HUNTINGTON AVENUE /SOUTH HUNTINGTON AVENUE E-BRANCH ACCESSIBILITY PROJECT

Multimodal Needs and Opportunities Report

CONTENTS

1 Corridor Challenges and Constraints

I. Right of Way

The Huntington Avenue/South Huntington Avenue Corridor serves a variety of functions, though its efficiency and effectiveness as a multimodal space is restricted by a constrained right of way. The constraints make competition for space between modes a significant challenge.

Through Brigham Circle, Huntington Avenue is around 100 feet wide, including sidewalks. This area is characterized by a general-purpose traffic lane and shared bus/bike lane in each direction, along with a bidirectional center-running separated transitway and a single lane of parking. For most of the Corridor (area west of Fenwood Road), Huntington Avenue and South Huntington Avenue have a right of way around 80 feet wide, including sidewalks. This section of the Corridor features a general-purpose travel lane, a parking lane, and a shared transit/general-purpose travel lane in each direction.

The competing needs of parking, vehicular travel, bus and rail transit, bicyclists, pedestrians is a challenge and limits the possibility of finding a one-size-fits-all solution.

Existing uses along Huntington Avenue is mostly Neighborhood Shopping and Multifamily Residential, with small areas of Community Commercial and Apartment Residential. South Huntington Avenue is zoned as Neighborhood Shopping, Row House Residential, and Neighborhood Institutional. Overlay Districts include Restricted Parking (north of Huntington Avenue), Greenbelt Protection (next to Riverway), and Institutional Master Plan (near Longwood Medial Area, or LMA). Currently, there are two approved but not yet constructed projects in the area, including 775 Huntington Ave and 804-812 Huntington Ave.

Huntington Avenue and South Huntington Avenue form a complex intersection with many conflicts. Multiple concrete medians create confusion for drivers without providing refuge for pedestrians crossing the street. A gas station and auto repair shop at the southwest corner of the intersection has large curb cuts with vehicles entering and exiting from Huntington Avenue, South Huntington Avenue, and Jamaicaway. Additionally, the canopied gas filling area is utilized by pedestrians as a path of travel between the Route 66 eastbound bus stop on Huntington Avenue and the Riverway transit stop/Route 39 bus stop on South Huntington Avenue.

The current design of Huntington and South Huntington Ave – which seeks to accommodate all while prioritizing none - negatively impacts safety, capacity, and operations for all modes.

Overall Needs and Opportunities

- Design Parameters and Prioritization in collaboration with BTD, SWA, and MBTA
- Robust engagement with community for design prioritization

Green Line E Branch along South Huntington Avenue. Photo Credit: Nelson\Nygaard

II. ADA Accessibility

As referenced in the MBTA's Accessibility Report and per Federal Transit Administration (FTA) mandate, the MBTA will design and procure the next-generation Green Line train. The procurement will be for vehicles to replace the Type 7 and Type 8 fleets for Type 10 fleets. Vehicles will be 100% low-floor and approximately 40 feet longer than legacy fleets. The design of new Green Line cars is to capture all key accessibility considerations. Four pilot cars are expected for delivery in spring 2026, with production and delivery of the remaining cars starting in spring 2027.

To comply with the ADA and equitably serve all members of the Boston community, the Corridor and the Green Line E branch must be redesigned to provide full access for all riders, including those who use mobility devices.

The Green Line is the oldest branch of the T, and one of the most challenging parts of the system to make fully accessible. While E branch riders northeast of Brigham Circle

can access stations without significant barriers (Symphony Station accessibility improvements are in progress), riders of the street-running section of the line must board and alight in the road. This restricts equal access to the service for riders with disabilities, especially those using wheelchairs that are completely prevented from entering or exiting the train. In addition, this configuration creates an unsafe condition for all passengers, as they must get on and off trains within a street that is also traveled by motor vehicles.

Bus stops on Huntington Avenue and South Huntington Avenue allow riders to board and alight at the curb, providing a more accessible transit mode through the Corridor. However, deficient curb ramps, faded crosswalks, parked vehicles, and sloping sidewalks impede full accessibility to and from stops.

Passengers boarding MBTA Bus along South Huntington Avenue. Photo Credit: Nelson\Nygaard

Overall Needs and Opportunities

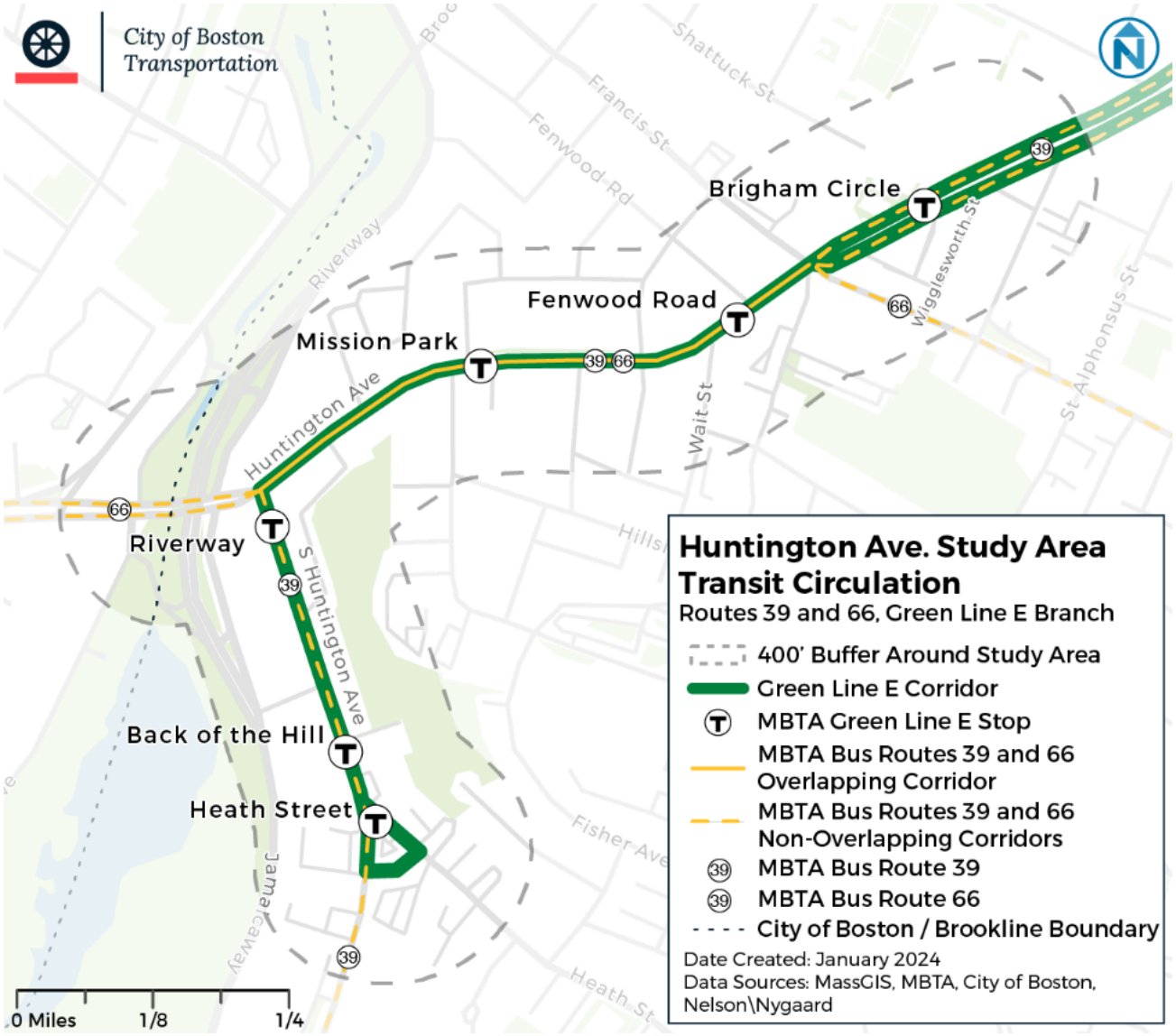
- Meet ADA Compliance
- Meet FTA Compliance
- Increase sidewalk width for pedestrians and crossing safety measures
- Addition of transit amenities for bus stops and train stations
- Design Parameters and Prioritization in collaboration with BTD, SWA, and MBTA
- Implementation of SWA and PATI in Roadway Reconstruction

II. Transit Speed and Reliability Challenges

The speed and reliability analysis conducted in this section is an important element of this Needs and Opportunities report as it emphasizes areas that need improvement. For the purposes of this analysis, speed and reliability data is based on the study area's bus routes and not the Green Line E branch. However, since the Green Line E branch operates on-street and in mixed traffic through the Corridor, it likely experiences the same delays as bus service while traveling in the roadway.

