

# METRO BOSTON REGIONAL INDICATORS

# TRANSPORTATION: Staying on Track

## EXECUTIVE SUMMARY

Transportation in Metro Boston: few topics generate as much frustration, conversation, and prognostication. No matter how they get around, many residents of the region feel a growing concern that our transportation system is on the “wrong track.” Everyone agrees that getting the system back on track is essential to creating a prosperous, sustainable, and equitable region. **We’ll never be able to grow our economy, protect our environment, or ensure access to opportunity for all our neighbors without a strong transportation system.** MAPC’s regional plan *MetroFuture: Making a Greater Boston Region*, adopted in 2008, established a strategic framework for how to do that: coordinate land use and transportation planning, create more choices for how people get around, invest strategically and deliver services efficiently, and ensure that the system is safe and reliable for all users. Implementing these strategies requires action at a variety of levels: state, regional, local, and personal. *MetroFuture* also set forth ambitious and specific objectives that the region should aim to achieve, with the intention of measuring whether the region is “on-track” to meet the plan’s goals, and to determine whether more needs to be done in the way of a course correction.

Some changes in the transportation system can be measured on a day-to-day basis, including the on-time reliability of transit service, or the level of congestion on the region’s highways. **It will take decades to achieve the monumental change that our transportation system needs in order to be truly sustainable**, through strategies such as reoriented land use patterns, sustained infrastructure investment, and changes in the way people interact with the system. Even though these processes may

occur slowly, they can be measured. Sustainable Transportation Indicators—a collaborative effort of MAPC and the Dukakis Center for Urban and Regional Policy—seek to do just that. **These indicators serve as high-level measures of the region’s transportation performance.** In conjunction with other short-term measures of performance and user experience, they can let us know whether we are on track to meet the region’s transportation goals for the year 2030.

The results, as summarized here, are decidedly mixed. Surging transit ridership, an explosion in bicycle commuting, and robust housing and job growth in transportation-efficient locations all point to the **clear preference for more sustainable transportation options in the region.** Yet we face challenges. Our **transit systems struggle to meet ridership demands**, our pedestrian and bike infrastructure does not provide the safety and convenience that people deserve, and **the costs of getting around—in terms of time and money—are borne disproportionately by the region’s low-income residents.** State and regional transportation spending has become more strategic and targeted in recent years, **though it remains insufficient to maintain current assets**, much less build the system we need for the future.



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## Automobile dependence is the norm in suburban communities, but is waning in urban areas

Personal auto trips cause most of the region's traffic congestion and produce vast amounts of greenhouse gas emissions. A more sustainable region necessarily entails having fewer cars on the road and the number of miles those cars are driven.

In 2014, **the region's households owned an average of 1.7 cars and drove them a combined 46 miles per day.** This puts the region somewhat below of the national benchmark of 1.75 cars per household and 54 miles per day.

Yet it is really only in our region's urban areas where auto reliance is below the national average.

**In the Inner Core, the average household owned 1.21 cars and drove them just 26 miles per day** in 2014. Fortunately, these figures are trending in the right direction as well, declining by 3.8% and 1.9% since 2011, respectively.

Meanwhile in the region's low-

Daily vehicle miles traveled per household by Community Type in Metro Boston, Quarterly from 2011 to 2014

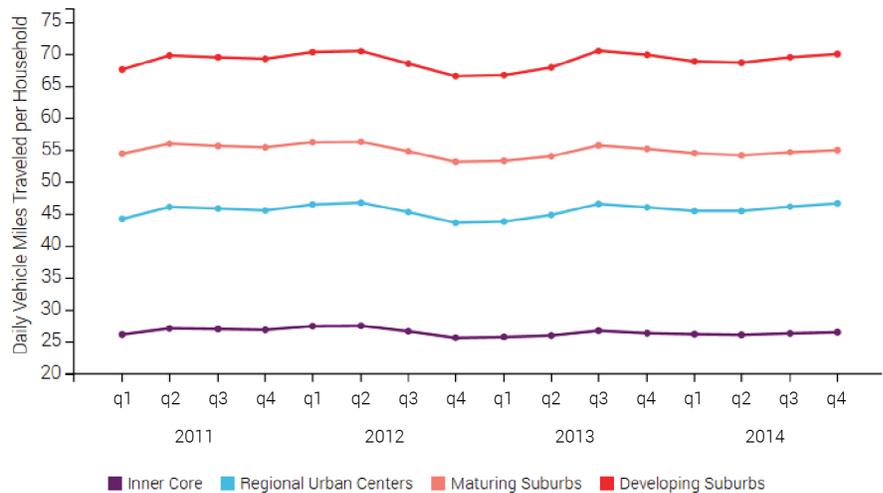


FIGURE 1. Data source: Massachusetts Vehicle Census 2009-14, MAPC Community Types

density suburbs, the two-car household is the norm, and **the average household in the Developing Suburbs racks up nearly 70 miles per day.**

