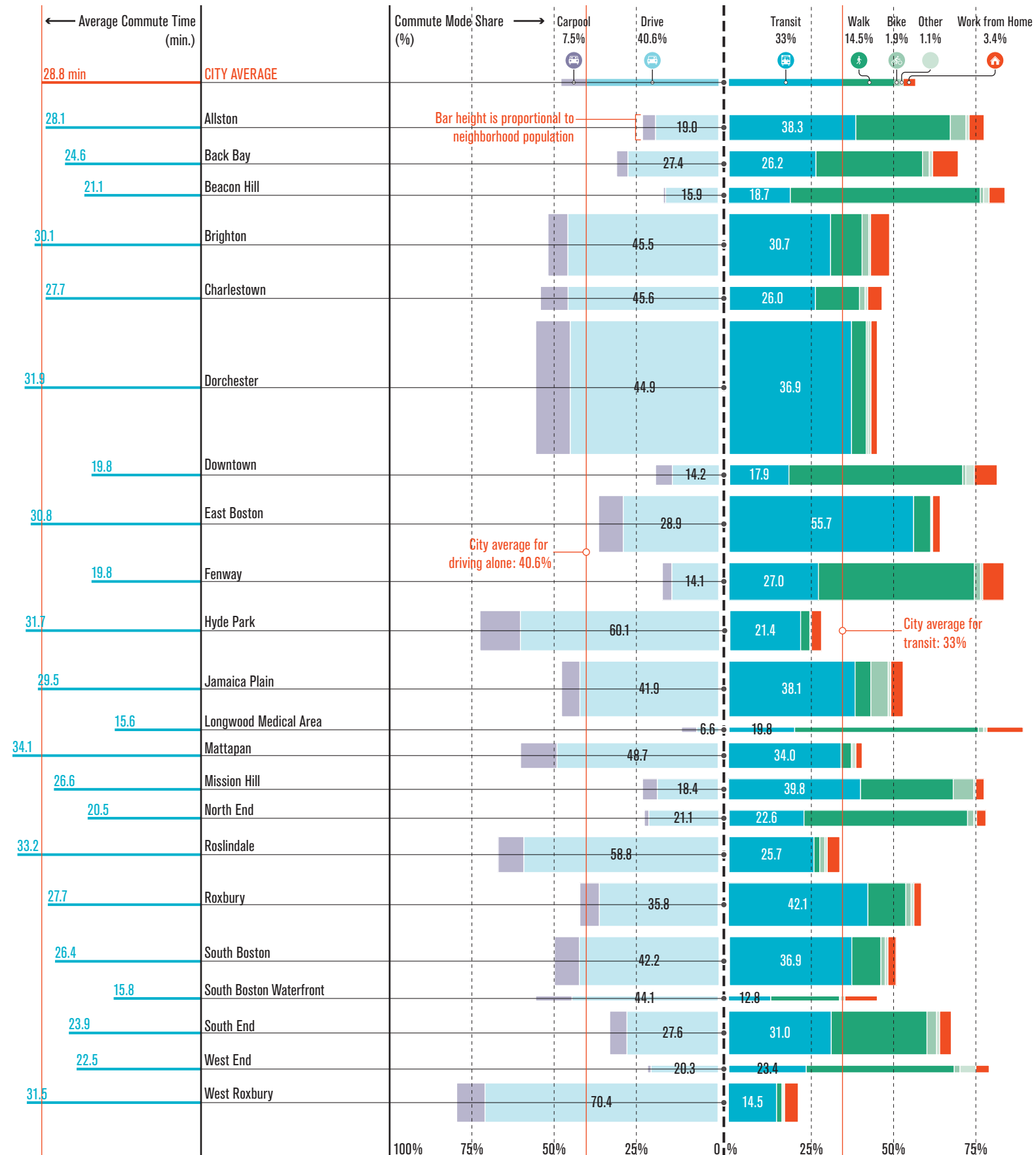
Neighborhoods with a high proportion of low income residents also have a disproportionate number of residents with very long commutes. This is particularly true in Mattapan, as well as East Boston, Dorchester, and Hyde Park.

Percent of Boston Residents with 60+ Minute Commutes



Data source: 2013 ACS 5-year estimates

Average Commute Time and Commute Mode Share by Neighborhood



Choice of mode varies significantly by neighborhood

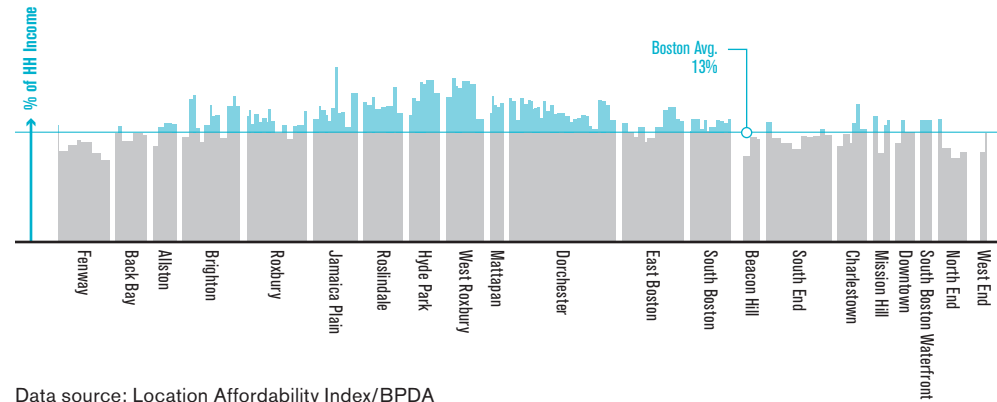
Bostonians walk and take transit to get to work more than they drive, but these choices vary significantly by neighborhood. Some outer neighborhoods such as West Roxbury rely more on driving (over 70% of commuters drive, and 15% take transit). Meanwhile, other outer neighborhoods such as Hyde Park and Mattapan commute on transit at much higher rates (21% and 34% respectively)—even though they have similar rail access as West Roxbury. Boston's highest transit-commuting neighborhood is East Boston, at nearly 56%. The next highest is Roxbury at 42%, followed closely by Mission Hill at 40%. Meanwhile, residents of Beacon Hill, the North End, and Downtown all have a walk to work rate of over 50%. The highest biking rates are found in Allston, Mission Hill, and Jamaica Plain—each exceeding 5%.

Data source: 2013 ACS 5-year estimates

Affordable Travel and Access to Jobs

Average incomes, housing costs, and transportation costs vary dramatically across Boston. Some of the most expensive housing in the city is located within walking distance of the highest paying job centers. With the exception of those living in subsidized affordable housing, most low income Bostonians move to areas where housing costs are lower, but they are then burdened by much higher transportation costs. New job centers are emerging, but they are not as well-served by the existing transit network as the historic financial and government centers downtown.

Transportation Cost as a % of Household Income, by Census Tracts and Neighborhoods



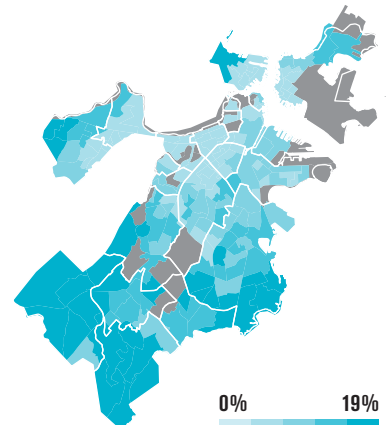
Data source: Location Affordability Index/BPDA

Remote neighborhoods without good transit access experience higher transportation costs

Though Boston's land values vary by neighborhood, transportation costs consistently increase for people living further from the downtown and from T stations. Parts of Brighton, Dorchester, East Boston, and Hyde Park that have lower housing costs become more expensive to live in because of their higher transportation costs, which are largely due to a greater reliance on driving and the cost of owning and operating a vehicle. Parts of Allston, Dorchester, Charlestown, East Boston, and Jamaica Plain have higher transportation costs than some more remote parts of Hyde

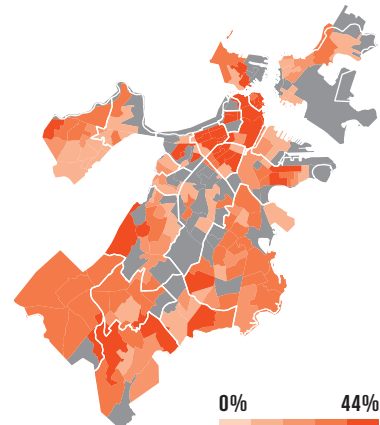
Park, Mattapan, and Roslindale that benefit from better transit connections. Some of the lowest cost neighborhoods in Boston include the Longwood Medical Area, Mission Hill, and Roxbury, where both housing and transportation costs are lowest. Meanwhile, the downtown neighborhoods with the very lowest transportation costs have some of the highest housing costs in Boston. Overall, transportation costs exceed the Boston average, relative to housing cost, in the entirety of Dorchester, Hyde Park, Jamaica Plain, Mattapan, Roslindale, South Boston, and West Roxbury.

Transportation cost burden



Data source: Location Affordability Index, BRA.