Green Line surface operations are slower than subway service due largely to conflicts with cars, as the E branch operates in fully mixed traffic between Brigham Circle and Heath Street. The Green Line also faces through-traffic and cars making turns through the Green Line right of way. Minimizing conflicts with vehicles is important for speed and reliability today and may be necessary to fully accommodate two-car trains on the E branch in the future.

Figure 1: Bus and Rail Transit Service



Delay

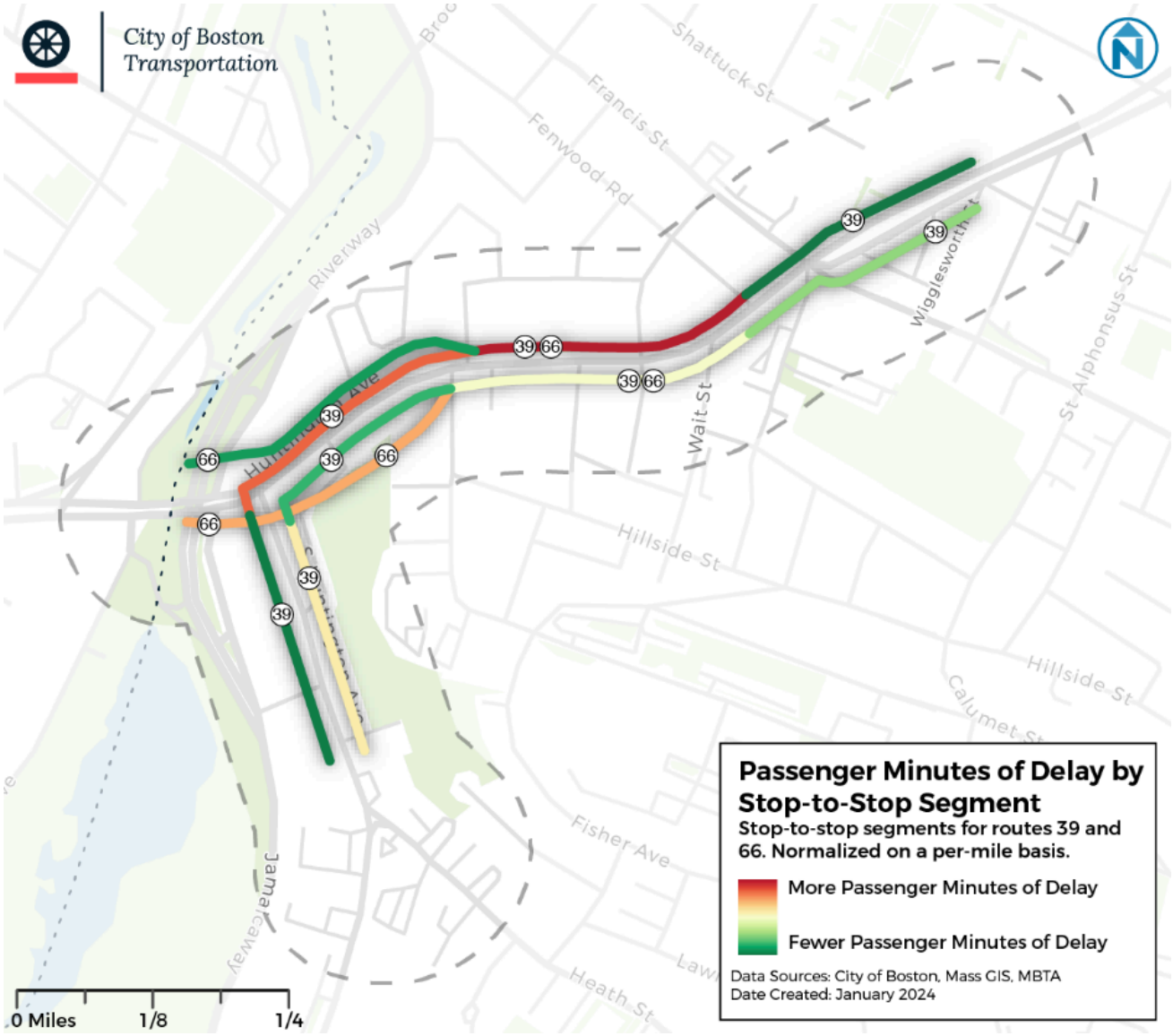
Delay is calculated as the difference between an unconstrained—or shortest recorded—travel time and an actual travel time. For example, if the shortest recorded time between two stops is two minutes without any traffic and the typical runtime between these two stops during peak travel periods is four minutes, then delay between these stops during peak periods is two minutes.

The Green Line E Branch and Bus Route 39 run parallel on Huntington Avenue & South Huntington Avenue through the Corridor. Both transit services experience similar

difficulties with the turn from Huntington Avenue onto South Huntington Avenue, and vice versa. This turn is often a place of major delay, specifically in the outbound direction (turning left from Huntington Avenue onto South Huntington Avenue), which is a source of low speeds due to needing to navigate the queue to turn. Lower speeds lead to higher delay.

The westbound approach to the Huntington Avenue & South Huntington Avenue intersection is an area of high delay for both Route 39 and Route 66, until the routes split and Route 66 continues straight/west through the intersection while Route 39 turns left/south. Buses that travel straight through the intersection experience low delay through this segment, while buses that turn left/south experience high delay through this segment. This shows that the delay is high for the approach, but specifically for the left turn, as opposed to the other turning movements through the intersection.

Figure 2: Passenger Minutes of Delay by Stop-to-Stop Segment



Reliability

Reliability is one of the most important facets of bus service, focusing on the bus arriving at the pickup and drop-off stops at the expected times. Greater consistency can reduce stress for travelers, improve their on-board experience, and lower both actual and perceived travel times.

Reliability is the variance between fastest and slowest travel time. Reliability is measured as a ratio of the sum of the 90th percentile runtime (time spent traveling between stops or stations) and dwell time (time spent stopped at locations to allow passengers to board

and alight) to the sum of median runtime and dwell time. This shows where travel times have the most variation, making travel less reliable for riders.

The intersection at Huntington Avenue and South Huntington Avenue is a source of variable speeds and reliability levels, depending on the time of day. Key takeaways from the speed and reliability analysis of this section are:

Speed and reliability fluctuate by time of day, but nearly all stop-to-stop segments are consistently slower than 12 MPH on average.

- The Route 39 southbound stop-to-stop segment along South Huntington Avenue is the only segment that has speeds higher than 12 MPH throughout the day.
- The most consistently unreliable segments are the northbound approach of the Huntington Avenue and South Huntington Avenue intersection and the segment directly after that northern approach turns right. These segments have below average reliability for all times of day.
- The eastern most segments within the study area and the segments that pass through the intersection at Huntington Avenue and South Huntington Avenue heading westbound or southbound have the most consistently high reliability, though the speeds are within the range of six to nine MPH.
- Although the segment turning left from Huntington Avenue to South Huntington Avenue is a consistently reliable segment, it is also consistently one of the slowest segments.

