

# South Shore Coalition Mobility Study

*Summer 2022*



## **Acknowledgments**

We would like to thank the South Shore Coalition Members for their support throughout this study. We thank the committee members, residents, and stakeholders who provided feedback and engagement throughout this project. The Metropolitan Area Planning Council staff provided professional technical assistance to this plan: Jessica Boulanger, Transportation Planner I, and Travis Pollack, Senior Transportation Planner. This project was made possible with funding provided by MAPC.

## **South Shore Coalition Members**

MAPC thanks the following members of the SSC who provided input and feedback.  
Courtney Bjorgaard, South Shore Chamber  
Karen Canfield, Chair of Scituate Select Board,  
Legislative aide, MAPC Executive Committee member  
Jen Constable, Rockland Assistant Town Administrator, Hull Select Board Member  
Geordie Enoch, Legislative Aide, Representative Meschino  
Peter Forman, South Shore Chamber  
Jonathan Hamilton, Legislative Aide, Representative Meschino  
Sandy Johnston, Central Transportation Planning Staff  
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## Chapter 1

# Introduction

### About Metropolitan Area Planning Council

The [Metropolitan Area Planning Council \(MAPC\)](#) (MAPC, 2022) is the regional planning agency for the 101 cities and towns of Metropolitan Boston. The agency's mission is to promote smart growth and regional collaboration. We work toward sound municipal management, sustainable land use, protection of natural resources, efficient and affordable transportation, a diverse housing stock, public safety, economic development, clean energy, healthy communities, an informed public, and equity and opportunity among people of all backgrounds.

### **MetroCommon2050**

[MetroCommon2050](#) (MAPC, 2022) is MAPC's long-range regional plan for Metropolitan Boston. Metropolitan Boston is home to a vibrant, diverse population of 3.4 million people. The region is a hub of innovation with a legacy of education, culture, sports, history, and medicine. Our regional plan elevates leaders from marginalized groups and centers the experiences of the disenfranchised. The Boston Region faces significant challenges, including the cost of housing, racial inequity, and a changing climate. MetroCommon 2050 is a road map for meeting those challenges to prepare metropolitan Boston for a more equitable and resilient future. MetroCommon offers actionable policy recommendations and useful research and tools. Every aspect of the plan, from goals to analysis, has been examined by diverse regional stakeholders. The plan asserts that MAPC will play a leading role in helping the region to achieve equity. Over the five-year period, MAPC will weave efforts to address equity into project work and bring equity issues to the forefront.

The following MetroCommon goals were used to guide the recommendations in this mobility study:

- Improve Accessibility and Regional Connectivity
- Promote Cultural Development and Preservation, Public Art, and Public Realm Design
- Ensure Land Preservation, Conservation, And Access to Recreational Spaces
- Reduce Vehicle Miles Traveled and The Need for Single-Occupant Vehicle Travel Through Increased Development In Transit-Oriented Areas and Walkable Centers

## Project Background

The South Shore Coalition (SSC) (MAPC, 2022) is one of MAPC's eight subregions. The coalition aims to provide informed and active cooperation in planning for growth and preservation within the thirteen towns in their designated region, including Braintree, Cohasset, Duxbury, Hanover, Hingham, Holbrook, and Hull, Marshfield, Norwell, Pembroke, Rockland, Scituate, and Weymouth.

The SSC recognizes the impending growth within Massachusetts; the coalition has a keen desire to improve transportation conditions for residents and visitors alike. Enhanced transportation services foster economic development, employment opportunities, improved public health outcomes, greater equity, and access.

The SSC actively opposed the MBTA (Massachusetts Bay Transit Authority) service cuts and member's changes in 2020 and 2021. These changes impacted the MBTA commuter rail, bus, and ferries. The service cuts and changes were implemented in response to the COVID-19 pandemic, and a reduction in ridership. After collaborating to oppose the service changes, communities in the South Shore wished to remain engaged in transportation-related issues.

In 2021 SSC expressed an interest in improving transportation options within the region. Technical assistance from MAPC was requested to evaluate transportation gaps and potential solutions on the South Shore.

**Chapter 5** of this mobility study includes ideas for further research, resources, and guidance for establishing and operating a transportation pilot service. The suggested pilot programs will serve to encourage first and last-mile connections to major public transit hubs (Red Line subway, Commuter Rail stations, Ferry terminals), employment centers, as well as other cultural and recreational destinations. The recommended pilots were created based on the SSC members interest in tourism and employment trips.

**Table 1. Recommended Pilot Programs**

Pilot Number	Name of Pilot Service
1	Hull-o Trolley
2	Hull/Hingham Beach Shuttle
3	Weymouth Beach Shuttle
4	Cohasset/Hull Connector Shuttle
5	On-demand shuttle (micro-transit), South Hingham & South Weymouth
*See Chapter 5 for additional details on the pilot.	

## Chapter 2

# Methods

To grasp the transportation needs and community sentiment MAPC. Examined existing conditions, evaluated potential transportation connections, determined trip types, assessed travel modes, and proposed pilot programs. The significant steps taken to complete this mobility study are listed below.

1. Evaluated Existing Conditions
2. Distributed a Survey
3. Conduced a Suitability Analysis
4. Provided Recommendations

### Existing Conditions

To evaluate transportation needs and gaps in the South Shore region the MAPC project team first evaluated existing conditions. The existing conditions data provides both a snapshot of current commuting and travel in the region, as well as demonstrates the possible gaps and transportation needs that fed into the suitability analysis and ultimately the study recommendations.

The study area included the South Shore Coalition municipalities of Braintree, Cohasset, Duxbury, Hanover, Hingham, Holbrook, Hull, Marshfield, Norwell, Pembroke, Rockland, Scituate, and Weymouth. Throughout this report, the phrase “the region” is used to describe the towns that comprise the MAPC South Shore Coalition. The transportation project team worked closely with the MAPC data services team to review population density, employment density, trip types, commute patterns, commute times, demographics, number of vehicles per household, and sidewalk data.

Using these data sources, MAPC was able to evaluate some of the conditions impacting employment trips within the region, outside of the region, as well as tourism trips to and within the South Shore. The data shows present connectivity, travel patterns, and concentrations of activity. The existing conditions data was then used in the suitability analysis.

### **COVID-19 Pandemic**

This study was undertaken during the COVID-19 pandemic, with some data used from sources pre-pandemic, and others collected during the pandemic. Furthermore, current transit services are evolving to reflect the changing nature of commutes for many workers. This rapidly evolving transportation landscape and lack of current data creates challenges for determining the pilot programs that would connect to the MBTA and other transit services in the South Shore. Nonetheless, MAPC has found the recent behavioral shifts in transportation useful for this study.

- **Flexible In Office Schedule:** While many office workers worked from home in 2020 and 2021, recent surveys by the [Harvard Business School](#) (Business Insights, 2021) and [A Better City](#) (A Better City, 2022) indicates that a majority of office workers will return to a hybrid model with one or more days in the office. This creates the need for not only for work commutes, but also better connections for daily trips closer to home such as day care drop off and pick up, grocery shopping, lunch, etc.
- **In-Person Jobs:** While many office jobs can be done outside of the office, many other jobs must be done on-site and in-person, including manufacturing, construction, warehousing and deliveries, retail, healthcare, and — of particular interest for the South Shore — tourism and hospitality.

- **Traffic Levels:** Some traffic patterns are returning to pre-pandemic levels, but there is variation by type and travel mode. [Vehicular traffic data from MassDOT](#) (MassDOT, 2022) indicates that 2022 traffic counts on MassDOT roadways in places such as Route 24 in Randolph and Route 3 in Plymouth are at 90 percent of pre-pandemic (2019) levels. [MBTA](#) (Ridership Dashboard, 2022) bus and subway ridership are approximately 60 to 75 percent of 2019 levels, while commuter rail is around 50 percent of pre-pandemic levels.
- **Commuting does not constitute all trips:** [Commuting is less than half](#) ( The Changing Nature of Work, 2022) of all personal miles traveled, so even with more people working from home, other trips will continue, such as daily needs (e.g., shopping) and tourism.

## Population Density

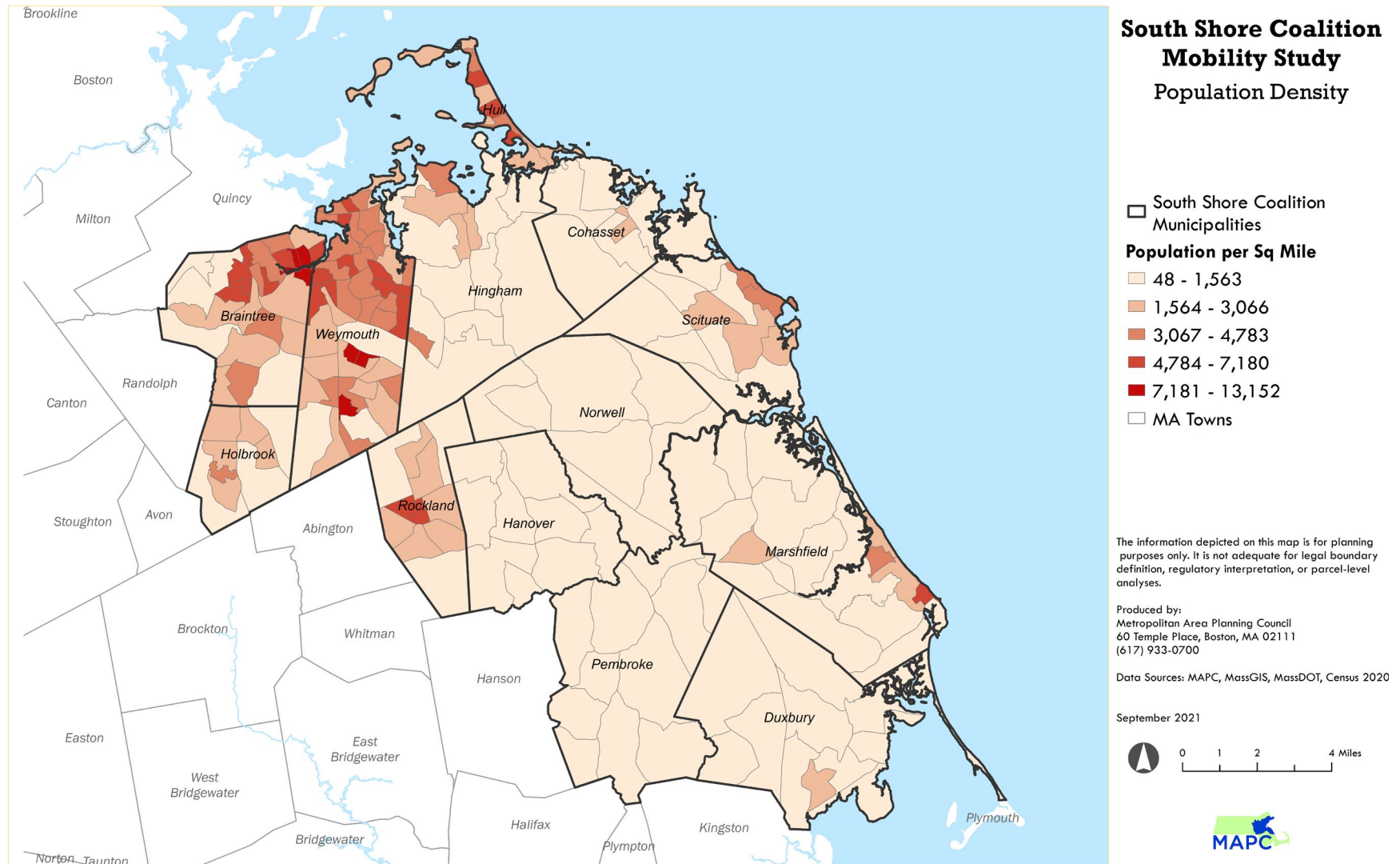


Figure 1. Population Density

**Figure 1** displays the population density across the MAPC South Shore Coalition Region. This data was collected from the 2020 United States Census Data. The areas with the highest population densities are shown in the dark red coloration with a density range of 7,181–13,152 residents per square mile. The municipalities with the highest population densities are Hull, Braintree, Weymouth, Rockland, Holbrook, and Marshfield. Areas with the lowest population density are displayed on the map in beige with a range of 48–1,563 residents per square mile. Pembroke, Hanover, Norwell, Hingham, Marshfield, Cohasset, Scituate, and Duxbury reflect areas with the lowest population densities. Typically, areas with greater population density are greater candidates for transit service, as larger populations will result in a more riders needing efficient transit solutions.



## Employment Density

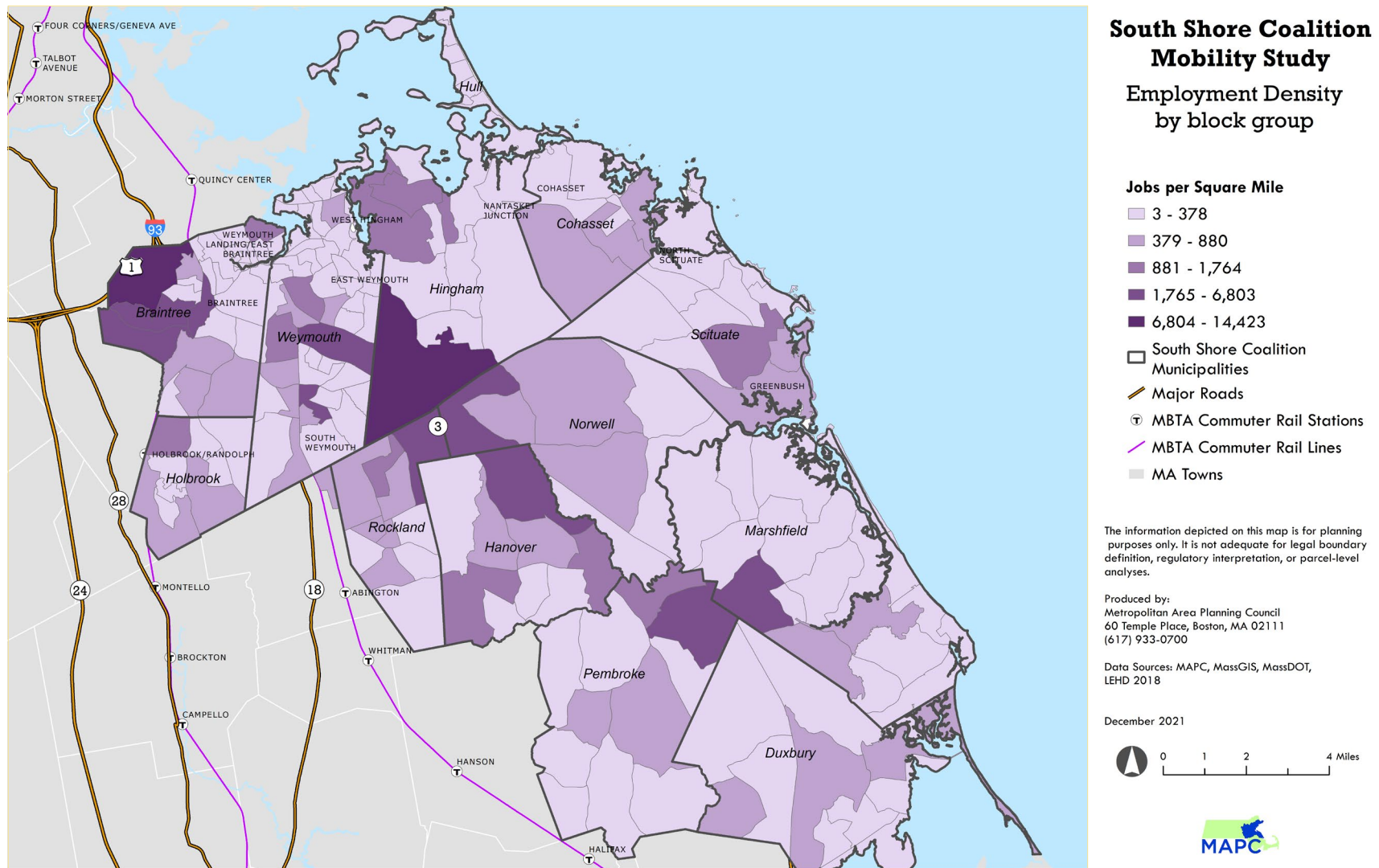


Figure 2. Employment Density

The map in **Figure 2** exhibits employment patterns across the MAPC South Shore Coalition Region from the 2018 Longitudinal Employer-Household Dynamics program under the US Census. Sections of the map are shaded based on the employment density. The areas colored in dark purple indicate the highest employment densities (more than 6,804 jobs per square mile), while areas in light purple display the lowest employment densities (no more than 379 jobs per square mile). The regions shown in Braintree, Weymouth, and Hingham display the highest employment densities. In contrast, parts of Hull, Duxbury, Norwell, Central Hingham, South Cohasset, and Pembroke demonstrate the lowest employment densities. Similar to overall population, areas with greater employment densities are better suited for transit services.

## Commuter Flows

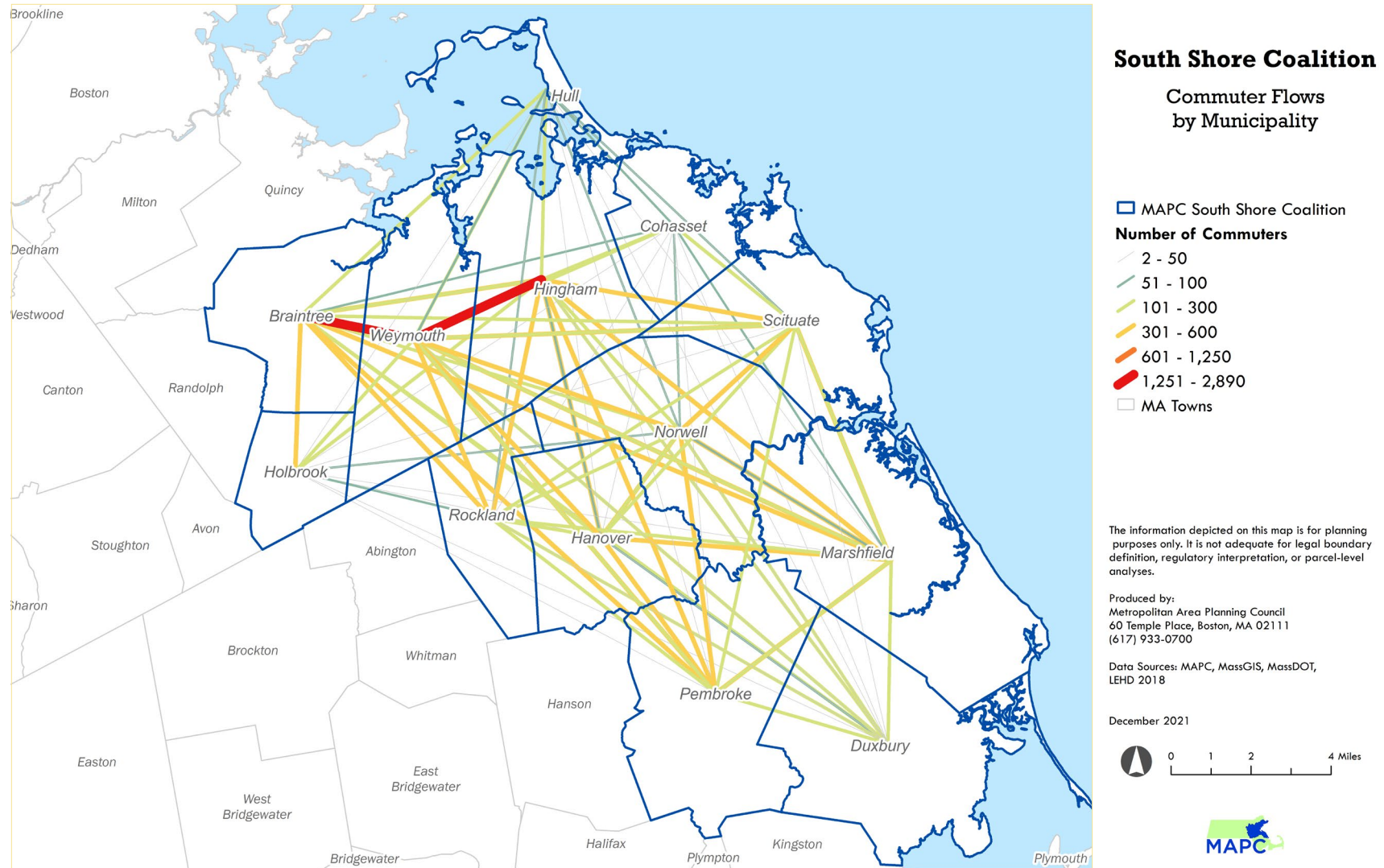


Figure 3. Commuter Flows by Municipality

The map in **Figure 3** displays Commuter Flows for those living and working in the South Shore. The commuter flows show travel patterns between place of work and place of residence. The red line demonstrates the highest number of commuter trips (1,251-2,890), highlighting travel patterns through Hingham, Weymouth, and Braintree. In contrast, the thin dotted gray line indicates fewer commuting trips between municipalities. Corridors with higher concentrations of commuters are greater candidates for transit connections to jobs since these areas can have more riders per transit trip than areas with fewer commuters.

