

# ECONOMIC BENEFITS OF THE I-90

# ALLSTON MULTIMODAL PROJECT

# ACKNOWLEDGEMENTS

A Better City thanks all those who participated in this study, including representatives of the Massachusetts Department of Transportation (MassDOT) and the Metropolitan Area Planning Council (MAPC), who provided data and invaluable feedback. As noted in the study, the development forecast for Beacon Park Yard on which this study relied was prepared by MAPC for MassDOT.

A Better City also thanks the members of Boston’s commercial real estate, real estate development, “eds and meds,” general business, and governmental sectors who offered insights and expert opinions in interviews that helped inform our analysis; and all those who reviewed and offered comments on the drafts of this report.

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# EXECUTIVE SUMMARY



# THIS STUDY

This study was commissioned by A Better City (ABC) to explore the potential economic benefits of the I-90 Allston Multimodal Project (the Project) for the City and the region. The analysis is focused on the economic development opportunity that will be unlocked by the Project's key features: a new urban interchange and West Station. Together, these will form a new western gateway to the City of Boston.

The study was prepared by AECOM, using a combination of expert interviews, review of existing reports and studies, and original research.

The expert interviews included 14 leaders in Boston's commercial real estate, real estate development, "eds and meds", and general business sectors. While individual opinions are not cited in this study, broadly held views of the expert interviewees are noted, and identified as such at several points.

This study begins with the **Executive Summary**, which:

- describes the Project and its associated economic development opportunity (pages 9-13); and
- provides a complete overview of the study's six key findings (pages 14-34).

The Executive Summary serves a dual purpose—as the introductory section of the full study, and as a stand-alone document for readers desiring an overview only. (Pages 9-14 should be read by all.)

Following the Executive Summary, the full technical study consists of **Chapters 1 through 6**. These correspond to the six key findings and are presented in the same order as in the Executive Summary.



# THE PROJECT

The *I-90 Allston Multimodal Project* (the Project), proposed by the Massachusetts Department of Transportation (MassDOT), would completely redesign and replace the Massachusetts Turnpike’s Allston Interchange in the City of Boston. Built nearly 60 years ago to accommodate traditional toll booths as well as a planned “Inner Belt” connector that was never implemented, the Allston Interchange is a complex and outdated sprawl of ramps. Absent the proposed Project, the Interchange’s deteriorated condition would require that it be rebuilt at a cost of several hundred million dollars (the No Build Scenario); MassDOT plans to invest over \$90 million in urgent repairs to the existing viaduct while the Multimodal Project advances.

For most of its life, the land within the Allston Interchange was occupied by an intermodal rail yard and other rail-related infrastructure which has been relocated, leaving much of the site vacant, isolated, and impenetrable. The Worcester Main Line railroad (the former Boston & Albany) forms the southern edge of the interchange and the proposed MassDOT project area. The rail corridor carries the MBTA’s Framingham-Worcester Commuter Rail Line, Amtrak’s Lakeshore Limited,

and freight service. The rail line has no existing passenger stop in the interchange area; the nearest stations are Boston Landing (0.8 miles to the west) and Lansdowne (1.4 miles to the east).

As shown in [Figure ES-1](#), the Allston Interchange is located west of downtown Boston. It is surrounded, within a two-mile radius, by many drivers of Boston’s regional economy. It is in the heart of the region’s *institutional ecosystem*, framed by Harvard University, Boston University, MIT and Kendall Square, Northeastern University, and the Longwood Medical Area, home of Boston’s primary teaching hospitals.

The Project will replace the 1960s interchange with an *urban interchange*, connecting the Turnpike to a new grid of city streets integrated with their surroundings. It will also introduce a new multimodal transportation hub—*West Station*—on the Framingham-Worcester Line.

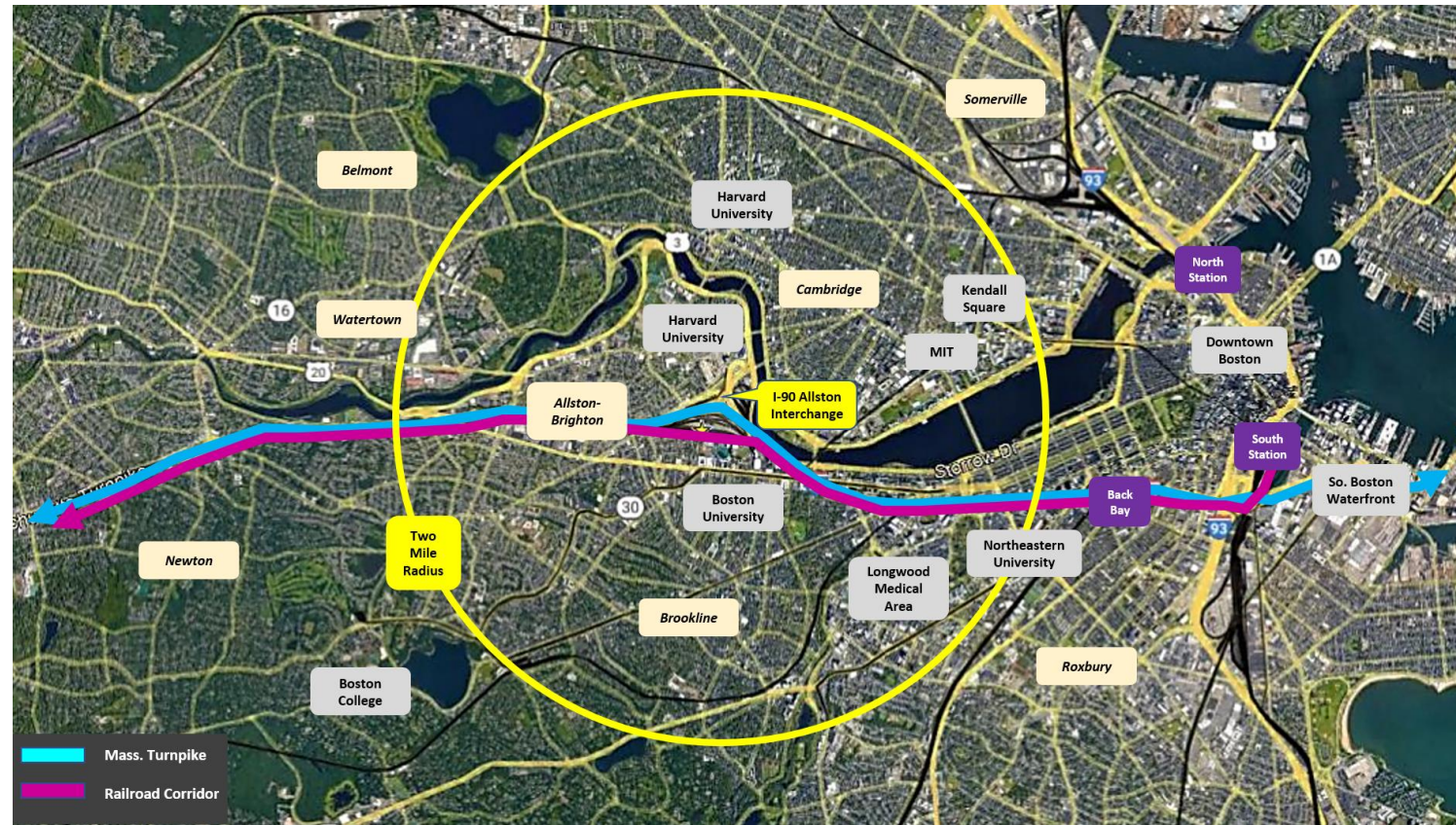
# THE PROJECT

The Project's goals for the city and region are transformative: to remedy an obsolete and unsafe interstate highway interchange at the western gateway to Boston; to provide sustainable mobility options to an underserved section of the city; to advance the regional shift from automobile

dependency to transit, walking, and cycling; to reconnect neighborhoods divided when I-90 was originally extended into the city; and to enable development of a new, urban mixed-use neighborhood on lands formerly devoted to industrial uses and transportation infrastructure.