Figure 3: Speed and Reliability – AM Peak

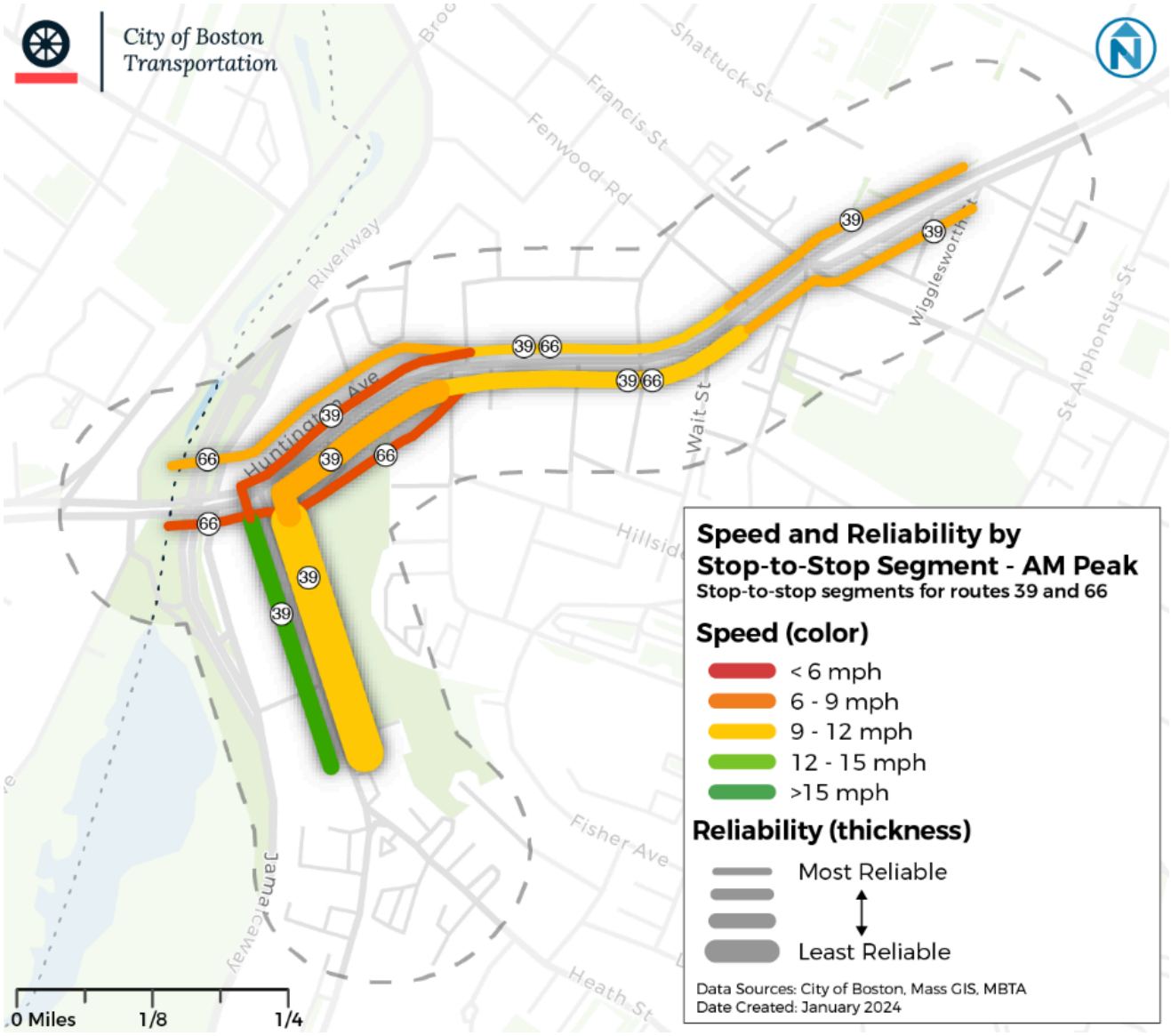


Figure 4: Speed and Reliability – Midday Peak

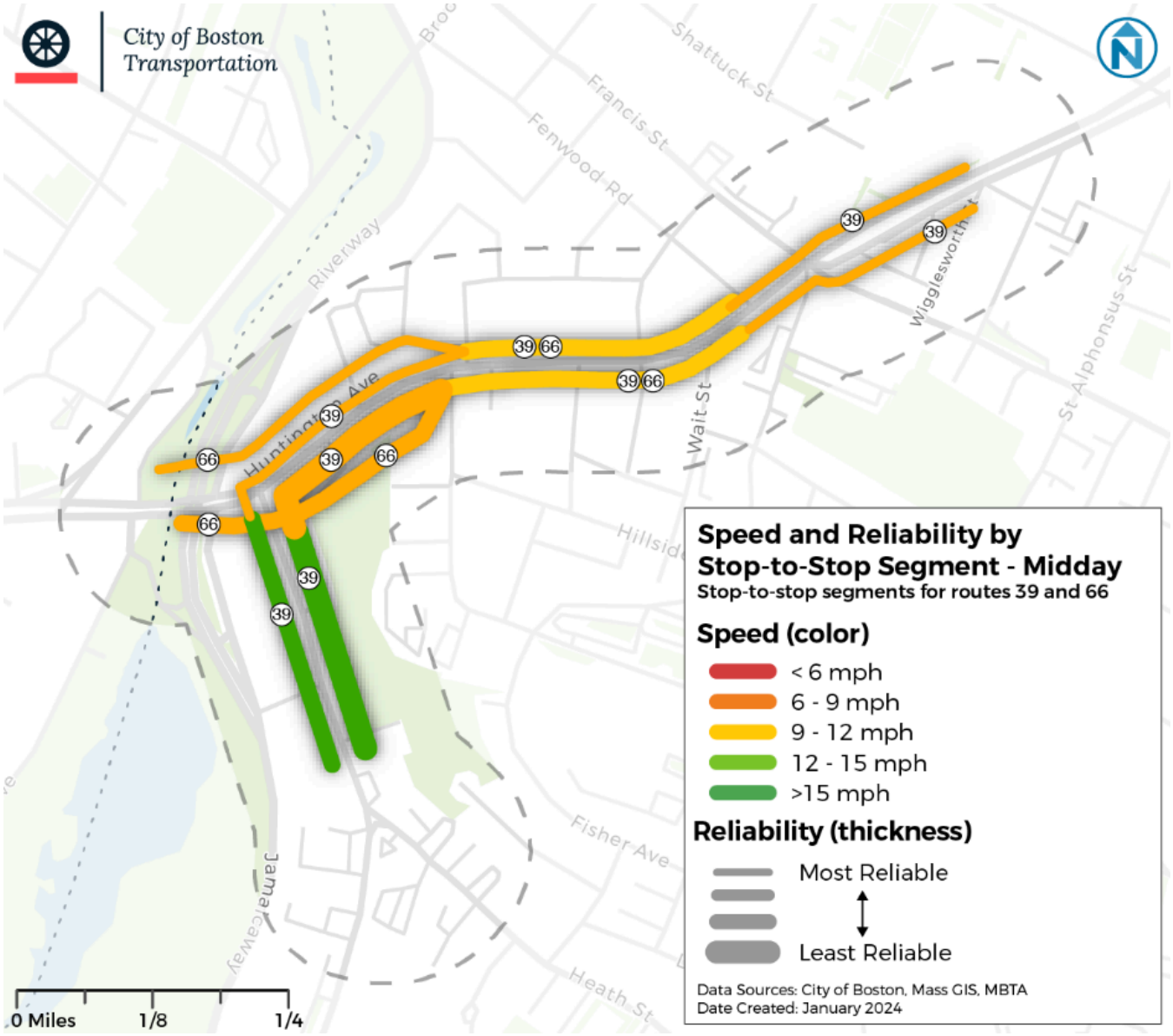
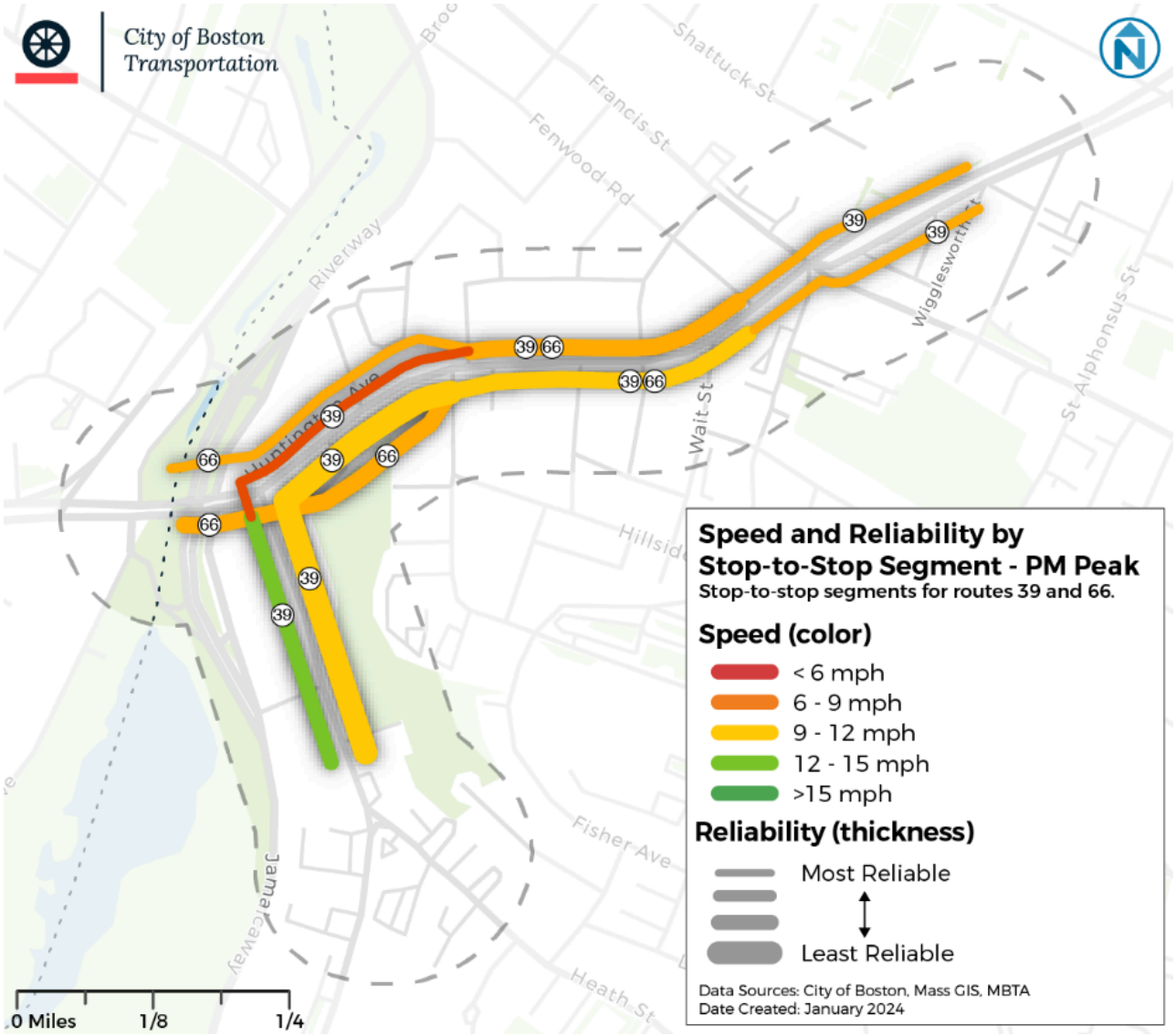


Figure 5: Speed and Reliability – PM Peak



Overall Needs and Opportunities

The intersection of Huntington Avenue & South Huntington Avenue is a pain point for transit riders due to the extensive delays that are caused by heavy traffic, tight turns, long signal queues, and difficult operator maneuvers. On an average weekday, riders are delayed a total of nearly 200 hours while traveling through the Corridor, 118 (59%) of which are on stop-to-stop segments directly interacting with the Huntington Avenue & South Huntington Avenue intersection.

- Consolidate and/or relocate bus stops to improve the ease of transfers.
- Improve the Huntington Avenue and South Huntington Avenue intersection with transit signal priority, bus lanes, and curb extensions, among other transit improvement tactics.

III. Circulation/Traffic Flow

Huntington Avenue and South Huntington Avenue are heavily used multimodal corridors, carrying over 20,000 vehicles per day and approximately 200 bicycles per day. The Corridor is also a major pedestrian route. East of Brigham Circle, the curb-to-curb width of Huntington Avenue is approximately 90 feet. The center 30 feet of the roadway width is dedicated to the Green Line E branch, and the remaining 60 feet consist of one bus/bike lane and one travel lane in each direction. West of Brigham Circle, the roadway width narrows to approximately 60 feet, with two travel lanes and one parking lane in each direction. South Huntington Avenue is approximately 50 feet wide and consists of two travel lanes and a parking lane in each direction. Along these constrained segments of Huntington Avenue and South Huntington Avenue, general traffic shares the left travel lane with Green Line trolleys and the right travel lane with buses, resulting in competition for space as vehicles attempt to pass slow or stopped trolleys, transit riders attempt to board or alight trolleys from the center travel lanes, and cyclists navigate the corridor with no dedicated space.

