MAXIMUM PARKING RATIOS

For large development project review

City of Boston
Transportation

Maximum Parking Ratios guideline is part of a comprehensive update to the **transportation development review process** by the Boston Transportation Department for new large projects. For more information on the transportation development review process, please visit: http://www.boston.gov/transportation/transportation-development-review.

ACKNOWLEDGMENTS

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Technical Documentation
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City of Boston Transportation   City of Boston Environment   boston planning & development agency

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I. BACKGROUND

The goal of this document is to define maximum parking ratios for large development review projects subject to the Transportation Access Plan Agreement process, and outline the methodology, analysis, and reasoning for the new ratios. For development projects greater than 50,000 sq ft, there are no minimum parking ratios.

WHY CHANGE PARKING RATIOS?

Research has demonstrated that increased availability of free or discounted parking correlates directly to an increase in drive-alone trips. To reduce congestion, emissions, unused parking spaces, and meet Go Boston 2030 goals for drive alone rates to work, it is necessary to re-examine the maximum parking ratios.

Parking is heavily subsidized in Boston and across the country. The current federal tax code "sends checks to people for driving to work,"[1] heavily subsidizing parking in cities and downtown areas by approximately $7.3 billion per year, according to a Transit Center report, compared with $1.3 billion per year spent on commuter transit benefits[2]. According to the same report, this parking benefit adds about 820,000 single occupancy vehicle commuters to U.S. roads, adding more than 4.6 billion miles traveled per year. In fact, a transit benefit "removes only about a tenth as many vehicles from the roads" as a parking benefit adds. Providing "free" car parking offsets the effects of incentives for transit use, carpooling, and bicycling[3].

Other studies and reports agree that parking and parking pricing are one of the most important factors in determining commuter preference for cars. The annual cost to taxpayers for commuter parking benefits for downtown Boston alone is $34.7 million[4]. Research shows that providing "free" car parking offsets the effects of incentives for transit use, carpooling, and bicycling. Employers who offer free or subsidized parking as a benefit create an economic disincentive for those who choose to skip the benefit and ride the train instead. In fact, in a California study, when employers offer parking cash out programs, allowing employees to exchange their subsidized parking space for cash, the number of cars driven to work were reduced by 11%[5].

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[1] Transit Center (2017). Who Pays for Parking.
https://transitcenter.org/wp-content/uploads/2017/09/TC-Who-Pays-For-Parking-Publication-20170912-1.pdf
[2] Rosenfield, A. (2018). *Driving Change: How Workplace Benefits Can Nudge Solo Car Commuters Toward Sustainable Modes* (MST/MCP Thesis). Massachusetts Institute of Technology.
[3] Transit Center (2017).
[4] Ibid.
[5] Shoup, D. C. (1997). Evaluating the effects of cashing out employer-paid parking: Eight case studies. *Transport Policy*, 4(4), 201-216.

Parking is often overbuilt for multifamily residential developments in the Boston region. The Metropolitan Area Planning Council's (MAPC) recent report, *Perfect Fit Parking*, found that 30% of the available parking spaces they surveyed at 189 residential sites across the Boston region were not being used. At a quarter of the sites, less than half of the parking was occupied[6]. As the MAPC report points out, that space can be used to build more housing, public spaces, and other higher and better uses. Instead of encouraging development of storage space for vehicles, the new maximum parking ratios for each site will be better suited for the built environment surrounding it.

PARKING AND LARGE DEVELOPMENT REVIEW

Access Boston 2000-2010: Parking in Boston, a parking report published by the Boston Transportation Department (BTD) in 2001 set maximum parking ratios for Article 80 developments, or large developments equal to or greater than 50,000 square feet. Article 80 guidelines override all underlying zoning requirements, and parking minimums set by the Boston zoning code do not apply. However, this is not clear in the *Access Boston* report, and in practice there is confusion among developers and residents on whether underlying zoning parking minimums are applicable to large developments.

BTD can enforce parking ratios through the Transportation Access Plan Agreement (TAPA), a legal agreement that requires the developer to analyze, review, and mitigate a development's transportation impacts. There is no equivalent policy tool or mechanism for small development review for projects less than 50,000 square feet.

A lower parking ratio for developments will require developers and property managers to implement more aggressive Transportation Demand Management (TDM) strategies to provide tenants with viable mobility alternatives and options. To this end, BTD has developed a TDM point system tool that must be completed by all new large developments subject to the Article 80 process.

TDM strategies include subsidies for transit, bikeshare, carshare, among other strategies to incentivize tenants to use sustainable transportation. Developments are assigned points based on their location and select strategies to meet their target points. Each strategy is assigned points based on its impact on reducing driving. The TDM tool can be found on **boston.gov/tdm-point-system**.

The Boston Transportation Department's old parking ratios for new development is based on neighborhood and proximity to transit. Table 1 shows the older guidelines for large development review (Article 80) projects.

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[6] Metropolitan Area Planning Council (2019). Metro Boston Perfect Fit Parking Initiative Phase II Report. https://perfectfitparking.mapc.org.

PARKING FREEZE AND RESTRICTED PARKING ZONE

Since 1973, downtown Boston has been subject to a "freeze" on commercial parking, imposed by the Commonwealth and the U.S. EPA as a means to reduce air pollution and meet the Clean Air Act. It sets an absolute cap on public, off-street parking at 35,556[7] spaces.

In 1989, an additional parking freeze was added to East Boston to address the rise in airport-related parking uses in the neighborhoods. The East Boston Freeze caps rental car spaces at 4,012 and park-and-fly operations at 1,098 spaces, allowing only for their transfer out of the community and onto airport property. There is also a parking freeze at Logan Airport that is managed by Massport with the Massachusetts Department of Environmental Protection (DEP).

Table 1. *Access Boston* summary of district based parking guidelines for large development review guidelines.

LOCATION	OFFICE/NON- RESIDENTIAL SPACES PER 1,000 SQUARE FEET	RESIDENTIAL SPACES PER UNIT	HOTEL SPACES PER UNIT
Financial District/Government Center/Bulfinch Triangle, North End, West End/Massachusetts General Hospital, Beacon Hill, Chinatown/Leather District, Bay Village, Back Bay, South End (west of Tremont Street)	0.4	0.5 - 1.0	0.4
South End (east of Tremont Street), Boston Medical Center, Lower Roxbury/Crosstown	0.75 - 1.0	1.0 - 1.5	0.4
Dudley Square, Mission Hill	0.75 - 1.0	0.5 - 1.0	0.4
Longwood Medical Area, West Fenway/Kenmore, East Fenway	0.75	0.75	0.4
South Boston Waterfront	DOWN TO 0.7	1.0 - 1.5	0.4
Allston/Brighton, Charlestown, Dorchester, East Boston, Jamaica Plain, Mattapan, Roxbury, South Boston (residential neighborhood)	Distant from MBTA station 1.0 - 1.5 Near MBTA station 0.75 - 1.25	Distant from MBTA station 1.0 - 1.5 Near MBTA station 0.75 - 1.25	N.A.
Hyde Park, Roslindale, West Roxbury	1.0 - 1.5	1.0 - 1.5	N.A.

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[7] The City created the downtown Boston parking freeze in 1976 under rules set by the Massachusetts Department of Environmental Protection, and the U.S. Environmental Protection Agency (40 CFR 52.1135).
The freeze limits the availability of commercial parking spaces in downtown Boston.
https://www.boston.gov/departments/environment/air-pollution-control-commission/downtown-parking-freeze

South Boston came under a parking freeze in 1993 when the Commonwealth imposed a cap on parking in order to settle a pending lawsuit brought by environmental advocates over impacts from the Central Artery/Tunnel project. The South Boston Freeze applies to all parking (except existing residential) in the piers and commercial/industrial areas and prohibits new remote parking in the residential area. The freeze caps all types of off-street parking at 1994 levels.