Housing cost burden



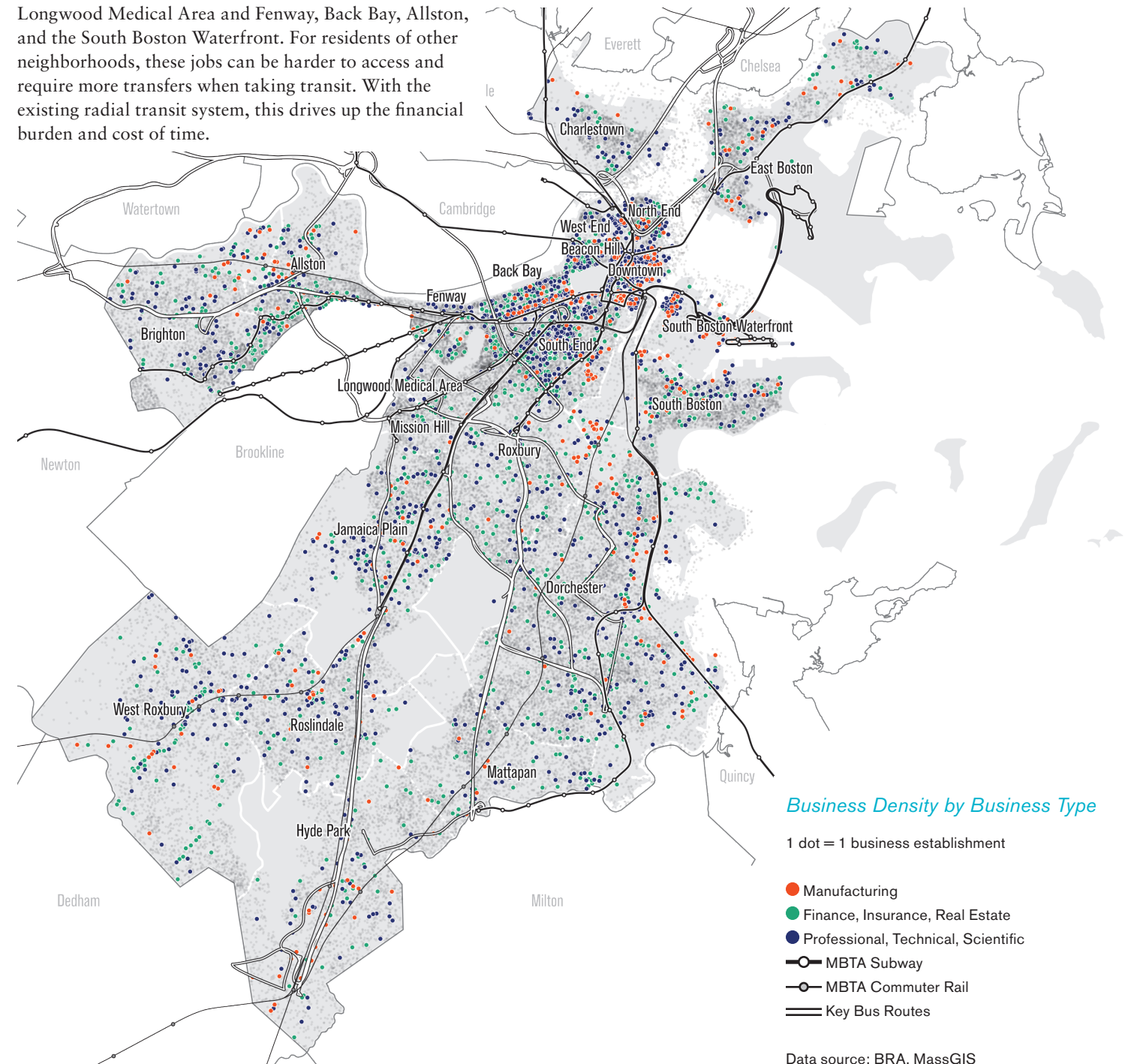
Median household incomes vary from **\$26,000 in Roxbury to \$95,000 in the South Boston Waterfront.**³

Average transportation cost burdens vary from 7% of household income in Beacon Hill to **16% of household income in West Roxbury.**

Average annual housing costs vary from **22% of household income in the West End to 36% of household income in the Back Bay.**⁴

Boston's jobs have grown beyond downtown, but transit has not

Job centers have expanded beyond downtown and into more neighborhoods, providing new opportunities in the Longwood Medical Area and Fenway, Back Bay, Allston, and the South Boston Waterfront. For residents of other neighborhoods, these jobs can be harder to access and require more transfers when taking transit. With the existing radial transit system, this drives up the financial burden and cost of time.



Business Density by Business Type

- 1 dot = 1 business establishment
- Manufacturing
- Finance, Insurance, Real Estate
- Professional, Technical, Scientific
- MBTA Subway
- MBTA Commuter Rail
- Key Bus Routes

Data source: BRA, MassGIS

Feeling Safe

The perceived safety of a trip heavily influences whether someone chooses to take transit, walk, or bike, as well as whether and where to drive. Although the vast majority of crashes in Boston involve an automobile, the rate of injury or fatality is low because drivers and passengers are surrounded by safety devices and the vehicle's frame. Unfortunately, a significant number of crashes also involve people walking and biking who have no such protection.

Most crashes are found in areas with wider roads, more cars, and higher speeds, though there are notable exceptions

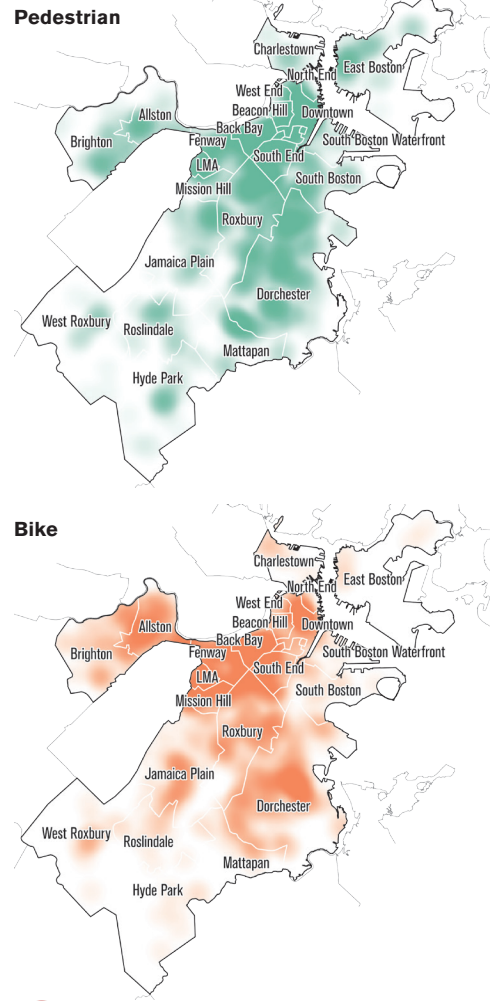
Three-fourths of all walking crashes occur while crossing the road, so walking safety is often directly proportional to street width and traffic volume, and the severity of the crash is directly proportional to vehicle speed. Bicycling safety is particularly influenced by speed; while most bike crashes are concentrated in neighborhoods closer to downtown, sections of Dorchester—which have lower rates of bicycle ridership but higher vehicle speeds—also have a high rate of crashes.

Eight to nine times as many pedestrians and cyclists die on arterial roads than on local roads. Yet crash hot spots do not always follow predictable rules and vary depending on the mode. Concentrations of walking and bicycling crashes exist in slow-speed neighborhood centers, such as Morton Street and Cleveland Circle,

where other factors such as complicated intersection geometry lead to confusion. Meanwhile, people walking have fewer incidents than people biking near the BU Bridge, but they have many more incidents in the South End.

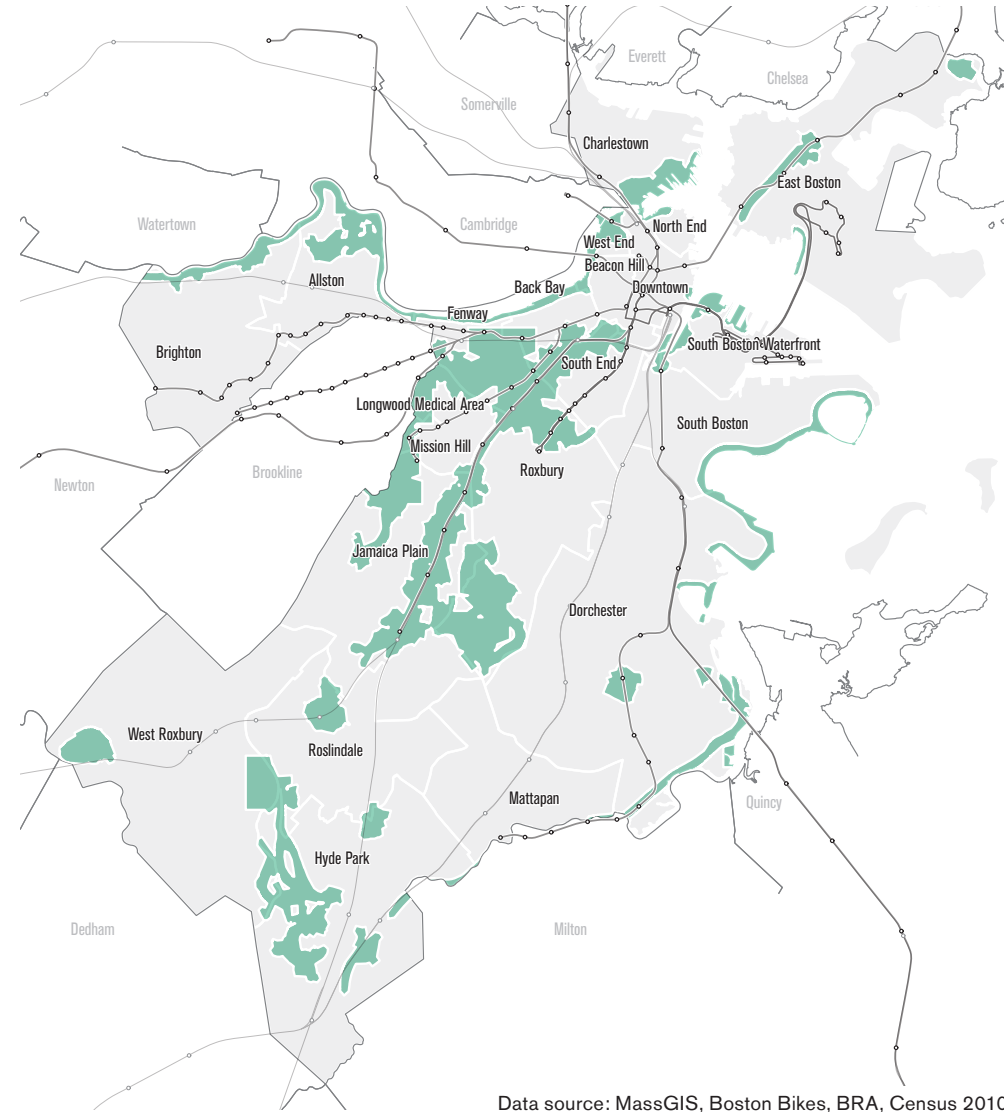
More crash details and patterns can be explored at the City of Boston's new Vision Zero website: www.visionzeroboston.org

Incidence of Roadway Crashes by Mode



Data source: Boston Emergency Medical Services, Boston Police Department, MassDOT

Areas within a five-minute Walk of a Protected Biking Facility or Shared Use Path

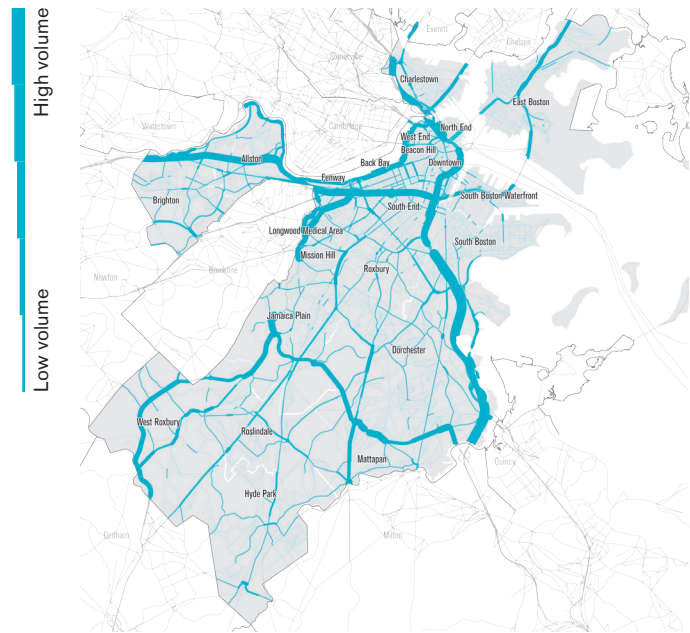


Data source: MassGIS, Boston Bikes, BRA, Census 2010

While bicycles are allowed on most roads, the majority of people who might choose to ride would prefer a lane or path separated from moving vehicles. Boston's excellent off-street path network provides this access in many places, but the continued expansion of on-street protected lanes is needed to provide safer cycling access to all neighborhoods. Today, a protected bike facility or lane is within a 5-minute walk of only 20% of Bostonians.