**Figure ES-1: I-90 Allston Interchange Locus Map**

Source: A Better City, Inc./AECOM

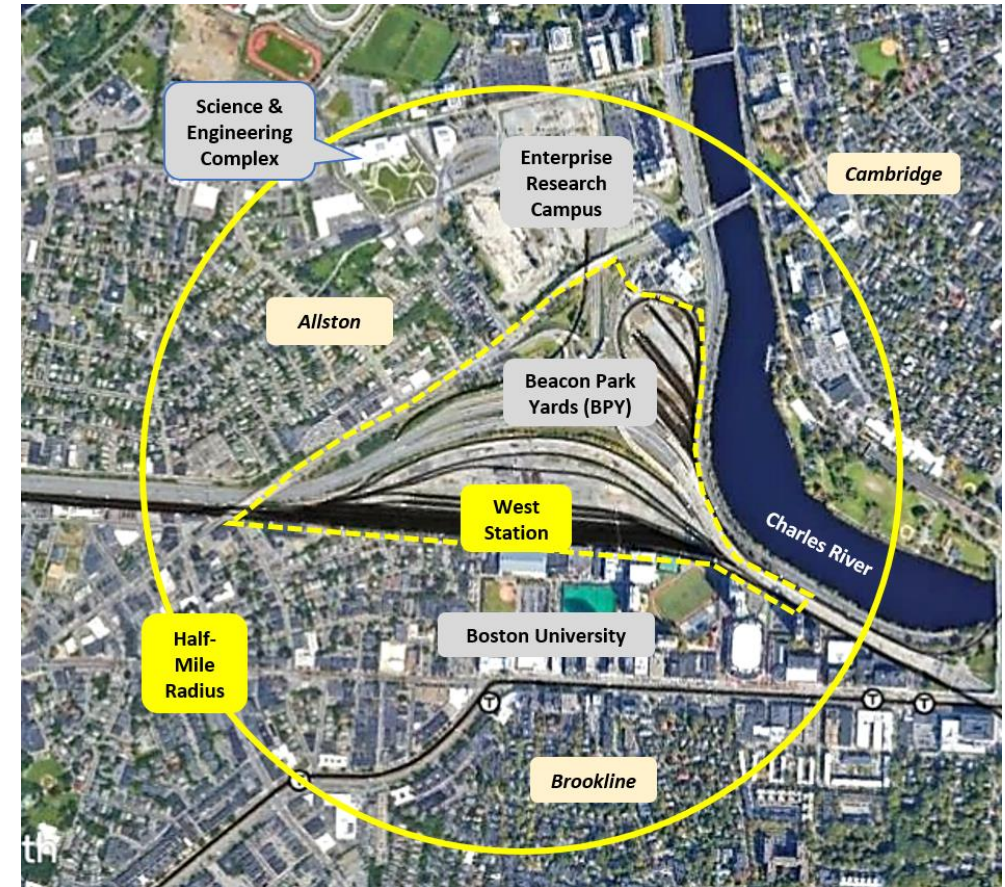


# THE ECONOMIC OPPORTUNITY

As shown in Figure ES-2, the Project's immediate environs include residential neighborhoods in Allston (which is part of the City of Boston); Harvard's Science and Engineering Complex and planned Enterprise Research Campus; a large segment of Boston University's campus along Commonwealth Avenue; and the regional amenity of the Charles River.

The dashed area in Figure ES-2—encompassing nearly 100 acres—is known as **Beacon Park Yard (BPY)**. The Project will create an economic development site of regional scale and value by replacing this landlocked, isolated, and mostly vacant land mass with the new infrastructure described above, some 40 acres of potentially developable land parcels, and the opportunity for air rights development above portions of the highway and rail infrastructure alongside West Station, as shown in [Figure ES-3](#).