The Boston Air Pollution Control Commission (APCC) administers the parking freezes (see Figure 2) that cap all or part of the parking supply in a geographic area. Boston's parking freezes are included in the State Implementation Plan (SIP). The SIP is approved by the U.S. Environmental Protection Agency.
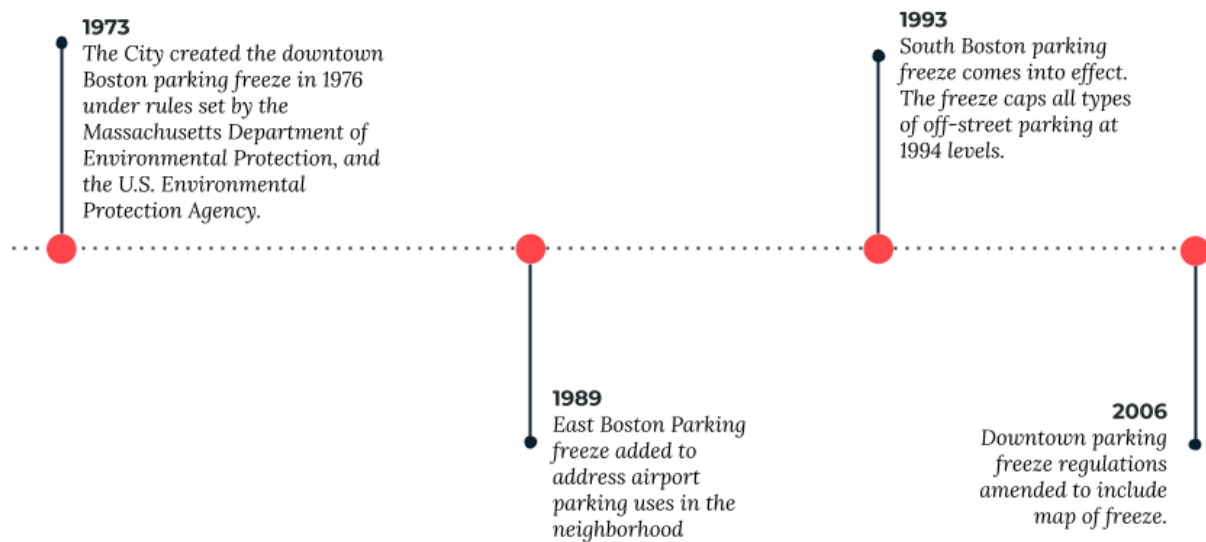
1973
The City created the downtown Boston parking freeze in 1976 under rules set by the Massachusetts Department of Environmental Protection, and the U.S. Environmental Protection Agency.

1993
South Boston parking freeze comes into effect. The freeze caps all types of off-street parking at 1994 levels.

1989
East Boston Parking freeze added to address airport parking uses in the neighborhood

2006
Downtown parking freeze regulations amended to include map of freeze.

Figure 1: Timeline of the establishment of APCC parking freeze.

Restricted parking districts are zoning tools that require developers to justify parking levels that will be built as part of the development project. Parking is considered a "conditional use" in these areas. Development projects must demonstrate the need for new parking, subject to Boston Planning and Development Agency (BPDA) and Boston Zoning Board of Appeal approval. BTD and APCC provide input to the approval process.

The zoning code does not require a minimum number of off-street spaces. Projects that undergo Article 80 Large Project Review, Institutional Master Plans and Planned Development Areas are not subject to the Restricted Parking District. However, the Restricted Parking District acts as a red flag to alert developers that the appropriate amount of parking must be carefully studied. For proposed projects subject to or electing to comply with Large Project Review, off-street parking spaces and off-street loading

facilities are determined through the community review process. Table 2 provides a summary of the parking freeze areas, as detailed by *Access Boston.*

Since *Access Boston's* parking guidelines went into effect, the Boston Transportation Department has launched and expanded the BlueBikes program to almost every neighborhood in the City, launched the Drive Boston program that allocated on and off street parking spaces to car share companies, and has implemented five bus priority lanes in Roslindale, Brighton, Downtown, and the West End with many more due to be implemented over the next five years.

Increased multimodal options, and a commitment to expanding access to rail or key bus routes, and car share and bikeshare to 100% of residents warrants a re-evaluation of the amount of space the city allocates to parking. In an effort to increase accessibility and prioritize the movement of people, new ratios will encourage developers to prioritize alternative modes of transportation and reduce the number of vehicle trips developments generate.

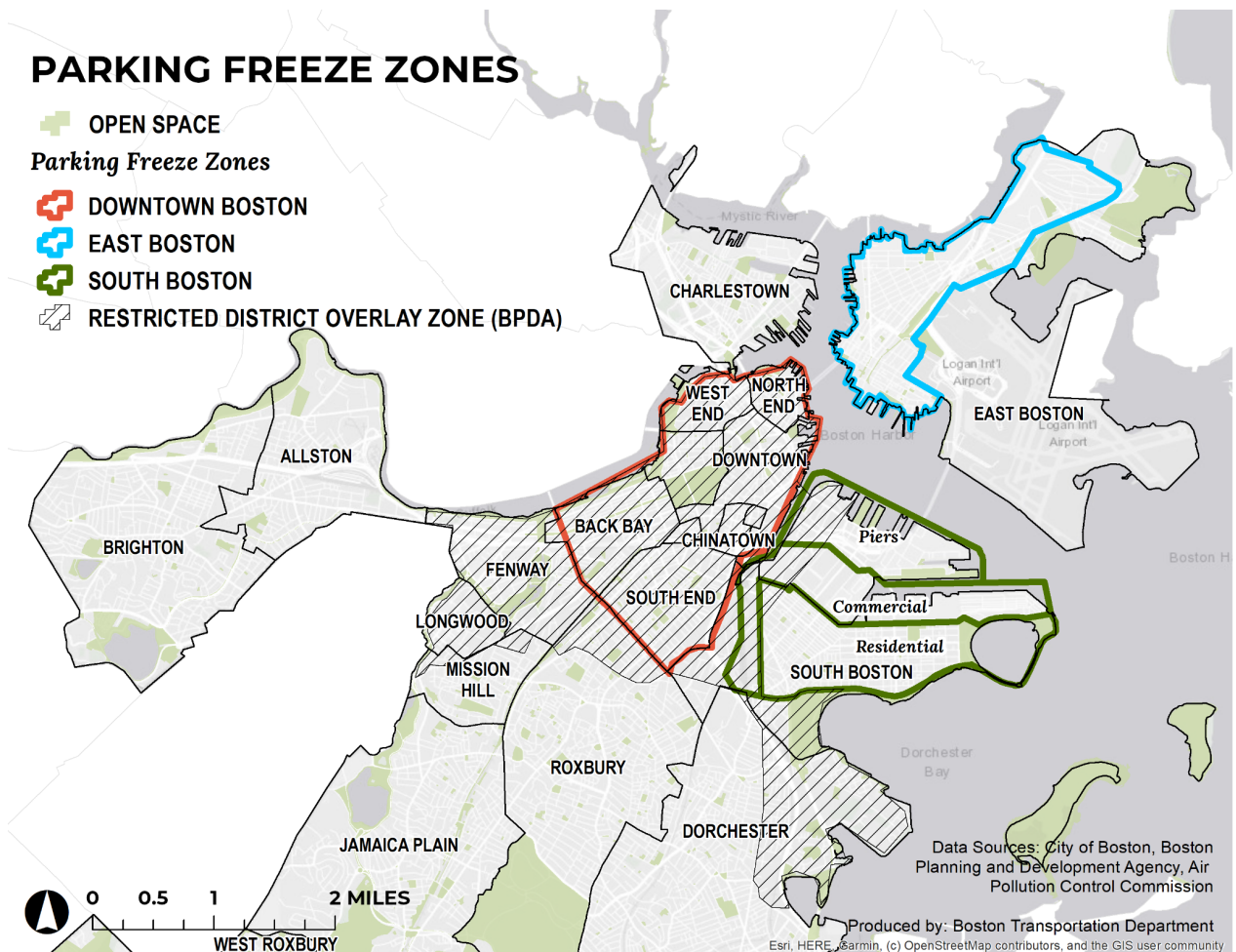**Figure 2.** Parking freeze and restriction zones.