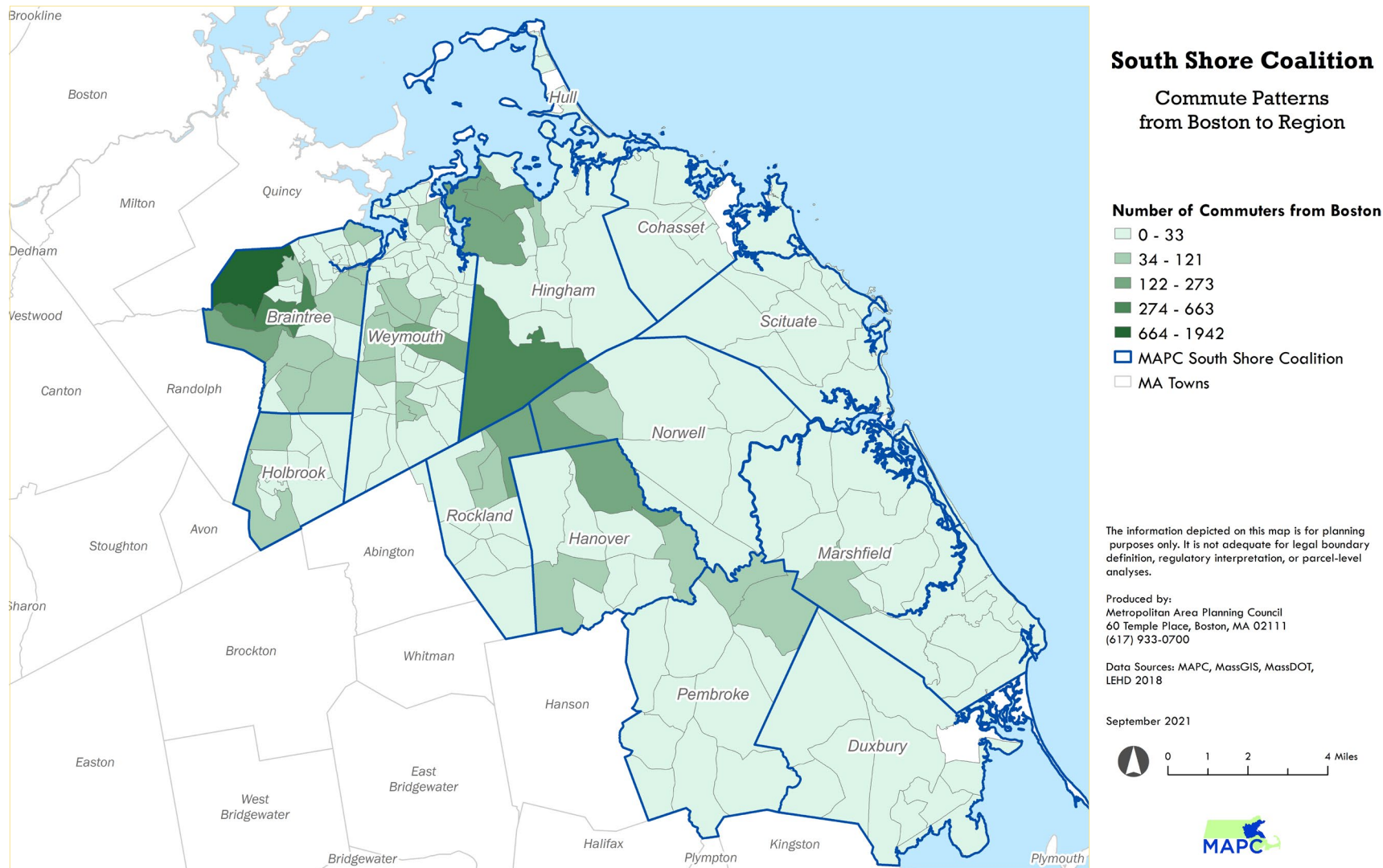


Figure 4. Commute Flow from Boston to Region



The map in **Figure 4** displays commuter patterns from the Boston region to the MAPC South Shore Coalition region. The areas shaded in dark green indicate the highest number of commuter trips originating in Boston and ending in the South Shore region. The map demonstrates that the most considerable commuter trips from Boston end in northwest Braintree and sections of north and southwest Hingham, particularly in areas serviced by Rt. 3. Nearly 8 out of 10 South Shore workers drive or carpool to work, with 1 in 10 taking transit to work and nearly the same number working from home (**Table 2**). The percentage of people driving is higher than the MAPC average, but not unlike the Commonwealth metrics. Notably, the percentage of South Shore workers that work from home increased from 4% in 2010 to 10% in 2020, with most of those workers switching from driving/carpooling (85% in 2010 versus 80% in 2020). During this same period, the number of working adults living in the region increased from 125,000 to 142,000, which is a similar rate of growth as the rest of the MAPC region. Importantly, most of this American Community Survey commute data was collected prior to the COVID-19 pandemic (2016-2020). As noted in Chapter 1, employer and employee surveys show that many office workers are evolving into a hybrid model of alternating between working remotely and working on-site, while other workers such in sectors such as retail, medicine, hospitality, and manufacturing will continue to commute to their workplaces. Therefore, the data provides an insight into the commuting patterns of the South Shore, but these commuting patterns will continue to evolve.

**Table 2. Commute Patterns in Region**

<b>Town</b>	<b>Workers 16 years old and older</b>	<b>Drivers</b>	<b>Public Transit Riders</b>	<b>Work from home</b>
Braintree	19,504	74%	15%	8%
Cohasset	3,927	59%	23%	14%
Duxbury	7,378	79%	8%	11%
Hanover	7,278	83%	6%	11%
Hingham	10,597	67%	17%	14%
Holbrook	5,642	83%	12%	4%
Hull	6,337	79%	8%	8%
Marshfield	14,369	81%	6%	11%
Norwell	5,654	80%	7%	11%
Pembroke	10,213	83%	4%	12%
Rockland	9,640	87%	5%	5%
Scituate	10,293	74%	9%	15%
Weymouth	30,953	80%	10%	8%
South Shore (SSC) Subregion	141,785	78%	10%	10%
MAPC Region	1,812,601	65%	16%	9%
Massachusetts	3,503,316	75%	10%	8%

Source: ACS 2016-2020

## Vehicle Ownership

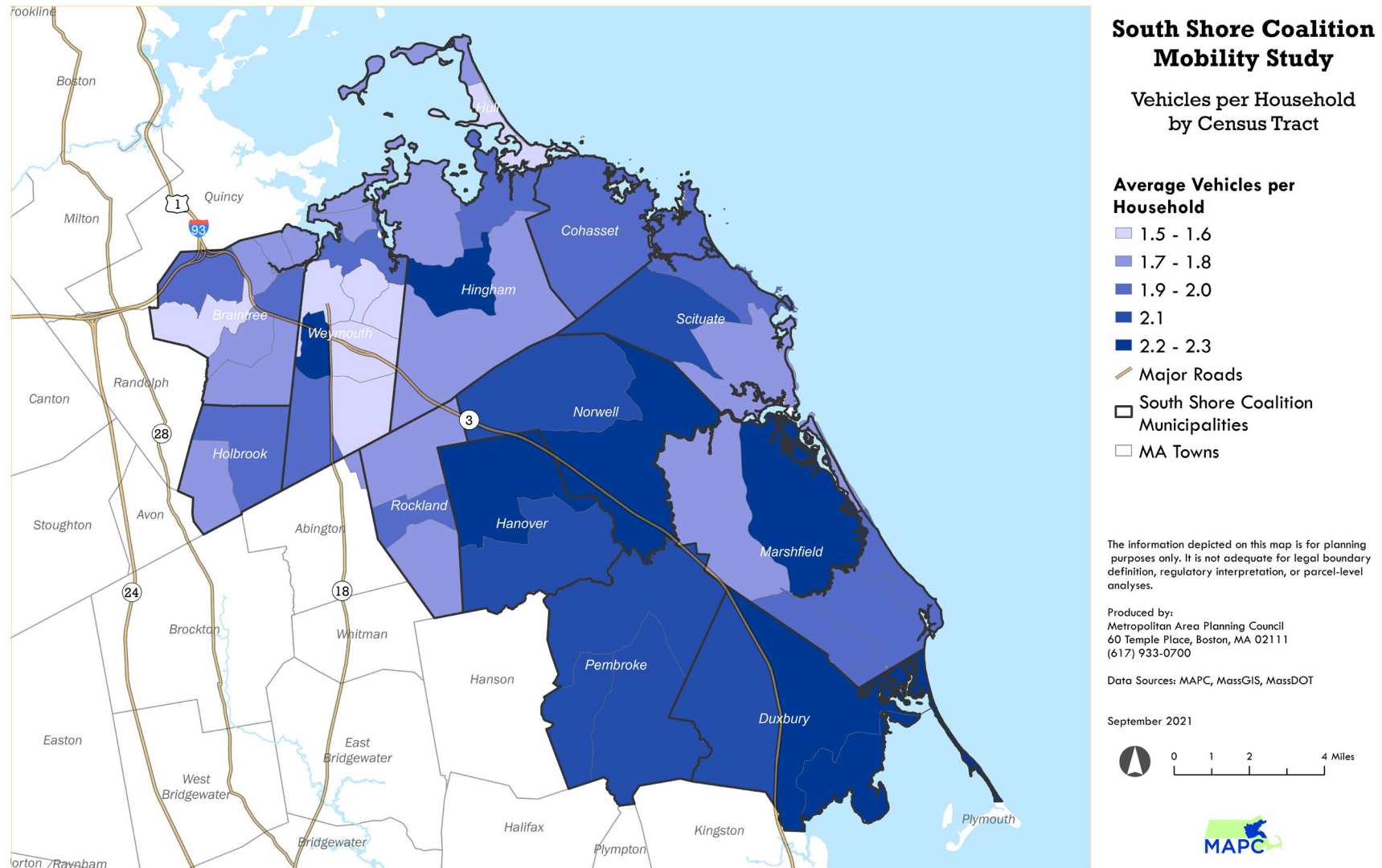


Figure 5. Vehicles Per Household



The map in **Figure 5** shows the average number of vehicles per household. Hull, Weymouth, and Braintree had areas with the fewest average number of vehicles per household, while all of Duxbury, Pembroke, and Norwell average two or more vehicles per household. Areas with fewer vehicles per household may have greater transportation needs and might be better candidates for new transit services.

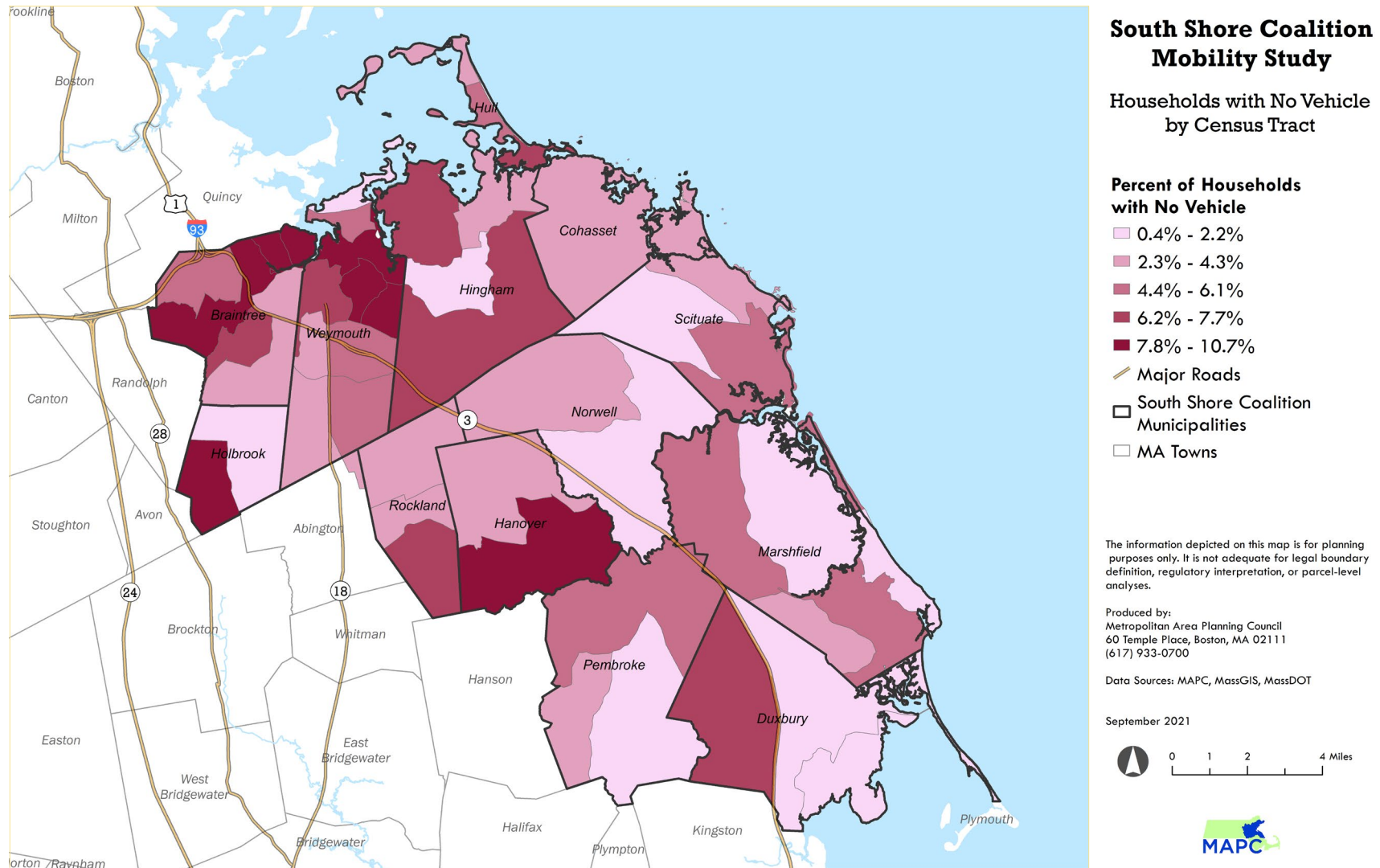


Figure 6. Household with No Vehicles

**Figure 6** shows the percentage of South Shore households that have zero vehicles. In Figure 6, the map sections shown in darker magenta have a higher concentration of zero-vehicle households. Areas with a greater percentage of zero-vehicle households include portions of Weymouth, Braintree, Holbrook, and Hanover. Areas with greater concentrations of zero-vehicle households likely have greater need for transit services to reach jobs and daily needs such as shopping.

### **Equity Considerations**

An equitable Metro Boston is free from discrimination that marginalizes people based on race, sex, religion, disability, national origin, immigration status, sexual orientation, gender identity, family or marital status, income, military status, criminal history, or age.

The Bureau of Labor Statistic's Consumer Expenditure Survey has shown that transportation is the second highest American household expenditure, only exceeded by housing costs (FHWA NHTS BRIEF, 2014) .Figures 7A-7D represent some important equity considerations for effective transportation planning (MAPC). The existing conditions for this study included a review of equity considerations that relate to transportation. The existing conditions included an evaluation of language accessible households, low-income households, and the population of persons with a disability. The needs of these populations are often marginalized in the transportation planning process. These aforementioned demographic factors have implications for mobility access.

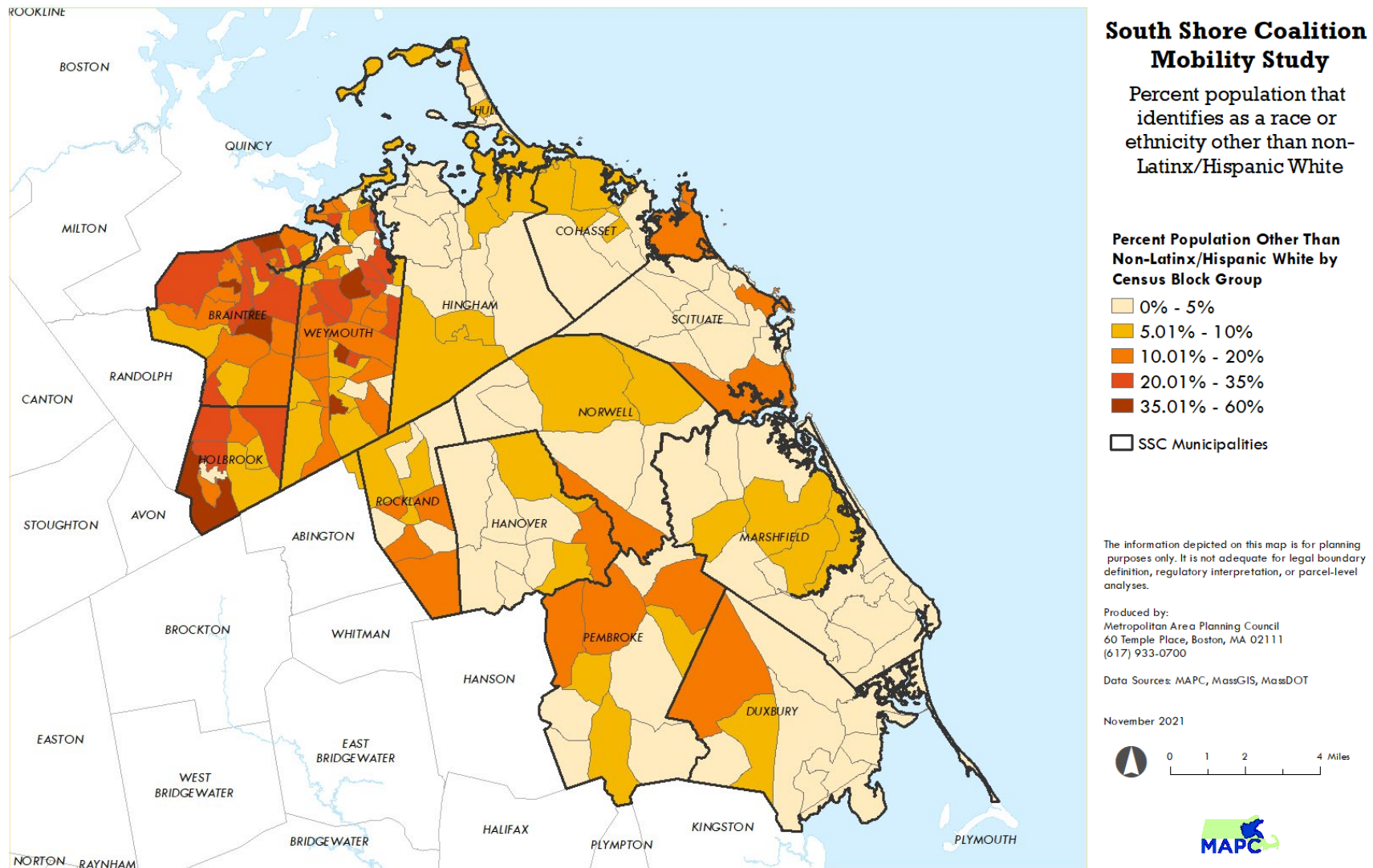


Figure 7A. Percent of Population that Identifies as a Race or Ethnicity Other than Non-Latinx/Hispanic White

The map in **Figure 7A** displays the percentage of South Shore residents that identify as a race or ethnicity other than non-Latinx or Hispanic White. The darkest shading on the map is displayed in the towns of Braintree, Holbrook, and Weymouth. This reflects the highest percentage of residents that meet the demographic criteria discussed further in the suitability analysis of this report.