Figure ES-2: The Immediate Project Area



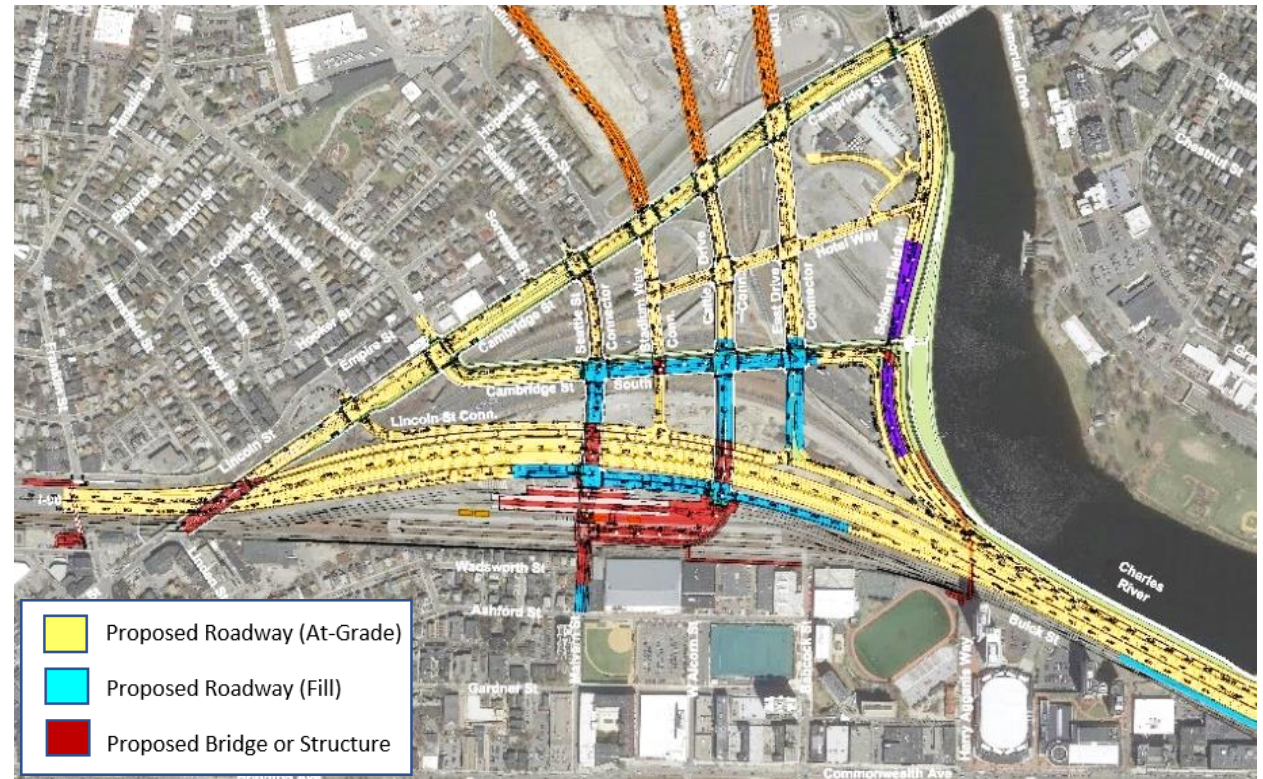
Source: A Better City, Inc./AECOM

# THE ECONOMIC OPPORTUNITY

West Station will make BPY a transit-oriented development (TOD) site with dramatically better connectivity than the area enjoys today. The Turnpike interchange, in its redesigned form, will continue to provide regional access not only for automobiles but for express bus transit, which today connects the western suburbs to Back Bay, Downtown, and Logan International Airport.

The area is already served by light rail (the B Branch of the Green Line) and multiple MBTA bus routes; however, the bus routes lack a focal point, and the light rail is not readily accessible to the streets north of the Worcester Main Line railroad tracks. West Station will add commuter and intercity passenger rail service while serving as a focal point for bus and shuttle connections.

**Figure ES-3: Proposed Street Grid and Future Infrastructure**



Source: MassDOT

# THE ECONOMIC OPPORTUNITY

To support the planning and permitting of the Project, the Metropolitan Area Planning Council (MAPC) projected a buildout for BPY of 11.17 million square feet. This buildout assumes a mix of uses: research and development, residential, office, hotel, retail, and cultural. The forecast includes terra firma as well as air rights parcels and represents a scenario for BPY’s long-term development potential, extending beyond the Project’s 2040 “Build Condition” horizon. MAPC estimates that one-third of the buildout will occur by 2040.<sup>a</sup>

The MAPC forecast is not based on any master plan. It extrapolates the order-of-magnitude development that could take place at BPY based on its acreage, benchmarked densities from similar precedents, and the anticipated spatial requirements for infrastructure, open space, and parking.

The MAPC forecast is illustrative of possible long-term outcomes at BPY. It is a publicly accessible analysis which underlies MassDOT’s transportation modeling for the Project. This study uses the MAPC forecast as a point of departure. It does not seek to validate it in detail or to propose an alternative development program. Rather, it examines the attributes of the BPY site in the context of larger regional economic trends to assess whether a range of outcomes encompassing the MAPC scenario is a reasonable expectation—and, if so, how the region would benefit.

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<sup>a</sup> Metropolitan Area Planning Council (MAPC), *FEIR Build Scenario Projections* (2019).

# SUMMARY OF KEY FINDINGS

This study produced six key findings. Listed below, they are discussed in the remainder of this Executive Summary (pages 15-34) and presented in detail in the full report.

## ***Key Finding 1: A Regional Economic Engine***

Development at BPY would generate multi-billion dollar recurring annual benefits in jobs, wages, regional Gross Domestic Product, and state/local tax revenues, as well as multi-billion dollar construction benefits.

## ***Key Finding 2: Transformative Access & Mobility***

With multimodal West Station at the center of future development, enhanced transit access to BPY would promote social equity, sustainability, and economic growth.

## ***Key Finding 3: A Robust TOD Market***

A mixed-use transit-oriented development outcome of regional significance at BPY is supported by market precedent and by the underlying economic strength of Boston's central core.

## ***Key Finding 4: Global Life Sciences Leadership***

Boston enjoys a structurally unique concentration of talent, funding, and investment in the life sciences. At the nexus of Boston's life sciences ecosystem, BPY is pivotal to the region's continued life sciences success and the US' global position.

## ***Key Finding 5: New & Durable Growth***

Development at BPY would represent net new economic growth for the Boston region and, as a mixed-use district, is unlikely to be seriously impacted by post-COVID shifts in work patterns.

## ***Key Finding 6: West of Boston***

The I-90 Allston Multimodal Project would contribute to economic development in the 35-mile corridor extending westward from BPY to Newton, MetroWest and Worcester.

### ***Key Finding 1: A Regional Economic Engine***

**Development at BPY would generate multi-billion dollar recurring annual benefits in jobs, wages, regional GDP, and state/local tax revenues, as well as multi-billion dollar construction benefits.**

The potential development buildout at BPY, as forecasted for environmental review purposes by the Metropolitan Area Planning Council (MAPC), is 11.17 million square feet, or 10 million square feet exclusive of parking. MAPC assumes that roughly one-third of this development would occur by 2040, the Project's planning horizon year.<sup>a</sup>

MAPC also assumes an illustrative mix of uses, consisting of 45% residential; 25% R&D and/or office; and 30% other,

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<sup>a</sup> MAPC, *FEIR Build Scenario Projections* (2019). For purposes of this estimate of benefits, the parking component is omitted.

complementary uses (retail, hotel, institutional, cultural). According to the MAPC forecast, the non-residential space would accommodate about 12,400 jobs.

In the long run, development on the BPY site could turn out to be lesser or greater than 10 million square feet—depending on economic trends in the region, local planning and zoning, and other factors. Similarly, the development program could reflect many different mixes of housing, R&D, and other uses. The MAPC scenario, while illustrative of a range of outcomes, is consistent with a walkable, transit-oriented, mixed-use district, combining a residential neighborhood with a center of employment and innovation.

Using the MAPC scenario as a guide, an estimate has been prepared of the regional economic benefits that would flow from the construction of the BPY development and from its recurring, annual operation once construction is completed. Any development would be phased in response to market conditions, with buildout assumed, for illustrative purposes, to occur over a 17-year period.

The estimate has been calculated in constant 2022 dollars, placing the results in a dollar value frame of reference familiar to the reader. [Table ES-1](#) summarizes the results.

- Construction of the full program (the “initial investment” in Table ES-1) could create an estimated 24,300 construction jobs (each job a person-year), paying, in today’s dollars, \$3.0 billion in earnings and generating **\$6.0 billion** in total economic output (Gross Domestic Product, or GDP).
- Large-scale construction also generates “ripple” effects as the initial investment courses through the regional economy. When these added effects are considered, the total impact could grow to nearly 54,800 jobs, \$5.5 billion in earnings, and **\$13.8 billion** in total GDP or output.
- Once the development program is built, its operation—principally the wages of those who work there and the effects of those wages being spent in the economy—would produce a large **recurring or annual** impact, year after year. Again, development would be phased, and its

annual impact in any given year would reflect only those portions that have been completed and opened. Once in place, the full program envisioned by MAPC could generate annual wages of \$2.1 billion and total annual GDP of **\$2.7 billion**.

- When ripple effects are considered, the recurring annual benefit of the full development program could grow to 36,600 jobs, \$4.2 billion in earnings and **\$6.4 billion** in GDP.

