## DEVELOPING PLANNING SCENARIOS

The Focus40 Team worked with stakeholders (see **Figure 2**) to help develop and refine four different potential futures for the Boston region, based on the four trends described above. Each scenario is mapped against each of the four trends in order to develop a picture of what each of the futures could look like. While designed to be internally consistent, no one of these scenarios will, in the long run, turn out to be precisely correct and thus the MBTA cannot plan for just one scenario to come to fruition. Instead, these scenarios offer a framework within which to plan for an uncertain future and evaluate potential investments. As discussed above, the most strategic investments are those that are most beneficial – to the region and to the T – regardless of which of the scenarios the future ultimately most resembles.

For this type of scenario planning to be most useful, it will need to be periodically revisited and recalibrated, based on the evolution of the trends explored here and others that we cannot yet foresee. Should things vary in wholly unexpected ways – quite possible, given the current rate of disruption and change in the transportation field – the MBTA's overall investment strategy may need to pivot in order to respond.

The four planning scenarios are described on the following pages.

## FOCUS40 FUTURE SCENARIOS

| PLAUSIBLE FUTURES | DRIVING TRENDS: Urbanization | Affordability | Technology | Climate Action |
|---|---|---|---|---|
| **MetroFuture**<br>Boston MPO vision for compact, sustainable growth | Suburbanization<br>Urbanization | Low Affordability Near Transit<br>High Affordability Near Transit | Gradual Evolution<br>Disruptive Change | Low Collective Action<br>High Collective Action |
| **Business as Usual**<br>Low and moderate income households are choosing to live in more affordable suburbs and Gateway Cities | Suburbanization<br>Urbanization | Low Affordability Near Transit<br>High Affordability Near Transit | Gradual Evolution<br>Disruptive Change | Low Collective Action<br>High Collective Action |
| **Innovation Acceleration**<br>Technology changes are adopted quickly and radically change the transportation landscape | Suburbanization<br>Urbanization | Low Affordability Near Transit<br>High Affordability Near Transit | Gradual Evolution<br>Disruptive Change | Low Collective Action<br>High Collective Action |
| **Climate Responsive**<br>Enhanced commitment by the Commonwealth to invest in GhG reduction and resiliency measures | Suburbanization<br>Urbanization | Low Affordability Near Transit<br>High Affordability Near Transit | Gradual Evolution<br>Disruptive Change | Low Collective Action<br>High Collective Action |

# METROFUTURE

In 2009, the Metropolitan Area Planning Council (MAPC) released MetroFuture, a wide-reaching plan to accommodate future regional growth in a manner that ensures that broader goals for economic prosperity, conservation, and quality of life can be met. For the purposes of this scenario planning process, MassDOT collaborated with MAPC to adapt this scenario for the Focus40 plan.

The MetroFuture vision for region-wide affordable smart growth development is achieved largely through cities and towns stepping up to implement supporting land use regulations and housing policies.

As transit oriented development and transit supportive policies become more widespread farther out from the urban core, the MBTA may need to improve crosstown connectivity in addition to increasing core capacity.

## Urbanization

**Suburbanization**

**Urbanization**

Greater Boston and the surrounding Gateway Cities are experiencing a substantial portion of the population and job growth while the majority of new suburban growth is in or near town centers and existing commercial areas, rather than in undeveloped areas. Suburban and rural areas plateau or grow slowly, and most of the remaining open space is preserved. Job clusters have grown outside of the urban core of Boston, but near the ends of rapid transit and densely developed commuter rail stations.

## Affordability

**Low Affordability Near Transit**

**High Affordability Near Transit**

A greater supply of housing that addresses demand for urban living along with affordable housing mandates and inclusionary zoning practices in cities and towns throughout the region, increase the proportion of affordable housing stock. Much of this new supply has been located near existing transit services, reducing the transportation cost burden for households. Policy interventions ensure that displacement is limited and that current residents remain in their neighborhood if they want to, even as cities and towns in Greater Boston and regional Gateway Cities revitalize.