There are bright spots in the suburbs, however: towns with more compact land uses, better access to jobs and services, and

high quality walking and biking infrastructure tend to have lower vehicle ownership and less driving than communities without those amenities. This suggests that **local land use and transportation decisions can have a big impact on regional transportation trends.**

## Transit: Demand is strong, but supply is struggling

While the MBTA has its share of challenges, it is also in some ways a victim of its own success. **Ridership on the T has increased by more than 10% since 2010.** The system now carries an average of 33 million unlinked trips per month, and in some months up to 35 million unlinked trips. The regional transit agencies (RTAs) that provide

service in other parts of the state have seen similarly strong growth, with ridership increasing 18% since 2010 to a total of 2.4 million riders per month in fiscal year 2015.

Residents have shown that they want to live closer to transit, too. **Between 2000 and 2010, an additional 54,000**

**households settled in transit station areas, an increase of 3%.** Viewed through the lens of MAPC's Transit Station Area Types (described at [www.tstation.info](http://www.tstation.info)), we find that Neighborhood Subway, Metro Core, and Transformational Subway station areas accounted for more than 60% of that growth. Meanwhile, **13,500 new units have been built**

## Transit Station Area Household Growth 2000-2010, Metro Boston

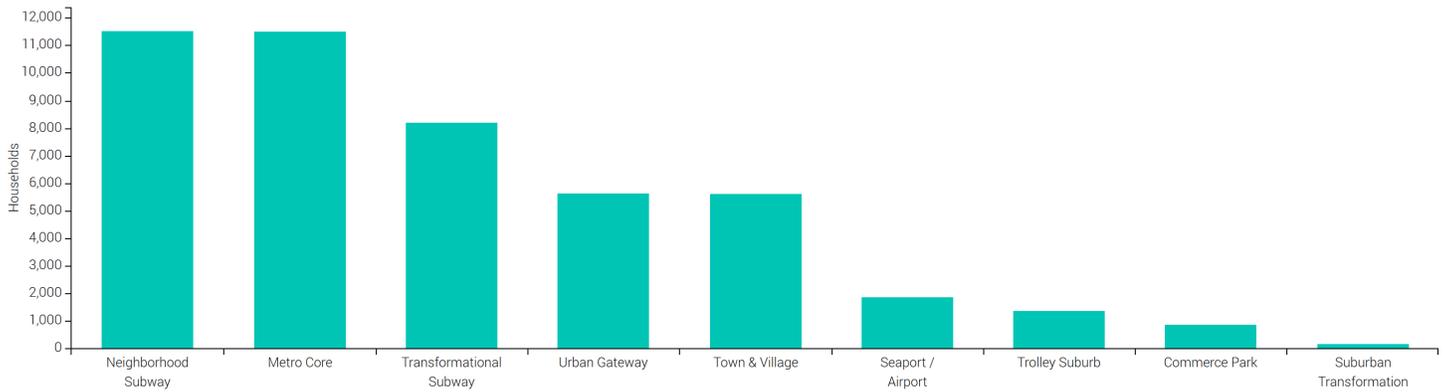


FIGURE 2. Data source: U.S. Census 2000, 2010

**near transit since 2010, with an additional 67,000 units planned or under construction.**

However, MBTA capacity has not risen to meet demand. Since 2010, **MBTA revenue service hours**

**have increased only 0.15%**, even as ridership increased. The result is increasingly crowded buses and trains, which in turn can affect speed, reliability, and safety. Unreliability and inefficiency of the system disproportionately

affects people of color. Black bus commuters spend an additional 64 hours a year commuting compared to white bus commuters.