This economic activity would also result in significant tax revenues flowing to the City of Boston and the Commonwealth:

- The construction period is estimated to produce \$151 million cumulatively in state income and sales taxes.
- When the entire buildout is complete, on-going operations could generate an estimated \$238 million **annually** in state and local revenues—\$151 million in state income, sales, and hotel taxes, and \$87 million in Boston property taxes.



These results are estimates, based on a set of assumptions about events more than a decade in the future. To the extent that the ultimate buildout is less than or more than 10 million square feet, the economic impacts would vary accordingly. Similarly, if the mix of uses were substantially different than that assumed by MAPC, or if the ratio of square feet per employee were to change, the economic impact would be affected as well.

The estimates reported here, although merely illustrative, suggest a major, positive impact on this region's future economic condition. The total annual impact on regional GDP of \$6.4 billion represents 1.3% of the Boston region's annual GDP of \$480 billion—an exceptional impact for a single geographic location in a metro region of 4.9 million people.<sup>a</sup>

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<sup>a</sup> US Bureau of Economic Analysis, <https://apps.bea.gov/regional/bearfacts/>; and US Census, <https://drive.google.com/file/d/1qFbaEsxyDtK1kr4LO2VtyixjBUPXJo/view>.

**Table ES-1: Summary of BPY Development Program Estimated Economic Impacts (10 Million SF Buildout, \$2022)**

<b>Construction Period</b>		
<b>Category</b>	<b>Element</b>	<b>Estimate</b>
Initial Investment	Jobs (FTE)	24,300
	Wages	\$3,008,750,000
	GDP	\$6,017,500,000
Direct Impacts	Jobs (Total)	6,100
	Earnings	\$566,299,000
	GDP	\$1,737,423,000
Indirect Impacts	Jobs (Total)	2,600
	Earnings	\$224,403,000
	GDP	\$624,372,000
Induced Impacts	Jobs (Total)	21,800
	Earnings	\$1,666,653,000
	GDP	\$5,420,003,000
Total Impacts	Jobs (Total)	54,800
	Earnings	\$5,466,105,000
	GDP	\$13,799,298,000
<b>Construction Period Fiscal Benefits</b>		
Income Tax	Labor	\$141,111,000
Sales Tax	Materials	\$9,402,300
<b>Total Taxes</b>		<b>\$150,513,300</b>

<b>Annual Operations, Year 20</b>		
<b>Category</b>	<b>Element</b>	<b>Estimate</b>
Initial Change	Jobs	12,440
	Wages	\$2,058,350,000
	GDP	\$2,708,158,000
Direct Impacts	Jobs (Total)	6,100
	Earnings	\$609,637,000
	GDP	\$951,885,000
Indirect Impacts	Jobs (Total)	2,520
	Earnings	\$236,638,000
	GDP	\$384,696,000
Induced Impacts	Jobs (Total)	15,560
	Earnings	\$1,268,843,000
	GDP	\$2,327,443,000
Total Impacts	Jobs (Total)	36,620
	Earnings	\$4,173,468,000
	GDP	\$6,372,182,000
<b>Annual Operations, Year 20, Fiscal Benefits</b>		
Income Tax	Wages	\$96,536,600
Property Tax	Buildings	\$87,472,000
Sales Tax	Retail	\$40,625,000
Hotel-Motel	Hotel	\$14,105,000
<b>Total Taxes</b>		<b>\$238,738,600</b>

Estimates include vertical buildings only, exclusive of infrastructure. Source: A Better City, Inc./AECOM

## ***Key Finding 2: Transformative Access & Mobility***

**With multimodal West Station at the center of future development, enhanced transit access to BPY would promote equity, sustainability, and economic growth.**

BPY is an opportunity to create a regionally significant concentration of employment, commerce, and housing within Boston's transit-rich central core. While BPY is today still largely isolated and undeveloped, its surroundings—including Allston, Brighton, and the adjacent portions of the Boston University and Harvard campuses and northern Brookline—is served by three transit modes:

- the B Branch of the Green Line light rail system, which stops along Commonwealth Avenue;
- five MBTA bus routes, connecting to a wide range of locations in Boston and adjacent communities;
- Boston Landing Station on the Framingham-Worcester commuter rail line, located nearly a mile away.

The Project would introduce ***West Station***, a transformative rail, bus, and shuttle hub on the Framingham-Worcester Line. ***For Allston residents***, West Station and its multimodal, multi-directional connectivity, will mean enhanced access to jobs and services throughout the region.

West Station will provide direct BPY connections to the nine corridor communities and 14 station stops west of Boston. Moreover, by connecting BPY directly to both Back Bay and South Stations, the addition of West Station will enable travelers on the Red and Orange Line subways, as well as the entire southern commuter rail system, to transfer to the Framingham-Worcester Line for a short ride to or from BPY.

For many potential commuters, this will replace a two-transfer ride with a one-transfer ride. For others, it will replace a slower outbound ride on the Green Line (disembarking a quarter mile from BPY) with a faster ride directly to West Station. For people living near South Station or Back Bay, West Station will create a quick one-seat ride to work.

West Station will be a multimodal hub, serving as both an origin/destination and a transfer point for a 360-degree array of bus routes and specialized shuttles. There will be high-frequency, limited-stop, rubber-tire connections between West Station and:

- MIT and Kendall Square;
- the Longwood Medical Area and Ruggles Station;
- Harvard Square.

Finally, West Station will be a **platform** for longer-term rail improvements that are not part of the I-90 Allston Multimodal Project but are **enabled by it**:

- Electrified “urban rail” service with 15-minute headways on the inner segment of the Framingham-Worcester Line between Riverside and South Station. With West Station in place, this transit-like service would include BPY.<sup>a</sup>
- Rail shuttle service on the Grand Junction alignment, connecting BPY and the east-west rail corridor to

MIT/Kendall Square **and North Station**. This connection would erase the barriers of the Charles River and mixed city traffic between BPY and Kendall Square, making them effectively next-door neighbors. It would also mean that travelers arriving at North Station on the north commuter rail system or the Orange Line could transfer directly to a BPY shuttle, bypassing downtown.

[Figure ES-4](#) shows the areas accessible to West Station by a transit-plus-walk connection of 45 minutes or less under three scenarios:

- A. the existing transit network;
- B. adding West Station and its key shuttle services;
- C. further adding the long-term rail improvements identified above as enabled by West Station.

As seen in the first image, BPY is already transit-accessible to a large swath of the region’s core. Introducing West Station would not only extend accessibility to Newton, Wellesley,

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<sup>a</sup> The urban rail concept is part of the MBTA’s Rail Vision plan; see <https://cdn.mbta.com/sites/default/files/2021-07/2020-02-rail-vision-report.pdf>.

and MetroWest but bring many other communities into the 45-minute orbit. The “enabled” rail improvements added in the final scenario would extend and deepen these benefits.<sup>a</sup> Communities gaining improved access to the jobs and labor force of BPY include ***state-identified environmental justice neighborhoods*** in Boston, Chelsea, Revere, Everett, Malden, Framingham, and Quincy. These cities have median household incomes well below the state average, and several of the affected Boston neighborhoods are among the lowest-income census tracts in the state. ***Transit-oriented downtowns*** like Malden Center, Quincy Center, Somerville’s Union Square, and Downtown Framingham will become better connected. If trips of 60 minutes are considered, West Station makes BPY transit-accessible to four ***Gateway Cities*** (older cities that are state priorities for equitable development): Worcester, Lynn, Salem, and Brockton. These cities have median household incomes far below the state average.