Traffic flow through the Corridor is limited by double parking and by vehicles competing for space with Green Line trolleys at street level. Vehicular conflicts with the Green Line are especially evident at the Huntington Avenue & South Huntington Avenue intersection, where inbound trolleys are constrained to the left travel lane on the northbound South Huntington Avenue approach and must wait for left-turning vehicles to turn in order to proceed. As a result, any delay that turning vehicles experience is also experienced by Green Line passengers. Outbound Green Line trolleys also experience conflicts while turning left onto South Huntington Avenue concurrently with articulated MBTA buses.

Overall Needs and Opportunities

- Provide one-directional bus and/or vehicular circulation along the Huntington Avenue/South Huntington Avenue corridors to make additional cross section width available for Green Line E Branch, bus operations, and separated bicycle facilities.
- Identify potential effects of traffic diversion on alternate routes.
- Coordinate network impacts in the context of other nearby projects including Tremont Street/Columbus Avenue Bus Lanes Phase 2 and Gateway East.

Vehicle Parking

Parking observations were conducted throughout the study area on Tuesday, December 12 and Thursday, December 14, 2023, to assess curbside activity and utilization. License plates of vehicles parked in each space along the Corridor were continuously recorded from 10:00 a.m. to 6:00 p.m. to identify the parking occupancy (percent of parking spaces occupied at a given time) and duration (the length of time a vehicle occupies a given space) along each roadway segment. In addition, the presence of a Mission Hill resident sticker and/or a handicapped plate or placard was recorded.

Figure 6 and Figure 7 below illustrate average occupancy and duration observed along Huntington Avenue and South Huntington Avenue, respectively.