## Walking and biking are real options for getting around, if we can make them safe enough

Walking and biking are on the rise, comprising 6% of commutes in the region (up from 5% in 2000), and 14% of commutes in the Inner Core. Among the 70 largest metros in the country, the region now ranks 13th for bike commuting. Use of Hubway, the region’s bike share system, has exploded since its introduction in 2012: the system **has over 150 stations that served 1.1 million trips in 2015.**

Despite the increased interest in walking and biking, pedestrian and bike infrastructure is severely lacking in many parts of the region, with sidewalks available on only 19% of roads in Developing Suburbs and 32% of Maturing Suburbs. Worse,

walking and biking remain dangerous activities. Statewide, **an average of 68 pedestrians or bicyclists were killed annually by auto crashes from 2009 to 2014.**

Concerns about safety may discourage children from walking to school, even when distances are short and sidewalks are present. Surveys of students living within a half mile walking distance of their school (with sidewalk connections) have found that only 50% commute by walking or biking. 40% of these students are driven to school, resulting in increased congestion, safety issues, and lack of physical activity.

### Elementary School commutes by mode and distance, Metro Boston

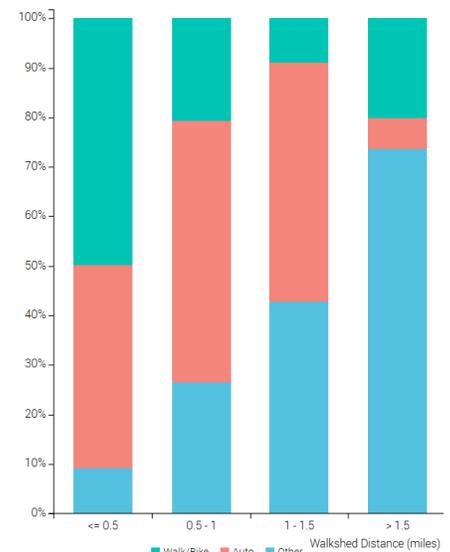


FIGURE 3. Data source: My School Commute Surveys, 2013- 2015

## Household transportation costs are comparable to other regions, but hit low income households hardest

Transportation doesn't just take time—it costs money. **The average Metro Boston household spent approximately \$10,000 per year on transportation in 2014**, equivalent to 11.2% of average pre-tax income for that year. In percentage terms, transportation cost burden is lower than most peer regions and has declined since 2001, when the figure was 12.6%.

The **largest share of household transportation costs goes toward auto ownership**

(\$9,200 per year), which can be a significant burden on low-income households living or working in locations with little or no transit. Three quarters of extremely low income suburban households (earning less than \$22,000 per year) own a private vehicle, suggesting that they may be directing up to 40% of their income on transportation alone, not to mention housing.

Consumer price changes for MBTA fares and gasoline Metro Boston, 1996-2016

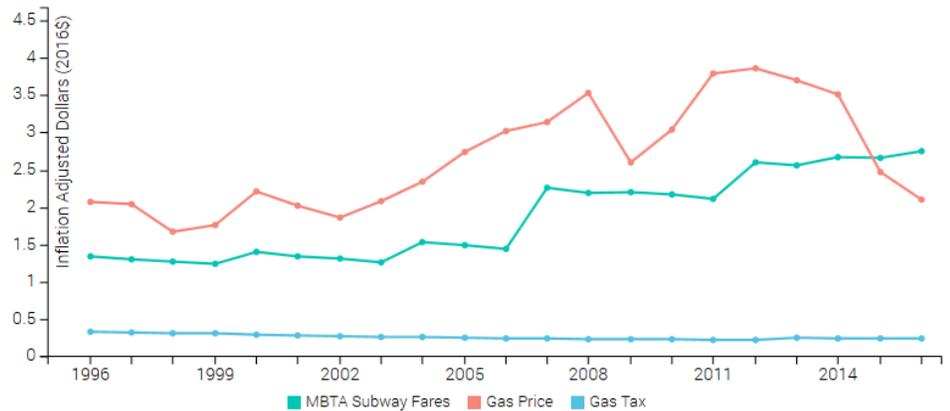


FIGURE 4. Data source: Massachusetts Bay Transit Authority, U.S. Energy Information Administration, Bureau of Labor Statistics Consumer Price Index

While transit has historically been more affordable than car ownership, **transit fares have risen steadily over the past 20 years, even as gas prices and the per-gallon gas tax have declined in real dollars.** After adjusting for inflation, the base subway fare has risen 97% since 2006, whereas retail gas prices declined by 1% over that same period

and the real dollar value of the per-gallon gas tax has declined by 28%. **The base subway fare is now more expensive than a gallon of gas for the first time in 20 years.** If these trends continue, it could encourage the region's residents to choose driving over transit, exacerbating both traffic and greenhouse gas emissions.