According to a U.S. Bicycling Participation Benchmarking Report, "54% of adults in the U.S. perceive bicycling as a convenient way to get from one place to another and 53% would like to ride more often. However, 52% worry about being hit by a car and 46% say they would be more likely to ride a bicycle if motor vehicles and bicycles were physically separated."

Roadway Traffic Volume

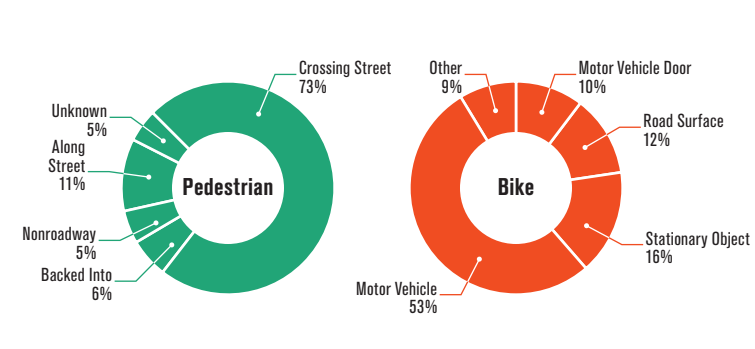


Data source: Central Transportation Planning Staff

Bicycling safety continues to improve

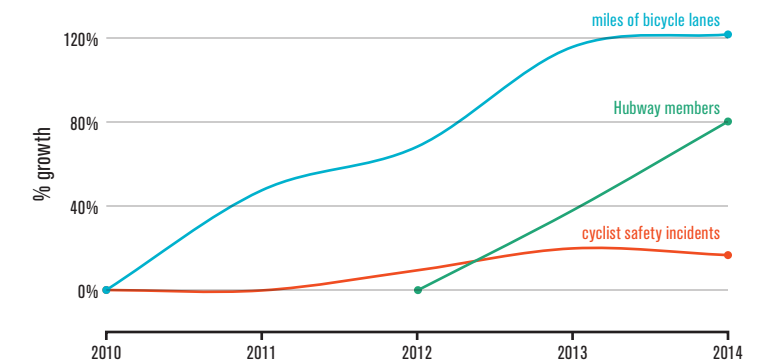
Boston's expanding cycling network is providing more separation from moving cars—bicycle crashes only involve moving vehicles about half the time, with solo crashes making up most of the rest. With drivers becoming increasingly aware of cyclists, the number of bike crashes has grown minimally, while the number of riders has grown over 200% in the last ten years.

Bicycle and Pedestrian Safety Incidents 2010 – 2014



Data source: Boston EMS

Bicycle Incidents Relative to Bicycle Improvements



Vulnerability to Climate Change

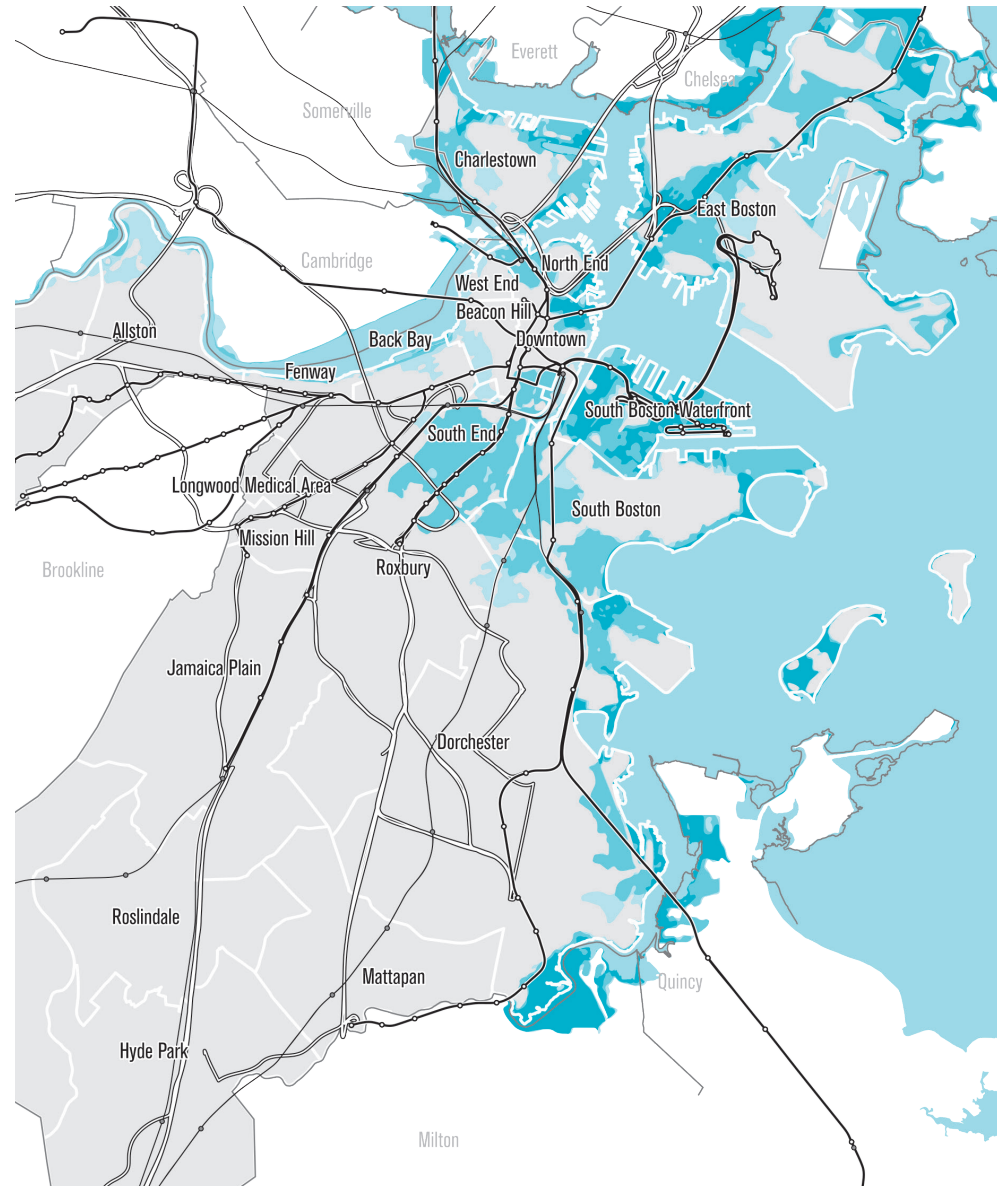
A large percentage of Boston's roads, tunnels, trains, and stations are vulnerable to climate change. A major storm surge can now inundate the infrastructure for multiple modes of travel, causing temporary closures and extended periods of repair; costly reconstruction and the changing climate will continually raise the probability of this occurring. Climate change is also increasing the frequency of extreme heat, heavy rains, and bigger snow storms, hampering Bostonians' ability to get around—from uncomfortable walking to overheating cars and railroad tracks; from urban street flooding to frozen or obstructed bus stops and curb ramps.

Boston is vulnerable to storm surge today

Today, if a storm surge of five feet was to hit during high tide, approximately 132 miles of roadway would be vulnerable to flooding, affecting drivers, bicyclists, walkers, and transit riders. By the 2070s, the sea level could rise three feet or more, so a similar storm surge at high tide could flood 432 miles of roadway. As much as 30% of Boston's land area would flood in this scenario, including half of the downtown.

Similarly, large segments of the T are threatened by the combination of storm surge and sea level rise. Every T line would be impacted, with the Blue Line and Red Line experiencing the most severe impacts. Even if individual stations are protected, accessing them could be a problem for many Bostonians.

Flood map, 36 inches of sea level rise (2070s or later)



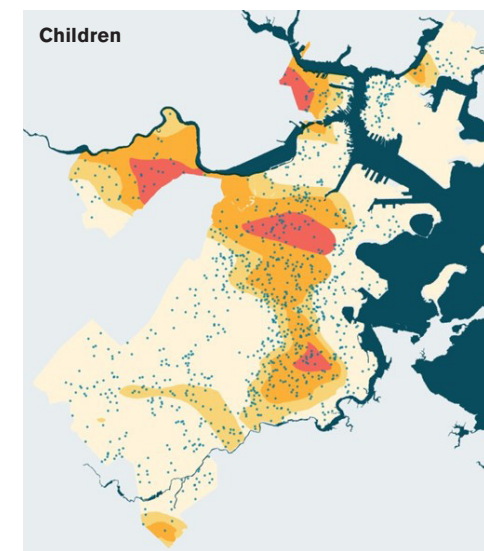
Extreme heat and cold can cripple transportation services

Four consecutive blizzards in the winter of 2015 brought the city's transportation systems to a halt due to a combination of heavy snow and extreme cold. When the T had to be shut down, driving became necessary for many, yet it was extremely dangerous for days. Pedestrians were forced to walk in the street for weeks to avoid ice and snow on sidewalks, and many bicyclists had to use vehicle travel lanes. Question Campaign responders regularly asked how Boston would deal with blizzards like these in the future.

Extremely hot days can also be a problem as they cause rail lines to expand and buckle, cars and buses to overheat, and walking and biking to be too uncomfortable to endure. By 2030, the average number of summer days with temperatures over 90° could go from 11 to 43, or about half of the entire three-month summer travel season.