Figure 6: Parking Occupancy, Huntington Avenue

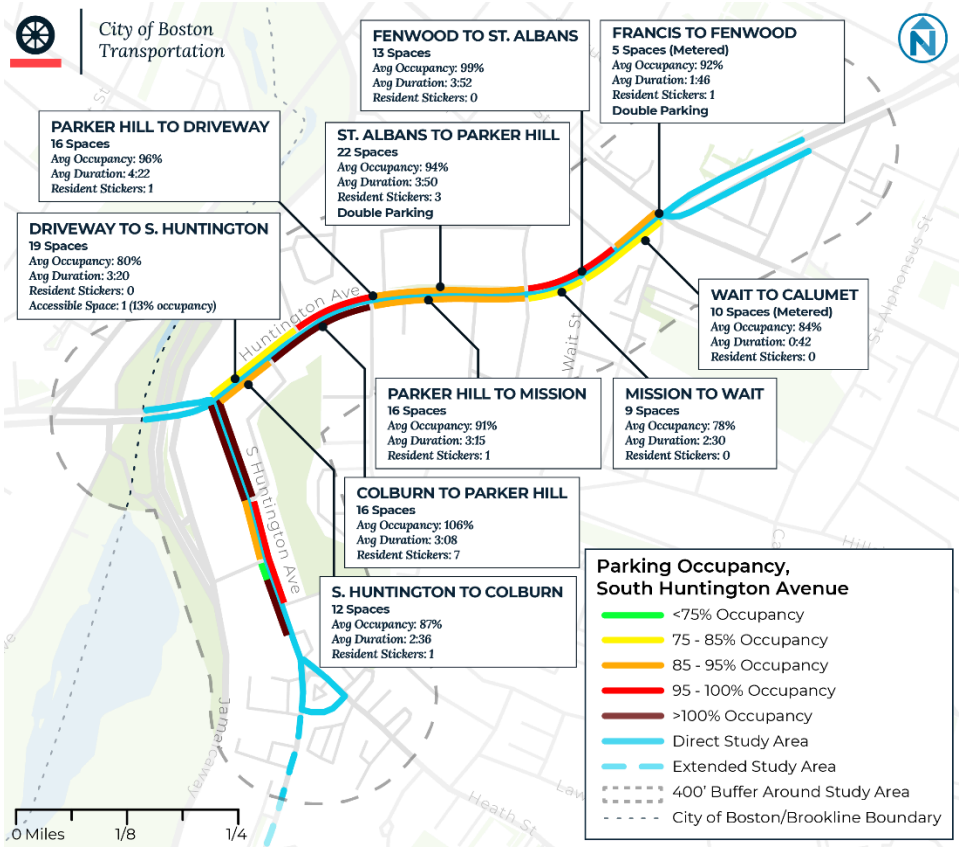
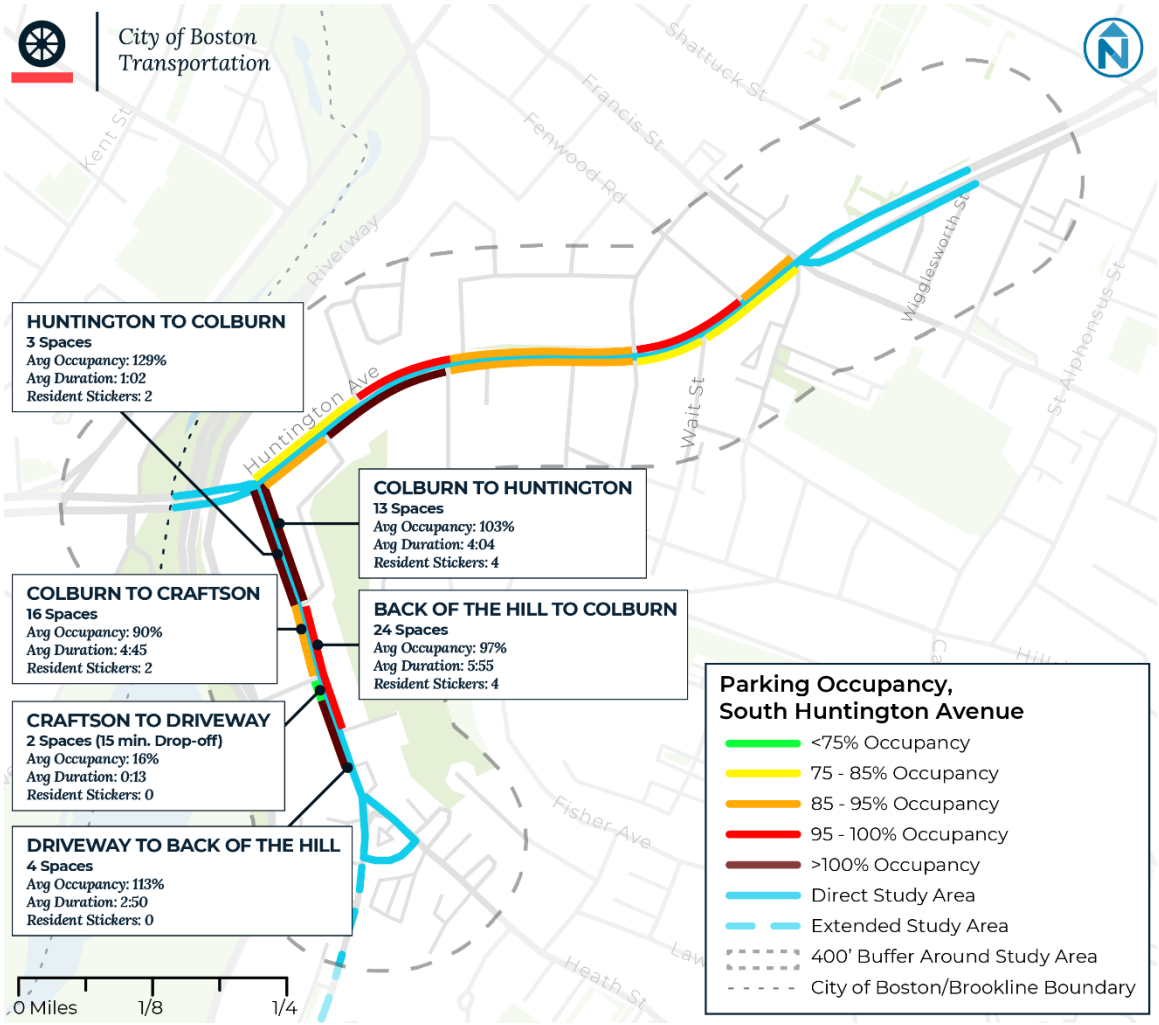


Figure 7: Parking Occupancy, South Huntington Avenue



As shown in Figure 6 and Figure 7, on-street parking is not fully utilized along the corridor, with more than 10% of spaces available, on average, along most of Huntington Avenue. Utilization at the east end of the Corridor is concentrated along the north side of Huntington Avenue between Fenwood Road and St. Albans Road, where average duration of parking was approximately four hours and no Mission Hill resident stickers were observed. At the west end of the corridor, utilization is concentrated on the south side of Huntington Avenue between Colburn Street and Parker Hill Avenue, where average utilization exceeded 100% due to parking in bus stops and at hydrants. Field observations note an eastbound Route 39 bus sideswiping a parked vehicle pulling into a bus stop.

Average parking duration in this segment was found to be approximately three hours. Out of 44 unique vehicles parked in this segment throughout the day, seven (16%) had Mission Hill resident parking permits. Overall, 14 out of 390 unique vehicles parked along Huntington Avenue (4%) had Mission Hill resident stickers, with the vast majority of vehicles without resident stickers exceeding the two-hour parking limit.

Along South Huntington Avenue, average parking utilization approaches or exceeds 100% except on the west side between Colburn Street and Crafton Way. Thirteen of the 60 unrestricted spaces along South Huntington Avenue were occupied by the same vehicle for the entire eight-hour study period; of these, only two vehicles displayed Mission Hill resident parking permits. Overall, 120 unique vehicles were observed along South Huntington Avenue, 13 of which (11%) had Mission Hill resident stickers.