## Transportation spending is shifting in the right direction, but remains insufficient to meet growing needs

Changing our transportation system requires changing the way we spend transportation dollars. In federal fiscal year 2015, the Boston Metropolitan Planning Organization (MPO) spent \$135 million of its discretionary "target funds" on highways, and only \$50 million of those funds on local roadways, transit

expansion, and dedicated bicycle and pedestrian investments. This means that **77% of the MPO's resources were spent on highways.** While the MPO target funds represent only one portion of total transportation spending (MassDOT also allocates state money directly through its own five-year capital plan), they

are an important expression of regional priorities.

Fortunately, this emphasis on roadway investment is changing; in the MPO's 2016 – 2020 Transportation Improvement Program, only 5.2% of all spending is allocated to roadway and highway capacity projects.

The question remains as to whether all the resources we have available are sufficient to meet the needs of the region and the state. Nearly **9% of Massachusetts bridges—more than 400—are considered “structurally deficient,”** meaning that they could become dangerous or closed if they are not repaired. While this figure has declined since 2000 and is comparable to national or peer state averages, it is bound to increase without sustained effort to maintain other aging bridges currently in fair condition.

Meanwhile, **the majority of MBTA vehicles are considered beyond their “useful life,”** including 100% of Orange Line cars, 61% of Red Line cars, and 77% of buses. While replacement vehicles have been procured and are under construction, complete delivery of new trainsets is not expected until 2022 at the

## Conclusion

While it doesn't always feel like it, Metro Boston has many advantages when it comes to sustainable transportation: compact land uses that shorten travel distances; a relatively extensive multimodal transit network; and active community and civic institutions working

### MBTA vehicles beyond useful life, Fiscal Year 2013

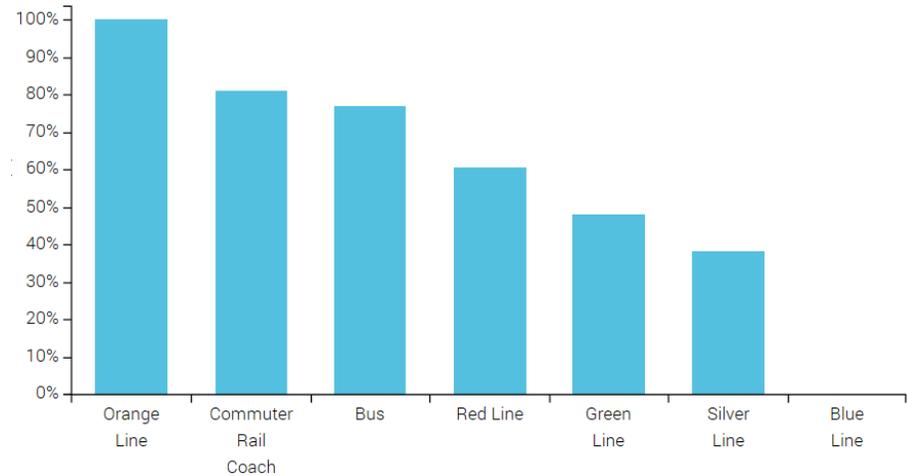


FIGURE 5. Data source: Massachusetts Bay Transit Authority, Massachusetts Department of Transportation

earliest.

There are a variety of reasons why the MBTA has not been able to maintain a state-of-good-repair, and lack of financial resources is certainly one of them. This is due in part to the amount of money the agency must spend on debt servicing; **in FY 2016, the MBTA spent**

**over \$400 million—20% of its operating funds—on debt repayment.** This debt burden leaves little room for strategic system expansion and improvements, even relatively low-cost options such as bus rapid transit, new stations on existing rail lines, off-board fare collection, or signal prioritization.

to improve the system. Furthermore, there are clear signs that residents are interested in a different kind of system: transit ridership is up, more people are forgoing drivers' licenses, and biking and walking is proliferating throughout the region. While these changes are

still modest, they do suggest that with the right policies, the right land uses, and the right investments, the region can put itself on track to achieving the ambitious goals of MetroFuture by the year 2030.

**To learn more about MetroFuture and MAPC's project work, visit [projects.metrofuture.org](http://projects.metrofuture.org).**

## Credits

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