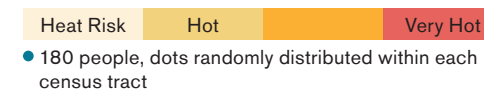
Daytime Heat Vulnerability

Populations particularly vulnerable to heat

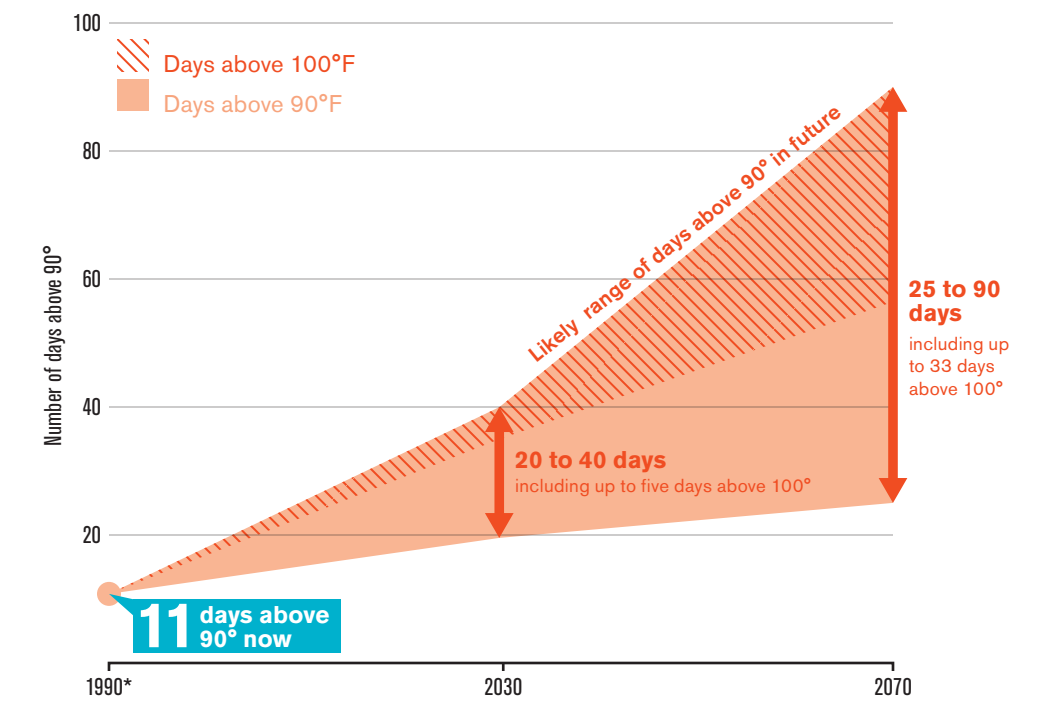


Elevated Heat Risk: Heat Islands

Elevated heat risk based on land surface temp 1.25 degrees above mean summer temperature

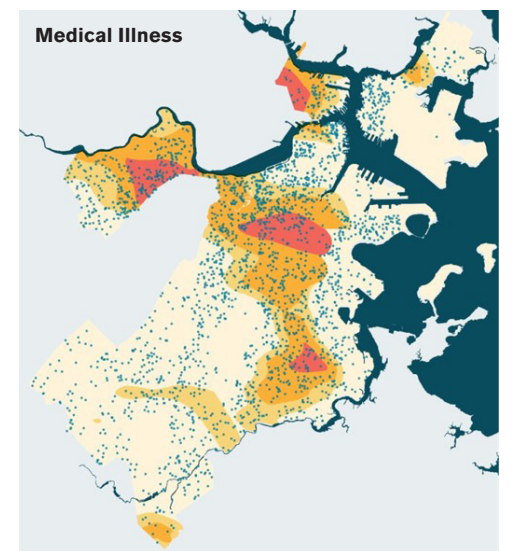
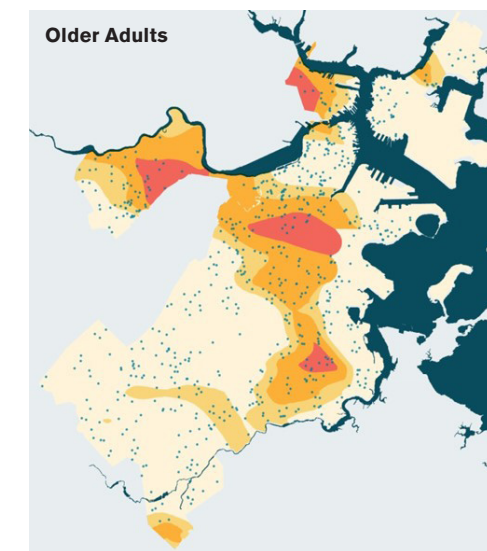


The Number of Very Hot Days Will Increase



* Baseline represents historical average from 1971-2000
Upper values from high emissions scenario. Lower values from low emissions scenario.

Data source: Rossi et al. 2015



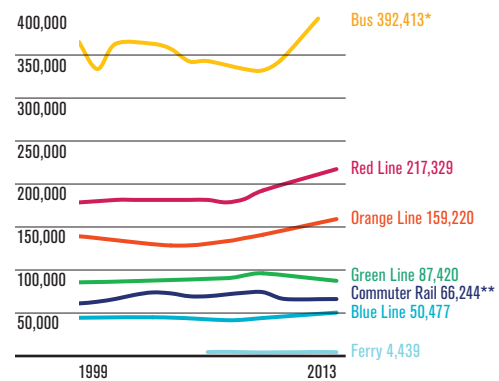
Maps and Data courtesy Climate Ready Boston

Mass Transit Service

Boston's train and bus networks provide an affordable and convenient way to get around, and ridership has steadily increased since 1990, with more dramatic increases in the last 10 years. Train lines serve many of Boston's densest neighborhoods, but some of the city's densest residential areas within parts of Charlestown, Dorchester, and South Boston are a long walk from the nearest train station.

Ridership on buses and most rapid transit lines is going up

While daily ridership on all of Boston's transit services has grown, MBTA bus ridership has grown dramatically in the last ten years, and both the Red and Orange T lines have seen significant growth as well. By 2013, there were over one million daily riders on the T.

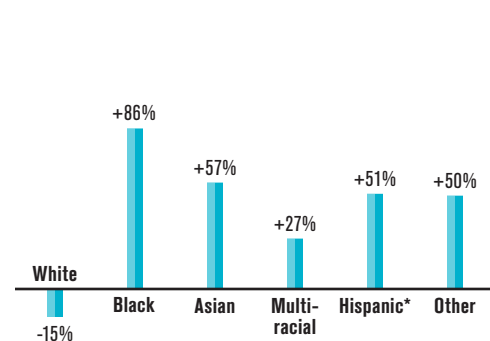


Data source: MBTA

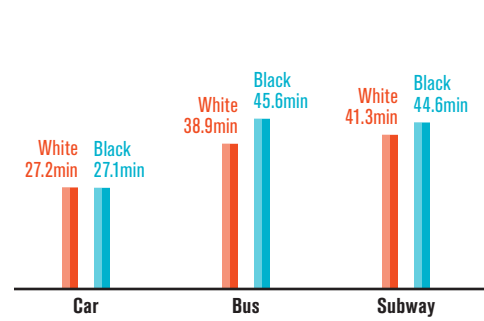
Non-white families use transit more often relative to their populations and experience longer commutes

Communities living near rail stations are overwhelmingly white, and communities of color are served mostly by buses, including dense parts of Dorchester, Mattapan, and Roxbury. As a result, non-white families in Boston are much more reliant on buses and experience noticeably longer average bus commutes (46 versus 39 minutes for whites). The Key Bus Route program has improved service on the 15 routes with the highest ridership that serve many areas away without rail service, though these routes are still not as reliable or fast as taking the train.

How different races/ethnicities are under- or over-represented among transit use



Mean travel times by race and travel mode

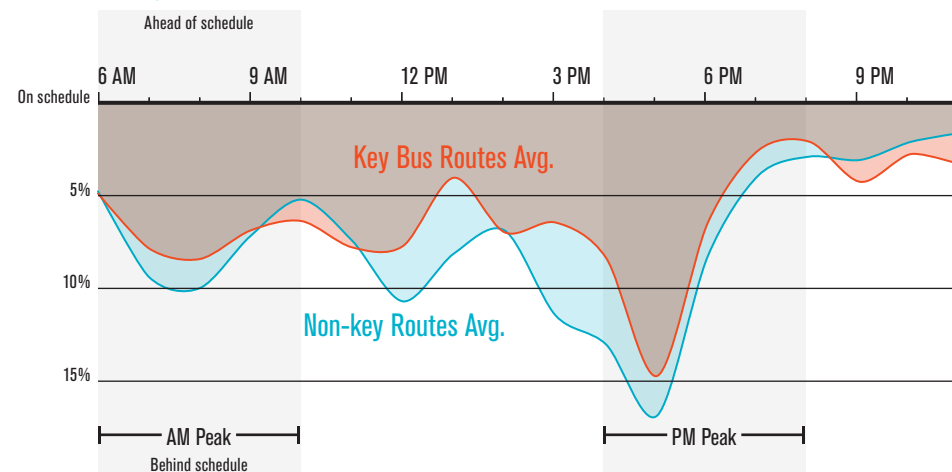


Data source: American Community Survey, 2008-2012, Public Use Microdata

The MBTA's key bus routes program attempts to make buses with the highest ridership run faster