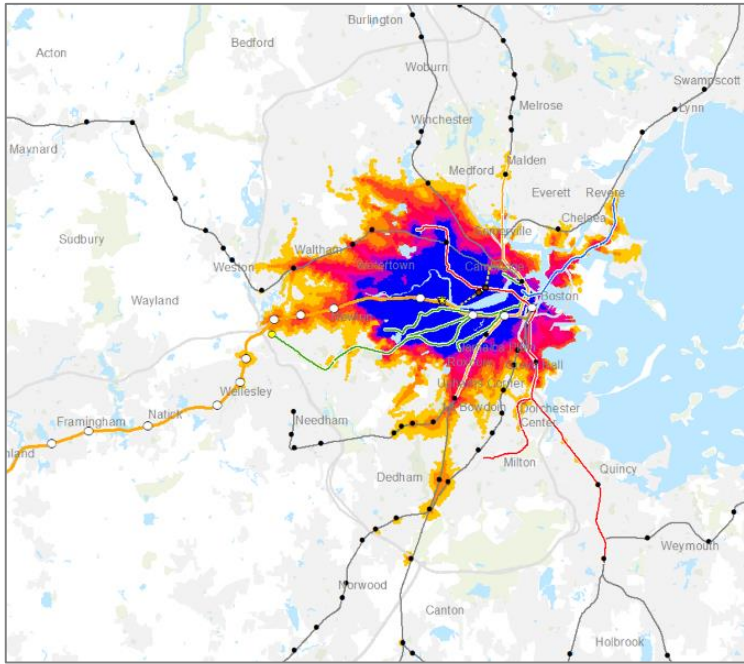
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<sup>a</sup> The analysis utilizes GTFS (General Transit Feed Specifications). Compiled by Google, these are sets of transit agency route networks and timetables published in a common format for use in various software applications. This analysis was performed for A Better City, Inc., by AECOM.

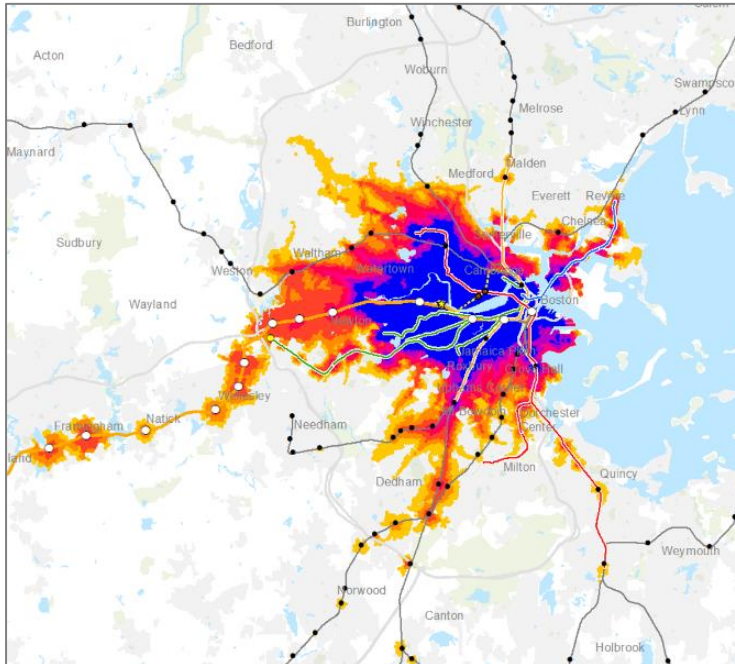
The implications of broad and equitable transit access are manifold. It makes the jobs to be created at BPY—at multiple income levels—available, without car ownership, to workers in less wealthy communities. It amplifies state and local policies that prioritize multifamily housing (including income-restricted units) around bus routes and transit stations, both in the core and out on the rail system. And it enables all commuters—whether BPY is their origin or their destination—to avoid Boston’s worsening roadway congestion, annually ranked among the worst in the US.

This analysis is an estimate of transit accessibility. It does not fully capture ***travel time improvements*** unless they result in a trip crossing the 45-minute threshold. For many of those commuting by bus or shuttle, the rerouting of services to West Station (as well as other convenient nearby stops) will mean that trips already within the 45-minute threshold will become shorter. The same is true for rail and subway users whose transfer connections to West Station will become faster and frequent, especially if 15-minute service were implemented.

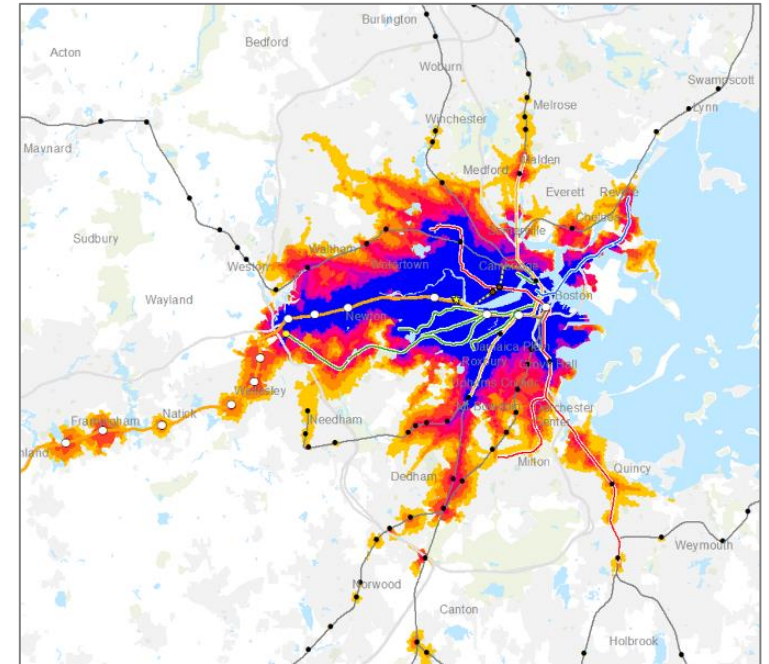
**Figure ES-4: Transit Access to West Station/BPY: AM Weekday Peak Hour**



**Scenario A**  
2019 MBTA Network <sup>a</sup>



**Scenario B**  
2019 Network Plus: West Station  
and Key Shuttle Connections <sup>b</sup>



**Scenario C**  
2019 Network Plus: West Station; Shuttles;  
15-minute Headways; Grand Junction Rail

Shaded areas can reach the West Station site (or be reached from West Station) with a transit-plus-walking trip of 45-minutes or less during the AM peak period. Darker shading indicates more frequent opportunities during the peak period.