Table 2: Summary of Parking Freeze Districts.

LOCATION	OVERSIGHT	KEY ELEMENTS
Boston Proper	Boston Air Pollution Control Commission	Caps general public parking at 1975 levels of 35,556 spaces. Allows BAPCC to grant exemption for certain types of spaces based on need (i.e., residential, hotel guest, employee). Project proponents must submit an application to the BAPCC and have the burden of proof to demonstrate to the Commission that the general public is excluded from parking.
East Boston	Boston Air Pollution Control Commission	Caps rental car spaces at 1989 level of 4,012 spaces. Caps park-and-fly spaces at 1,098 spaces.
South Boston	Boston Air Pollution Control Commission	Creates three districts: • South Boston Piers Zone with 16,623 parking spaces. • South Boston Industrial Zone with 16,453 spaces. • South Boston Residential Zone with 11 remote spaces. Caps all types of off-street parking at 1994 levels. Provides for a 10-percent increase after the base inventory and rules are approved by DEP. Prohibits use of spaces in industrial and residential areas for remote parking to Piers area. Exempts residential parking spaces. Requires 10-percent set-aside for "off-peak" parking.
South Boston/ Massport	Boston Air Pollution Control Commission/ Massachusetts Department of Environmental Protection	Caps all types of off-street parking in Massport area at 1994 level of 6,064 spaces in the South Boston Piers Zone and 2,933 Spaces in the South Boston Industrial Zone. Provides for a 10-percent increase after the base inventory and rules are approved by DEP. Exempts residential parking spaces. Requires 10-percent set-aside for "off-peak" parking.
Logan Airport	Massachusetts Department of Environmental Protection / MassPort	Caps all off-street parking at 1989 level of 19,315. Allows a maximum of 5,225 employee parking spaces and 115,467 commercial parking spaces. Includes provision to bring remote park-and-ride spaces onto the airport with a one-for-one increase in the Logan commercial inventory and a decrease in the East Boston park-and-fly inventory.

II. METHODOLOGY FOR MAXIMUM PARKING RATIOS

For Article 80 projects, developments above 50,000 square feet that must undergo the TAPA process, **there are no minimum parking ratios required by the Boston Transportation Department.** The parking ratios specified here are maximums.

These ratios are determined by measures of the built environment that research has shown is strongly related to travel behavior and reduction of vehicle miles traveled. Location and the built environment around each new development has a discernable impact on whether tenants choose transit or walking over driving to and from the development.

Ewing and Cervero[8] reviewed more than 200 studies on travel behavior and the built environment. They found that walking is correlated with the number of destinations within a walkable distance, distance to a store, land use diversity, and intersection/street density. Transit use was most correlated with distance to the nearest transit stop and street network design variables. The following measures that were chosen for this analysis were based on existing research, available data, and the importance to align the analysis with the Air Pollution Control Commission's parking freezes and the restricted parking district overlay zone.

INCORPORATING NON-WORK TRIPS

We explored the possibility of using a land use diversity index since it is a measure important to both walking and transit use, and indicates that people can take non-work trips without the use of a single occupancy vehicle. Our initial analysis of land use diversity yielded results that did not match what we know on the ground. Instead, we opted to use WalkScore by zip code as a proxy for walkability, a dataset that is familiar to many people and is easy to understand. WalkScore analyzes walking routes to nearby amenities. Points are awarded based on the distance to amenities in each category. Amenities within a 5 minute walk (0.25 mile) are given maximum points. A decay function is used to give points to more distant amenities, with no points given after a 30 minute walk[9]. The Walk Score methodology does not take into account public transit, bikeshare, or carshare into account.

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[8] Ewing, R., & Cervero, R. (2010). Travel and the Built Environment: A Meta-Analysis. *Journal of American Planning Association*, 76 (3), 265-294. Doi: 10.1080/01944361003766766.
[9] Taken directly from Walk Score methodology website: https://www.walkscore.com/methodology.shtml

We also used proximity to grocery store locations to better incorporate travel behavior for non-work trips. The other datasets, including number of jobs accessible within 30 minutes by transit, prioritize journey to work trips, skewing the analysis towards work trips even though 43%[10] of all trips in Massachusetts are home-based trips for non-work-related activities and commute trips only represent only one-fifth of the trips taken in Boston, based on data from the Central Transportation Planning Staff (CTPS).

The most reliable and robust datasets are work trip data which represent trips that many people make ten times a week. While this is somewhat mitigated by proximity to stores and by the Walk Score index, there is more work that needs to be done to better incorporate neighborhood-level proximity to desirable destinations.

DATA ANALYSIS

Network Analyst in ArcGIS was used to create half mile walksheds for MBTA commuter rail stations, key bus route stops, BlueBikes stations, and car share locations. These modes are combined into a single multimodal measure that supports reducing the need for car ownership and for a dedicated parking space by offering multiple mobility choices within a ten minute walk or a half-mile walkshed.

Half-mile walksheds were also created for MBTA subway stations. Proximity to rapid transit stations have the highest and strongest correlation with people choosing transit over driving alone, so it is its own measure. Other measures we used include the number of jobs accessible by transit, proximity to grocery stores, and whether parcels fall under the restricted parking overlay zone. Maps of each of the criteria can be found in the **Appendix**.

A parcel based analysis provides a nuanced view of the city. Non-developable land (permanently protected open space, water bodies, cemeteries, and Logan Airport) is excluded from the analysis. For each measure, the parcel score is calculated and normalized between 0 and 1 (Figure 4).

There are three ways parcels were scored in this analysis. The first is by assigning existing attributes to parcels based on parcels' locations, and normalizing the scores 0 to 1. This allows scores between measures such as job accessibility by transit in which the number of jobs range from 0 to 700,000 to be comparable with measures such as Walk Score that has scores that range from 55 to 99. **Normalizing scores guarantees that scores are on the same scale and are comparable.**

This is an example of a normalized score for a parcel with a Walk Score of 70:

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[10] Massachusetts Department of Transportation (2012). *Massachusetts Travel Survey 2010 - 2011*. Retrieved from https://www.mass.gov/files/documents/2017/10/17/MTSFinalReport.pdf

Normalized Score $= (ParcelWalkScore - MinScore) / (MaxScore - MinScore)$
$$= (70 - 55) / (99 - 55)$$
$$= 0.34$$

Because Boston has scores that start at 55, it means that a Walk Score of 55 is normalized to 0. In other words, in the Boston context, a Walk Score of 55 is equivalent to a score of 0 on a scale from 0 to 1.

The second method for assigning parcel scores between 0 and 1 is by proximity (Figure 3). The closest parcel to a point of interest such as a subway or grocery store is assigned a score of 1. Parcel scores gradually decrease until the farthest parcel is assigned a score of 0.