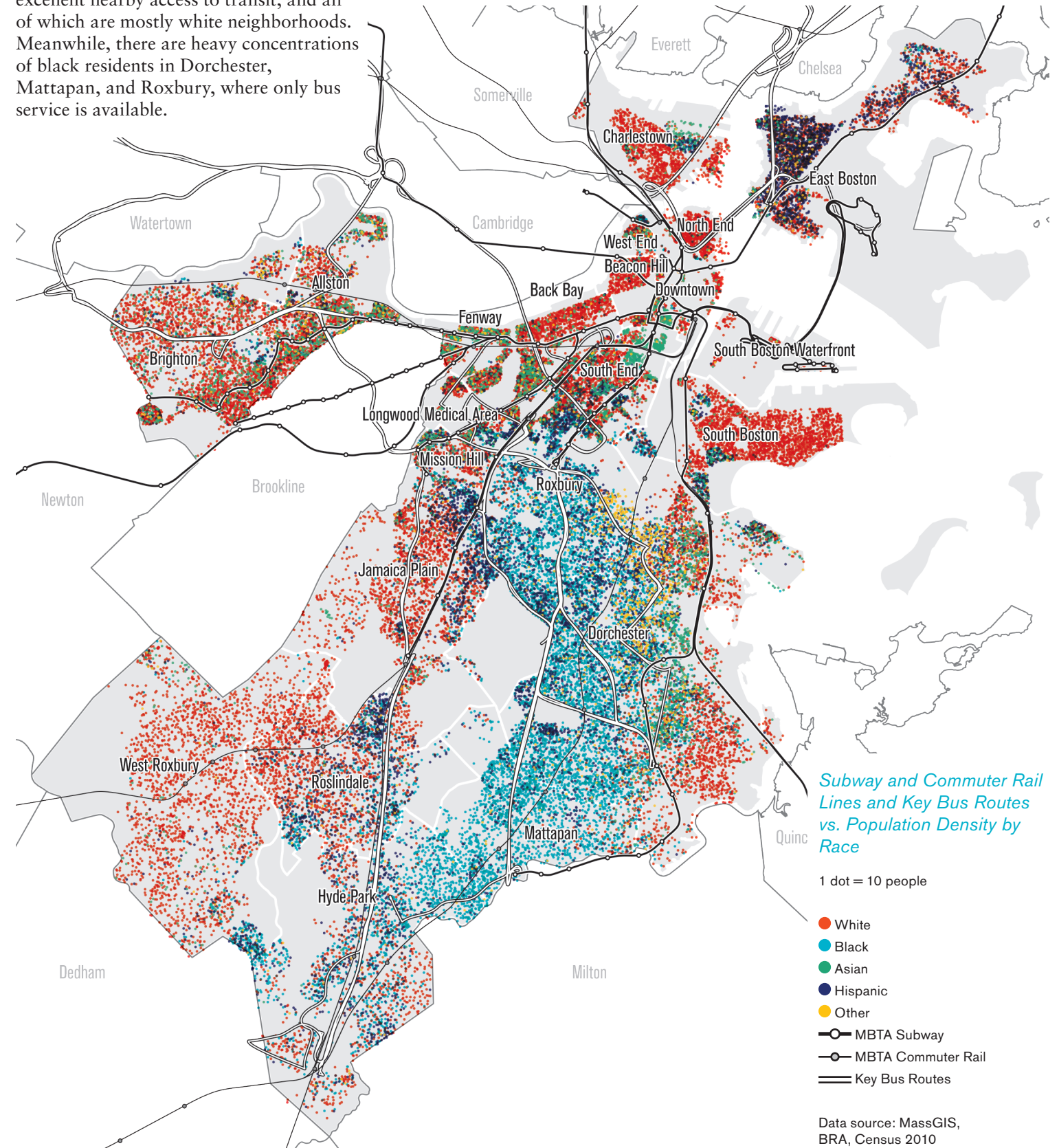
With a focus on reliability, the MBTA collaborated with the City to improve service on the 1, 15, 22, 23, 28, 32, 39, 57, 66, and 111 bus routes. With consolidated stops, more frequent service, and better signal timing, these routes are behind schedule less frequently.

Average % Delay in Bus Schedule



Boston's transit system serves many of the densest neighborhoods, but not equitably

Boston's densest neighborhoods are in the Back Bay, Beacon Hill, Fenway, and the West End—all of which have excellent nearby access to transit, and all of which are mostly white neighborhoods. Meanwhile, there are heavy concentrations of black residents in Dorchester, Mattapan, and Roxbury, where only bus service is available.



Data source: MassGIS, BRA, Census 2010

Walking Access

With a historic street grid, short blocks, and parks throughout the city, Boston is consistently ranked highly for its walk-friendliness, yet most of the places identified by Walk Score as a “walker’s paradise” are concentrated near downtown where there are a variety of destinations. Boston’s most remote neighborhoods have fewer walking destinations and residents cannot rely on walking as their primary way to get around. While it may be the slowest mode, walking has personal health benefits including improved fitness and mental health.

More walkable neighborhoods often have lower obesity rates

Although many factors contribute to obesity, Boston neighborhoods with higher Walk Scores tend to have lower rates of obesity.

Relationship Between Neighborhood Walk Score and Obesity



According to Walk Score, Boston is the nation’s third most walkable city.

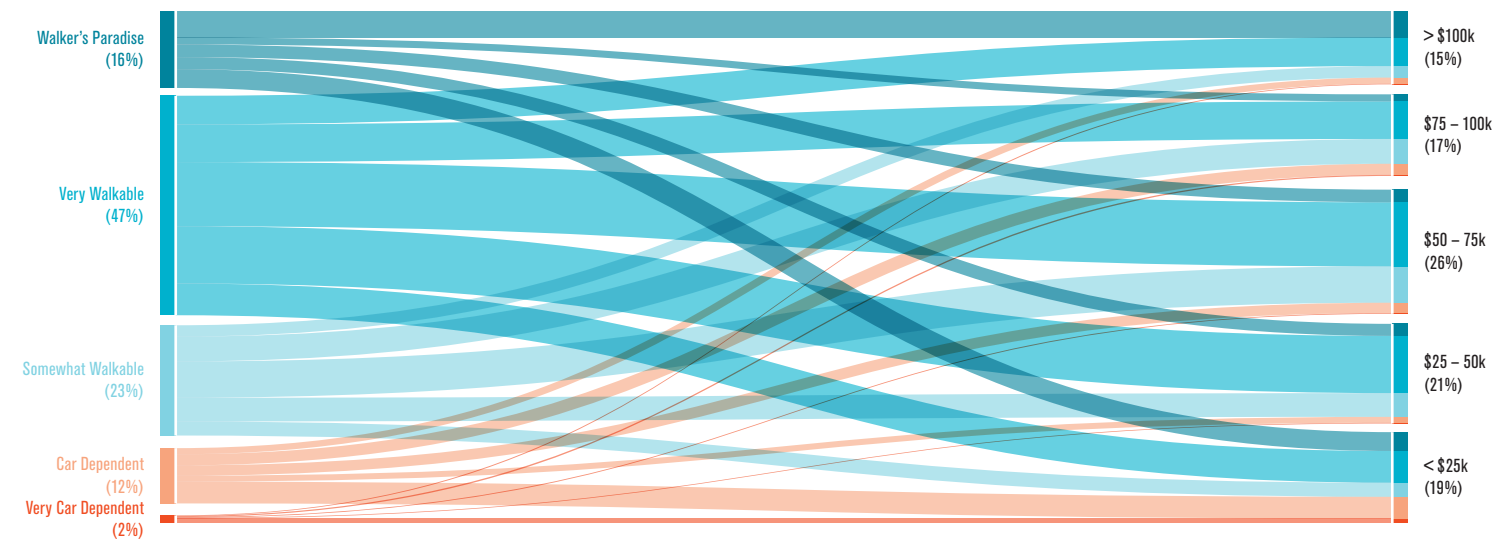
Rank	City	Walk Score
1	New York, NY	88.9
2	San Francisco, CA	85.7
3	Boston, MA	80.1
4	Philadelphia, PA	78.3
5	Miami, FL	78.2
6	Chicago, IL	77.5
7	Washington, D.C.	77.0
8	Seattle, WA	72.9
9	Oakland, CA	71.5
10	Long Beach, CA	69.0

Data sources: Walk Score, 2016 and Boston Public Health Commission

Fewer than one in seven Bostonians live in car dependent places

Although more than 30% of Bostonians in the lowest income bracket live in car dependent places, less than 10% of households making more than \$100,000 a year live where they have to rely on their cars. Over a third of those in this highest income bracket live in a “walker’s paradise,” while under 20% in the lowest income bracket have this opportunity. While only 2% of Bostonians live where it is “very car dependent,” over half of these residents are in the lowest income bracket.

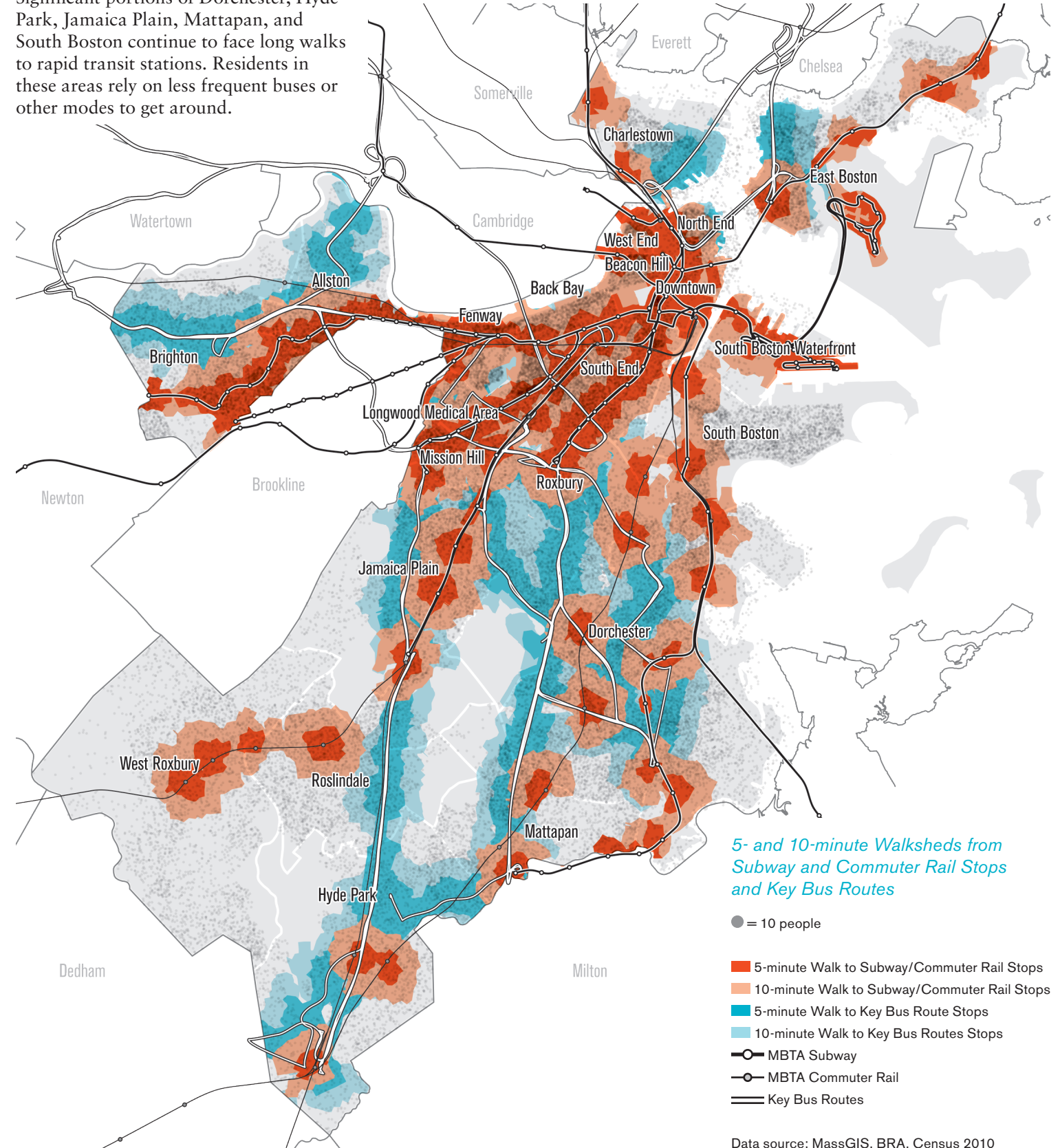
% of Boston households living in:



Data sources: Walk Score and 2013 ACS 5-year estimates

A dense transit network is easily accessed by foot in only some parts of the city

Much of Boston is within a ten-minute walk of a subway line, key bus route, or commuter rail station. Significant portions of Dorchester, Hyde Park, Jamaica Plain, Mattapan, and South Boston continue to face long walks to rapid transit stations. Residents in these areas rely on less frequent buses or other modes to get around.