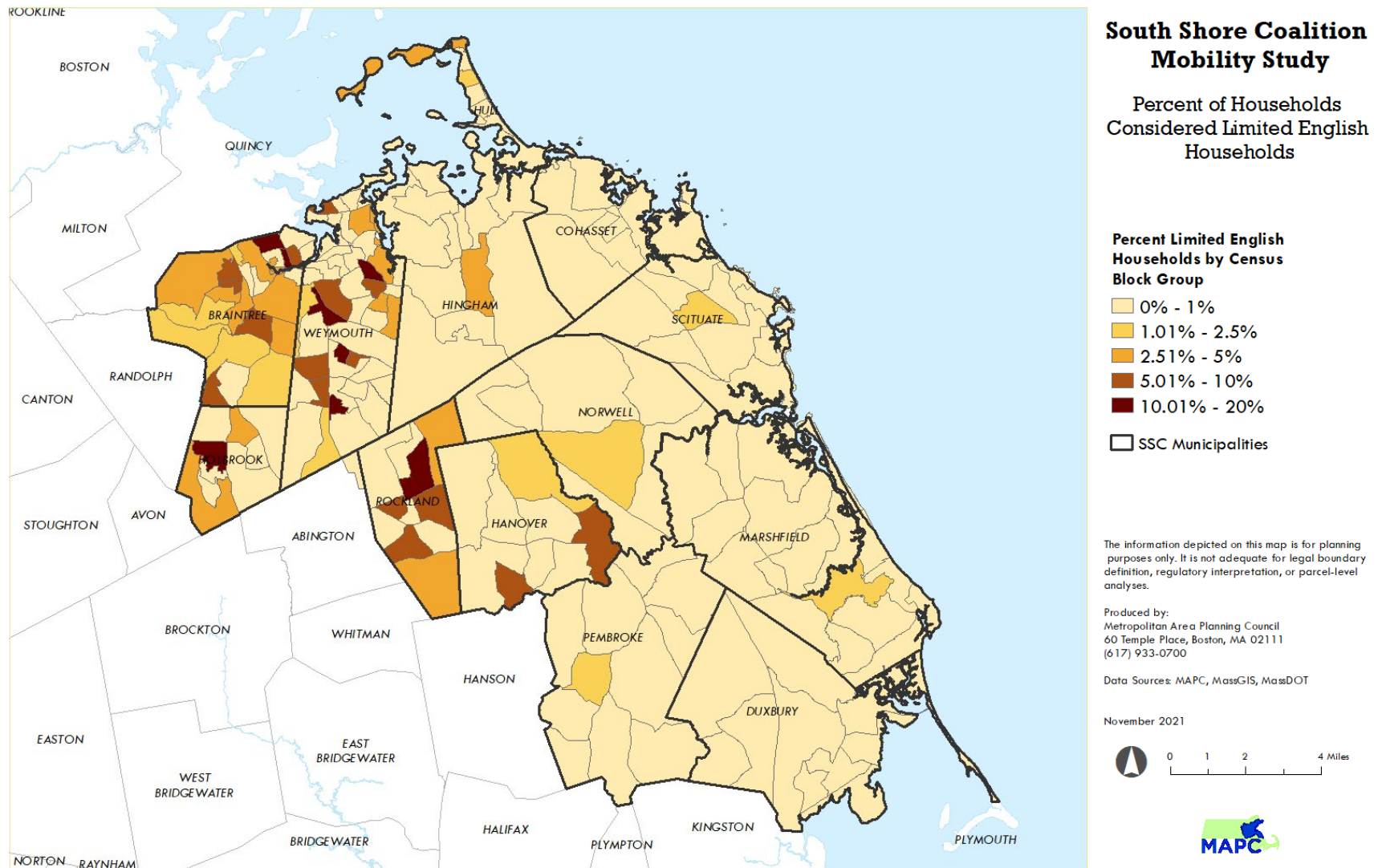


Figure 7B. Percent of Households Considered Limited English Households



Areas with households that are considered limited English proficiency should be taken into account when evaluating the existing conditions. **Figure 7B** represents the percentage of households that are considered limited English proficiency. The darkest portions of map display concentrations of households with Limited English Proficiency in Hanover, Rockland, Pembroke, Weymouth, and Braintree.

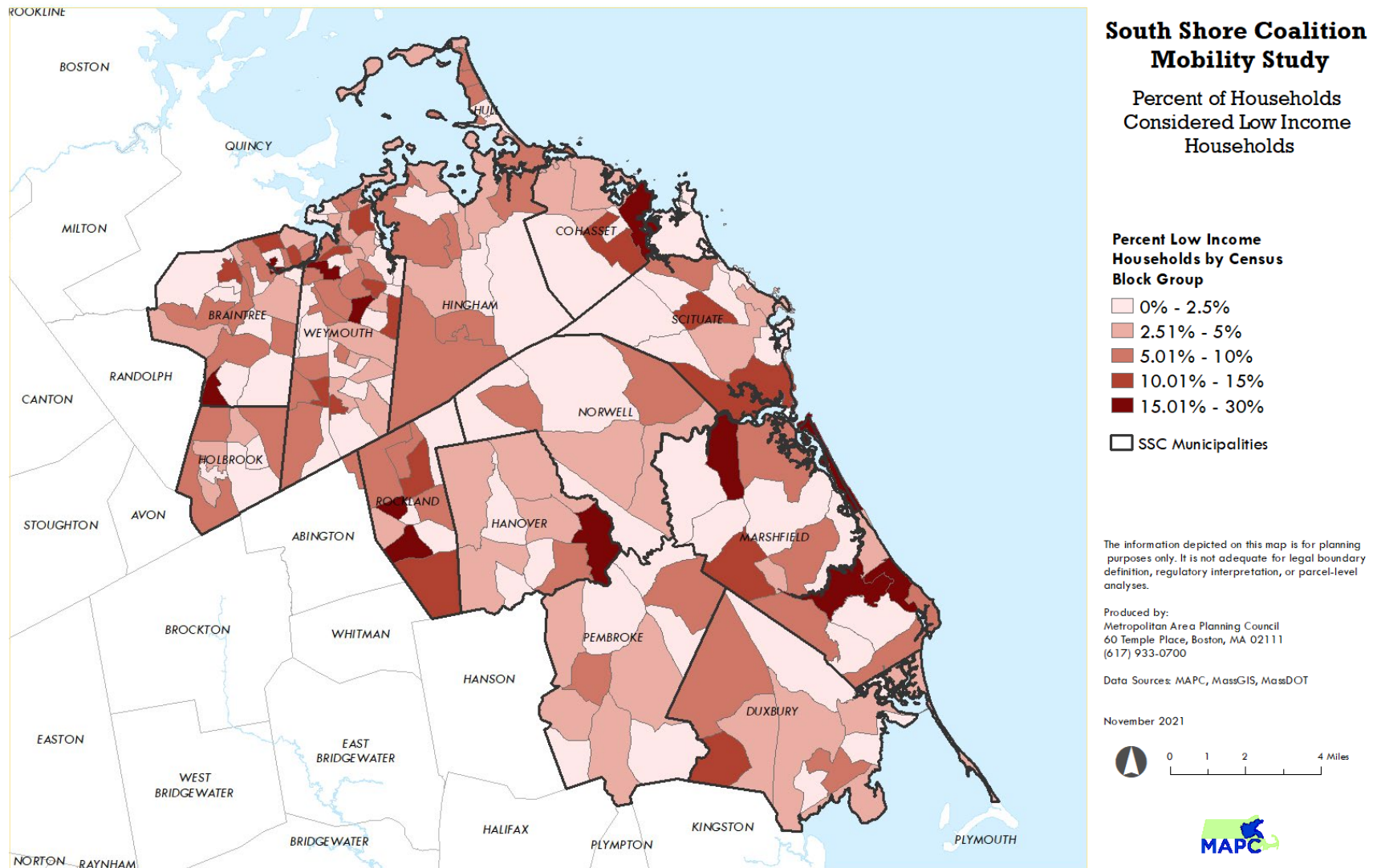
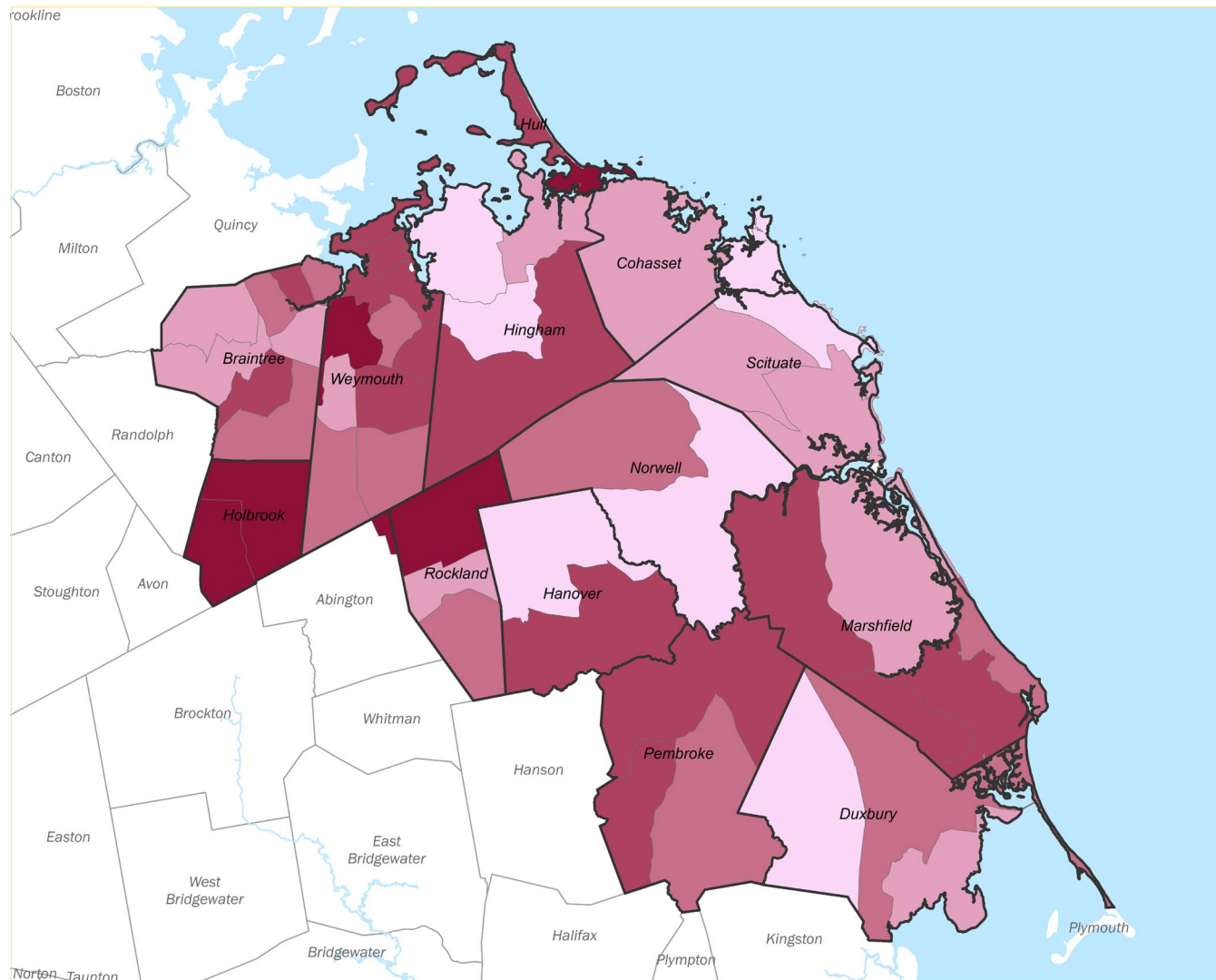


Figure 7C. Percent of Households Considered Low-Income Households



Identifying concentrations of low-income households was a critical step in evaluating the existing conditions within the region. The darkest shaded areas in **Figure 7C** demonstrate the percentage of Households that are considered Low Income. Studies have shown that rising transportation costs have a disproportionately negative impact on lower income households (FHWA NHTS BRIEF, 2014). The low-income households are shown prominently in the towns of Marshfield, Cohasset, Rockland, Weymouth, Braintree, and Hanover.



## South Shore Coalition Mobility Study

### Population with a Disability (by census tract)

- South Shore Coalition Municipalities
- Percentage of Population**
  - 4.7% - 6.3%
  - 7.3% - 8.8%
  - 9% - 10.5%
  - 11% - 13.3%
  - 13.6% - 16.8%
- MA Towns

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analyses.

Produced by:  
Metropolitan Area Planning Council  
60 Temple Place, Boston, MA 02111  
(617) 933-0700

Data Sources: MAPC, MassGIS, MassDOT,  
ACS 2015-2019

October 2021



0 1 2 4 Miles



Figure 7D. Population with a Disability

In **Figure 7D** the areas with concentrations of persons with a disability are displayed using darker shading. Areas of Holbrook, Weymouth, Rockland, and Hull are of highest concentration. Understanding transportation needs of vulnerable populations, specifically the needs of individuals with a disability, was an important component to understanding the existing conditions for transportation-related projects including infrastructure, modes of travel, access, and technology related to mobility.

## Tourism Sites

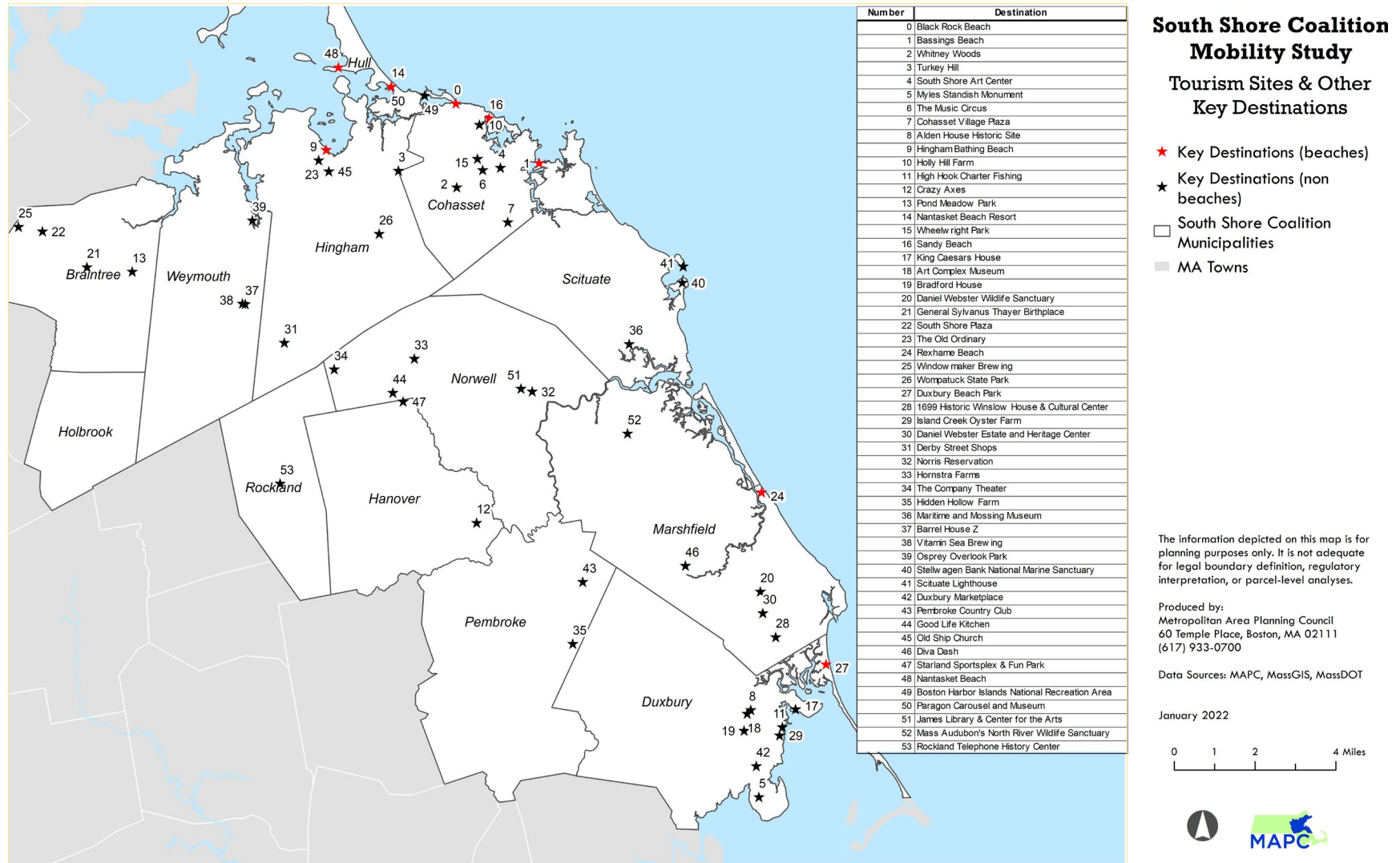


Figure 8. Tourism Sites and Other Key Destinations

Tourism is one of the main employment industries in the South Shore and creates significant seasonal traffic in the region. However, tourism employment can be found in several different sectors measured by the US Census<sup>1</sup>, and may not accurately reflect the location and scale of tourism activity. Therefore, the MAPC study team developed a list of tourism destinations in the South Shore region, given that these are destinations for both tourists visiting the area as well as for workers at tourism-related jobs.

To identify tourism and other key destinations in the South Shore region, MAPC staff sought input from the South Shore Coalition members and used Tripadvisor to identify the top 10 tourist destinations in each South Shore municipality. The MAPC study team was able to identify 54 locations and used the Tripadvisor site to collect addresses which were later mapped in Arc GIS. **Figure 8** shows the location of these key destinations, with most located either along the coast or along Route 3. The destinations include state parks and beaches, farms, restaurants, hotels, museums, and breweries.

Based upon feedback from SSC members, beach destinations were then categorized separately since these are often the most visited sites during the peak summer months. The sites were then examined by the Coalition members as well as the Plymouth Area Chamber of Commerce.

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1 Employment sectors that can include tourism related jobs include Retail; Accommodations and Food Services; and Arts, Entertainment, and Recreation.