One accessible parking space is provided within the Corridor, in front of 875 Huntington Avenue approximately 350 feet east of South Huntington Avenue. This space was occupied by a vehicle with a handicapped parking permit between 10:00 a.m. and 11:00 a.m. and was occupied again briefly by a vehicle with no handicapped permit at 1:45 p.m. Otherwise the accessible space remained empty throughout the study period.

To determine the municipality where vehicles parking along the corridor were registered, additional parking observations were conducted from 12:00 p.m. to 2:00 p.m. on Thursday, January 18, 2024, to obtain license plate data for matching with registration data. In addition, license plates were recorded from 7:00 p.m. to 8:00 p.m. on Thursday January 18, 2024, and between 7:00 a.m. and 8:00 a.m. on Friday, January 19, 2024, to evaluate overnight parking along the Corridor. License plates of vehicles parked in the evening were recorded and compared with the license plate of the vehicle parked in the same parking space the following morning to determine if the vehicle remained parked overnight.

From the license plate data collected, a total of 223 plates were matched to a current Massachusetts registration. Of these, 116 vehicles (52%) were found to be registered in Boston, 66 of which (30%) either displayed a Mission Hill resident sticker or were registered in zip code 02115, 02120, or 02130. Figure 8 outlines the remaining 107 vehicles (48%) matched to a registration location were registered in the following municipalities in:

Figure 8: Vehicle registration for parking

Number of Vehicles	Municipalities
12 vehicles:	Brockton

6 vehicles:	Quincy
5 vehicles:	Cambridge, Lynn, Randolph
4 vehicles:	Somerville
3 vehicles:	Chelsea, Newton
2 vehicles:	Amherst, Barnstable, East Bridgewater, Everett, Medford, Natick, Plymouth, Revere, Sandwich, Walpole, Waltham
1 vehicle:	Attleboro, Bedford, Bellingham, Braintree, Brookline, Canton, Danvers, Dedham, Dennis, Dighton, Foxboro, Framingham, Halifax, Hampden, Lakeville, Lawrence, Malden, Mansfield, Marlboro, Methuen, Milton, Needham, New Bedford, Norwood, Pembroke, Pittsfield, Plainville, Salisbury, Saugus, Shrewsbury, Springfield, Stoughton, Taunton, Townsend, Tyngsborough, Uxbridge, Watertown, Wayland, Westport, Weymouth, Whitman, Woburn, Worcester

A total of 56 vehicles were recorded as parked overnight along the Corridor, including 33 along Huntington Avenue and 23 along South Huntington Avenue. Overall, 28% of the 200 available parking spaces in the study area were occupied for overnight parking. Based on registration data, 23 vehicles (41%) parked overnight either displayed a Mission Hill resident sticker or were registered in zip code 02115, 02120, or 02130. One vehicle was registered in Boston zip code 02121. Eleven vehicles (20%) were registered in a municipality other than Boston, with one vehicle each registered in Amherst, Barnstable, Canton, Chelsea, Lakeville, Methuen, Newton, Saugus, Somerville, and Walpole, and one vehicle registered in Rhode Island. The remaining 21 vehicles (38%) did not have a matching registration record and the location of registration could not be identified.

Loading and Delivery

Commercial vehicle loading and deliveries typically occur in areas of convenience including bus stops, hydrants, and crosswalks, regardless of the availability of nearby available parking spaces and with little regard to the impact on pedestrian access and transit mobility. If parking were to be removed to reallocate curbside space along the Corridor, commercial loading zones should be identified and established on side streets, and the curb-to-curb width of the traveled way of Huntington Avenue and South Huntington Avenue should be sufficiently narrow to discourage curbside loading.

Overall Needs and Opportunities

- Based on the above parking observations, much of the on-street parking along the Corridor is used by non-residents throughout the day for durations exceeding the posted two-hour limit for vehicles without a Mission Hill resident parking permit.
- Only 28% of parking spaces along the corridor were observed to be used for overnight parking. Only six vehicles parked overnight were observed to be displaying a Mission Hill resident permit sticker.
- One accessible parking space is provided along the corridor. The need for accessible parking should be discussed with the community, with appropriate locations identified along Huntington Avenue and South Huntington Avenue or along side streets.

2 Safety Concerns

V. Transfers Across Modes

A variety of transit services operate through the Corridor. The intersection of Huntington Avenue & South Huntington Avenue is a key transfer point for riders connecting between Route 39 and Route 66, as well as nearby Routes 60/65 and Green Line D branch service at Brookline Village. Transferring between these services requires traveling through the Huntington Avenue/South Huntington Avenue intersection, which can be difficult and hazardous for riders.

- Visibility of MBTA Stop sign for alightings
- Walking Transfers between E Line and Brookline Village
- What might a future for the bus and E branch look like? What should the shared stations have?

Transfer location at Back of the Hill Station and Route 39 Stop. Photo Credit: Nelson\Nygaard

Overall Needs and Opportunities

- E Branch Station Consolidation
- Bus Boarding at new designed Bus and Trolley stations

Regional Travel Patterns

Journeys to and from the study area start or finish in locations throughout the greater Boston region. Figure 9 illustrates travel to and from the study area by time of day where Figure 10 shows the locations where trips to and from the study area either begin or end. Figure 9 depicts there is a higher concentration of trips to the study area in the mornings and a higher concentration of trips from the study area in the afternoons. The difference is not significant between the two, however, it does show that there is commuter demand to get to the study area.

Figure 10 depicts there are higher volumes of travel along some key corridors in the region, such as along Hyde Park Avenue and Huntington Avenue. Additionally, high volumes of trips either begin or end in Cambridge, Allston, Downtown Boston, and Charlestown. Even though these are the most noteworthy areas, most of the greater Boston region has a moderate level of travel to or from the study area, with very few areas having low trip volumes.