5- and 10-minute Walksheds from Subway and Commuter Rail Stops and Key Bus Routes

Data source: MassGIS, BRA, Census 2010

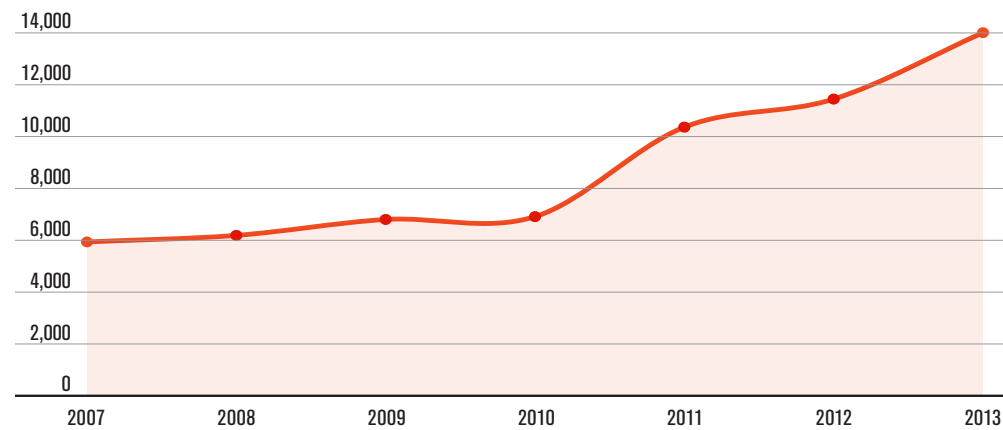
The Growth of Bicycling

Bicycling rates and popularity have grown dramatically in Boston in the last ten years with the installation of bike infrastructure, the mobilization of community programs, and the launch and expansion of shared Hubway bikes. Bicycling has become a regular way to commute in the city, exceeding 2% of the commute mode share in 2014.

Biking in Boston has grown steadily over time

Annual counts on several corridors show that bicycling has increased nearly 300% in nine years. The American Community Survey shows that the share of Boston commuters using bicycles rose from 0.90% in 2005 to 1.4% in 2010 to 2.4% in 2014.

Bicycle Traffic Count, 2007 - 2013



Data source: Annual Boston Bikes counts at 16 intersections over peak hours (7 AM - 9 AM and 4 PM - 6 PM)

Boston's on-road bicycle infrastructure has expanded significantly since 2007

Since 2008, the city has undergone a significant expansion of bicycle infrastructure. A total of 125 Hubway stations have been deployed so far, and over 100 miles of bike lanes have been installed. These new lane miles added to the city's extensive legacy of off-road multiuse paths, including the Southwest Corridor and the Paul Dudley White Path along the Charles River.

Other programs that encourage and support safe riding for people of all ages include the Women's Cycling Initiative, distribution of free bike lights and reflective safety bands, and the annual Hub on Wheels ride.

Learn more about these programs at www.boston.gov/departments/boston-bikes

2015 Highlights

Premiered **1st "Prescribe-A-Bike" program** in the country

Established landmark **Women's Cycling Initiative**

Bikeshare program saw a **30% increase** in ridership

#1 subsidized bikeshare program in the country

Continued to run our nationally recognized and award-winning **Community Bike Programs**

1,132 free bicycles distributed to low-income residents in 2014 (Roll it Forward)

700 free bicycle lights delivered

By the Numbers

6 Protected bike lane miles built since 2008

105 Bike lane miles built since 2008

126 Hubway stations installed since 2008

600 Subsidized Hubway members as of August 2016

1,900 New bike racks installed since 2008

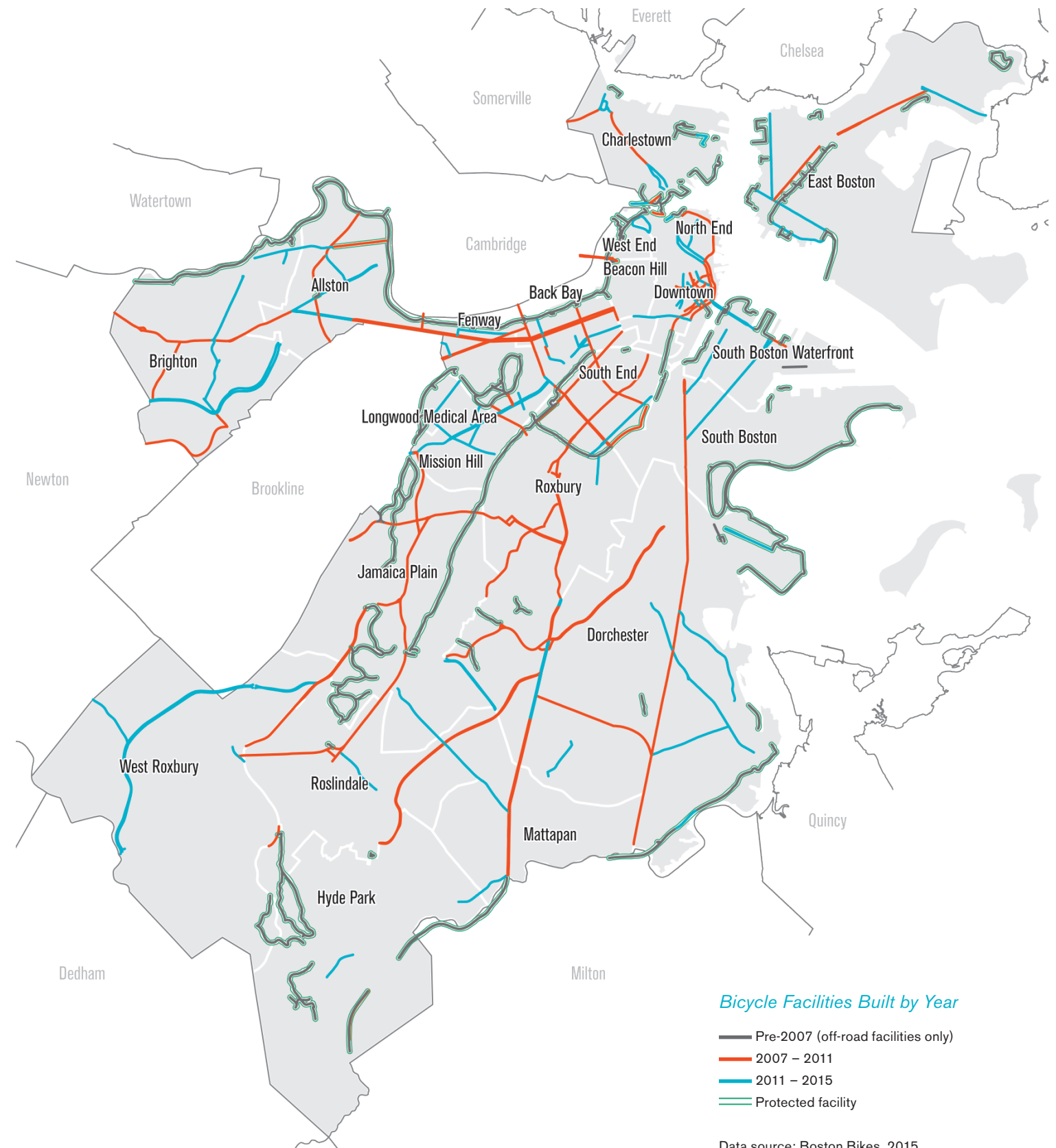
4,825 Roll It Forward bikes distributed since 2008*

14,000 Active Hubway members as of August 2016

35,000 Youth instructed in cycling and safety since 2008†

5,000,000+ Hubway trips since 2008

* 540 in 2015 and 550 in 2016
† 6,202 in 2015



Bicycle Facilities Built by Year

— Pre-2007 (off-road facilities only)
— 2007 - 2011
— 2011 - 2015
— Protected facility

Data source: Boston Bikes, 2015

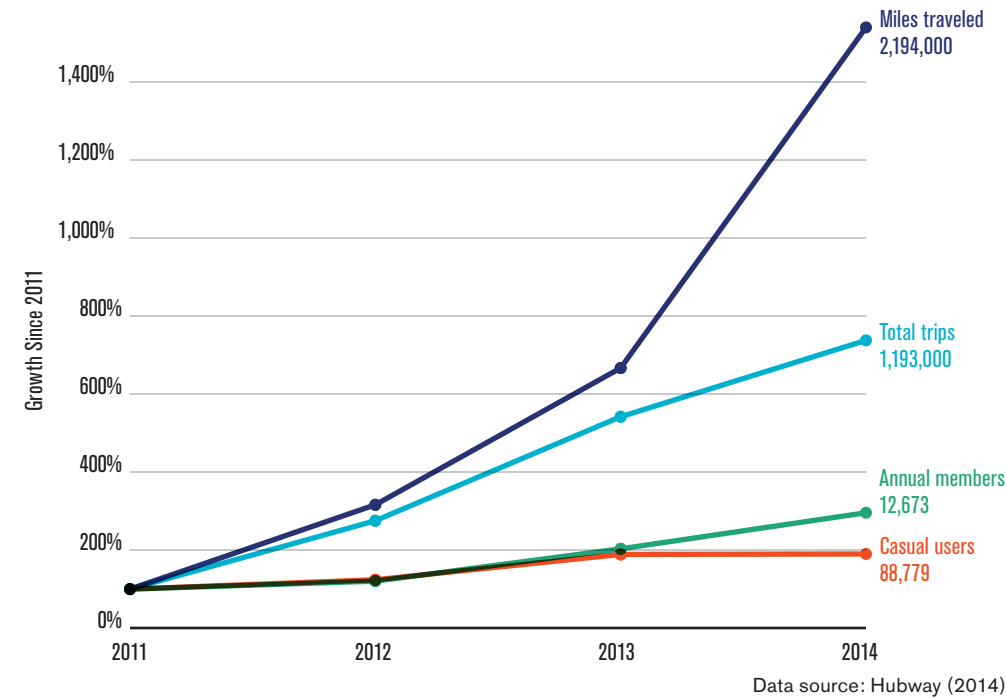
Sharing Rides and Vehicles

Where traditional transit has left gaps, shared transportation has begun to fill them. The growth of services such as Lyft and Uber and show that people are less interested in driving and parking their own cars and simply want to request a ride to get to where they want to go. Zipcar, Hubway, on-demand buses, and other shared transportation services can reduce reliance on privately-owned vehicles as part of a larger system of options. However, their costs and limited availability in certain neighborhoods excludes some low-income residents today.