<sup>a</sup> The MBTA's 2019 network (the last for which GTFS-compatible timetables are published) is used to represent the existing transit network.

<sup>b</sup> The shuttle connections are to Harvard Square; MIT and Kendall; and Longwood Medical Area and Ruggles Station. The MBTA's programmed Third (Express) Track in Natick and Wellesley is assumed complete.

Source: A Better City, Inc./AECOM, GTFS (General Transit Feed Specifications) Analysis

### ***Key Finding 3: A Robust TOD Market***

**A mixed-use transit-oriented development outcome of regional significance at BPY is supported by market precedent and by the underlying economic strength of Boston's central core**

The I-90 Allston Multimodal Project will unlock an expanse of land and air rights—at an exceptionally strategic location—that is today isolated by an obsolete interchange and vacated railyards. After construction of streets and sidewalks, MAPC has projected a mixed-use, transit-oriented buildout of 11.17 million square feet and an overall Floor Area Ratio (FAR) of about 5.4.<sup>a</sup>

### ***Precedent Projects***

There is ample precedent for district-scale TOD that expands Boston's transit-rich central core. Such growth has occurred, is underway, or is planned in Back Bay, the Longwood Medical Area, Kendall Square, the Seaport, Assembly Square.

<sup>a</sup> See the [detailed discussion of FAR comparison](#) in Chapter 3.

<sup>b</sup> A Better City, Inc./AECOM, review of precedent projects

Suffolk Downs, Cambridge Crossing, Dorchester Bay City, and elsewhere. BPY is among the largest of these opportunities in both land area and potential buildout. Nonetheless, at the level of buildout envisioned by MAPC, its density (as measured by Floor Area Ratio) would be squarely in the range of these precedent districts. The density associated with a regionally significant development outcome would not be an outlier, in terms of either market precedent or community impact.<sup>b</sup>

The BPY development site includes an air rights component. After decades without any air rights projects, Boston now has three in construction (South Station, MassDOT Parcel 12, and Fenway Center) with two pending (Back Bay Station and MassDOT Parcel 13). A review of Boston's current air rights projects and those built in the twentieth century suggests that, as in the case of the terra firma parcels, development at the density envisioned would be squarely within the range of market precedent. Boston's historic experience with the Prudential Center, as well as the recent Miami Central Station project and New York's Hudson Yards, demonstrate the value of planning and delivering air rights development concurrently with the underlying infrastructure.

## ***Boston's Central Core***

Development of the type and scale envisioned at BPY is supported by the structural position of Boston's central core—defined for this analysis as downtown plus the contiguous areas characterized by, or appropriate for, commercial, institutional, multifamily, and mixed-use development. As shown in [Figure ES-5](#), it extends from the South Boston Waterfront to BPY and from Assembly Square to Columbia Point. It includes the institutional ecosystem comprised of MIT, Harvard, Boston University, Northeastern, UMass Boston, and the Longwood Medical Area. The districts in Boston's central core are tied by a web of transit connections to each other and the regional labor force.

In 2019, compared to 12 other major US cities—many of them larger in population—Boston had:<sup>a</sup>

- the largest and densest central core population outside Manhattan;
- the largest number of central core jobs outside Manhattan or Chicago;

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<sup>a</sup> A Better City, Inc./AECOM, from US Census and EMSI data.

- among the highest central core median income and income growth levels;
- by far the highest percentage of metro population in the central core and nearly the highest percentage of jobs;
- by far the largest central core student population;
- a structurally unique concentration of life science activity.

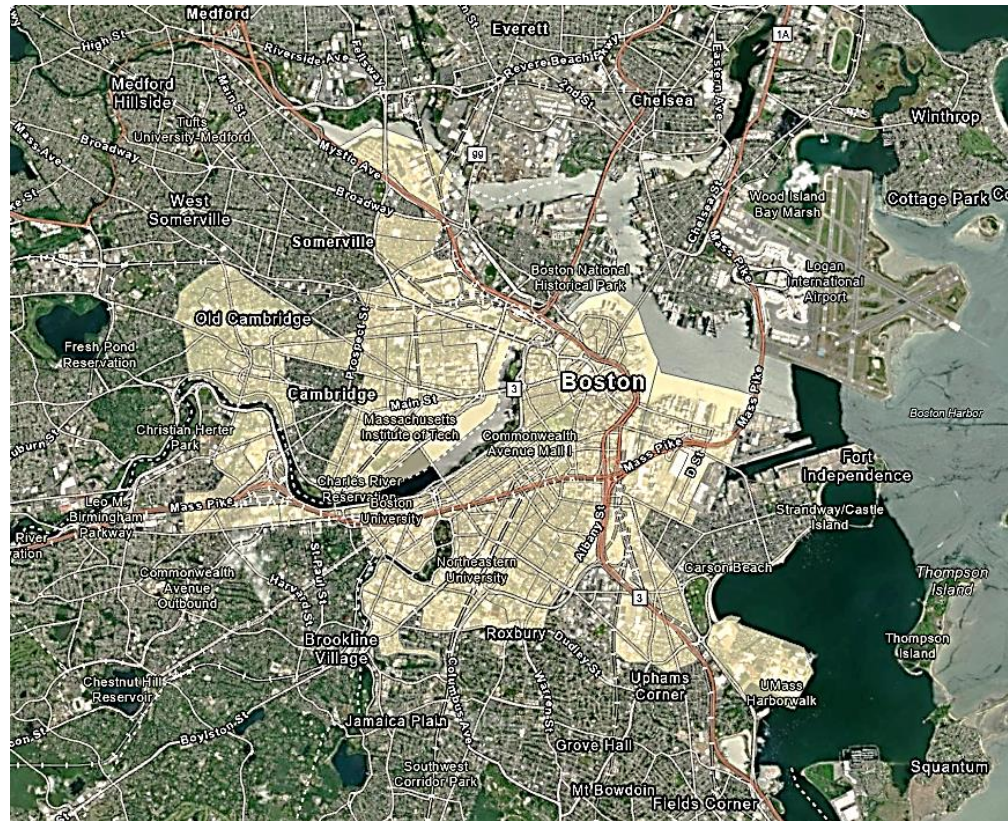
This concentration of people, jobs, and activity in the core creates a market for dense, mixed-use development. It supports and requires a platform of public transit that reduces costs throughout the regional economy. And, compared to more dispersed patterns of regional development, it supports well-documented synergy and agglomeration, as well as a more environmentally sound platform for growth.<sup>b</sup>

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<sup>b</sup> A Better City, Inc., and AECOM, *The Transportation Dividend: Transit Investments and the Massachusetts Economy* (2018); <https://www.abettercity.org/assets/images/Transportation%20Dividend%20-%20FINAL%20-%200012918.pdf> ; and MassBenchmarks, *Transportation in Massachusetts: 2015*; <http://www.massbenchmarks.org/publications/issues/vol17i2/vol17i2.pdf>).