The third method is through binaries, or true/false assignments (Figure 3). In this method, parcels within a walkshed or area of interest are assigned a score of 1. Parcels outside a walkshed or area of interest are assigned a score of 0.
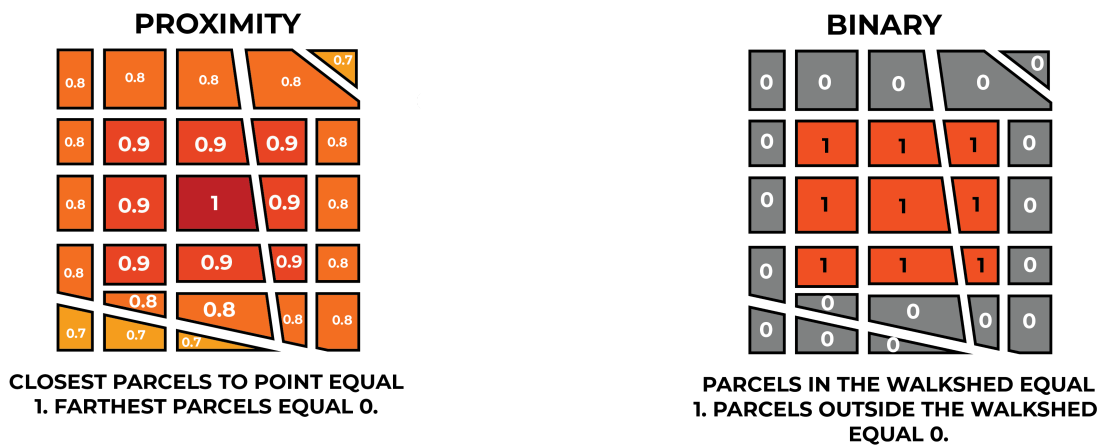

Figure 3: These two graphics give an illustrative example of how parcels are assigned scores based on proximity (left) and binary (right).

The multimodal score is unique in that it already incorporates the scores of several measures including commuter rail/ferry stations, key bus route stops, car share spaces, and bikeshare stations. Each of these measures has a 10 minute or half-mile walkshed using Network Analyst in ArcGIS. Parcels inside the walksheds are given a score of 1 and parcels outside the walkshed are given a score of 0.

The weighted sum is calculated as follows:

Multimodal Weighted Sum $=$ (*CommuterRail/Ferry Score* $\times$ 10) + (*KeyBusRoute Score* $\times$ 10) + (*Bikeshare Score* $\times$ 8) + (*CarShare Score* $\times$ 7)

The multimodal score is then rescaled (normalized) to a score between 0 and 1. The results of each normalized criteria can be viewed in Figure 4.
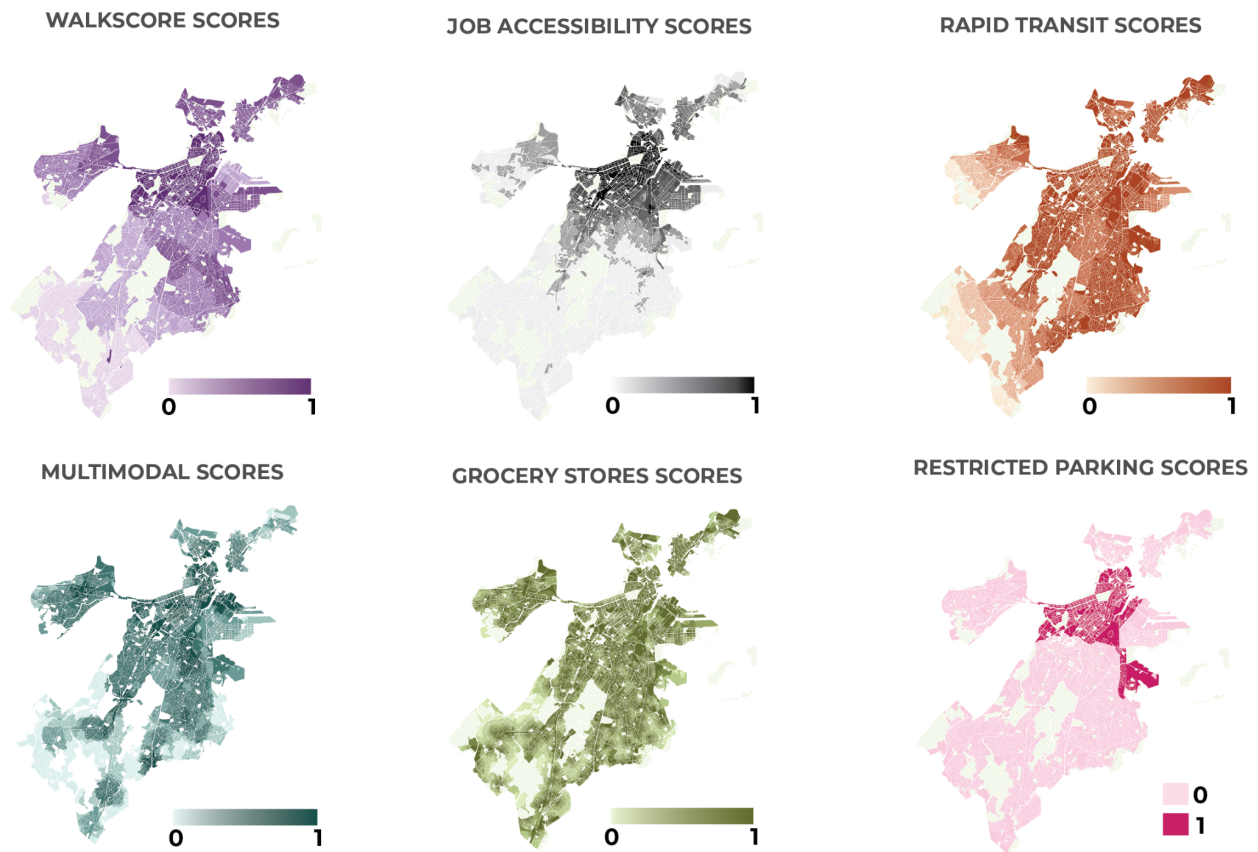

Figure 4: The normalized scores of each measure.

Each criteria score is then weighted (Table 3), or multiplied by a number to indicate its priority in the analysis. The weights are on a scale of 1 to 10 and were determined based on each measure's importance to travel behavior based on research and observations in the field and based on feedback from stakeholders. Living next to a grocery store for example is not as important to switching modes as living next to a subway station. For each parcel, all the weighted measures are summed into one score.

Total Weighted Sum = (*WalkScore Score* ✕ 10) + (*JobAccessibility Score* ✕ 7) + (*RapidTransit Score* ✕ 10) + (*GroceryStore Score* ✕ 5) + (*Multimodal Score* ✕ 8) + (*RestrictedParking Score* ✕ 3)

The weighted sum ranges from 5.5 to 42.4. This is not an easily understood scale. So it is converted to a scale between 0 and 100 for a final total score that is easy to understand and to bring a level of cohesion to the numbers. All the parcels have a final score between 0 and 100. The equation used to calculate the total score for each parcel is as follows:

Total Score = ((*WeightedSum − MinScore*) / (*MaxScore − MinScore*)) * 100

REVISIONS

The analysis was revised after numerous conversations with developers, transportation consultants, brokers, architects, community development corporations, and other stakeholders.

Unlike the rest of the subway system, the Silver Lines and the on-street portion of the Green Line branches function more similarly to a key bus route that is subject to traffic, either within the same lane or at intersections. Because it is subject to traffic, service levels for the Silver Lines and the on-street portion of the Green Line branches are worse than under- or above-ground subway lines.

To take the service levels into account, the Silver Lines and the on-street portion of the Green Line branches are categorized under Key Bus Routes instead of Subways in the analysis. This can also be viewed in the maps shown in the Appendix.

III. MAXIMUM PARKING RATIOS

The results of the total score for each parcel can be viewed in Figure 5. A table explaining how the composite scores in Figure 5 relate to parking ratios can be seen in Table 4. A higher composite score indicates that residents and tenants are located in a transit-rich, walkable area, accessible to grocery stores, multimodal options, and to a high number of jobs within 30 minutes by transit.

The new ratios better reflect a site's multimodal transportation and accessibility options. As multimodal options expand, parcels' scores may change over time.