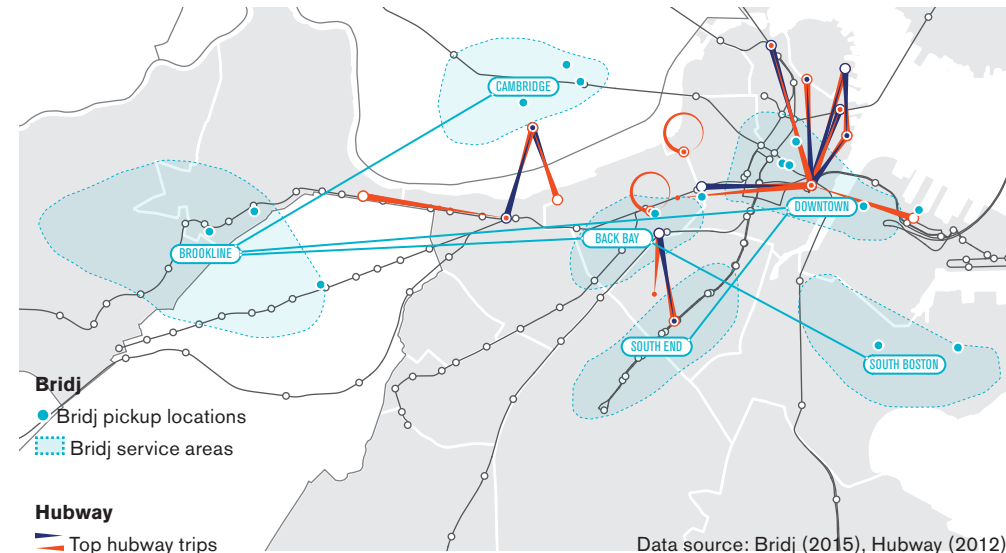
Hubway has expanded its reach, number of riders, and annual mileage

With the growth of the Hubway system across additional Boston neighborhoods and into Cambridge, Brookline, and Somerville, its use has grown dramatically. Membership doubled between 2011 and 2014, increasing the total number of annual trips to 1.2 million and the total annual miles traveled to 2.2 million.

Growth of Hubway Usage, 2011-2014



Top Hubway Trip Origin/Destinations and Bridj Service Area/Pickup Locations



Bridj and Hubway are particularly useful for trips not served by an existing train line

Hubway's most popular trips show riders connecting between destinations not served by transit, such as between South Station and North Station, along the harbor waterfront, and across the Mass Ave and BU Bridges between Cambridge and the Back Bay or Kenmore Square. Meanwhile, Bridj now offers shared shuttles providing direct service links to and from areas such as Allston and Kendall, eastern South Boston and Downtown, and Brighton and the Seaport that would otherwise require people to transfer between transit lines on their commute.

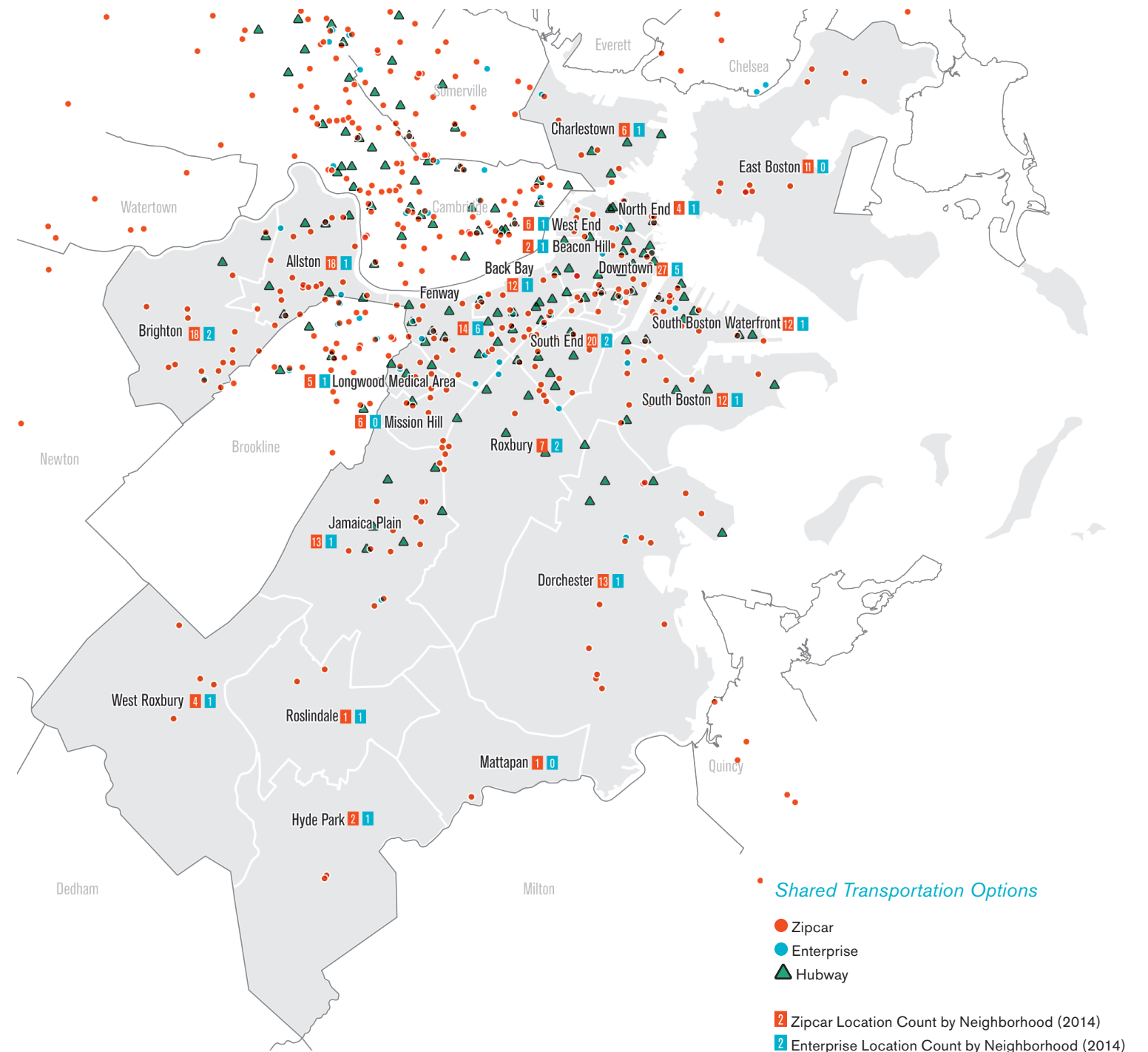
Shared transportation is expanding unevenly across Boston's residential neighborhoods

Carshare and bikeshare locations are often found in denser neighborhoods; however, areas like the South End, Allston, and Brighton have more carshare locations compared to equally dense areas of Dorchester, Mattapan, and Roxbury. The South Boston

Waterfront has relatively few residents, but has several shared transportation options in response to the employment and entertainment districts.

Though shared transportation can be an alternative to transit, bikeshare networks

cannot expand beyond a reasonable distance from existing stations, and carshare companies have found that most of their users need to live or work near transit in order to access vehicles and to support their other car-less trips.



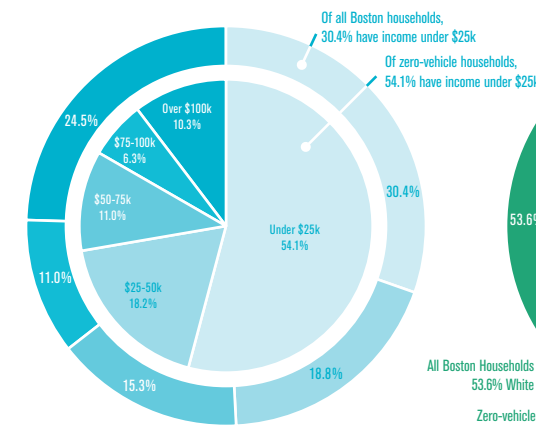
Car Ownership and Use

Households living farther away from regular transit drive more, and even some residents who live near transit (particularly key bus routes) continue to rely on their cars. The decision to drive is often a reflection of transit service not being reliable enough to meet residents' needs. Reliance on driving for trips is more costly over time and significantly less sustainable than other means of travel. Over the last few years, total miles traveled per person has dropped significantly in Boston while rates of vehicle ownership have increased at lower rates than they had previously.

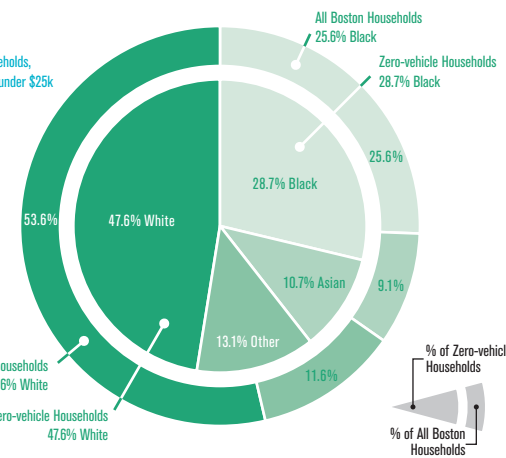
Zero-vehicle households are disproportionately poor and non-white

Many households in Boston already own one car, but white Bostonians are more likely to live in a household with one or more vehicles than those of other races. Among households with no vehicles, more than half have annual incomes less than \$25,000. Only 7% of zero-vehicle households make over \$100,000.