## Technology

**Gradual Evolution**

**Disruptive Change**

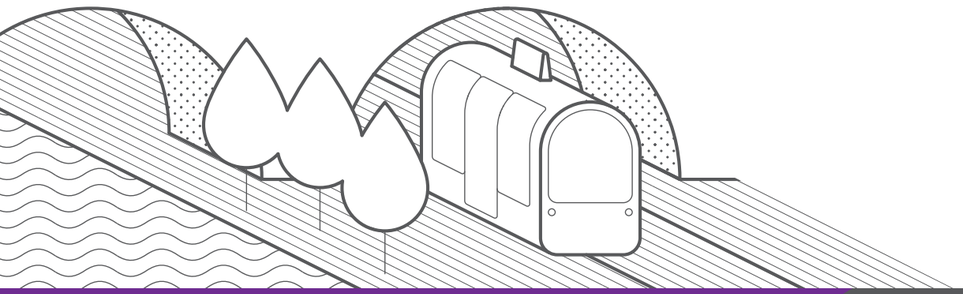
Mobility options continue to improve gradually with advancements in technology. The sharing economy has expanded further into transportation. Both personal and shared fleets of bicycles and autonomous vehicles (AVs) have been introduced to the region's roadways but do not yet make up a large share of the fleet.

## Climate Action

**Low Collective Action**

**High Collective Action**

Popularly supported policies have resulted in more compact and sustainable land use. This increases the share of trips that can be completed without a private automobile, and results in reduced emissions and fuel consumption. It does, however, tend to place more people in the traditionally more densely populated portions of the region, which are often lower lying, coastal areas more vulnerable to major storms and sea level rise.



## BUSINESS AS USUAL

The driving trends have not resulted in a significantly different physical environment, but the continuation of current socio-demographic trends has worsened income inequality and housing affordability issues. Many aging millennials moved outside the urban core– the area where MBTA services are strongest and most plentiful – in order to find affordable housing.

Along with a greater need for first mile last mile solutions, commuter rail becomes more prominent in this scenario. Demand for the rapid transit network has not increased significantly. The bus network may need to shift to accommodate changing patterns of demand.

### Urbanization

**Suburbanization**

**Urbanization**

Housing construction in the inner core has grown, but demand continues to outpace supply for walkable, transit oriented development. Suburbs farther from Boston with lower land values have attracted some development, while land use policies in wealthier suburbs closer to Greater Boston continue to constrain housing growth there.

### Affordability

**Low Affordability Near Transit**

**High Affordability Near Transit**

Lower-income residents living in more remote suburbs are burdened by long and cumbersome commutes and high transportation costs. Wealthier households living near transit are more likely to own cars and are less likely to take transit than when lower-income households were more prominently placed in the core.

### Technology

**Gradual Evolution**

**Disruptive Change**

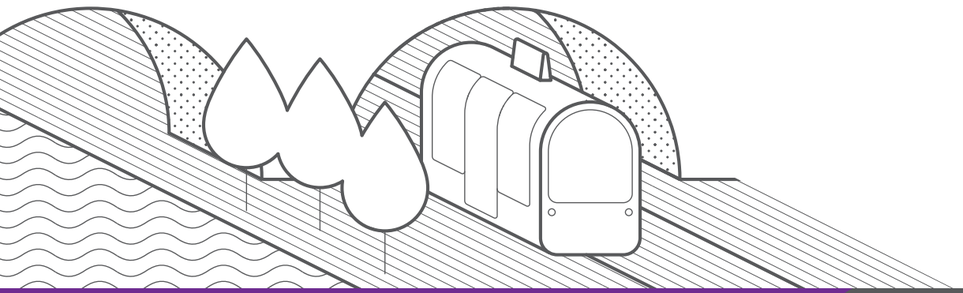
Public adoption of transformative technologies continues at a steady rate. Autonomous vehicles are increasingly becoming more common, but don't substantively change travel behavior on a regional scale.

### Climate Action

**Low Collective Action**

**High Collective Action**

Although storms continue to damage the Massachusetts coastline, public support for expensive and disruptive resiliency planning remains limited. Concern about climate issues does not impact mobility choices.



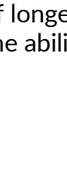
# INNOVATION ACCELERATION

By 2040, rapid evolving technology continues to transform the way people live and travel within the Boston region.

To be successful in a transportation ecosystem increasingly influenced by technology – and to avoid allowing access to transportation-related technology to be yet another factor driving regional income inequality – the T needs to learn to leverage new technologies, acknowledge and respond to shifting consumer expectations, and partner with new mobility providers. Even in a diverse transportation eco-system, a high functioning MBTA rapid transit bus and rail network will likely continue to be the most efficient means of transporting the greatest number of people in peak periods.