The residential parking ratios have been reduced based on MAPC's parking demand data collected for 189 sites with almost 200 multifamily residential developments in 14 municipalities. On average, only 70% of the spaces were full when surveyed[11]. That rate is even lower for affordable housing developments in which only 0.55 cars per household were parked. The study's scope covered areas throughout the greater Boston region, including municipalities with less access to multimodal options and with lower densities than Boston. The new parking ratios for residential units listed in Table 4 reflect the study in addition to discussions with developers, brokers, and other stakeholders in the City. Parcels with higher scores have lower ratios and parcels with lower scores have higher ratios. The new ratios better reflect the surrounding environment of new developments.

Under the revised TAPA guidelines, all developments will not be allowed to exceed these maximums. Each development must specify its ratios by land use. Combining land uses is not permitted except where specified in Table 4. Affordable housing developments must abide by the new parking ratios and TDM requirements, whenever possible. BTD may grant exceptions on a case by case basis. TDM considerations should not prevent affordable housing from being developed but should not excuse higher parking and more congestion either.

Ratios apply for all net new parking ratios for a development. Developments with multiple parcels should apply ratios based on the parcel with the higher composite score.

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[11] Metropolitan Area Planning Council (2019). Metro Boston Perfect Fit Parking Initiative Phase II report. https://perfectfitparking.mapc.org/

Table 3: Table of measures and their weights on a scale of 1-10.

WEIGHT	DESCRIPTION
WALK SCORE	
10	Walk Score by zip code comes from Boston Planning Development Agency (BPDA) and Redfin Real Estate company. Each parcel is assigned a score based on the Walk Score Zip Code it is in and then normalized between 0 and 1.
NUMBER OF JOBS ACCESSIBLE BY TRANSIT IN 30 MINUTES	
7	This 2017 dataset comes from the Accessibility Observatory at the University of Minnesota. It was created using GTFS (General Transit Feed Specification) data for all public transit options, Employment Census Data, OpenStreets Maps, and pedestrian and road networks to calculate the number of jobs accessible within 30 minutes by transit for each Census block during weekdays between 7 AM and 9 AM. Parcels are assigned the number of jobs accessible by transit based on the Census block it is in. The parcels are then normalized between 0 and 1.
PROXIMITY TO RAPID TRANSIT STATIONS (EXCEPT SILVER LINE & ABOVE GROUND GREEN LINE STOPS)	
10	ArcGIS's Generate Near Table feature measures how far each parcel is from rapid transit station walksheds. Because the furthest parcels have the highest distances, we used the *inverse normalization*[12] formula to assign the furthest parcels a score of 0. Parcels closer to the stations were scored gradually higher and the parcels within the half mile walkshed were given a score of 1.
AREAS WITHIN 10 MINUTES OF COMMUTER RAIL OR FERRY (10), KEY BUS ROUTES, SILVER LINE, AND ABOVE GROUND GREEN LINE STOPS (10), CAR SHARE (7), AND BIKESHARE (8)	
8	Each of these measures is scored using a boolean (binary) formula - parcel is assigned a score of 0 if it is outside the walkshed and 1 if it is inside the walkshed. Each of the measures are scored and weighted (the numbers next to each mode above) separately before they are summed into a Multimodal Score.
PROXIMITY TO GROCERY STORES	
5	We included all food retailersexcept pharmacies, drug stores, and convenience stores (dataset created by MAPC and Tufts University). Using ArcGIS's Generate Near Table feature, parcels near the grocery store are scored 1 and those further away are scored gradually lower until the furthest parcel is given a score of 0. When normalizing these scores on a scale of 0 to 1, an inverse normalization formula was used.
WITHIN THE RESTRICTED PARKING ZONE (BINARY)	
3	Parcels within the restricted parking zone will be assigned a score of 1, which indicates justification for lower parking ratios. Parcels outside the restricted parking overlay zone are given a score of 0.

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[12] To normalize a value 0 to 1 using the inverse normalization formula, we used: $(MaxScore - ParcelScore) / (MaxScore - MinScore)$

Figure 5: The final total scores of the parking ratio methodology.

PARKING RATIOS SCORES

Boston parcels are scored based on proximity to multimodal transportation options, grocery stores, job accessibility, and walkability.