Comparing Zero-Vehicle Households to Overall City of Boston by Household Income



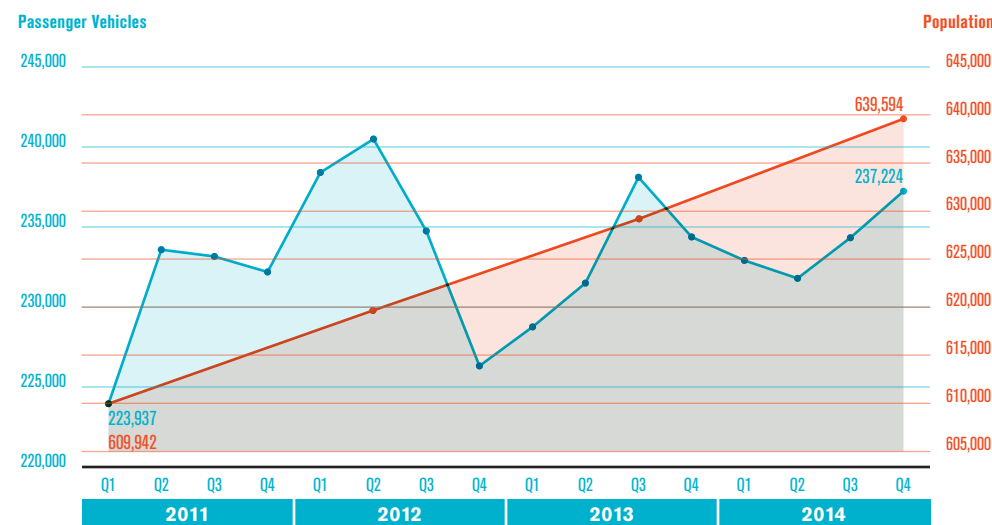
Comparing Zero-Vehicle Households to Overall City of Boston by Race



Source: Public Use Microdata Sample / American Community Survey (2012)

Registered Boston Cars and Boston Population

Year	Quarter	Passenger Vehicles	Population (ACS 5-year estimates)
2011	Q1	223,937	609,942
	Q2	233,564	
	Q3	233,145	
	Q4	232,187	
2012	Q1	238,393	619,662
	Q2	240,479	
	Q3	234,753	
	Q4	226,301	
2013	Q1	228,738	629,182
	Q2	231,484	
	Q3	238,097	
	Q4	234,357	
2014	Q1	232,893	639,594
	Q2	231,781	
	Q3	234,312	
	Q4	237,224	

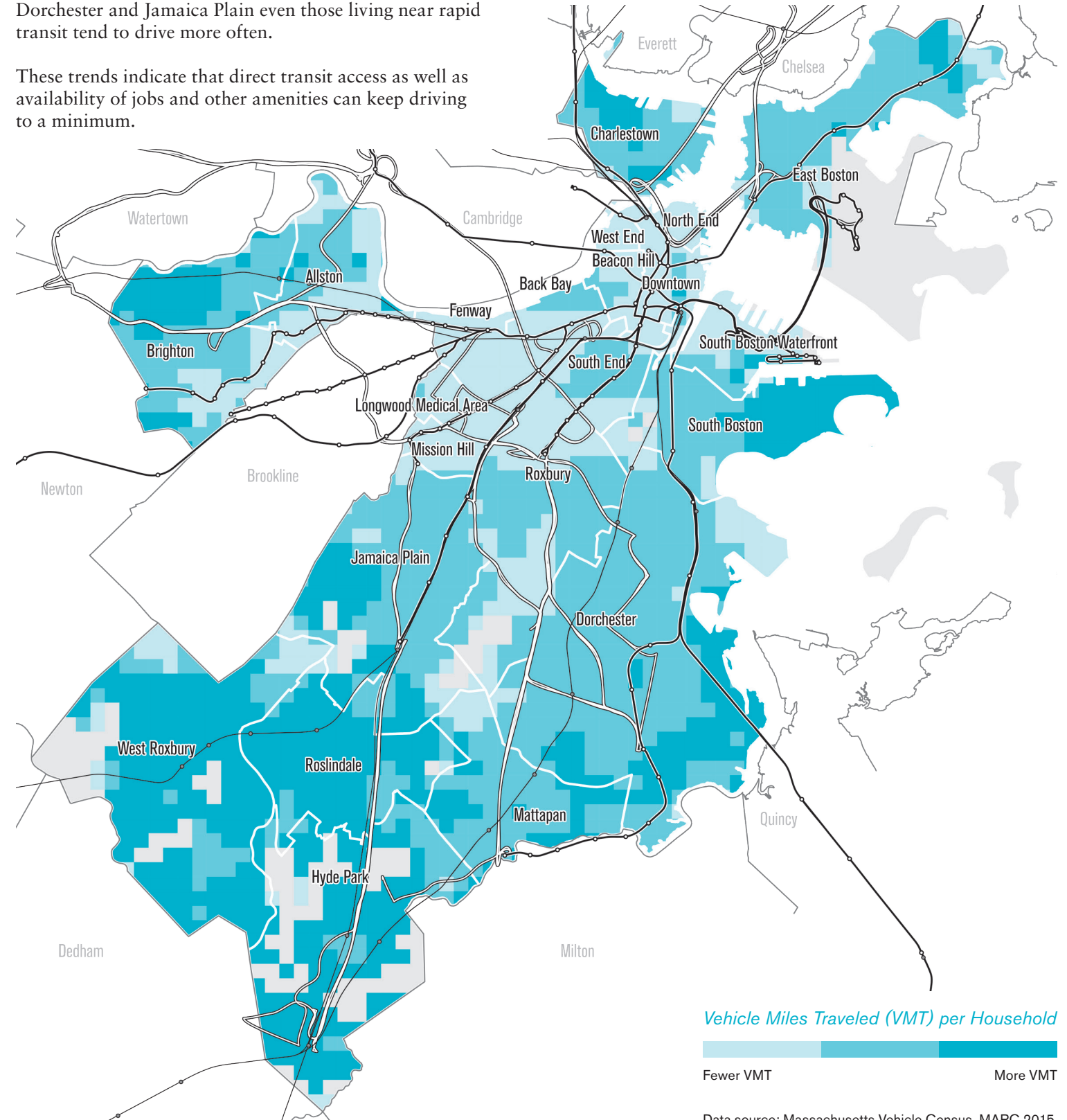


Source: Massachusetts Vehicle Census, 2009 – 2014, via Barr Foundation and MAPC

Low mileage vehicle households are concentrated around transit

People who live in Downtown, Fenway, and Allston drive the least and this pattern generally follows areas around rapid transit lines. Residents living farther from the core and from transit stops tend to use their cars more. In Allston and Brighton, people who live near the Green Line do not drive as much the people living farther from transit; however, in Dorchester and Jamaica Plain even those living near rapid transit tend to drive more often.

These trends indicate that direct transit access as well as availability of jobs and other amenities can keep driving to a minimum.



Vehicle Miles Traveled (VMT) per Household

Fewer VMT More VMT

Data source: Massachusetts Vehicle Census, MAPC 2015

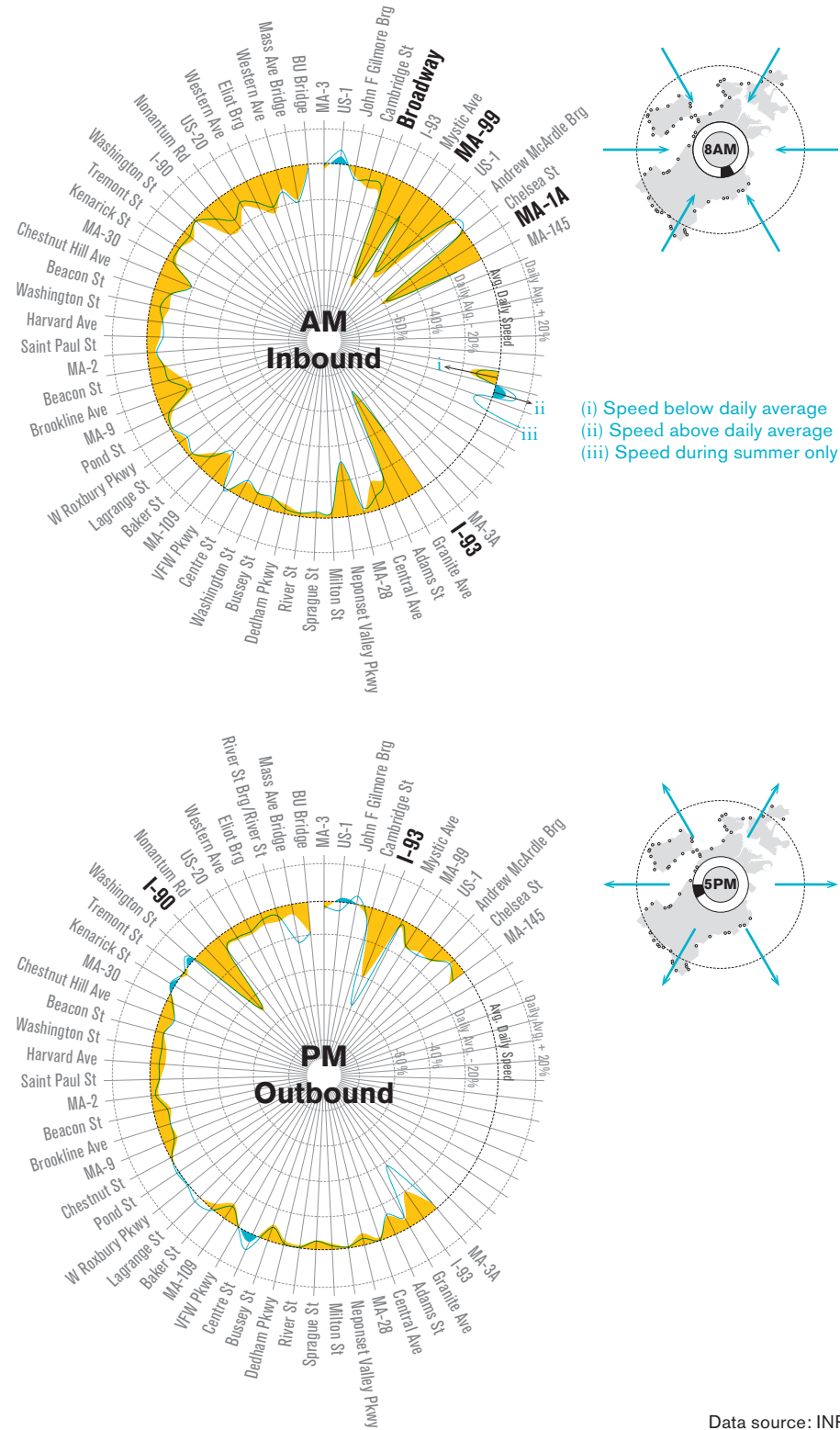
Roadway Traffic Flow

While the amount of driving per Bostonian has declined, peak hour congestion continues to cause delays. This is most noticeable on major State and Federal highways where regional vehicular traffic is concentrated. Some major highways lose 40 – 60% of their average speed during rush hour. Some key arterials connecting neighborhoods outside of downtown are also congested to lesser degrees, but most local streets have noticeably less congestion, largely due to Boston's driving rates.

Traffic slows by 15% on average during peak periods

On highways such as I-93 and Route 1, traffic speeds slow by as much as 60% during the morning commute. Despite modest declines in the proportion of driving trips among all trips since 2005, congestion has remained a persistent challenge since the number of total trips has increased.

Peak vs. Average Roadway Travel Speed at Select Road Crossings into Boston



Individual rates of driving have dropped 10% in Boston

Per capita mileage has declined dramatically among Bostonians in the last decade. However, overall population growth in Greater Boston has led to a net increase in the total miles driven in the region.

Vehicle Miles Traveled (VMT), 2005 – 2013