Figure 9: Transit Trip Start Times to and from the Study Area

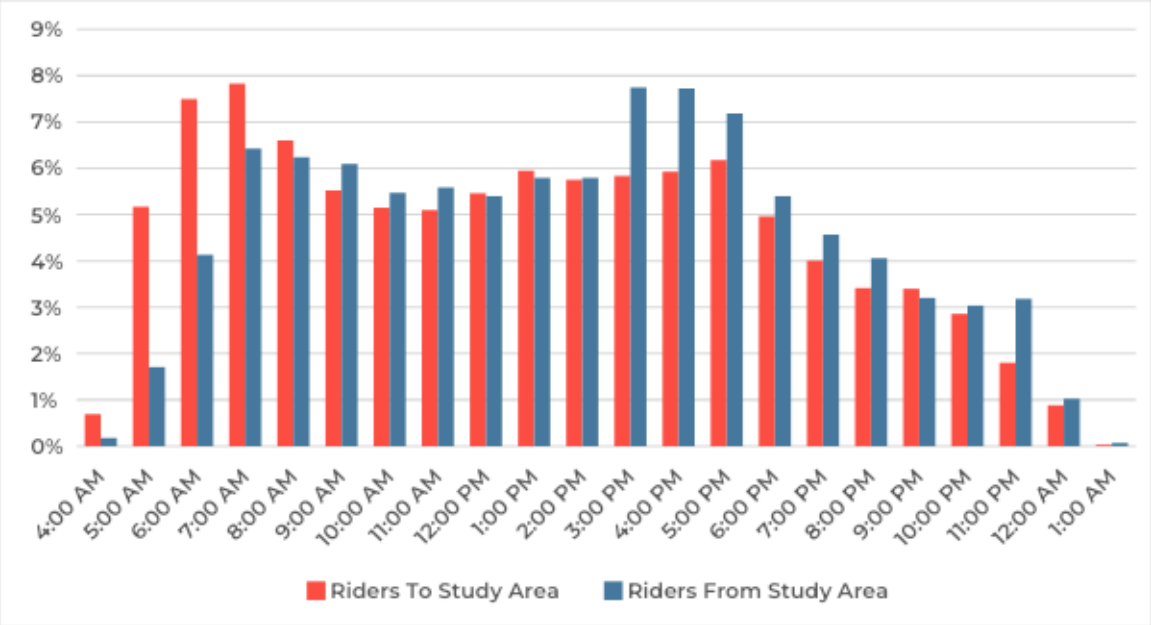
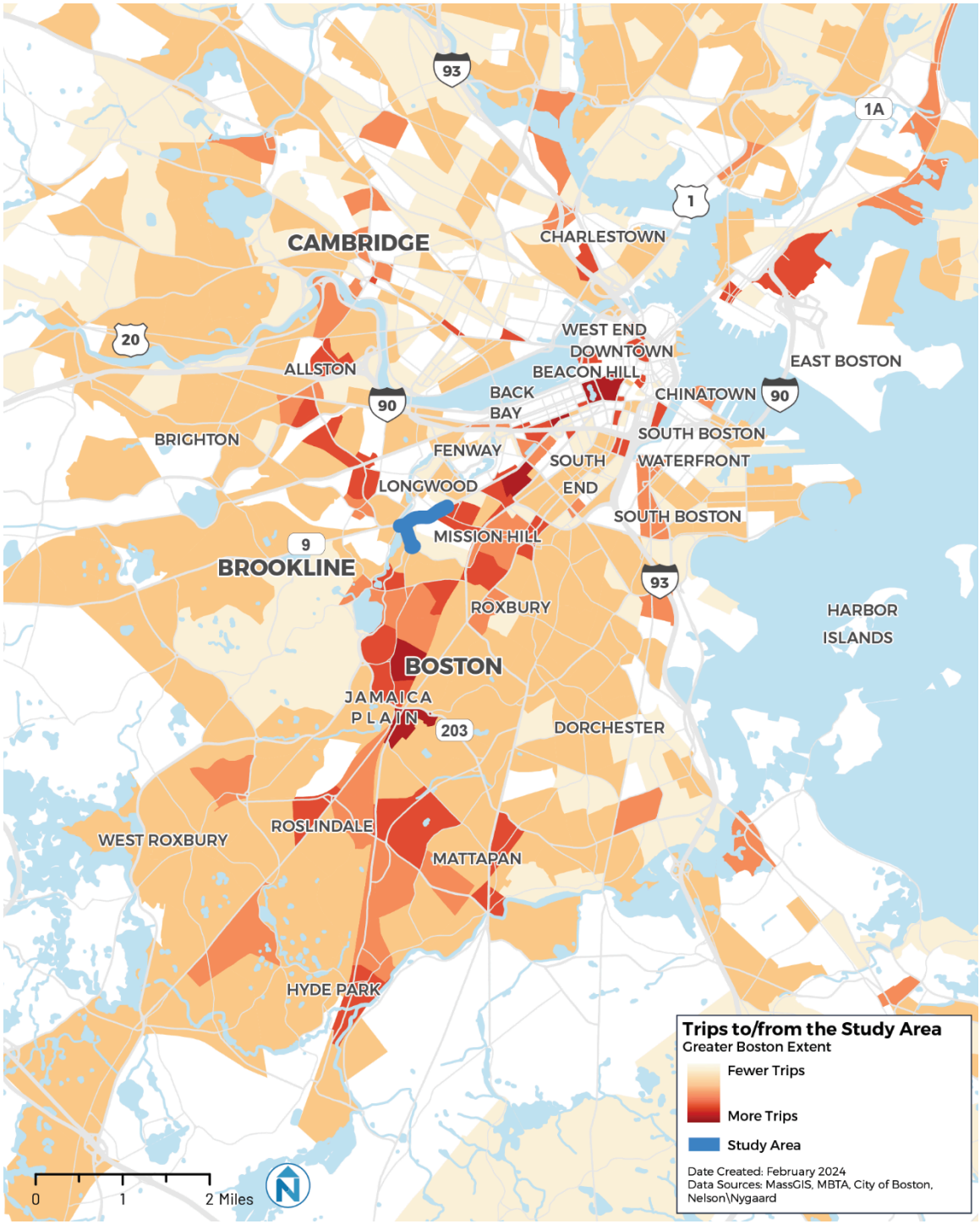


Figure 10: Transit Trips to and from the Study Area



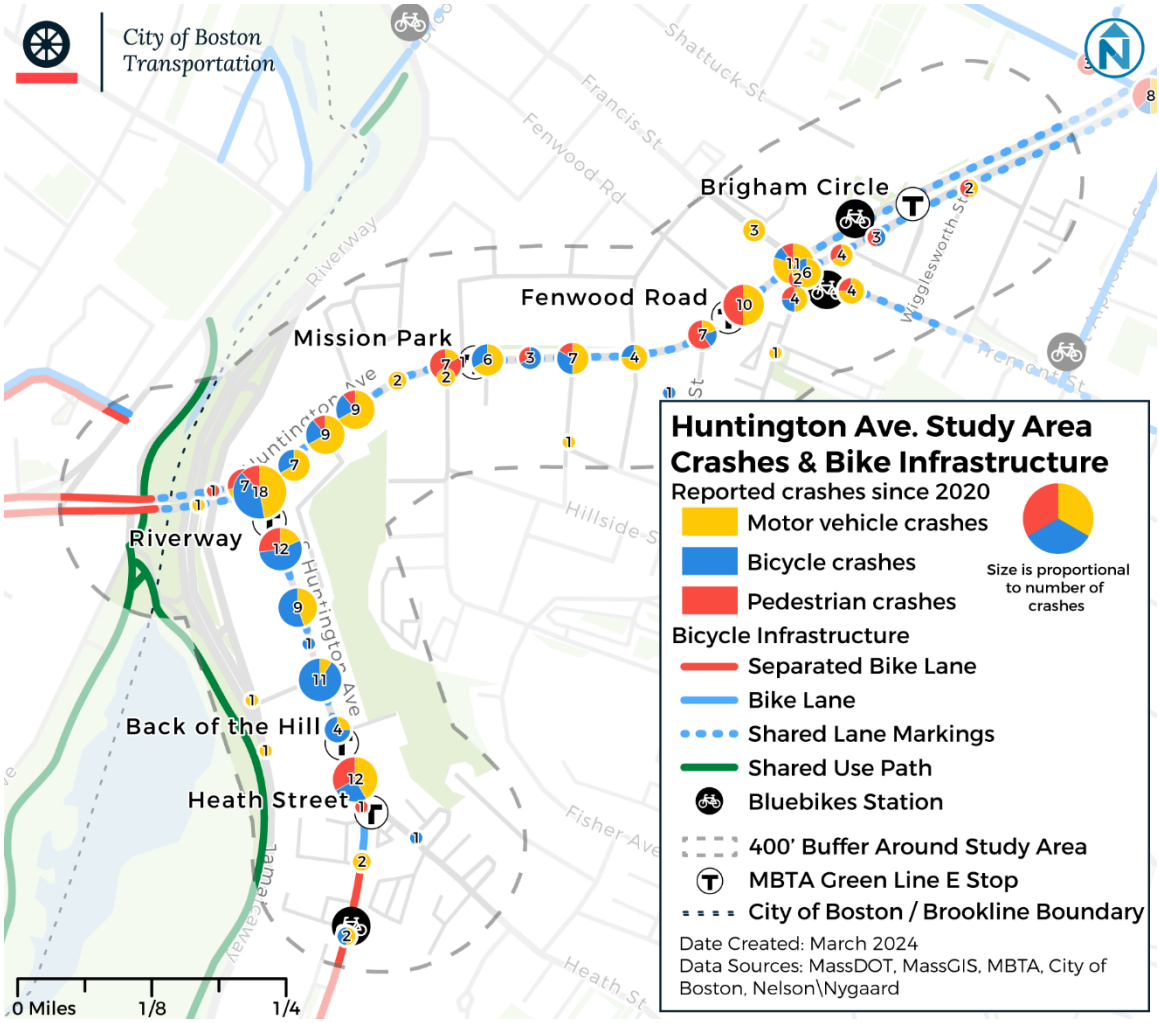
VI. Crash Data and Analysis

The conditions of the Huntington Avenue & South Huntington Avenue intersection make it a spot primed for potential crashes. With five different modes sharing road space—Green Line trolleys, buses, cars, bicycles, and pedestrians— the potential for conflict between modes is increased.