**Figure ES-5: Boston's Central Core as Defined**



Source: A Better City, Inc./AECOM

**Table ES-2: Central Core Population and Employment (2019)**

City	Central Core (2019)			
	Population	Jobs	Pop/SM <sup>a</sup>	Jobs/SM
<b>Boston</b>	<b>264,000</b>	<b>508,000</b>	<b>29,000</b>	<b>55,000</b>
NYC Downtown	358,000	848,000	74,000	175,000
NYC Midtown	261,000	1,379,000	63,000	333,000
Chicago	210,000	737,000	21,000	72,000
Philadelphia	165,000	331,000	23,000	46,000
Seattle	94,000	219,000	26,000	60,000
Los Angeles	83,000	140,000	13,000	21,000
Atlanta	68,000	171,000	9,000	22,000
Miami	63,000	51,000	22,000	18,000
Dallas	47,000	95,000	8,000	15,000
San Diego	42,000	86,000	15,000	30,000
Houston	41,000	136,000	6,000	20,000
San Antonio	26,000	60,000	4,000	9,000
Phoenix	15,000	18,000	4,000	5,000

See [explanation](#) in Chapter 3.

<sup>a</sup> Per square mile

#### **Key Finding 4: Global Life Sciences Leadership**

**Boston enjoys a structurally unique concentration of talent, funding, and investment in the life sciences. At the nexus of Boston's life sciences ecosystem, BPY is pivotal to the region's continued life sciences success and the US' global position.**

The metro Boston economy is powered by the life sciences. As of 2021, JLL ranks Boston the **#1 life sciences cluster in the US**.<sup>a</sup> This is of foundational significance for metro Boston in terms of jobs, wages, investment, and regional growth. It is also integral to the global competitive position of the United States.

BPY will be ideally situated to attract life sciences development, given its proximity to the research universities and hospitals; its central location relative to the primary life sciences geographic clusters (see next page); and the existing and potential transit connections to them.

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<sup>a</sup> JLL, Inc., *2021 Life Sciences Lab Real Estate Report* (<https://www.us.jll.com/en/trends-and-insights/research/life-sciences-real-estate-outlook>).

- Boston has a national concentration of life science companies, jobs, and PhDs. Its bio research **location quotient** (a measure of how concentrated a sector is in a city or state compared to the US average) is by far the highest in the country, as is its concentration of life science jobs in the central core, where BPY is located.<sup>b</sup>
- The Boston real estate market has added nearly 20 million square feet of life science space since 2011, with an additional 5-6 million under construction. Multiyear demand continues to exceed supply.<sup>c</sup>
- Life sciences development in Boston is now characterized by buildings of 5 to 15 stories—compatible with their surroundings but tall enough to avoid inefficient, suburban-style development. This would contribute to the **productive use of land** as well as mixed-use urban placemaking.<sup>d</sup>

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<sup>b</sup> A Better City, Inc./AECOM.

<sup>c</sup> JLL, Inc., *loc.cit.*

<sup>d</sup> A Better City, Inc./AECOM analysis of life science development projects, using Costar data and official project filings.

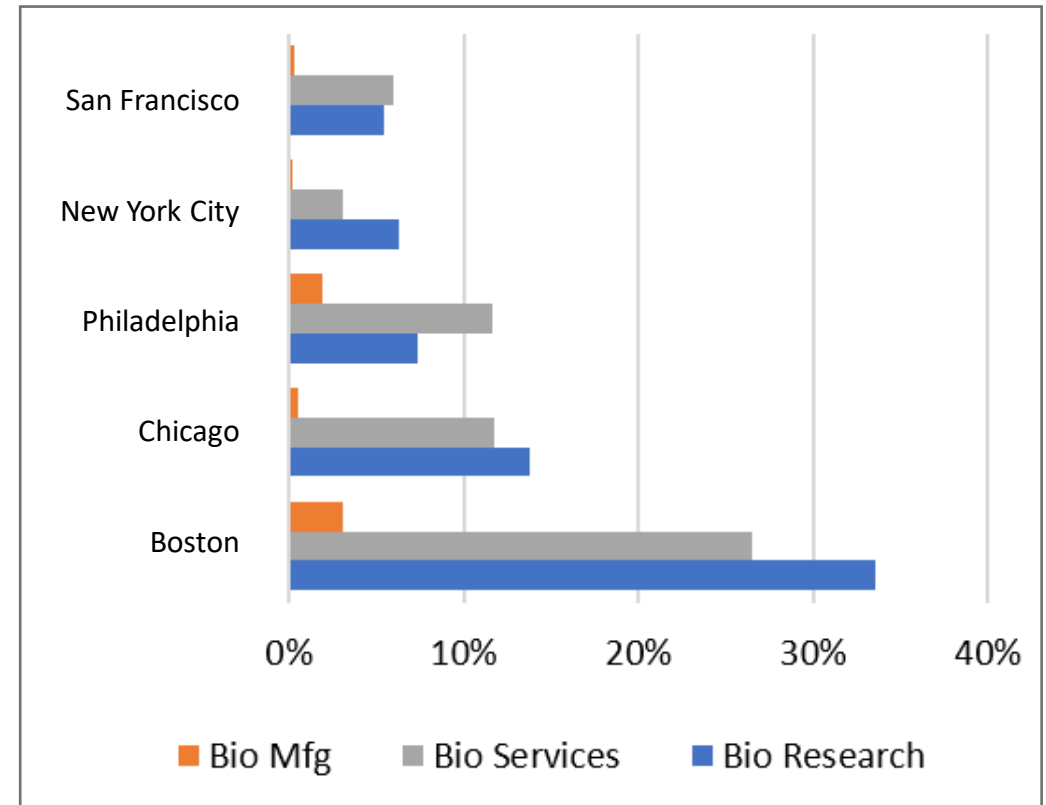
Life sciences activity and investment in metro Boston appear to be  **durable**. Our life science sector attracts an outsized share of research funding and venture capital—funding that can result in demand for built space a decade from now. Roughly  **one-third of all therapy development** across the US is occurring in metro Boston. This region’s position in life sciences has been compared to the Bay Area’s position in digital technology.<sup>a</sup>

Even if demand for life science space were to slow down, Boston has a global concentration of research universities, STEM graduates, and startups. JLL recently ranked Boston the  **#4 innovation cluster in the world** and  **#2 in the world for innovation talent**.<sup>b</sup> It is reasonable to expect R&D and its spinoffs to gravitate to BPY for its unique location relative to universities and transit.

<sup>a</sup> JLL, inc., *loc. cit.*; CBRE, Inc., *US Life Sciences Trends—November 2021* (<http://cbre.vo.llnwd.net/grgservices/secure/CBRE%20Life%20Sciences%20Trends%202021.pdf?e=1652751632&h=ae8f9f6f666a1d256761be06860f6740>); MassBIO, *2021 Industry Snapshot* ([https://www.massbio.org/wp-content/uploads/2021/08/2021-INDUSTRY-SNAPSHOT\\_FINAL.pdf](https://www.massbio.org/wp-content/uploads/2021/08/2021-INDUSTRY-SNAPSHOT_FINAL.pdf)).