### Existing Service

Portions of the South Shore region are served by MBTA bus, commuter rail, and paratransit (known as The Ride), while other areas receive select transit services by the Greater Attleboro Taunton Regional Transit Authority (GATRA), with Rockland partially served by Brockton Area Transit (BAT). The maps and table show that service coverage varies in the South Shore, with more dense communities such as Braintree and Weymouth having MBTA bus and rail service, while municipalities with less dense populations and employment numbers such as Norwell having almost no transit services. Transit services are funded for each municipality by their assessment to the MBTA, RTA or both, shown in **Table 3**.

Table 3. Transit Assessment		
Town	Assessment to MBTA	Assessment to RTA
Braintree	\$849,321	
Cohasset	\$190,105	
Duxbury		\$125,229
Hanover	\$2,922	\$95,468
Hingham	\$535,836	
Holbrook	\$247,457	
Hull	\$234,354	
Marshfield	-	\$204,250
Norwell	\$34,795	
Pembroke		\$153,109
Rockland	\$68,519	\$53,237*
Scituate		\$132,015
Weymouth	\$1,292,811	

\*All RTA assessments are to GATRA, except for Rockland, which are to BAT. Table 3 lists the amount of annual assessment paid by each municipality to the MBTA, GATRA/ BAT, or both. The amounts required from each municipality for the MBTA are set by Commonwealth law and is primarily based on the share of its population with the 175 municipalities that are part of the MBTA's service area, plus whether the municipality receives MBTA paratransit services (i.e., The Ride) and whether it is also assessed for a Regional Transit Authority (RTA). The assessment for each municipality in an RTA such as GATRA is between based upon the proportion of the estimated cost of operating routes through it. While this information was not used in the suitability analysis, we included it here to note which municipalities receive services from the MBTA and/or an RTA.<sup>2</sup> Source: Massachusetts Department of Revenue

2 For more detail on the formulas used in assessments for the MBTA and RTA, see <https://www.mass.gov/doc/cherry-sheet-manual/download>

## Bus Services

As seen in **Figure 9** and **Table 4**, most of the current MBTA bus services are in areas with greater densities of residents and jobs. The concentrations of service are in portions of northern Braintree and Weymouth, with extended bus service in Holbrook, Hingham, and Hull. It should be noted that this coverage is similar to the proposal coverage in the MBTA Bus Network Redesign, explained further in **Chapter 4**.

Commuter rail services extend into Braintree, Holbrook, Weymouth, Hingham, Cohasset, and Scituate. GATRA fixed route services are in Scituate, Marshfield, and Duxbury, while GATRA has now created a pilot on-demand transit service called [GATRA Go Explore](#) in Pembroke and portions of Duxbury and Hanover (not shown in Figure 9).

The MBTA reduced some bus services due to decreased ridership from the COVID-19 pandemic, including eliminating the MBTA bus route 221 that served portions of Weymouth. Commuter rail and ferry services were also reduced. Finally, the MBTA Bus Network Redesign has proposed expanding some bus services on weekends, but also not restoring other services such as the route 221.

**Brockton Area Transit (BAT)** also provides limited transit services in Rockland as part of the [Rockland Flex](#) (Rockland Flex, 2022) route, and the Hull Chamber administers a Trolley (Hull-O Trolley) in the summer that connects the ferry at Pemberton Point with Nantasket Beach and other tourism destinations in Hull. Finally, many of the municipalities in the South Shore provide transportation options such as volunteer rides, shuttles, etc. for seniors and persons with disabilities.



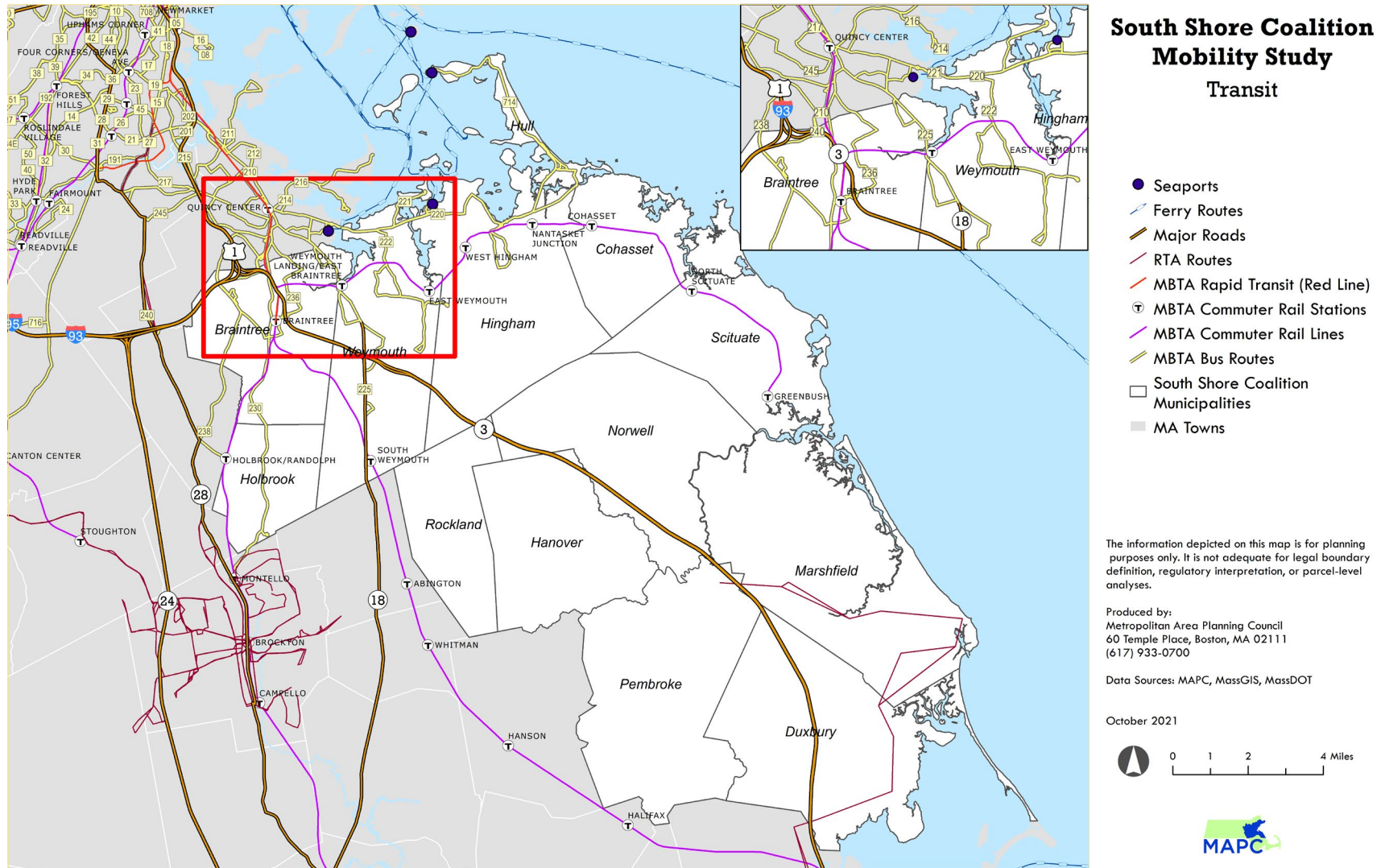


Figure 9. Existing Transit Services



**Table 4. Existing Transit Services**

<b>Bus or Rail Service</b>	<b>Service Area</b>	<b>Typical Weekday Frequencies</b>
MBTA 220	Hingham (to Quincy Center)	30 min
MBTA 222	East Weymouth (to Quincy Center)	hourly
MBTA 225	Weymouth Landing (to Quincy Center)	15-30 min
MBTA 230	Braintree & Holbrook (connecting Montello Station – Quincy Center)	45 min
MBTA 236	Braintree (connecting Brockton – Quincy Center)	45 min
MBTA 238	Holbrook & Braintree (connecting Randolph Station – Quincy Center)	45 min-hourly
MBTA 240	Randolph & Holbrook (connecting Holbrook/Randolph Station – Ashmont Station)	hourly
MBTA 714	Hull & Hingham (connecting Pemberton Point/Hull Ferry – Hingham)	hourly
Greenbush Rail Line	North Scituate, Cohasset, Nantasket Junction, West Hingham, East Weymouth, to Boston South Station	hourly
Kingston Rail Line	South Weymouth, Braintree, to Boston South Station	hourly-90 min
GATRA Sloop	Scituate	hourly
GATRA SAIL	Marshfield & Duxbury	hourly
GATRA Go Explore	Pembroke, plus portions of Duxbury, Hannover	on-demand, typical wait time 15 minutes
Rockland Flex	Rockland (connecting to Abington and Brockton)	on-demand (at least one day in advance)

Sources: MBTA.com; GATRA.org

## **Ferry Service**

Existing ferry service (Hingham/Hull Ferry, 2022) in the South Shore includes Hingham (Hewitt's Cove) and Hull (Pemberton Point), connecting to Boston's Financial District, with select service also connecting to Logan Airport (**Figure 10**). On weekdays Hingham has 23 departures, typically every 30 to 60 minutes (with longer breaks midday), while Hull has around eight weekday departures, with most before noon. Both also have limited weekend ferry service.

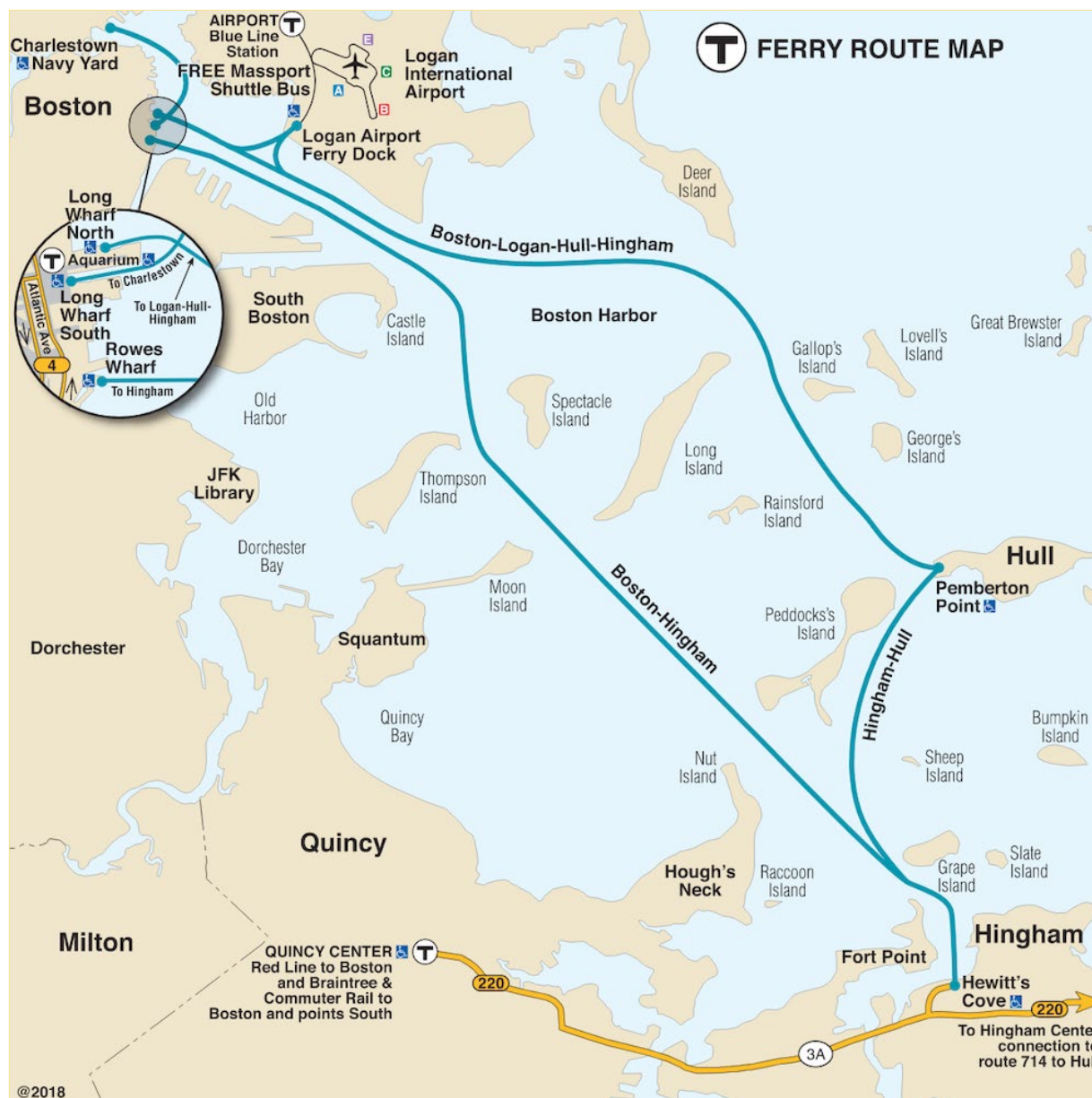
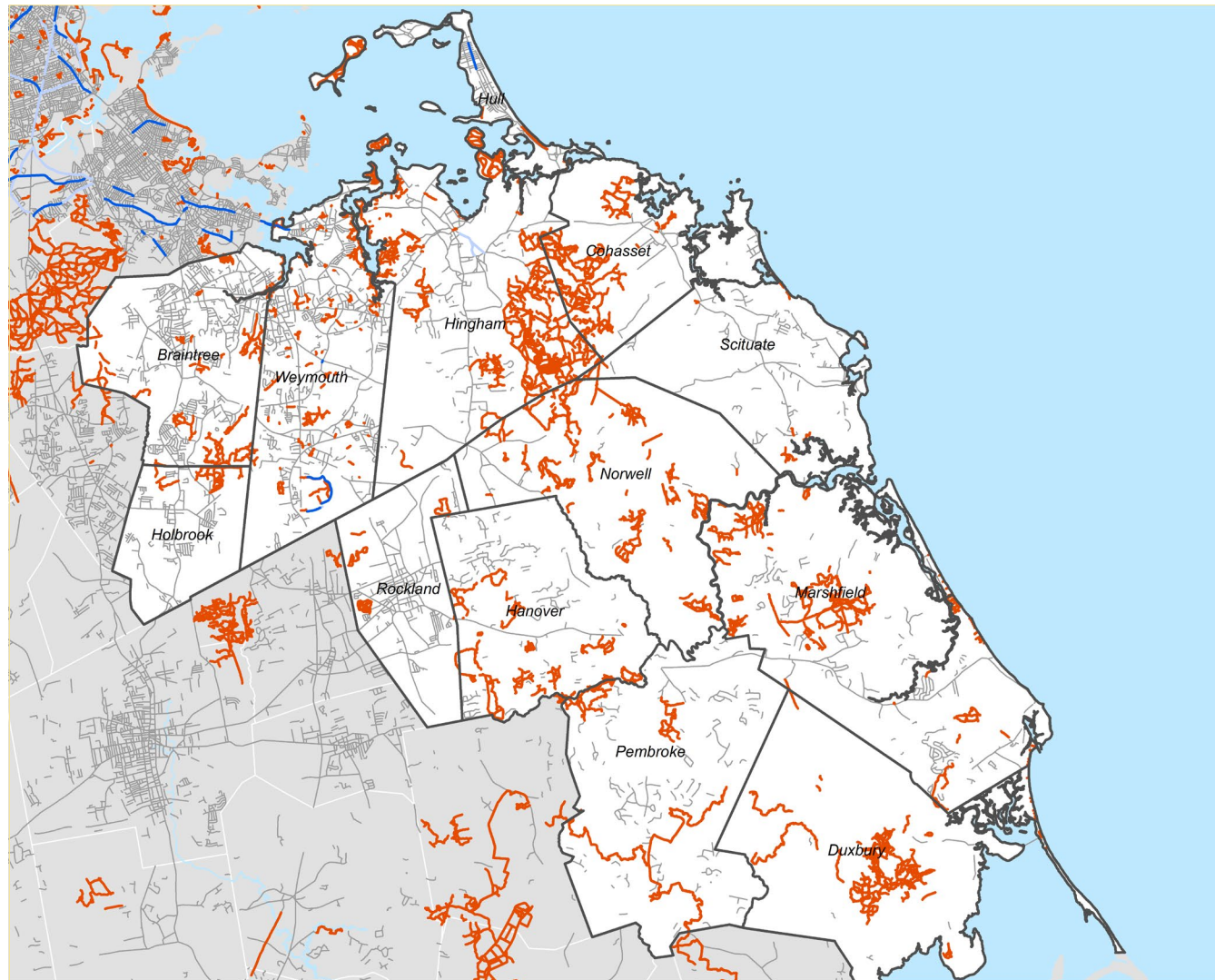


Figure 10. MBTA Ferry Route Map

### **Existing Walking and Rolling Infrastructure**

Walking, rolling, and cycling infrastructure are important when assessing existing and potential future transit services. All forms of transportation include walking or rolling at some point during the journey. Most transit riders need to walk, roll, or bicycle to and from transportation centers. The term rolling is used to describe users of wheelchairs, walkers, and other accessibility/mobility aids, as well as devices such as strollers, scooters, and skateboards. As seen in **Figure 11** and **Table 5**, there are limited sidewalk networks throughout the South Shore, except for areas closer to Boston. **Figure 11** also shows walking trails, which are usually unpaved and not always usable for persons with disabilities, but which can provide some connectivity and places for recreation.



## South Shore Coalition Mobility Study Sidewalks & Trails

- South Shore Coalition Municipalities
- Bike Lane, Existing
- Marked Shared-Lane, Existing
- Shared-Use Path, Existing
- Walking Trails
- Sidewalks
- MA Towns

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analyses.

Produced by:  
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Data Sources: MAPC, MassGIS, MassDOT

October 2021



Figure 11. Sidewalk and Trail Map

Municipalities such as Braintree, Rockland, and Weymouth have a denser, more connected sidewalk network, while communities such as Hingham, Cohasset, Hanover, and Scituate have a smaller sidewalk network with a few key corridors. Duxbury, Norwell, and Pembroke have smaller, disconnected sidewalk networks. There are no separated bicycle/shared-use pathways and almost no bicycle lanes in the region. Areas with greater bicycle and pedestrian connectivity can more easily support transit services, as the sidewalk and bicycle network provides transit riders safer, more direct connections to and from destinations.

**Table 5. Existing Sidewalk and Bicycle Facilities**

Towns	Bikes		Pedestrian		Transit			
	Bike Facilities Mi	Bike Lane Percentage	Pedestrian Facilities Miles (sidewalks)	Pedestrian Facilities Percentage (sidewalk)	Total Rapid Transit Stops	MBTA Bus Stops	Commuter rail station	RTA Bus Stops (non-MBTA)
Hull	2	4.0%	22	40.0%	0	33	0	0
Cohasset	4	0.0%	11	21.0%	0	0	1	0
Duxbury	0	0.0%	3	2.0%	0	0	0	7
Marshfield	2	0.0%	43	26.0%	0	0	0	9
Hingham	13	1.0%	52	39.0%	0	48	2	0
Norwell	1	0.0%	9	10.0%	0	0	0	0
Scituate	2	0.0%	31	25.0%	0	2	0	12
S. Weymouth	3	0.0%	100	54.0%	0	160	3	0
Braintree	2	0.0%	84	59.0%	1	150	1	0
Hanover	0	0.0%	25	26.0%	0	0	0	0
Holbrook	1	1.0%	29	56.0%	0	51	0	0
Pembroke	0	0.0%	30	26.0%	0	0	0	0*
Rockland	2	0.0%	43	76.0%	0	0	0	0*

The Massachusetts Department of Transportation's municipal dashboard enables users to map roadways, bridges, safety, demographics, and multimodal corridors filtered by Massachusetts town. The sidewalk data is calculated as a ratio of the total sidewalk mileage and the official statewide road centerline within each city or town. Bike Lanes are measured by the number of bike lanes, shared-use paths, protected bike lanes, and bike and pedestrian priority roadway. Bus stops and rail stops were included for the municipalities in the MBTA region. \*Pembroke does not have marked bus stops but is served by GATRA Go Explore on-demand transit service, while Rockland is partially served by BAT's Rockland Flex on-demand bus.