▮ 0 - 25	▮ Cemeteries
▮ 26 - 50	▨ Open Space
▮ 51 - 70	
▮ 71 - 90	
▮ 91 - 100	

City of Boston Transportation

boston planning & development agency

Date: 7/6/2020

Data Sources: City of Boston Department of Transportation, Boston Planning and Development Agency, MBTA, MassDOT, Metropolitan Area Planning Council (MAPC), Tufts University, University of Minnesota Accessibility Observatory
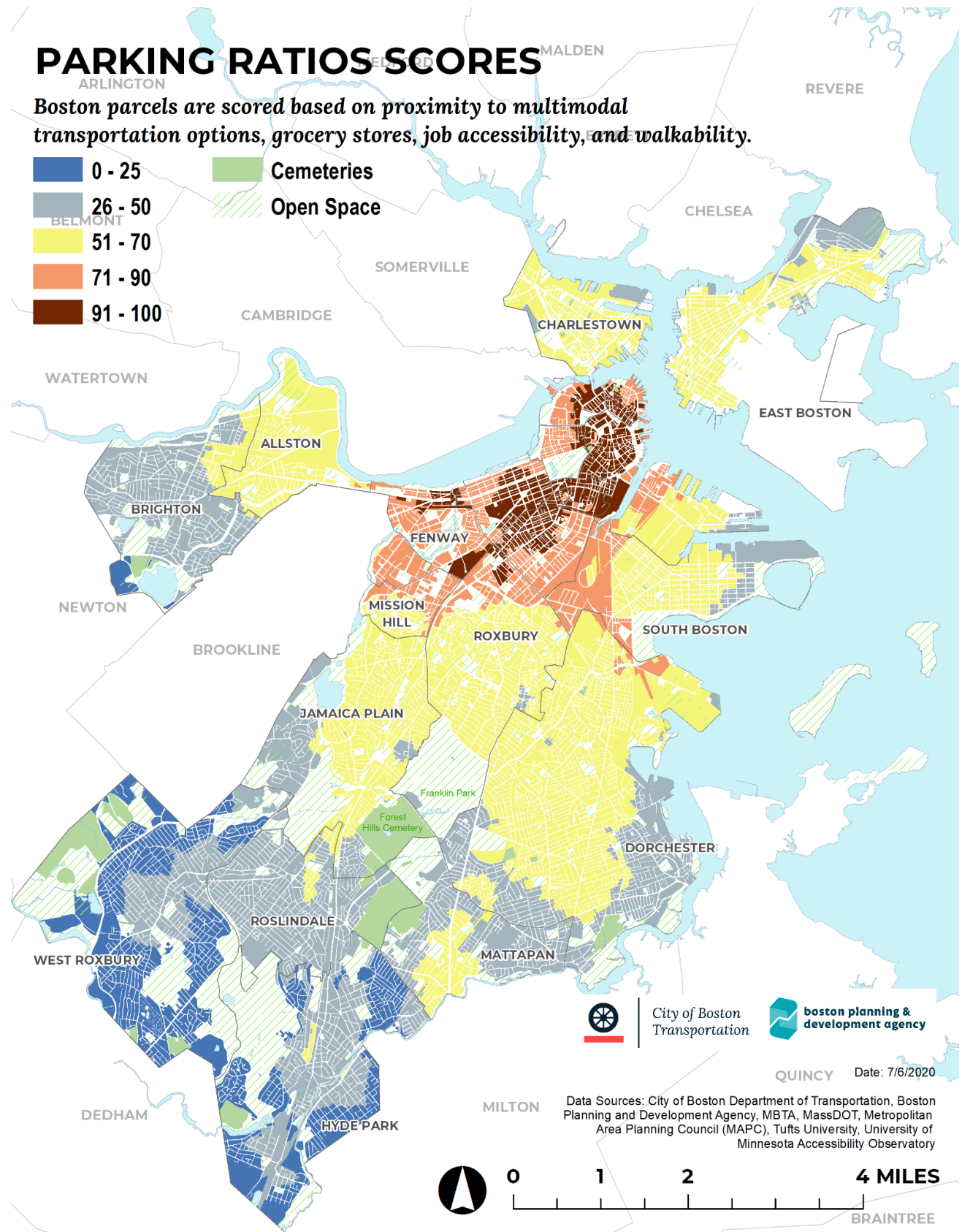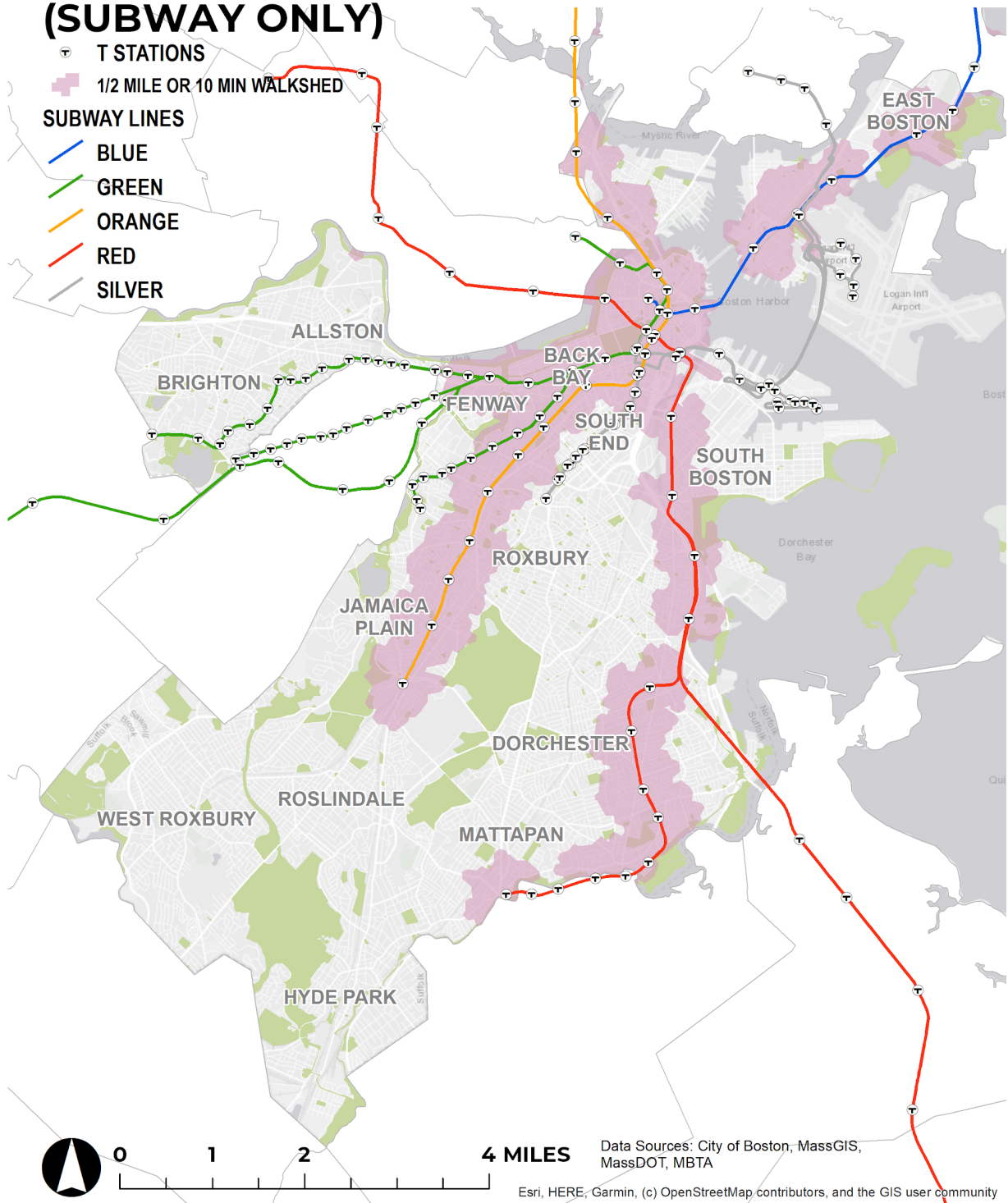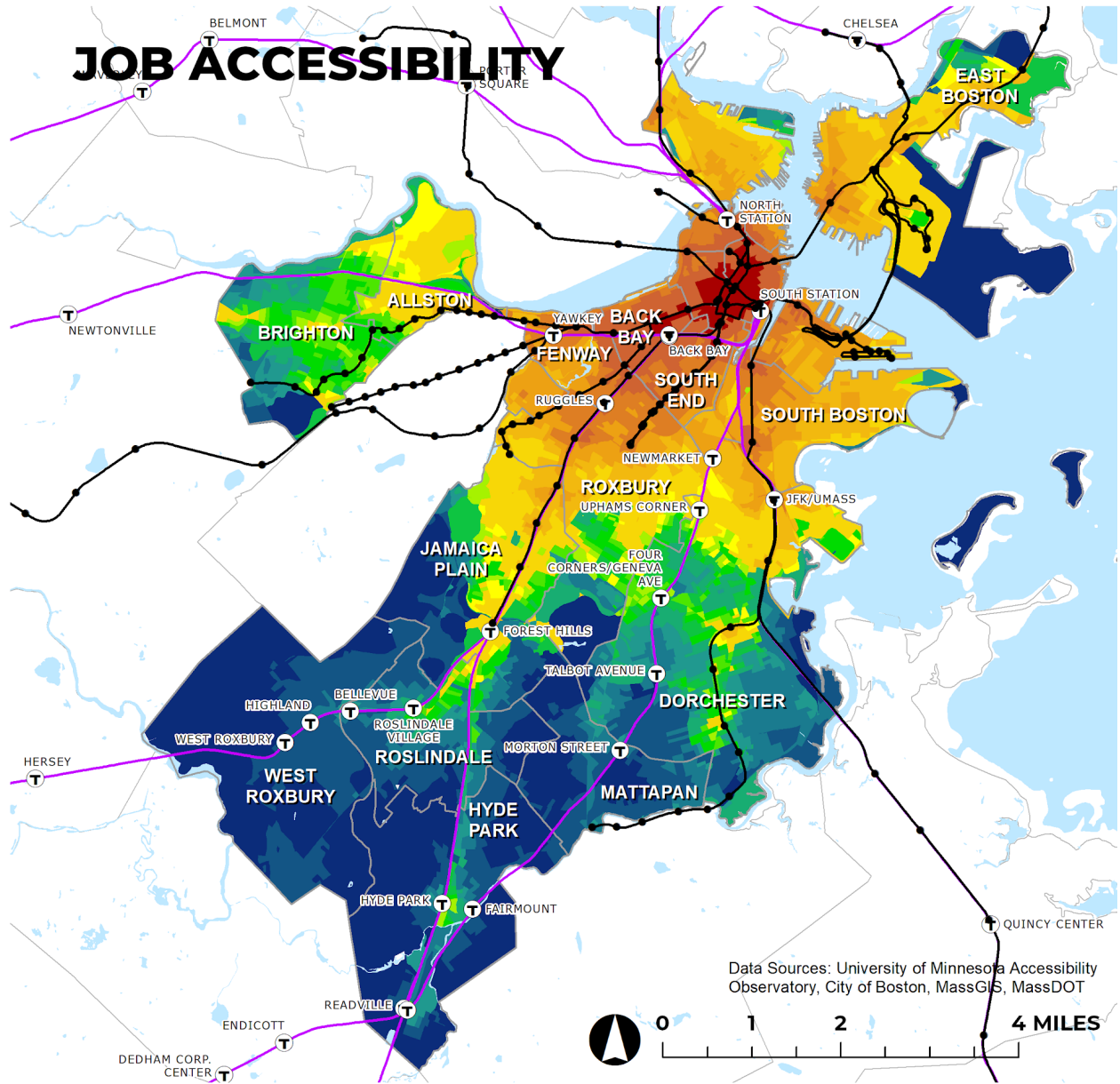
0   1   2   4 MILES

Table 4: Maximum parking ratios per land use for large new developments.