A total of 206 crashes occurred within the study area between 2020 and 2023. Crashes are frequent along the Corridor west of Brigham Circle, with the largest clusters around the Huntington Avenue at Tremont Street intersection, the Huntington Avenue at South Huntington Avenue intersection, and along South Huntington Avenue. By mode, most motor vehicle crashes occurred along Huntington Avenue between Brigham Circle and South Huntington Avenue, as well as at Heath Street and several side street intersections with few crashes. The intersection of Tremont Street at Huntington Avenue is a hotspot for motor vehicle crashes. Bicycle crashes were most prevalent along South Huntington Avenue, where they made up the vast majority of each crash location. Craftson Way at South Huntington Avenue is a hotspot for bicycle crashes. Huntington Avenue also had many bicycle crashes just east of the South Huntington Avenue intersection, as well as between Misson Park and Fenwood Road Stations. Pedestrian crashes occurred in more discrete locations, with the highest numbers at Fenwood Road, Mission Park, the Huntington Avenue & South Huntington Avenue intersection, and Heath Street Station.

The City of Boston's Everyone Deserves Safe Streets plan identifies South Huntington Avenue as a priority location for future cycling infrastructure. According to the same plan, segments of Huntington Avenue and South Huntington Avenue in the study area are among the top 3% high-crash corridors for biking in all of Boston. The plan outlines adding separated bike lanes along the entirety of South Huntington Avenue to connect with Washington Street in Brookline, including the exploration of multiple configurations in partnership with area residents for the Heath Street to Huntington Avenue segment.

Figure 11: Motor vehicle, bicycle, and pedestrian crashes along the Corridor



Overall Needs and Opportunities

- Minimize Conflict Points with Green Line and vehicles and pedestrians
- Redesign/Quick build of HSH Intersection
- Bike Lane addition
- Upgrade to ADA
- Wider sidewalks
- Slower speeds

3 Needs and Opportunities

This chapter of the report synthesizes findings from the project background, existing service, access to transit, and constraints and challenges chapters into a concise summary of issues and needs for each segment. Needs highlighted in this section represent findings based on the analysis conducted in this and previous studies, such as the Route 39 TPC Speed, Reliability, and Access Needs Report, striving to account for other planned and ongoing changes to roadways, private developments, and MBTA service. Addressing the needs and opportunities identified in this chapter will support City of Boston and MBTA GLT project goals to improve safety, accessibility, and reliability, ultimately producing a multimodal corridor for current and future pedestrians, cyclists, and riders.

Segment 1: Brigham Circle (Wigglesworth Street to Fenwood Road)

Figure 12: Segment 1 map

Key Issues and Opportunities

- Boardings and alighting occur in the middle of the roadway with oncoming traffic

    - Newly designed designated boarding/alighting stations
- Accessibility challenges for transit riders
    - Redesign Intersection
- Slow Speeds for bus routes
    - Consolidate bus stops

Segment 2: Fenwood Road to Mission (Fenwood Road to Parker Hill Avenue)

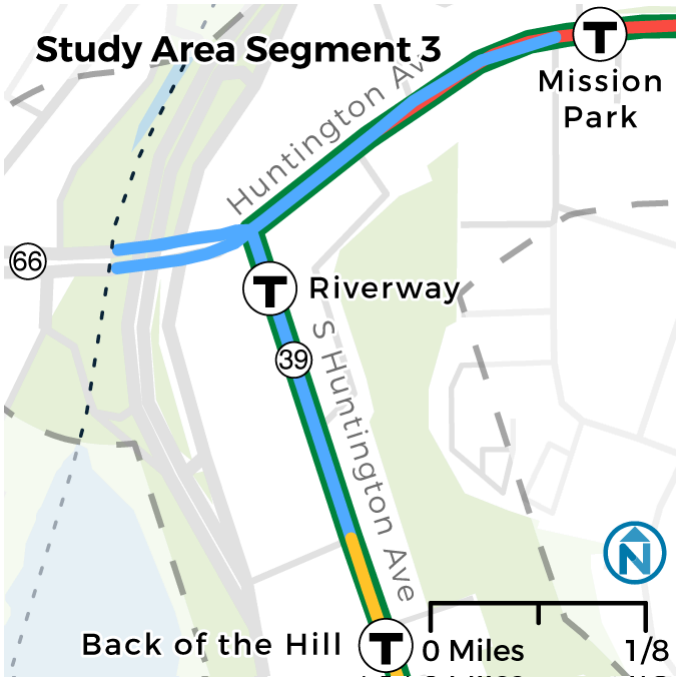
Figure 13: Segment 2 map

Key Issues and Opportunities

- Boardings and alighting occur in the middle of the roadway with oncoming traffic
    - Newly designed designated boarding/alighting stations
- Accessibility challenges for transit riders
    - Redesign Intersection

Segment 3: Riverway (Huntington Avenue and South Huntington Intersection)

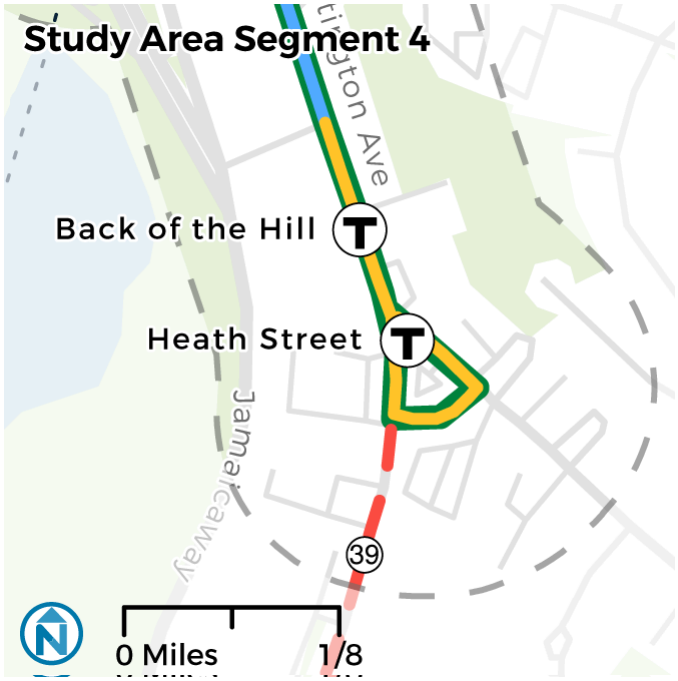
Figure 14: Segment 3 map



- Boardings and alighting occur in the middle of the roadway with oncoming traffic
    - Newly designed designated boarding/alighting stations
- Bus Operators report difficulties making turn from South Huntington and Huntington, especially when Green Line is moving the same time / Accessibility challenges for transit riders
    - Short-term tactical daylighting
    - Removal of small traffic island to make left turn from Huntington to South Huntington easier for the bus
- Double parking prevents accessible boarding to and from transit
    - Access to accessible parking

Segment 4: Back of the Hill to Heath Street (South Huntington Avenue and Heath Street)

Figure 15: Segment 4 map



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