Source: MassDOT



## **Suitability Analysis**

To identify areas where existing transit service could be improved, or where new types of service may be implemented, MAPC conducted a transit needs assessment and suitability analysis for the South Shore region. The process was based upon the procedures used in the several previous mobility studies completed by MAPC, updated to reflect current circumstances and new data sources.

A suitability analysis rates locations according to how well they meet a set of criteria for a specific intervention or action. In this case, MAPC uses a suitability analysis to determine which Census tracts or Census block groups would be the best sites and most suitable candidates for additional or improved public transit and other first and last mile connections.

## **Calculation Methods and Criteria**

MAPC's Data Services department conducted an analysis to determine which areas within the South Shore study area would be the best candidates for improvements to existing transit service, or where new types of service may be implemented. This evaluation was conducted at the Census block group level and calculated for three scenarios—intra-subregion commute, commuters into the South Shore, and tourism trips. Each of the measures listed for the scenarios below were assembled into a single feature class to be mapped. Each measure is normalized so that they can be combined on the same scale and applied to their respective weights, to create an overall score for each scenario. All criteria were assigned a weight of 10 unless specified otherwise.

### **Intra-subregion Commute Suitability Criteria**

1. **Population Density:** Number of residents per acre. A higher density resulted in a higher rating. (Source: ACS 5-year estimates 2015-2019)
2. **Employment Density:** Number of employees per square mile. A higher density resulted in a higher rating. (Source: LEHD Origin-Destination Employment Statistics (LODES) 2018)
3. **Vehicles per Household:** A lower number of vehicles per household resulted in a higher rating. (Source: ACS 5-year estimates 2015-2019)
4. **Commuters within Study Corridor:** Percent of working-age residents of each Census block group who work within the study area. A higher percentage of commuters resulted in a higher rating. (Source: LEHD Origin-Destination Employment Statistics (LODES) 2018)
5. **Transit Accessibility:** Census block groups which have better accessibility to transit service received a higher rating (Source: EPA Smart Location Database - Aggregate Frequency of Peak Hour Transit Service from GTFS 2020)
6. **Environmental Justice:** Minority population, limited English speaking households, low-income households. Census block groups with high proportions of residents who identify as a race other than non-Hispanic White, limited English speaking households, or low-income households receive a higher score.
  - a. Percent population that identifies as a race or ethnicity other than non-Hispanic White. Weight = 3.333 (Source: ACS 5-year estimates 2015-2019)
  - b. Percent of Households considered Limited English-speaking households (previously known as linguistic isolation.) Weight = 3.333 (Source: ACS 5-year estimates 2015-2019)
  - c. Low-income Households — A higher percentage of households that are below the poverty line resulted in a higher rating. Weight = 3.333 (Source: ACS 5-year estimates 2015-2019)

7. **Residents with Disabilities:** Census tracts which have a high percentage of disabled residents received a higher rating (Source: ACS 5-year estimates 2015-2019)
8. **Walkability:** Census block groups with a higher walkability index resulted in a higher rating (Source: EPA Smart Location Database — National Walkability Index)

### **Commuters into the South Shore Suitability Criteria**

1. **Employment Density:** Number of employees per square mile. A higher density resulted in a higher rating. (Source: LEHD Origin-Destination Employment Statistics (LODES) 2018)
2. **Boston Residents Commuting to Study Corridor:** Percent of workers in each block group who do not work at home commuted from Boston and/or Brockton. A higher number of workers commuting from Boston and Brockton results in a higher rating. (Source: LEHD Origin-Destination Employment Statistics (LODES) 2018)
3. **Transit Accessibility:** Census block groups which have better accessibility to transit service received a higher rating (Source: EPA Smart Location Database — Aggregate Frequency of Peak Hour Transit Service from GTFS 2020)
4. **Walkability:** Census block groups with a higher walkability index resulted in a higher rating (Source: EPA Smart Location Database — National Walkability Index)

### **Tourism Trips Suitability Criteria**

1. **Tourism Employment Density:** Number of tourism-related employees per acre. A higher density resulted in a higher rating.
  - a. Number of employees per acre that work in Arts, Entertainment or Recreation, based on NAICS code 71. Weight = 5 (Source: LEHD Origin-Destination Employment Statistics (LODES) 2018)

- b. Number of employees per acre that work in Accommodation and Food Services, based on NAICS code 72. Weight = 5 (Source: LEHD Origin-Destination Employment Statistics (LODES) 2018)
- 2. **Walkability:** Census block groups with a higher walkability index resulted in a higher rating. (Source: EPA Smart Location Database – National Walkability Index)
- 3. **Weekend traffic:** Difference between average number of weekend trips ending in a South Shore census block group and average number of weekday trips in 2019. Census block groups with higher levels of weekend traffic resulted in a higher rating. (Source: INRIX/ Regional Integrated Transportation Information System)
- 4. **Tourism destinations:** Number of tourist destinations such as public beaches, museums, and other sites identified by MAPC. Beaches are weighted double. Census block groups with a higher number of tourism destinations per acre resulted in a higher rating. (Source: MAPC)

The results of the suitability analysis are mapped in **Figures 12, 13, and 14**. MAPC then used this information to develop recommendations for new transit pilots as well as other recommendations to improve connectivity in the South Shore.

For the intra-subregion, areas that scored highest in **Figure 12** are Braintree, Weymouth, Holbrook, and Hull. Portions of Scituate, Rockland, and Marshfield scored moderately suitable for new transit.

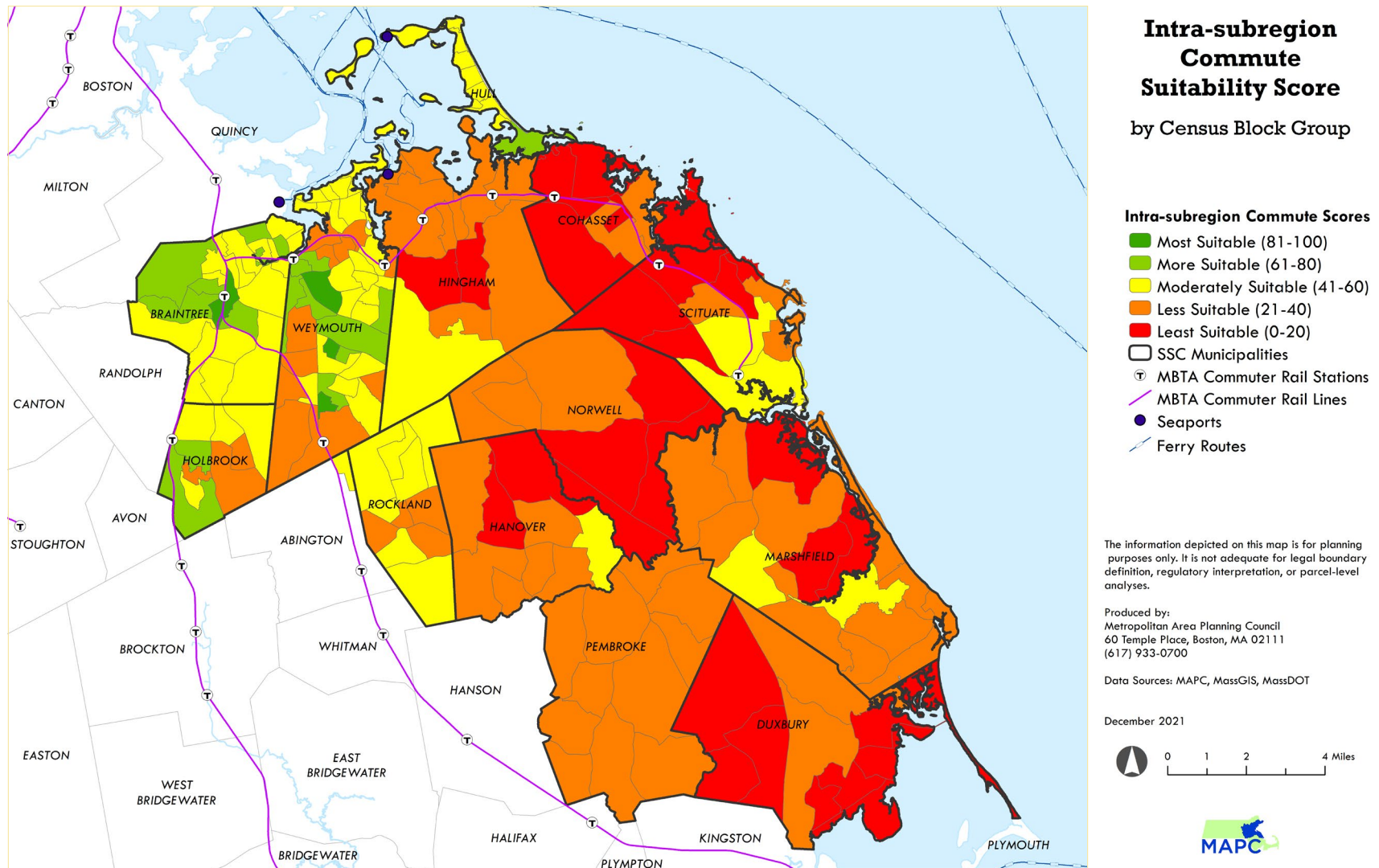


Figure 12. Intra Subregion Commute Suitability Score



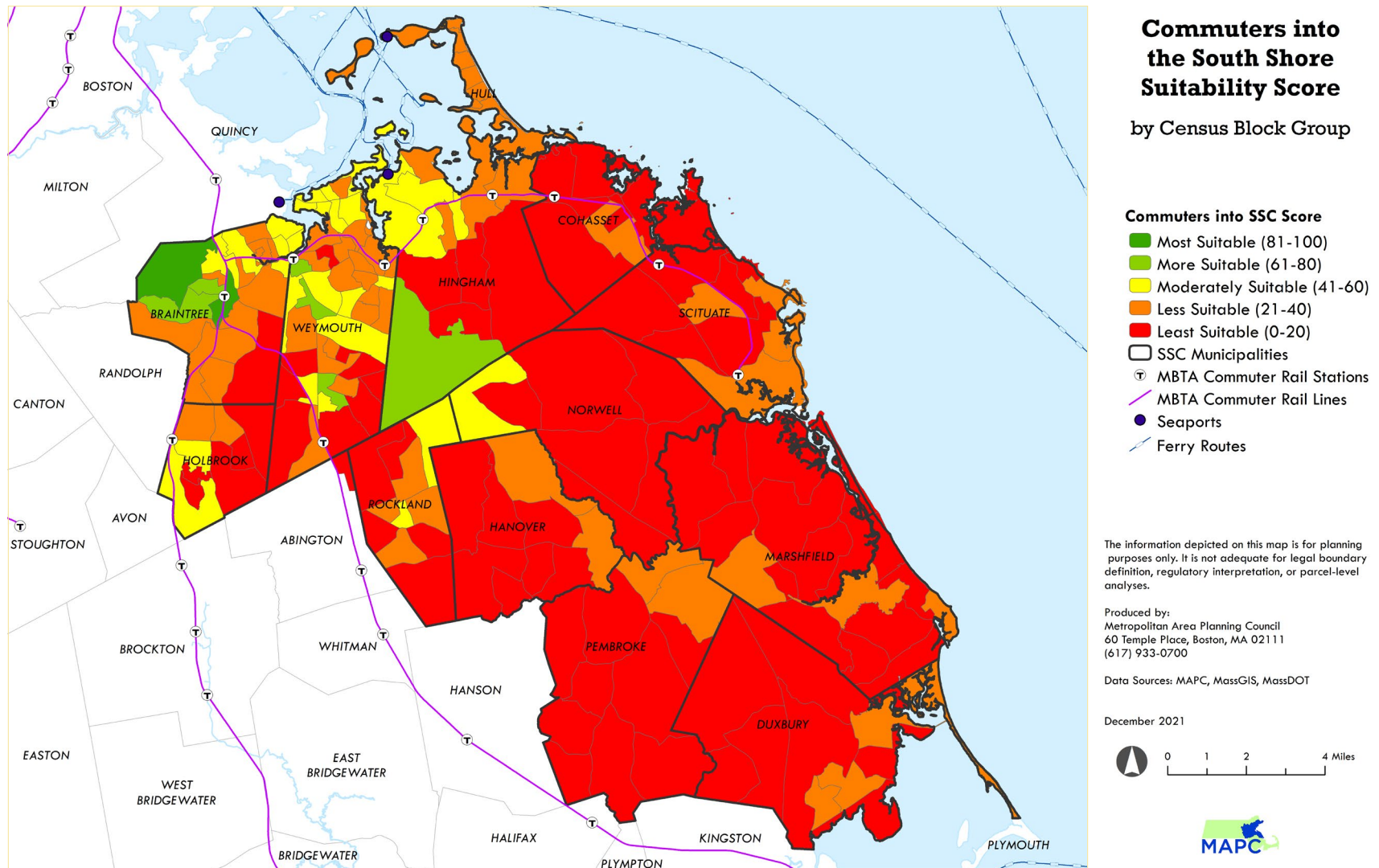


Figure 13. Commuters into the South Shore Suitability Score

For those commuting into the South Shore from Boston, **Figure 13** illustrates that portions of Braintree, Weymouth, and Hingham scored highest. Areas that scored highest in Braintree, Weymouth and northern Hingham are currently served by MBTA bus, the MBTA Red Line, and commuter rail. The areas that scored highest for both types of employment trips shown in **Figures 12 and 13** that are also not currently served by transit include the southern parts of Hingham along Route 3.

For the tourism suitability analysis (**Figure 14**), portions of Braintree, Weymouth, and Hull scored most suitable (dark green), along with parts of Rockland. Coastal areas of Hingham, Scituate, Cohasset, Marshfield, and Duxbury scored as more suitable (light green). Areas that scored as more suitable (light green) that currently are without direct transit services include portions of Scituate and Cohasset; portions of coastal Marshfield and Duxbury that scored as more suitable have limited transit services from GATRA.



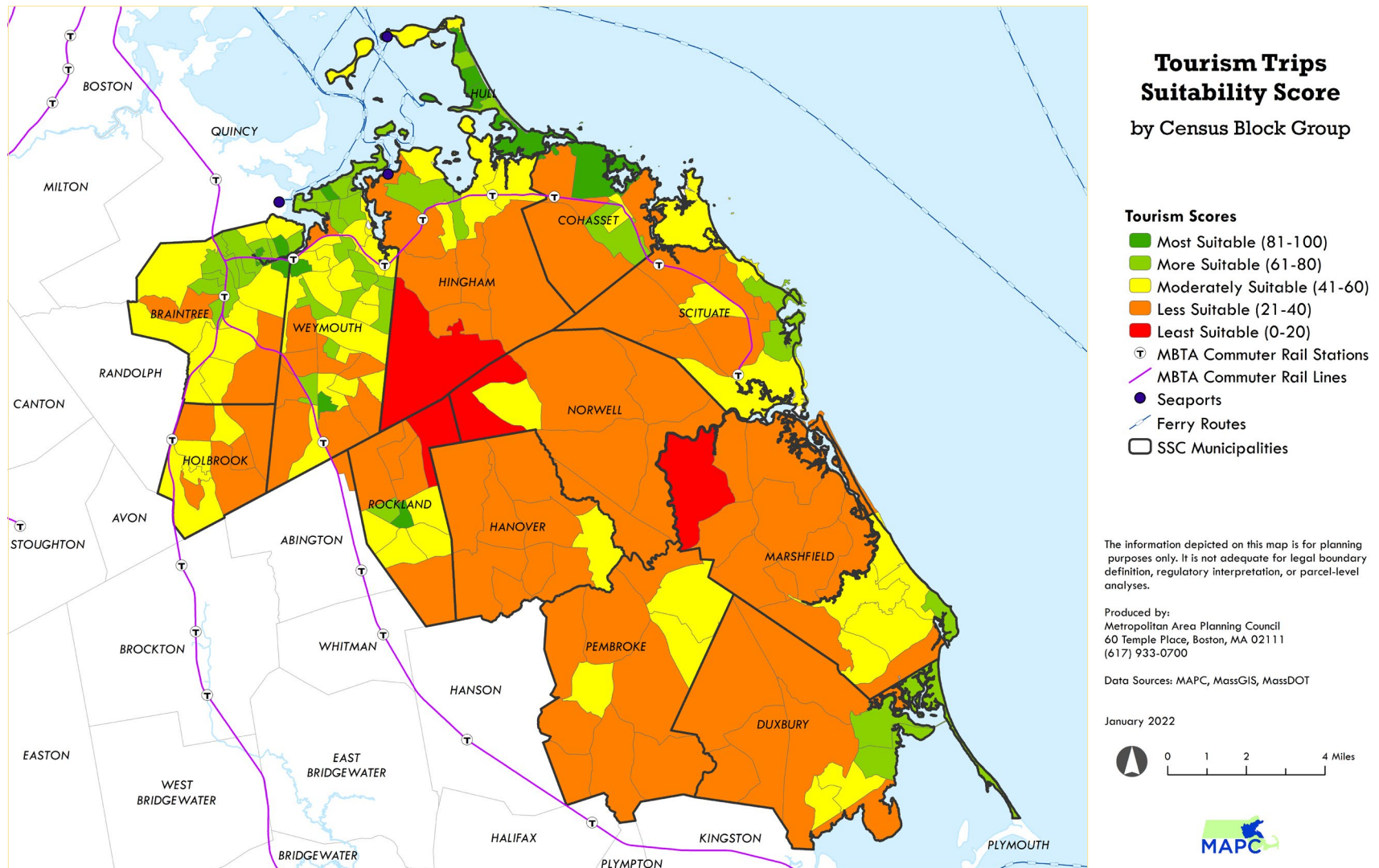


Figure 14. Tourism Trips Suitability Score

## Chapter 3

# Engagement

The South Shore Coalition is comprised of South Shore planners, employees of the South Shore Chamber, City Councilors, as well as other business leaders, and pursues to promote informed and active cooperation in planning for growth and preservation in 13 towns on the South Shore within the metropolitan Boston area. Most of the SSC representatives live in or near the communities in the South Shore.

### **Partnership Meetings and Coordination**

Throughout the course of this study, the MAPC project team met with the South Shore Coalition regularly to provide updates on the plan. Our project team met with industry partners such as the MBTA and GATRA and local advocates to understand the transportation challenges and opportunities. The MAPC Project Team also consulted with the Cape Ann Transit Authority (CATA), since CATA has been operating a micro-transit service since 2019 as well as seasonal transit operations. MAPC also conducted in-person site visits to familiarize ourselves with the region.

The Project Team followed local transportation news stories to better understand the local politics and community desires for transportation and met with a local transportation vendor that operated a seasonal trolley in 2018 as well as discussions with staff from the MBTA and GATRA on existing and future transit operations. The purpose of these meetings was to inform our research on specific transportation issues. The meetings allowed the project team to provide critical recommendations based on the information shared in frequent meetings.

## **Survey**

### **Objective**

To better understand the transportation-related issues facing the South Shore Coalition, our team created a survey targeted toward people that live and work in the South Shore region. The survey contained a series of questions and maps allowing participants to select areas of interest, indicate which travel modes they use, and explain any challenges or opportunities that are facing the region. The survey was used to inform our recommendations and assisted us with information to evaluate the existing conditions. Members of the coalition provided feedback and informed the survey design.