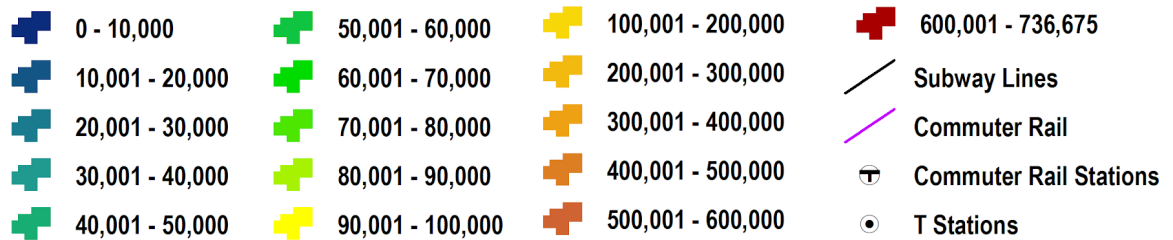| LAND USE	TOTAL SCORE	MAX PARKING RATIO FOR DEVELOPMENTS 50,000 SQ FT AND LARGER		
RESIDENTIAL (PER UNIT)		*Rental*	*Condos*	
	91-100	0 - 0.35	0 - 0.50	
	71-90	0 - 0.50	0 - 0.75	
	51-70	0 - 0.75	0 - 1.0	
	26-50	0 - 1.0	0 - 1.0	
	0-25	0 - 1.0	0 - 1.25	
HOTEL (PER UNIT)	*Any*	0 - 0.20		
RETAIL (PER 1,000 SF)		*Retail < 5,000 sq ft*	*Retail > 5,000 sq ft*	
	91-100	0 - 0.25	0 - 0.50	
	71-90	0 - 0.30	0 - 0.60	
	51-70	0 - 0.40	0 - 0.80	
	26-50	0 - 0.50	0 - 1.0	
	0-25	0 - 0.75	0 - 1.0	
OFFICE / PRIVATE LAB (PER 1,000 SF)	91-100	0 - 0.30		
	71-90	0 - 0.60		
	51-70	0 - 0.80		
	26-50	0 - 1.0		
	0-25	0 - 1.25		
INSTITUTIONAL (PER 1,000 SF)		*Medical Clinics*	*Research and Development / Laboratories*	*Universities & Colleges*
	91-100	0 - 0.5	0 - 0.20	0 - 0.20
	71-90	0 - 0.70	0 - 0.40	0 - 0.40
	51-70	0 - 0.80	0 - 0.60	0 - 0.60
	26-50	0 - 1.0	0 - 0.80	0 - 0.80
	0-25	0 - 1.25	0 - 1.0	0 - 1.0
INDUSTRIAL/ MANUFACTURING (PER 2,500 SF)	91-100	0 - 0.20		
	71-90	0 - 0.35		
	51-70	0 - 0.55		
	26-50	0 - 0.75		
	0-25	0 - 1.25		

IV. APPENDIX

MBTA RAPID TRANSIT WALKSHED IN BOSTON (SUBWAY ONLY)

T STATIONS

1/2 MILE OR 10 MIN WALKSHED

SUBWAY LINES

BLUE

GREEN

ORANGE

RED

SILVER

EAST BOSTON

ALLSTON

BRIGHTON

BACK BAY

FENWAY

SOUTH END

SOUTH BOSTON

ROXBURY

JAMAICA PLAIN

DORCHESTER

WEST ROXBURY

ROSLINDALE

MATTAPAN

HYDE PARK

0   1   2   4 MILES

Data Sources: City of Boston, MassGIS, MassDOT, MBTA

Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

JOB ACCESSIBILITY

Total Jobs Accessible within 30 minutes by Public Transit in Boston (Census Block, 2017)

0 - 10,000	50,001 - 60,000	100,001 - 200,000	600,001 - 736,675
10,001 - 20,000	60,001 - 70,000	200,001 - 300,000	Subway Lines
20,001 - 30,000	70,001 - 80,000	300,001 - 400,000	Commuter Rail
30,001 - 40,000	80,001 - 90,000	400,001 - 500,000	Commuter Rail Stations
40,001 - 50,000	90,001 - 100,000	500,001 - 600,000	T Stations

Data Sources: University of Minnesota Accessibility Observatory, City of Boston, MassGIS, MassDOT