## Urbanization

**Suburbanization**



**Urbanization**

Urbanization has stopped increasing, but has not slowed, resulting in the rate of population growth being the same across both urban and suburban communities. In dense urban areas, parking spaces, in surface lots or garages, become less valuable as private car ownership plunges in favor of shared transportation. This creates opportunities to reuse land to increase density and allocate greater amounts of street space to other modes, including public transit. At the same time, AVs and other new technologies have helped bolster the attractiveness of suburban communities as commuting by AV reduces the cost of longer commuting – in terms of the ability to be productive.

## Affordability

**Low Affordability Near Transit**



**High Affordability Near Transit**

By mitigating the productivity losses associated with long commutes, AVs have made it possible for workers to live farther from their places of employment, relieving some pressure on housing prices in the immediate Boston area but also increasing congestion on some of the region's roadways.

## Technology

**Gradual Evolution**



**Disruptive Change**

Both personal and shared fleets of bicycles and autonomous vehicles (AVs) have become the norm on the region's roadways. AVs are used by individuals, the MBTA and other transit agencies, and transportation network companies alike. Working from home may become more common with improved enabling technology, but the number of trips does not necessarily decrease as errands and other social trips are easier to make.

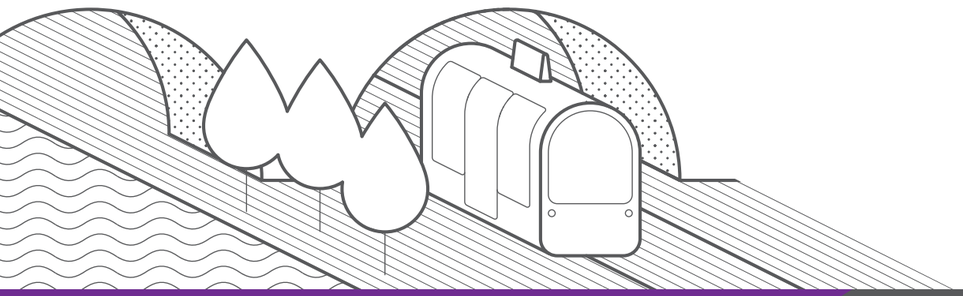
## Climate Action

**Low Collective Action**



**High Collective Action**

Technology has made it easier in some ways to achieve greenhouse gas reduction goals, as significant investments in clean fuels and vehicles have made low- and zero-emission automobiles economically feasible for a large proportion of Commonwealth residents.On the other hand, the supposition that technology will solve all issues related to climate change has limited behavior change to reduce environmental impacts.



## CLIMATE RESPONSIVE

The impacts of a changing climate have profoundly impacted the Commonwealth, prompting both strong policies and a public commitment to reduce carbon emissions and invest in the resiliency of the transportation system.

The MBTA will need to double down on its commitment to reducing its own environmental impact. At the same time, the MBTA must support the ability of others to reduce their environmental footprint by maintaining system viability in extreme weather and adding capacity to the system to accommodate a populace that is much more likely to take transit for more types of trips.

The MBTA should use scientific projections for the future of the New England climate to plan for the impact of likely weather-related damage to its infrastructure.

### Urbanization

**Suburbanization**

**Urbanization**

Popular will and local and national policies have increased the demand for and construction of housing located near public transit. Policies and practice limit parking and promote more bicycle and pedestrian infrastructure that facilitates a higher rate of trip-making using those modes.

### Affordability

**Low Affordability Near Transit**

**High Affordability Near Transit**

The region's focus on more sustainable and compact development in furtherance of environmental goals will help to both generate sufficient new housing and to guide that housing to transit-accessible locations, helping to keep household housing and transportation budgets reasonable.

### Technology

**Gradual Evolution**

**Disruptive Change**

Public adoption of transformative technologies continues at a steady rate. Low- and zero-emission vehicles have become ubiquitous.

### Climate Action

**Low Collective Action**

**High Collective Action**

Policies enacted by the public, private, and non-profit sectors reflect a growing political will to aggressively reduce GHG emissions and combat the effects of climate change through investments in resiliency.