### **Distribution**

The survey was distributed electronically through various community sources. MAPC provided a survey link to the South Shore Coalition team and requested their support in circulating the link widely. The survey remained open for a period of four months from November 2021 to April 2022.

### **Results**

MAPC received a total of 281 responses. Most survey respondents lived in the town of Hull (33%), Rockland (25%), and Weymouth (15%). Many of the survey respondents (42%) did not work in the South Shore. This report includes graphics to display the findings of the survey. **See Figures 15-17 for visual representations of survey results.**

## Travel Behavior

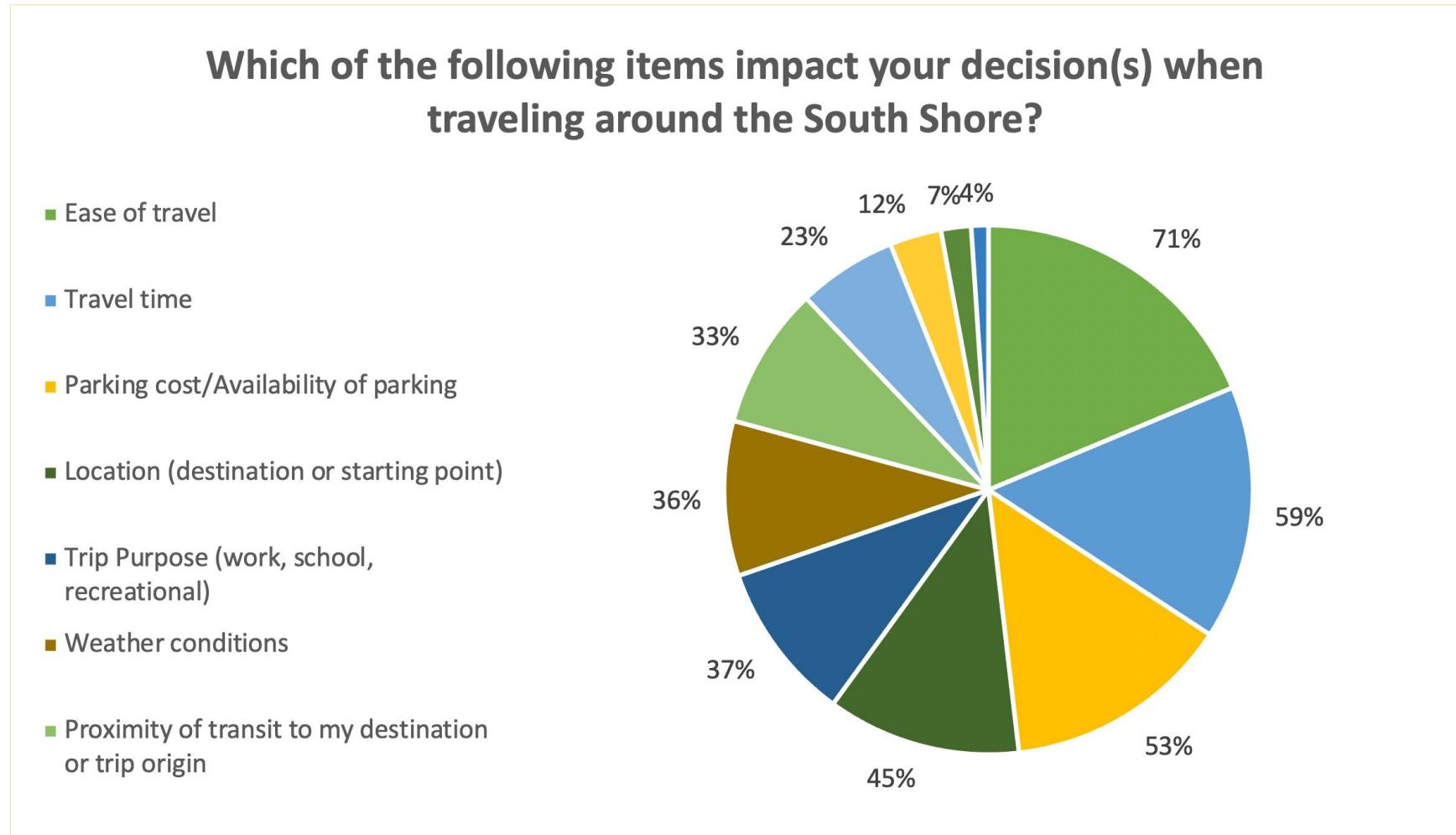


Figure 15. Travel Behavior

Ease of travel (71%) was identified as the primary factor influencing decisions on the South Shore and travel time (59%), Parking cost (53%) and availability followed.

## Travel Mode

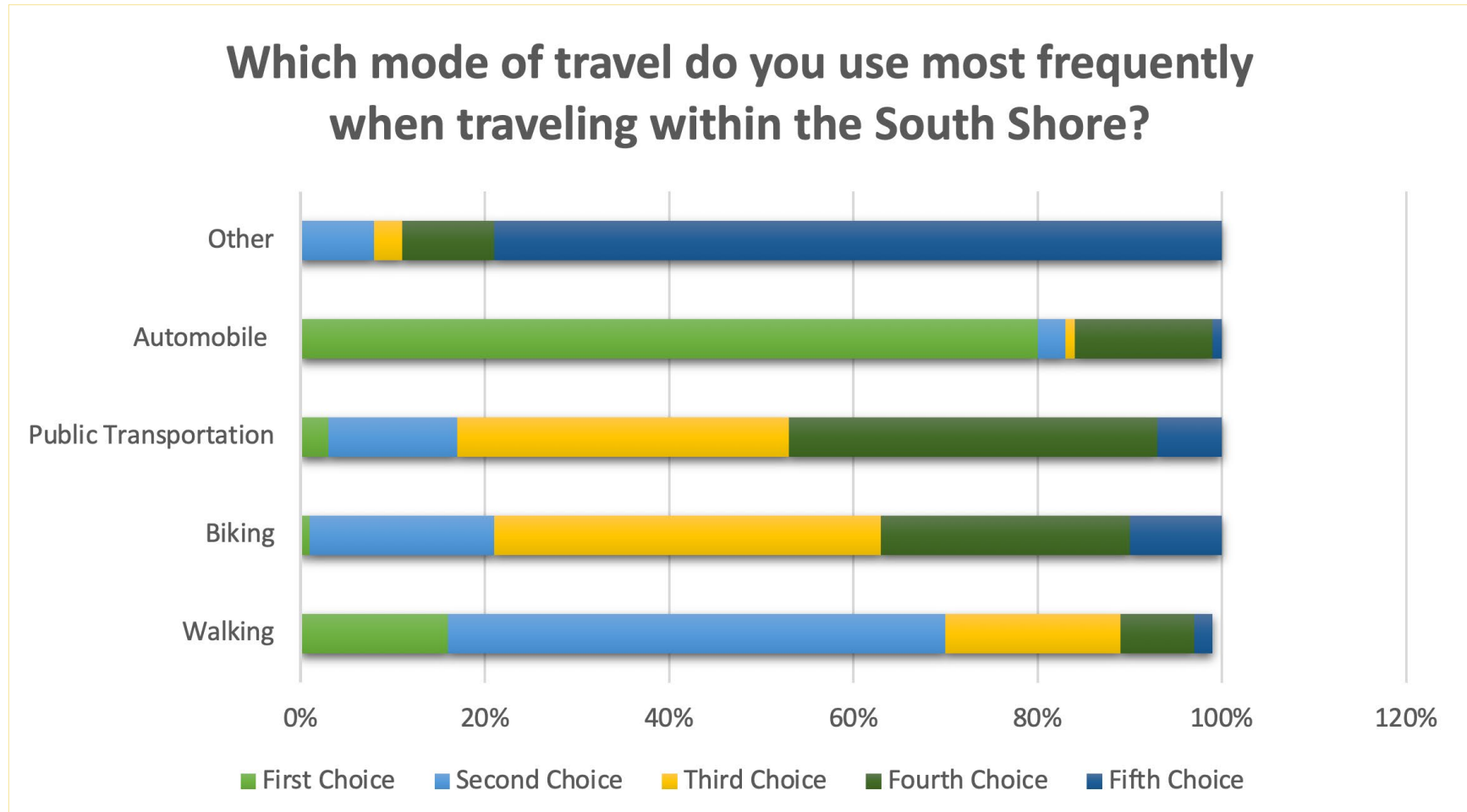


Figure 16. Mode of Travel

Automobile (80%) was noted as the first choice of travel among survey respondents, followed by walking as a second choice (54%) biking as a third choice (42%), public transportation (40%) as a fourth choice.

## Station of Choice

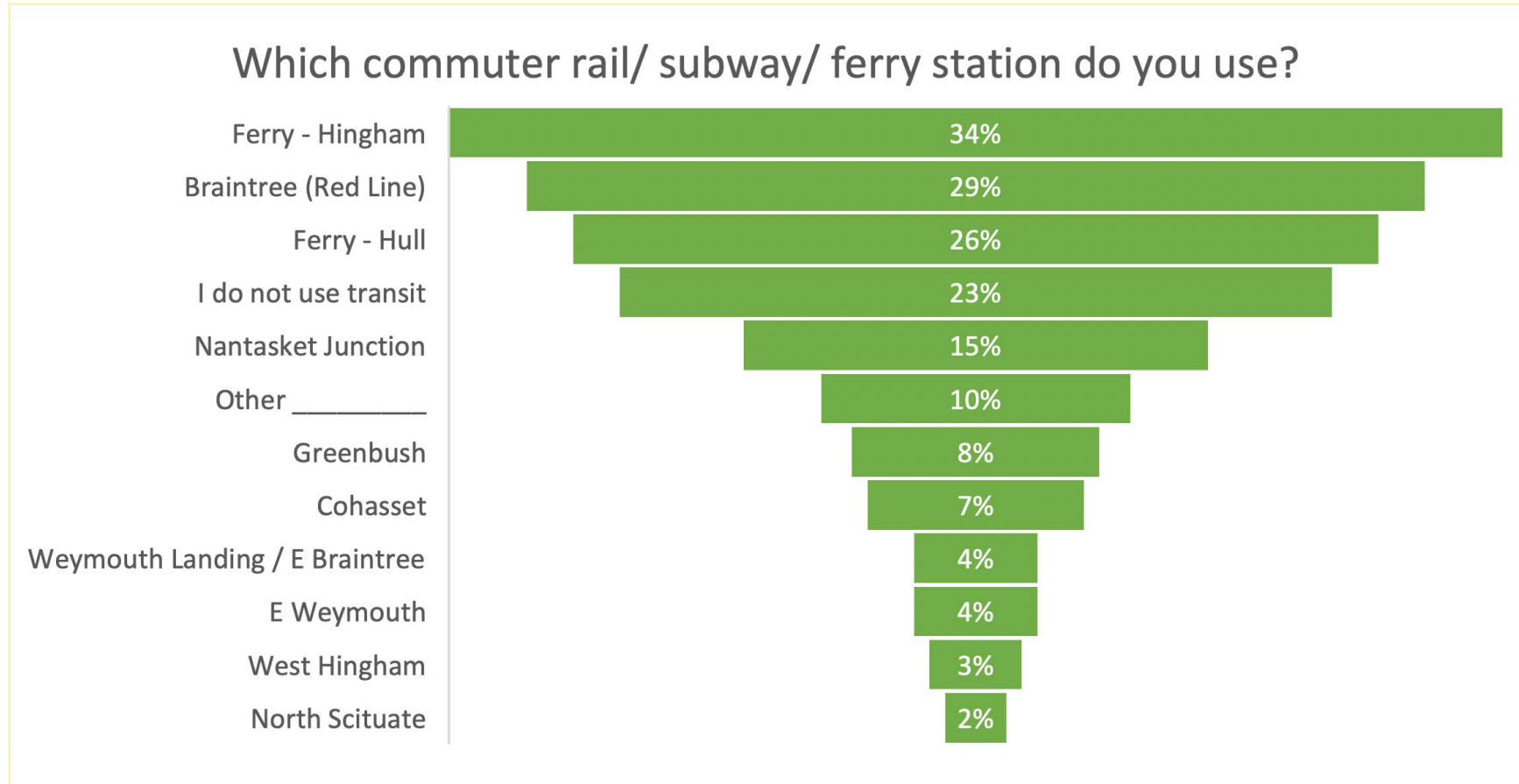


Figure 17. Transit Station of Choice

The Hingham Ferry (34%) was noted as the most used station, followed by the Braintree Red Line, and Hull Ferry (26%).

## Chapter 4

# Regional and State Transportation Initiatives

In addition to examining existing conditions, the following state transportation initiatives will have an impact on future transit services on the South Shore. MAPC is following these efforts closely and the SSC should refer to their subregional coordinator for updates on these efforts.

### **MBTA Better Bus Project and Bus Network Redesign**

The Better Bus Project is a five-year capital investment plan. The plan is focused on working in partnership with more than 50 municipalities and the Massachusetts Department of Transportation to keep 1,000 buses operating, carrying about 400,000 riders each day. The MBTA [Bus Network Redesign](#) (Bus Network Redesign, 2022) is a part of the MBTA's Better Bus Project. The Bus Network Redesign aims to reimagine the MBTA bus network to reflect the changes in population, jobs, and travel patterns to the greater Boston area that have developed over since the MBTA was formed in the 1960's. The changes will include new bus routes, better access to key destinations, more frequent service, and increased efficiency corridors. At the time of this report the MBTA was collecting feedback on Bus Network Changes. For the South Shore, the MBTA Bus Network Redesign has proposed expanding some bus services on weekends, but also not restoring other services such as the discontinued route 221.



### **Multi-Family Zoning Requirement for MBTA Communities**

Enacted as part of the [economic development bill](#) (Chapter 358, 2022) in January 2021, new Section 3A of M.G.L. c. 40A (the Zoning Act) requires that an MBTA community shall have at least one zoning district of reasonable size in which multi-family housing is permitted as of right and meets other criteria set forth in the statute:

- Minimum gross density of 15 units per acre
- Not more than one-half mile from a commuter rail station, subway station, ferry terminal or bus station (if applicable)
- No age restrictions
- Suitable for families with children

Additional housing near transit would provide more affordable housing options for workers in the South Shore; it also could reduce vehicle miles travelled and emissions if workers do not need to drive to their workplaces and other destinations. The law only requires the zoning be adopted and does not mandate the construction of new housing or level of affordability. Other factors, such as water and sewer availability, may dictate how much housing is built and when. More information on the new requirements can be found [here](#) (Chapter 30B, 2022). As more information becomes available on MBTA communities, the agency will update our (MBTA Communities Multifamily Zoning Requirement (section 3A), 2022) regularly.

There are also Commonwealth and federal funding opportunities that might assist with improving connectivity in the South Shore. These are described in Chapter 6.

## Chapter 5

# Recommendations

Based upon the existing conditions data that was used in the suitability analysis, survey, and inputs from the South Shore Coalition members, MAPC developed the following recommendations. The recommendations include ideas on new shuttles, as well as other policies that municipalities could adopt to reduce vehicular traffic, provide alternatives to those who are unable to drive, and promote walking, cycling, and transit.

### Utilize TDM Resources

Transportation Demand Management (TDM) is a term used to describe a collection of policies and programs that are designed to reduce drive-alone trips and enable the transportation system to function more effectively and efficiently through measures that shift passengers from single-occupancy vehicles (SOV) travel. Moreover, TDM provides ways for those who are unable to drive (seniors, lower-income households, persons with disabilities, high-schoolers and others who do not yet have a vehicle or license) to access jobs and other destinations.

There are many ways to encourage TDM within the South Shore. In [2015 MAPC created a municipal guide](#) (Felix, 2015) on TDM case studies and regulations, with many recommendations linked to reducing commute work trips and trips for residential developments. For example, some municipalities require new commercial, office, and/or residential developments to join a local Transportation Management Association (TMA) to fund carpooling, shuttles, or other non-SOV travel options (see Transportation Management Association discussion below.) The SSC members should review this guide and work to implement transportation demand management practices throughout the South Shore.

Since this mobility study focuses not just on commute trips but also tourism trips, there are other ways to encourage car-light and car-free visits to the South Shore:

- Partner with local restaurants providing vouchers for ferry users and commuter rail riders.
- Provide reduced parking prices for carpooled trips at public beaches.
- Encourage hotels to partner with area restaurants to provide shuttles to events and major entertainment hubs; and/or discounts on existing transit services (commuter rail, bus, ferry) for guests.

### **Update and Establish Complete Streets Policies**

Complete Streets is a program developed by the Massachusetts Department of Transportation (MassDOT). The MassDOT Complete Streets Funding Program provides technical assistance and construction funding to eligible municipalities. To qualify for this opportunity municipalities must pass a [Complete Streets Policy](#) (Complete Streets Funding Program, 2022) and develop a Prioritization Plan. MassDOT defines a Complete Street, as a street that provides safe and accessible options for all travel modes — walking, biking, transit, and vehicles — for people of all ages and abilities.

The towns of Hingham, Marshfield, and Pembroke have adopted Complete Street policies, while all others in the South Shore have adopted both policies and prioritization plans. Municipalities that have adopted policies and prioritization plans are eligible to apply for Complete Streets funding that help fund better and safer pedestrian and bicycle connections to existing transit stops and tourism destinations. MAPC encourages the towns in the South Shore region to utilize this program to further their transit and connectivity goals within their communities.

## Develop a Transportation Management Association

A Transportation Management Association (TMA) is a coalition usually comprised of area businesses, universities, municipal leaders, and developers that meet regularly to address transportation issues and concerns. TMAs are often formed to allow stakeholders participation in transportation initiatives aimed at achieving regional connectivity. On July 21, 2022 MAPC hosted a TMA information session with the SSC to discuss this recommendation. The event featured speakers from [Transaction Associates](#) (Transaction Associates, 2022), an organization that assists municipalities and companies with the formation and management of a Transportation Management Association.

Currently, there are no TMAs in the South Shore area. The MAPC Project Team recommends that the South Shore Region explore creating a Transportation Management Association. MassCommute is a coalition of 16 operating TMAs in Massachusetts. According to MassCommute, “TMAs leverage public and private funds to establish and promote the use of transportation options that reduce traffic congestion and vehicle emissions while improving access and quality of life for commuters.”

The MassCommute (Steps to Develop a TMA, 2022) website contains specifications and additional information on how to proceed with the development, organization, and execution of a [Transportation Management Association](#). Creating a structured TMA could help improve transportation-related initiatives, engagement, and relations among stakeholders.

Examples of TMAs within the MAPC region are included below, to help South Shore Coalition members better understand the programs and services that TMAs can provide member municipalities and businesses. The Crosstown Connect and Neponset River TMA are two examples of operating Transportation Management Associations in the MAPC region.

### **Example 1 Crosstown Connect**

Crosstown Connect TMA (Crosstown Connect, 2022) is a public-private partnership organized by the Massachusetts communities of Acton, Boxborough, Concord, Littleton, Maynard, Sudbury, and Westford as well as area businesses. The TMA coordinates carpooling for workers and other commuter services for members, but also operates on-demand transportation and fixed-route shuttles in member municipalities:

- Cross-Action Transit (CAT), a fixed route service providing hourly service in Acton connecting to shopping, businesses, and the South Acton commuter rail station
- Trips to area food pantries and Market Basket grocery stores every Wednesday
- Minute-van dial-a-ride service to anywhere in Acton
- Maynard-Acton Rail Shuttle (currently suspended due to the pandemic), providing service to the South Acton commuter rail station
- Council on Aging vans providing transportation for seniors in Acton, Littleton, Maynard

The TMA is funded by fees paid by member businesses and municipalities.