Boston WalkScore by ZipCode

Legend:
- Open Space
- 55 - 60
- 61 - 75
- 76 - 85
- 86 - 92
- 93 - 99

MALDEN

REVERE

EVERETT

CHELSEA

EAST BOSTON

SOMERVILLE

WINTHROP

CAMBRIDGE

ALLSTON

BRIGHTON

BACK BAY

FENWAY

SOUTH END

SOUTH BOSTON

NEWTON

BROOKLINE

ROXBURY

JAMAICA PLAIN

DORCHESTER

WEST ROXBURY

ROSLINDALE

MATTAPAN

HYDE PARK

QUINCY

DEDHAM

MILTON
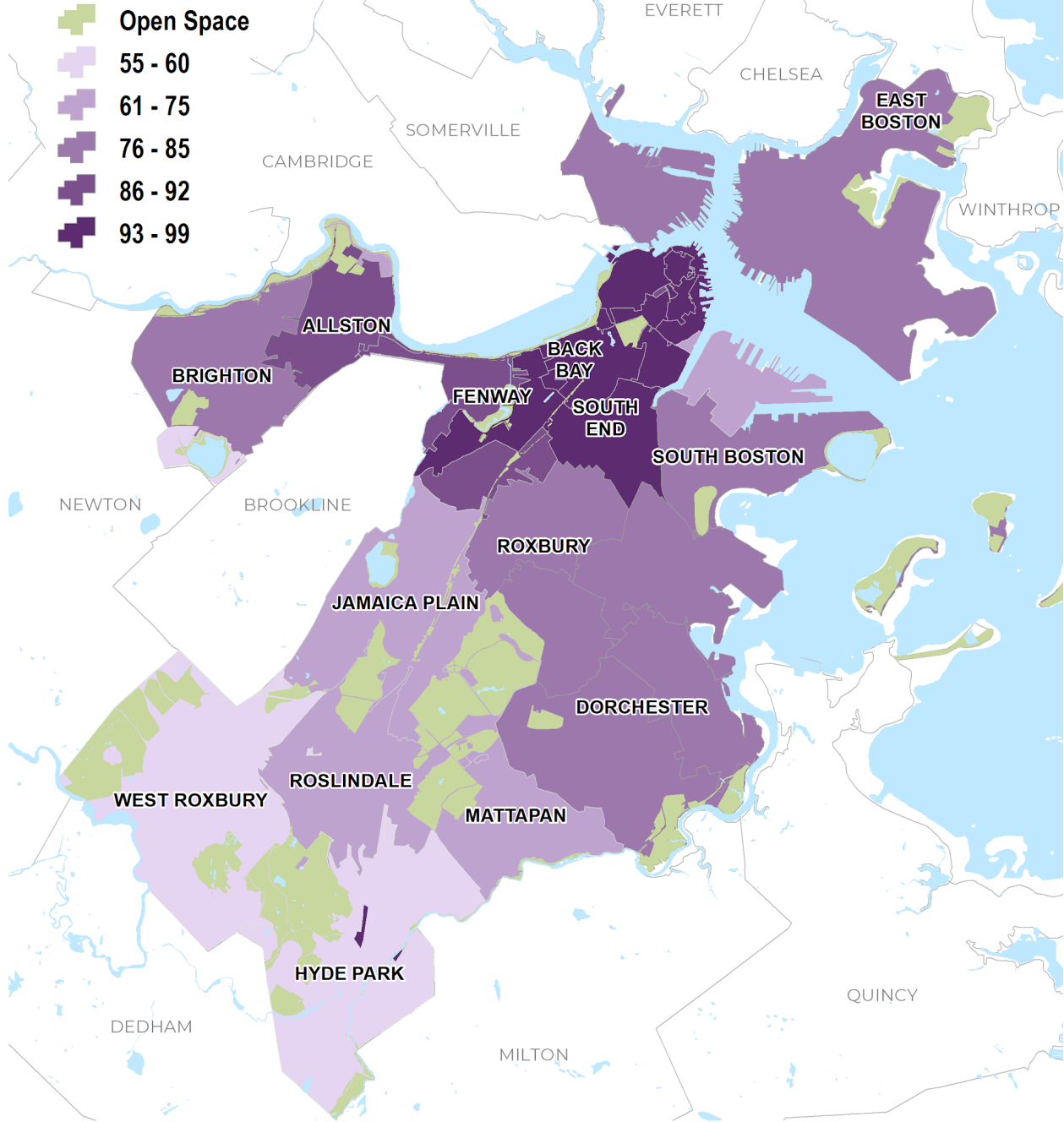
Date: 10/8/2019

Data Sources: WalkScore at walkscore.com.
Data provided by Redfin Real Estate in Boston

0   1   2   4 MILES

FOOD RETAILERS IN BOSTON

Food Retailers Excluding Pharmacies, Drug Stores, and Convenience Stores (2016)

- **All Other Specialty Food Stores**
- **Fish & Seafood Markets**
- **Fruit & Vegetable Markets**
- **Meat Markets**
- **Supermarkets/Other Grocery**
- **Warehouse Clubs & Supercenters**
- **Other**

Date: 10/17/2019

Data Sources: City of Boston, Metropolitan Area Planning Council (MAPC), Tufts University

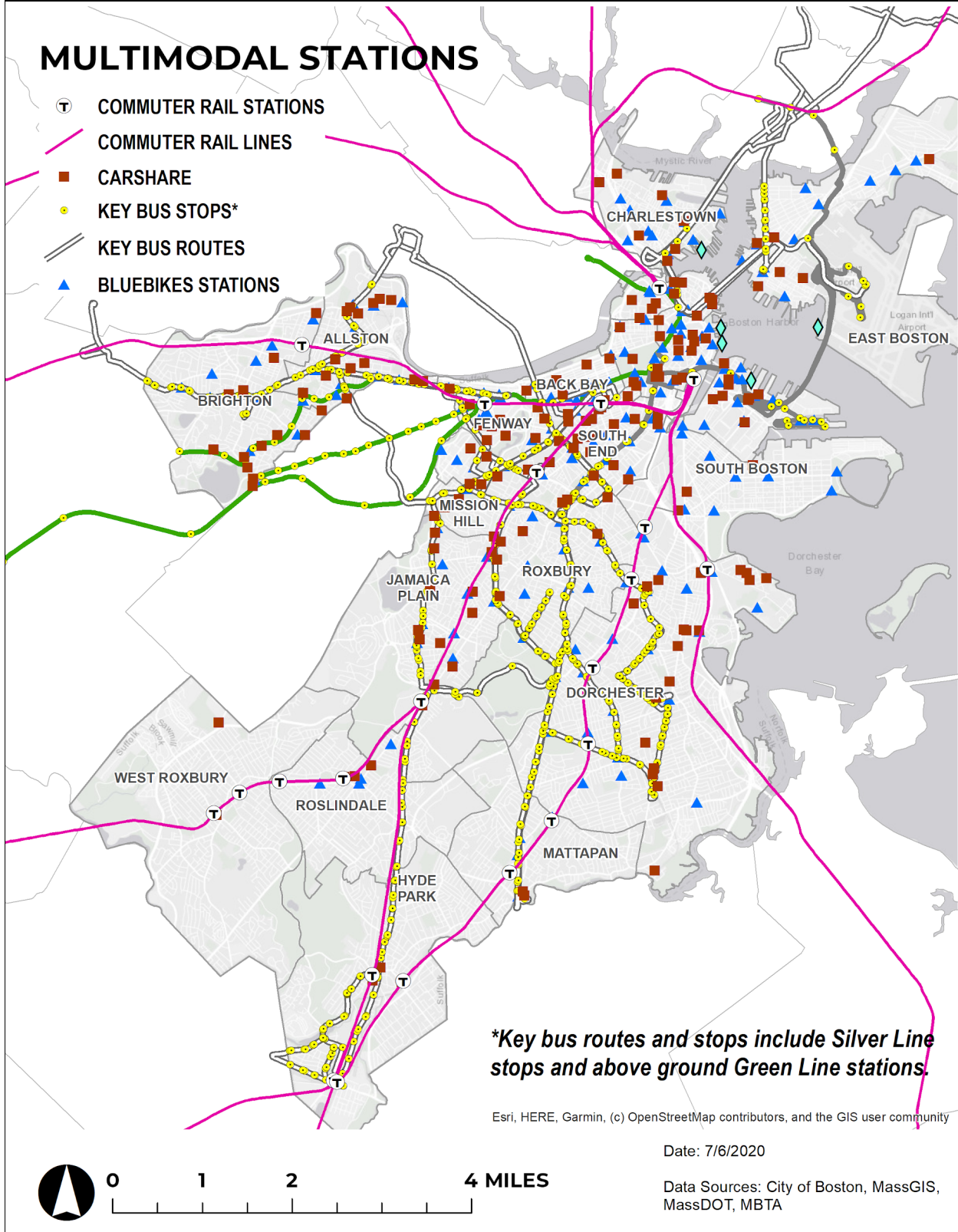Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

MULTIMODAL STATIONS

- Ⓣ COMMUTER RAIL STATIONS
- — COMMUTER RAIL LINES
- ■ CARSHARE
- ⊙ KEY BUS STOPS*
- ⫽ KEY BUS ROUTES
- ▲ BLUEBIKES STATIONS

CHARLESTOWN

EAST BOSTON

ALLSTON

BRIGHTON

BACK BAY

FENWAY

SOUTH END

SOUTH BOSTON

MISSION HILL

ROXBURY

JAMAICA PLAIN

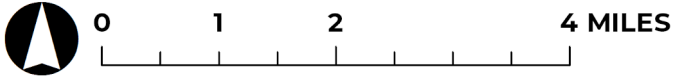DORCHESTER

WEST ROXBURY

ROSLINDALE

MATTAPAN

HYDE PARK

Key bus routes and stops include Silver Line stops and above ground Green Line stations.

Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Date: 7/6/2020

Data Sources: City of Boston, MassGIS, MassDOT, MBTA

0   1   2   4 MILES

PARKING RESTRICTED DISTRICT (OVERLAY ZONE)

OPEN SPACE

Parking Freeze Zones

RESTRICTED DISTRICT (BPDA OVERLAY ZONE)

CHARLESTOWN

WEST END

NORTH END

EAST BOSTON

ALLSTON

DOWNTOWN

BACK BAY

CHINATOWN

FENWAY

SOUTH END

LONGWOOD

MISSION HILL

SOUTH BOSTON

ROXBURY

JAMAICA PLAIN

WEST ROXBURY

DORCHESTER

ROSLINDALE

MATTAPAN

Date: 7/6/2020

Data Sources: City of Boston, Boston Planning and Development Agency, Air Pollution Control Commission

Produced by: Boston Transportation Department

0   0.5   1   2 MILES

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