### **Example 2 Neponset River TMA**

Like Crosstown Connect, the [Neponset Valley TMA](#) (Neoponset Valley TMA, n.d.) has both private businesses and municipalities as members, including Foxborough, Norwood, and Dedham. The TMA coordinates carpooling/vanpooling for members, and the following commuter shuttles:

- Shuttles connecting business along Royall Street to the Route 128 commuter rail station and the MBTA Red Line at Ashmont, Quincy Adams, Mattapan
- Shuttles connecting Point32Health and the MBTA Red Line
- Shuttles connecting the Route 128 commuter rail station, and employees and tenants of Eversource, 101 Station Drive, and 690 Canton Street

The shuttles connecting Royall Street businesses are also open to the public, who must pay a \$2.00 fare, while the other shuttles are available only to employees of the businesses who help sponsor the service. The shuttles are funded by a combination of grant funds and member dues, and other TMA services such as carpool/vanpool coordination are funded by member dues.

### **Identify and Collect Region-Specific Data Sources**

Throughout the planning process for this mobility study, the South Shore Coalition members expressed interest in learning more about tourism and employment in the area, specifically more data on the locations and traffic generated by tourism. While commute and employment data can be collected from Census Bureau and Commonwealth agencies, there is much less data on trip origins and destinations for tourism. Tourism data might include beaches, museums, hotels, and other tourist attractions in the South Shore area.

The Project Team encourages the Coalition members to partner with area convention and visitors' bureaus, local attractions, and historical sites to obtain tourism-related data and lists and conduct outreach. Separately, the Project Team also recommends conducting analyses of different employment industries in the South Shore to continue understanding the trip patterns in the South Shore region as employment commutes and tourism evolve from the height of the COVID-19 pandemic. A Transportation Management Association could also help to serve this need for the region by conducting data collection, surveying, and analysis as part of its contract with municipal and business members of the TMA.

### **Coordinate with Existing Services**

In our review of the transit services and suitability analysis MAPC uncovered several interventions to improve services. Improving these systems could encourage more people to use the bus, rail, and ferry options when visiting the South Shore and improve connections for commuters and residents. A major factor to encourage the use of transit is reliability; transit riders want to feel secure that they can rely on transit to get to and from destinations. Coordinated services such as more coordinated ferry and bus connections could generate ridership and help assuage uncertainty among transit riders.

### **MBTA Route 714 Bus Coordination, Appearance, Promotion, and Infrastructure**

The 714 bus presents some challenges that can be addressed through collaboration and problem-solving. The listed challenges were identified by the SSC members as challenges and the project team used these challenges to assist and inform the recommendations of this study. This section will explore the schedule coordination, appearance, promotion, and infrastructure challenges facing the MBTA 714 bus.



At the time of this report, connections between the 714 bus and the Nantasket Junction commuter rail station are made by request only, and riders must call the MBTA's contractor (Joseph Transportation) to request pickup and drop off at the commuter rail station. The requirement for riders to request a ride creates an additional burden for tourists and workers looking to make connections. Transit users are uncertain about trip planning without a guaranteed regular service. As much as possible, the connection should be coordinated and timed to provide good bus/rail connections; however, the 714 schedules should also be coordinated to make good connections with the ferry at Pemberton Point as well. Creating a permanent bus connection at Nantasket Junction would help with transit connectivity. Alternatively, this rail-bus Hull connection could also be served by a seasonal weekend shuttle between Nantasket Junction, downtown Hull, and Nantasket Beach (see proposed pilot below).

The Project Team encourages the towns of Hull and Hingham to work with the MBTA to **make the connection of the 714 and Nantasket Junction commuter rail station more reliable. The connection might be added as part of the standard service, either year-round or during the weekends in the summer months.** The coalition should work with the MBTA to determine what is feasible and how best to serve riders.

Presently, the 714-bus route does not have signage indicating a relationship with the MBTA. The bus is contracted thus the vehicle is not a traditional MBTA. Purchasing magnets to display on the vehicles displaying schedules stops, and routes may help induce ridership on the 714 buses.

MAPC recommends more advertising and promotion of the 714 services. Conducting regular group rides, providing incentives for riding, and partnering with area businesses are some low-cost interventions that can serve to promote transit. All communications should inform riders that the contracted bus does not accept traditional Charlie cards, and the riders must bring cash. This information should be accessible to riders in multiple places, to capture a rider's attention before they begin a trip.

Hull and Hingham should also work on creating **more permanent bus stop infrastructure for the 714**. Currently, many stops between Pemberton Point and Hingham Depot are “flag” stops, with no bus stop signage or shelters/benches; many have no crosswalks. There are several key points, such as Nantasket Beach, where investments in seating, signage with timetables, and designated bus loading areas make sense. The proposed MBTA service changes should be coordinated with the proposed pilots in Hull and Hingham in the next section. A TMA is established the SSC should work with the MBTA and the Massachusetts Department of Transportation to collaborate on installing appropriate infrastructure to encourage the use of active transportation throughout the region, particularly at bus stops. Appropriate infrastructure is critical at transit locations to ensure equitable access and reduce pedestrian injury. The [NACTO Street Design Guide](#) (NACTO, 2022) is an effective tool for understanding improved road design.

### **Emphasize Equity In Transit-Related Projects**

To create a more vibrant and diverse population within the SSC region, equity should be prioritized. Transportation is a major factor in addressing employment and economic development needs. As noted earlier, an equitable Metro Boston is free from discrimination that marginalizes people based on race, sex, religion, disability, national origin, immigration status, sexual orientation, gender identity, family or marital status, income, military status, criminal history, or age. To better understand the current constraints around accessibility and employment the SSC should review equity needs to improve conditions whenever evaluating a transportation program. Because of the limited scope of this study, the MAPC Project Team was able to only evaluate existing US Census data at the Census Tract and Census Block Group level, including race, language access, income, and population of persons with a disability. The project team encourages a deeper analysis of equity within the region to inform decision-making on transportation, including outreach to lower-income neighborhoods for transportation needs, mapping environmental justice areas when evaluating roadway safety improvements, and surveying workers in lower-paying jobs in the region.

## Operate a Pilot

MAPC developed five concepts for pilot programs – four that would primarily serve tourists, and one that would primarily serve SSC workers. The pilot routes were designed to achieve tourism and employment trips as communicated by the coalition. **Table 6** below summarizes the potential pilots. The purpose column of table 6 indicates the goal(s) for each of the 5 pilots, as well as the distance, schedule, frequency, and number of vehicles.

### Pilot Option 1: Hull Beach Trolley

Hull should consider reviving the summer weekend Hull Trolley service (Hull-O Trolley, see map) that connected the ferry at Pemberton Point and Nantasket Beach. The Hull Chamber operated this service in 2019, 2020, and 2022; this service operated approximately every hour from 9:30 am to 6:30 pm (see Figure 18). The service was specifically designed to meet the MBTA ferry

Table 6. Summary of Potential Pilots						
	Name	Purpose	Approximate One-way distance	Days of Operation	Frequency Operations	Number of Vehicles
1	Hull-o Trolley (See figure 18)	Tourism	8 mi	Summer weekends / holidays	Operates hourly	2
2	Hull/Hingham Beach Shuttle (See figure 19)	Tourism	4 mi	Summer weekends / holidays	Operates every 45 minutes to 1 hour	1
3	Weymouth Beach Shuttle (See figure 20)	Tourism	4.5 mi	Summer weekends / holidays	Hourly (1 vehicle) / Every 30 minutes (2 vehicles)	1 or 2
4	Cohasset/Hull Connector Shuttle (See figure 21)	Tourism/ intra-regional connector	4.6 mi	Summer weekends / holidays	Hourly (1 vehicle) / Every 30 minutes (2 vehicles)	1 or 2
5	On-demand shuttle (micro-transit), South Hingham & South Weymouth (See figure 22)	Employment	4.5 sq miles	Weekdays, year-round	Goal of average of 15-minute wait time for ride	2

at Pemberton Point. While this service partially overlaps with the MBTA 714 bus, the round trips are shorter and can specifically operate to meet the ferry, creating better multimodal connections than the MBTA 714 bus that operates a longer distance. Operating an overlapping transit route for more frequent service in the summer peak will also encourage people to choose transit rather than driving.

### Pilot Option 2: Hull/Hingham Beach Shuttle

Hull and Hingham should also consider adding a **second summer weekend trolley connecting Nantasket Beach, downtown Hull and the commuter rail at Nantasket Junction (Figure 19)**. This second service would allow specifically timed connections with the commuter rail schedule and would provide a low-cost, convenient connector service when the MBTA has \$10 all-weekend rail fares. Having a second shuttle specifically designed to connect with the commuter rail will also be more efficient; both MBTA and the Hull Chamber noted in conversations with MAPC the difficulty in trying to schedule and operate a service that connected both the ferry and commuter rail schedules. **Summer 2021 schedules show trains arriving approximately every 45 minutes to an hour; shuttles could operate around every 45-60 minutes with one vehicle, or approximately every 30 minutes with two vehicles.**

With this shuttle, the 490 parking spaces at Nantasket Junction could also then operate as a satellite park and ride lot on summer weekends, reducing the number of cars clogging Hull's streets. Parking at the station is \$2 per day, cheaper than the daily parking fees around Nantasket Beach.

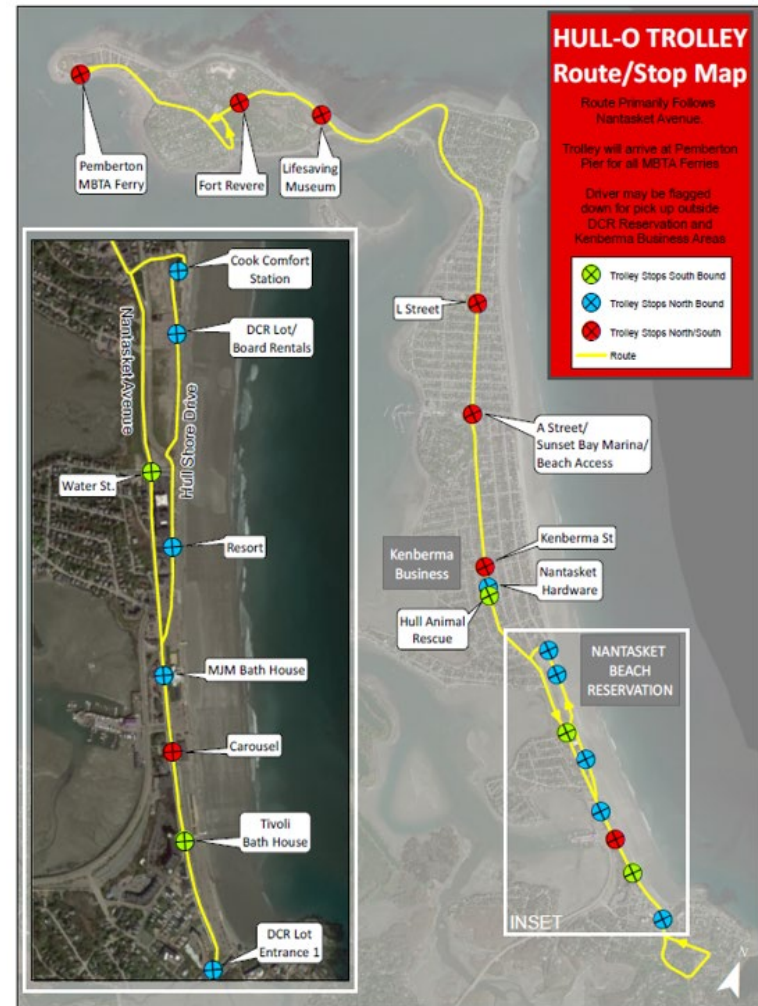


Figure 18. Pilot Option 1: Hull-o Trolley

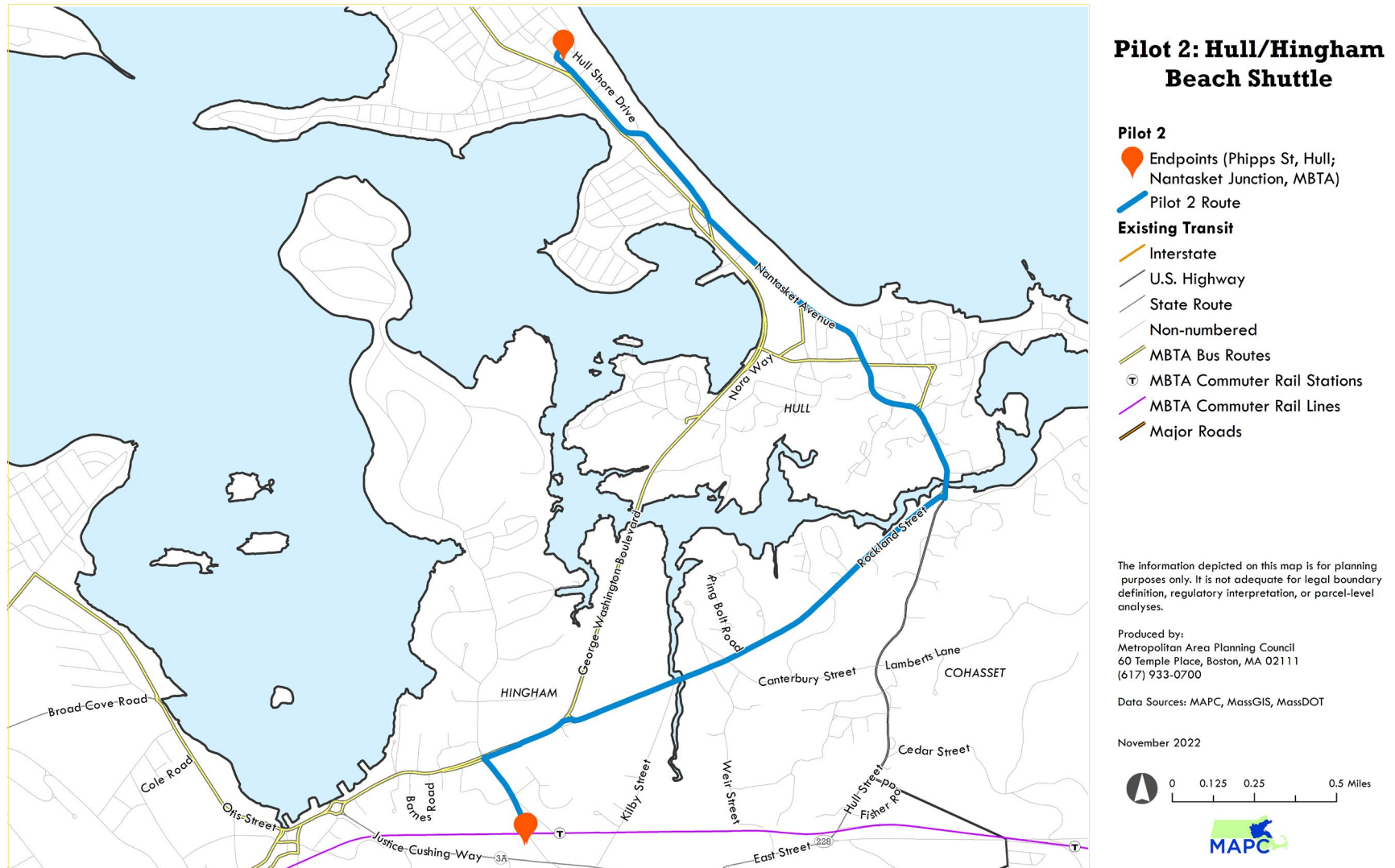


Figure 19. Pilot Option 2: Hull/Hingham Beach Shuttle

### **Pilot Option 3: Weymouth Beach Shuttle**

Weymouth could implement a summer weekend shuttle connecting the Quincy Red Line station and Wessagusset Beach and George Lane Beach in North Weymouth (**Figure 20**). While the shuttle would overlap the MBTA bus route 220 for a portion of the route, the shuttle would provide express service to two beaches (which are a half-mile walk from the nearest 220 MBTA bus stop). **The route would be approximately 4.5 miles and could operate every 30 minutes with two vehicles or every hour with one vehicle.**

This proposed route mirrors much of the former MBTA route 221 bus that the MBTA suspended during the COVID-19 pandemic, and which will not be reinstated under the MBTA's Bus Network Redesign.

An alternative promoting Weymouth beach access in this area could be done via **construction of wider sidewalks and/or separated bicycle lanes from Route 3A (Washington Street) to the beaches**, perhaps along North Street or Neck Street. This alternative would help provide residents and visitors year-round safer, more convenient beach access while reducing automobile traffic in the area and would not require annual operating expenses of operating a shuttle.



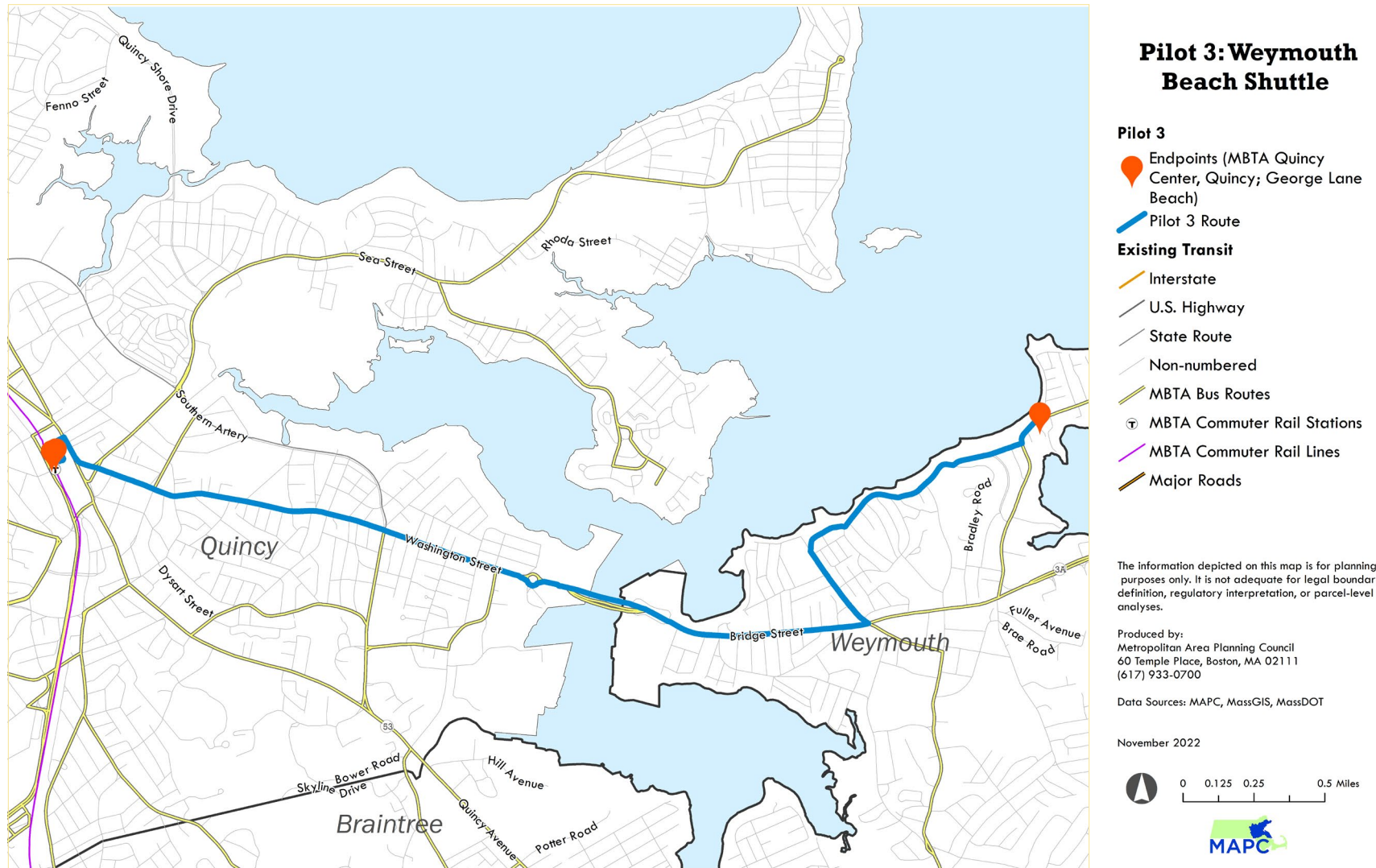


Figure 20. Pilot Option 3: Weymouth Beach Shuttle



#### **Pilot 4: Cohasset/Hull Connector Shuttle**

Cohasset and Hull should consider operating a summer weekend/holiday seasonal shuttle connecting downtown Cohasset, Cohasset commuter rail station, and Nantasket Beach in Hull (**Figure 21**). This would allow tourists and others to connect downtown Hull, Cohasset, Nantasket Beach, and Nantasket Junction commuter rail. This service could have hourly frequencies (one vehicle) or 30-minute frequencies (two vehicles) and could connect with the commuter rail at Nantasket Junction, as well as with the MBTA and other summer shuttles in Hull.



Figure 21. Pilot Option 4: Cohasset/Hull Connector Shuttle

## Employment Connections

### Pilot 5: On-demand Shuttle, South Hingham & South Weymouth

Portions of southern Weymouth and Hingham scored higher for work trips in our analysis but do not currently have MBTA bus services. The concentrations of employment in these areas are primarily along Route 3 and have land development and streets that are circuitous and cannot be served efficiently or effectively by fixed-route transit services due to limited street connectivity and limited safe pedestrian connectivity.

Because serving this by a fixed-route shuttle would be difficult, alternatively an **on-demand transit service (also known as micro-transit)** could provide a curb-to-curb on rides to jobs as well as connect with MBTA services at the South Weymouth commuter rail station and the MBTA bus routes 222 and 225. This on-demand transit would provide first/last mile connections with other MBTA services. The map below in **Figure 22** shows one possible micro-transit service area, connecting portions of south Weymouth, Hingham, and Rockland.

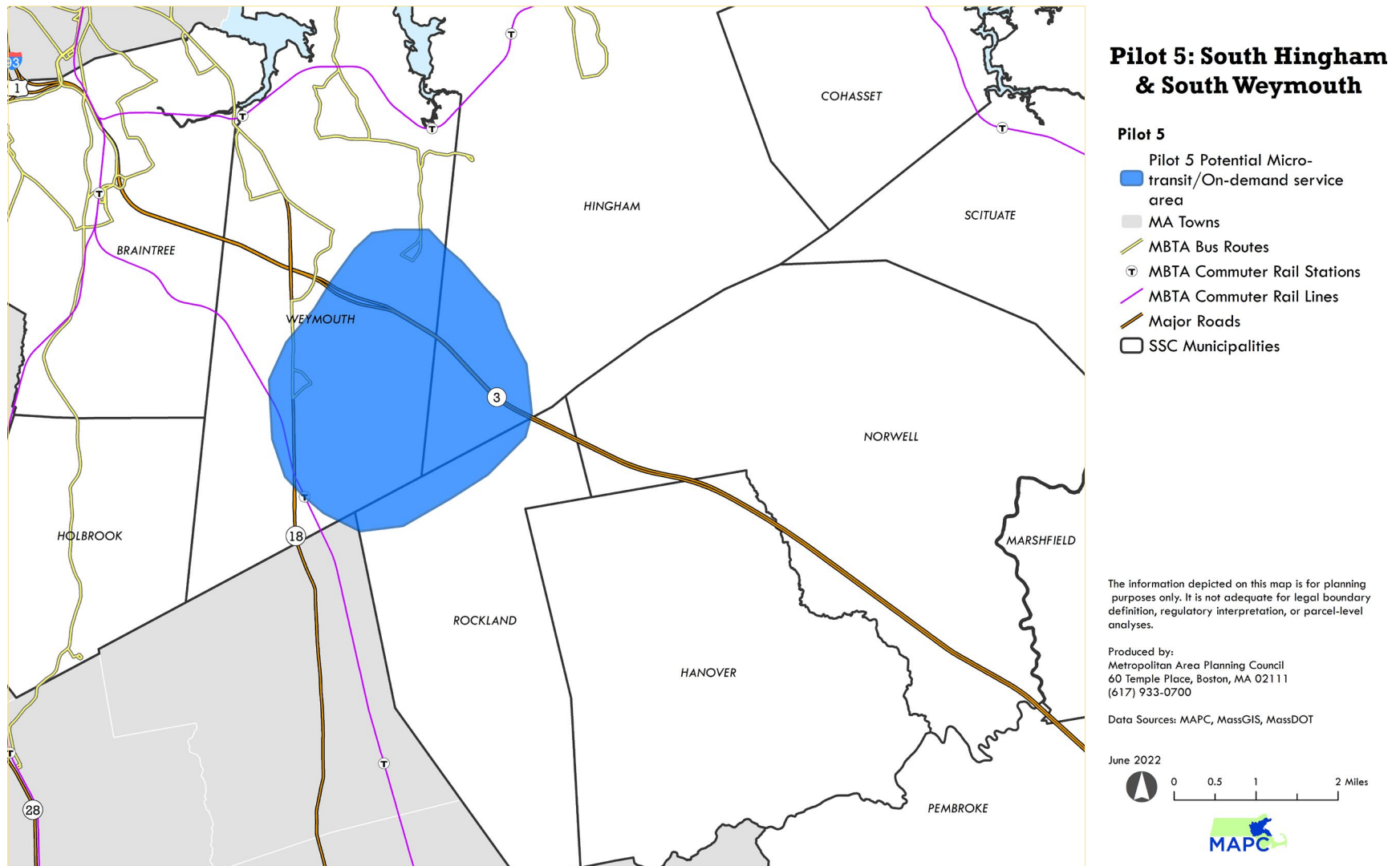


Figure 22. Pilot Option 5: South Hingham & South Weymouth Micro Transit

Other areas that scored highest for work trips (Braintree, Weymouth, and Holbrook) are already served by MBTA commuter rail and bus services. Bus service changes in the South Shore proposed by the MBTA Bus Network Redesign appear to retain most of the routes in the area, with minor routing modifications and some expanded Sunday service.

### **Potential Annual Operating Costs and Ridership for Tourism Pilot Shuttles**

For the purposes of this cost estimate, the Project Team assumed an operating cost of \$71/hour for a contracted livery service. We assumed 15 weeks of operation (Memorial Day weekend through Labor Day weekend), operating Saturdays and Sundays, plus four other holidays (Memorial Day, Juneteenth, Independence Day, Labor Day), for a total of 34 days. Each day is assumed to have 10 hours of operation; approximately 9am to 7pm. This includes “dead-heading” time to and from the vehicle storage site.

Under these assumptions, a tourism shuttle service operating a single vehicle would cost approximately **\$25,000 annually**, while a shuttle running with two vehicles would have an operating cost of around **\$50,000 annually**. (\$71/hour x 10 hours per day x 34 days per year, per vehicle). A shuttle operating longer hours, other days of the week, and for a longer season or year-round would have a proportionately higher annual operating cost. These costs do not include marketing, now administrative expenses, such as responding to rider questions, complaints, trip data, and routing analysis.

As a comparison, CATA’s seasonal shuttles 2021 operating costs are as follows. All operated weekends during the summer months. The shuttles are funded through the RTA assessment that municipalities pay to CATA.

- Rockport Shuttle: \$54,754 (operated May through October)
- Ipswich/Essex Explorer: \$44,473 (operated June through September)
- Gloucester (Stage Fort Park) Shuttle: \$21,133 (operated June through September)

A micro-transit shuttle operating in south Weymouth/Hingham would likely cost **\$370,000 per year**. This cost assumes operations of Monday through Friday, 10 hours per day, with two vehicles to minimize wait times and to provide good connectivity to bus and rail services ( $\$71/\text{hour} \times 10 \text{ hours per day} \times 260 \text{ days per year}$ , per vehicle, assuming two vehicles).

Estimating ridership on a seasonal service is difficult. CATA's three-season shuttles average summer ridership ranged from 1,650 for the Stage Fort Park shuttle, 5,900 for the Ipswich/Essex Explorer shuttle, and nearly 21,000 for the Rockport shuttle. (These figures are based on ridership from 2016-2019, as provided by CATA. The Stage Fort Park and Ipswich/Essex Explorer operated June through September, while the Rockport shuttle operated May through October.)

Micro transit operations have a ridership of approximately two to three passengers per revenue hour, like other on-demand transit operations. Under the procedures noted above, ridership would be between 10,400 and 15,600 trips per year.

## Chapter 6

# Potential Funding Sources for Recommendations

Below are grant programs available to provide funding, depending on the program goals and needs. We recommend following these programs closely for deadlines. The sources listed below are a few of the funding sources that could be used to fund a pilot. Members are encouraged to contact their MAPC subregional coordinator, review the MAPC monthly newsletter, and join applicable listservs to learn as funding prospects become available.

- Community Connections<sup>3</sup>: funded by the Boston MPO this program is for “first- and last-mile solutions, community transportation, and other small, nontraditional transportation projects.” This program is partially funding the Royall Street shuttles operated by the Neponset Valley TMA. Community Connections will fund up to three years, but requires an increased local match each year, and a full local funding plan for year four and beyond.
- Community Transit Grant Program<sup>4</sup>: administered by MassDOT, this is an annual grant that provides funds for vehicles, and operating costs to meet the mobility needs of seniors and individuals with disabilities. While these funds cannot be used for transportation for the general public, they could be used to fund transportation needs for persons with disabilities and seniors, which might free up other funds for general transit. The program is funded by both federal and state funds.

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3 <https://ctps.org/community-connections>

4 <https://www.mass.gov/community-transit-grant-program>



- Subregional Dues: MAPC Subregions can establish dues and direct the collected funds to be used to advance subregional goals. These dues are collected by the MAPC and are utilized at the direction of the coalition. All towns in the coalition would need to agree on a specific amount and contribute on behalf of their municipality annually. Once collected the shared funds to further transportation goals in the region. For example, the coalition dues may be used to finance a tourism related transportation study, or marketing of a service pilot.
- Efficiency and Regionalization Grant Program<sup>5</sup>: This program provides “financial support for entities interested in implementing regionalization and other efficiency initiatives.” The program has funded regional transportation initiatives across multiple municipalities.
- Community Compact Best Practices Grant Program<sup>6</sup>: This program provides an opportunity where “a community will agree to implement at least one best practice that they select from across a variety of areas. The community’s chosen best practice(s) will be reviewed between the Commonwealth and the municipality to ensure that the best practice(s) chosen are unique to the municipality and reflect needed areas of improvement.” Practice areas include regionalization/shared services, safe mobility, and active transportation.
- Local funding, including local option meals tax and parking revenues: Municipalities such as Acton have used their local option meals tax and revenue from parking at the town-owned South Acton rail station to fund local transportation shuttles. While the parking lots at the commuter rail stations in this study area are owned by the MBTA, on-street parking and local option meals taxes may provide revenue for shuttle operations in the future.

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5 <https://www.mass.gov/efficiency-regionalization-grant-program>

6 <https://www.mass.gov/best-practices-program>

Some municipalities have used the [American Rescue Plan Act of 2021](#) (Whitehouse.gov, 2022) funds for their transit services. For example, the city of Salem used [\\$400,000 in ARPA funds](#) (Salem Uses Federal Funds, 2022) to continue its [Salem Skipper](#) (SalemSkipper, n.d.) on-demand transit service.

Acton, for example, started its shuttle service using funds generated by the Town's commuter rail parking lot. Other municipalities have worked to use local funds for senior transportation and opened seats for non-seniors for the workforce or other transportation. Municipalities have also worked through their local TMA to partner with businesses to fund shuttles that serve their employees and provide public seats. Finally, local support must include sustained, continuous marketing of the service, particularly in the first few years. A successful local transportation program will require sustained local funding to maintain operations. Many new transportation pilots require two or three years to get started and make people aware of the new service, with typically lower ridership in the first year that grows as the service becomes more efficient and well known.

## Chapter 7

# Next Steps and Development of Pilot Programs

To create a successful pilot, the communities and businesses in the South Shore area should take the following steps to review the data and recommendations from this study and create a program and funding strategy. The [Operating a Successful Community Shuttle Program](https://www.ctps.org/operating-a-shuttle-guidebook)<sup>7</sup> guidebook by CTPS is an excellent resource for creating a pilot community transit service.

1. **Determine the core needs and goals of the service.** The pilots recommended here are designed primarily for tourism trips and employment connections. A shuttle that serves primarily daily needs (shopping, school) or medical trips for seniors, and persons with disabilities will have different key destinations. Before beginning a pilot service, the core needs and riders targeted for the service must be decided to ensure the service connects to the trip origins and destinations for those riders.
2. **Ensure the new service addresses equity needs.** For example, the micro-transit service proposed under Pilot 5 should include an option for those who are unbanked (i.e., don't have access to a credit or debit card) as well as those who do not have access to a smartphone. Larger vehicles should be used to provide a way for parents to use the service without the need to carry and use a child car seat, comparable to how children and parents ride on fixed-route buses. Vehicles must be wheelchair accessible and preferably should accommodate people with mobility aids (walkers, etc.). Schedules, flyers, and online information on the services should be translated into non-English languages where needed.

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7 <https://www.ctps.org/operating-a-shuttle-guidebook>

3. **Based upon the goals and needs developed under the first two steps, determine geography, time of day/week, and other parameters of the service.** This will help determine whether the service will be within a single municipality or may require work through the TMA. Establishing these service parameters will also determine the operating costs and funding needs.
4. **Determine the performance measures.** This step is critical in everyone understanding how well the service is meeting the goals. These can be ridership, service reliability and average wait time, costs, and customer satisfaction, as well as other metrics. Evaluation should be conducted regularly to determine the successes and failures of the pilot. The performance measures will also aid municipalities with understanding lessons learned from operating the pilot.
5. **Create a funding and operating plan, preferably one that is two or more years.**  
The first year or second year of a pilot may be funded by grants; however, a local sustainable funding stream will be needed to ensure long-term success. Furthermore, a new service will often take at least two years for riders to become knowledgeable and comfortable using it. As noted earlier, Community Connections, for example, will fund up to three years but requires an increased local match each year, and a full local funding plan for years four and beyond. The operating and funding plan should also include a marketing plan to inform workers, visitors, and residents of the new program. MAPC's experience with helping communities establish new transportation options, whether demand-response or fixed route, has shown that a significant and clear communications plan is needed to help people learn about and try a new service. Rider surveys can also help with improving the service beyond the first few months or years.

6. **Find a lead agency to manage and champion the pilot.** Whether a shuttle serves a single municipality or multiple municipalities, starting and championing the shuttle will require staff efforts from at least one entity such as a municipal department, or non-government organization such as a TMA or a regional coalition such as a business chamber. Marketing and coordinating the shuttle will require efforts from municipalities served along the shuttle route, and the evaluation of the pilot will require rider surveys, regular monitoring of costs and trip data, and reviews of how well the pilot is meeting performance measures.

## References

- *The Changing Nature of Work*. (2022). Retrieved from TravelTrends.Transportation: <https://traveltrends.transportation.org/portfolio/commuting-in-america-the-national-report-on-commuting-patterns-and-trends/>
- Adella Santos, Program Manager, FHWA, DOT, Jasmy Methipara, Program Analyst, Susan Liss, Survey Strategist, Tim Reuscher, Statistical Analyst. (2014). Retrieved from FHWA NHTS BRIEF: Studies have shown that rising transportation costs have
- *Bus Network Redesign*. (2022). Retrieved from MBTA.com: <https://www.mbta.com/projects/bus-network-redesign>
- *Business Insights*. (2021, March 21). Retrieved from Harvard Business School Online: <https://online.hbs.edu/blog/post/future-of-work-from-home>
- *Chapter 358*. (2022). Retrieved from Malegislature.gov: <https://malegislature.gov/Laws/SessionLaws/Acts/2020/Chapter358>
- *Chapter 30B*. (2022). Retrieved from malegislature: <https://malegislature.gov/Laws/GeneralLaws/PartI/TitleIII/Chapter30B>
- *Complete Streets Funding Program*. (2022). Retrieved from Mass.gov: <https://www.mass.gov/complete-streets-funding-program>
- *Crosstown Connect*. (2022). Retrieved from Crosstown Connect: <https://www.crosstownconnect.org/>
- Felix, A. (2015). Transportation Demand Management Case Studies and Regulations. Retrieved from MAPC: [http://www.mapc.org/wp-content/uploads/2017/10/TDM-FINAL-REPORT-7\\_15\\_0.pdf](http://www.mapc.org/wp-content/uploads/2017/10/TDM-FINAL-REPORT-7_15_0.pdf)

- *Hingham/Hull Ferry*. (2022). Retrieved from MBTA: <https://www.mbta.com/schedules/Boat-F1/timetable>
- MAPC. (2022). Retrieved from MAPC: <https://www.mapc.org/aboutus/>
- MAPC. (2022). Retrieved from South Shore Coalition: <https://www.mapc.org/get-involved/subregions/ssc/>
- Marissa Rivera, S. M. (2022, July). A Better City. Retrieved from ABCTMA: <https://abctma.com/assets/documents/Report-CommuterSurveyPhase3.pdf>
- MassDOT. (2022). Mobility Hub. Retrieved from Mobility-MassDOT: <https://mobility-massdot.hub.arcgis.com/>
- MBTA. (2022). Retrieved from Hingham/Hull Ferry: <https://www.mbta.com/schedules/Boat-F1/timetable>
- *MBTA Communities Multifamily Zoning Requirement (section 3A)*. (2022). Retrieved from MAPC: <https://www.mapc.org/resource-library/mbta-multifamily-zoning/>
- NACTO. (2022). Retrieved from NACTO: <https://nacto.org/publication/urban-street-design-guide/>
- *Neponset Valley TMA*. (n.d.). Retrieved from Neponset Valley TMA: <https://www.neponsetvalleytma.org/>
- *Neponset Valley TMA*. (2022). Retrieved from Neponset Valley TMA: <https://www.neponsetvalleytma.org/>
- *Ridership Dashboard*. (2022). Retrieved from MBTAbackontrack: <https://mbtabackontrack.com/performance/#/detail/ridership/2022-04-01////>
- *Rockland Flex*. (2022). Retrieved from ridebat: <https://www.ridebat.com/routes/route-rf/>



- *Salem Uses Federal Funds.* (2022). Retrieved from Boston Globe: <https://www.bostonglobe.com/2022/07/05/metro/salem-uses-federal-funds-boost-alternative-transportation/>
- *SalemSkipper.* (n.d.). Retrieved from Salem MA: <https://www.salemma.gov/mobility-services/pages/salem-skipper>
- *Steps to Develop a TMA.* (2022). Retrieved from MassCommute: <http://www.masscommute.com/steps-to-develop-tma/>
- *Transaction Associates.* (2022). Retrieved from Transaction Associates: <https://www.transactionassoc.com/>
- *Whitehouse.gov.* (2022). Retrieved from American Rescue Plan Act: <https://www.whitehouse.gov/american-rescue-plan/>