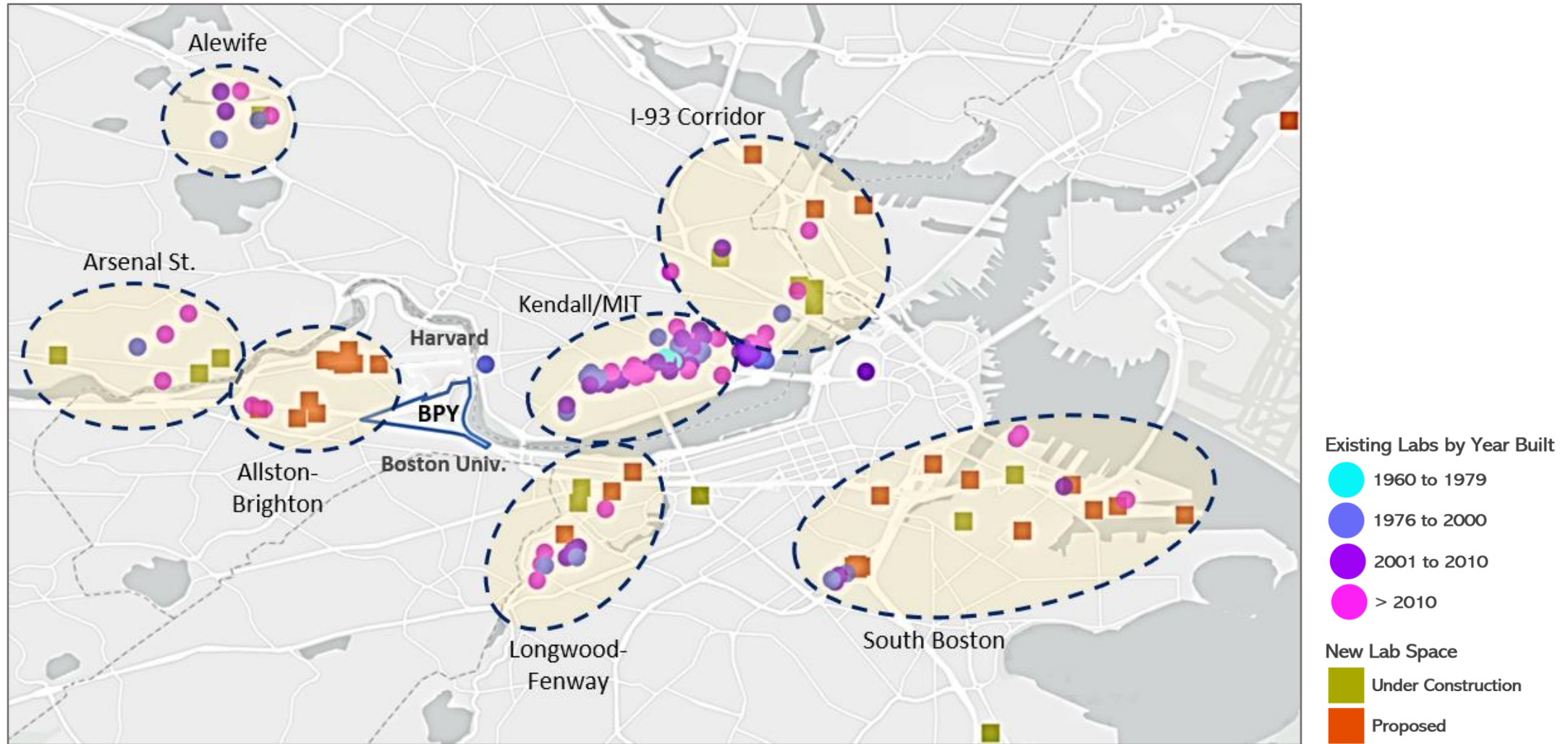
<sup>b</sup> JLL, Inc., *Innovation Geographies 2022* (<https://www.us.jll.com/content/dam/jll-com/documents/pdf/other/jll-2022-innovation-geographie.pdf>).

**Figure ES-6: Percent of Life Sciences Jobs in Central Core**



Source: A Better City, Inc./AECOM, from EMSI data.

Figure ES-7: Boston's Primary Life Science Clusters



Source: A Better City, Inc./AECOM, from project filings and Costar data

### **Key Finding 5: New & Durable Growth**

**Development at BPY would represent net new economic growth for the Boston region and, as a mixed-use district, is unlikely to be seriously impacted by post-COVID shifts in work patterns.**

### **Net New Growth**

The new urban district expected to emerge at BPY would be a vibrant, mixed-use community that responds to market demands for housing, lab, office, retail, and cultural space in the central core.

University and healthcare-related R&D and spinoff enterprise development would be attracted by institutional proximity to occupy BPY's high value land and air rights. A large-scale innovation district of this type is **by nature** a regional growth asset, as opposed to more commoditized activity that could seek lower-cost locations.

Development in Boston's central core has absorbed land at an average rate of 19 acres a year since 1980.<sup>a</sup> The supply of

developable land and air rights at BPY represents roughly three years of absorption at that rate. This should be understood in the context of other large-scale development districts. As shown in Table ES-3, if the long-term average rate of absorption persists, a successful, high-impact outcome at BPY will not divert development from these other districts. All of them, **including BPY**, will be needed to maintain central core growth at historic levels.<sup>b</sup>

The region needs hundreds of thousands of units of net new housing to sustain employment growth and promote equity. BPY's residential component will help address this need. According to MAPC, new jobs projected at BPY would require **over 4,300** net new households, at BPY and in the region as a whole, to meet workforce demand.<sup>c</sup>

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<sup>a</sup> A Better City, Inc./AECOM from Costar data.

<sup>b</sup> A Better City, Inc./AECOM analysis of major mixed-use TOD sites.

<sup>c</sup> MAPC, *loc.cit.*

**Table ES-3: BPY in Context of Central Core Land Absorption**

<b>Location</b>	<b>Raw Acres</b>	<b>Adjusted <sup>a</sup></b>
Seaport and Fort Point <sup>b</sup>	50	
Assembly Station <sup>b</sup>	30	
Dorchester Bay City	36	
Cambridge Crossing <sup>b</sup>	15	
Union Sq/Boynston Yds/Inner Belt	50	
Hood/Sullivan Sq	25	
Arsenal Street <sup>b</sup>	10	
Western Ave.	50	
Mid-sized sites <sup>c</sup>	25	
<b>Subtotal</b>	<b>291</b>	<b>189</b>
<b>BPY and Allston Landing North</b>	<b>110</b>	<b>72</b>
Suffolk Downs	160	
Everett	64	
Chelsea	30	
<b>Subtotal</b>	<b>254</b>	<b>165</b>
<b>Total</b>		<b>426</b>
<b>Allowance for small sites</b>	<b>75</b>	<b>75</b>
<b>Grand Total. Adjusted Acres</b>		<b>501</b>
<sup>a</sup> Adjustment factor for streets, parks	0.65	
<sup>b</sup> Remaining land area (approximate)		
<sup>c</sup> Hynes, Parcel 3, Flower Exchange, Globe Site		
Time horizon at average 19 acres/year	26 years	2048

Source: A Better City, Inc./AECOM . See [detailed explanation](#) in Chapter 5.

## ***Future of Work***

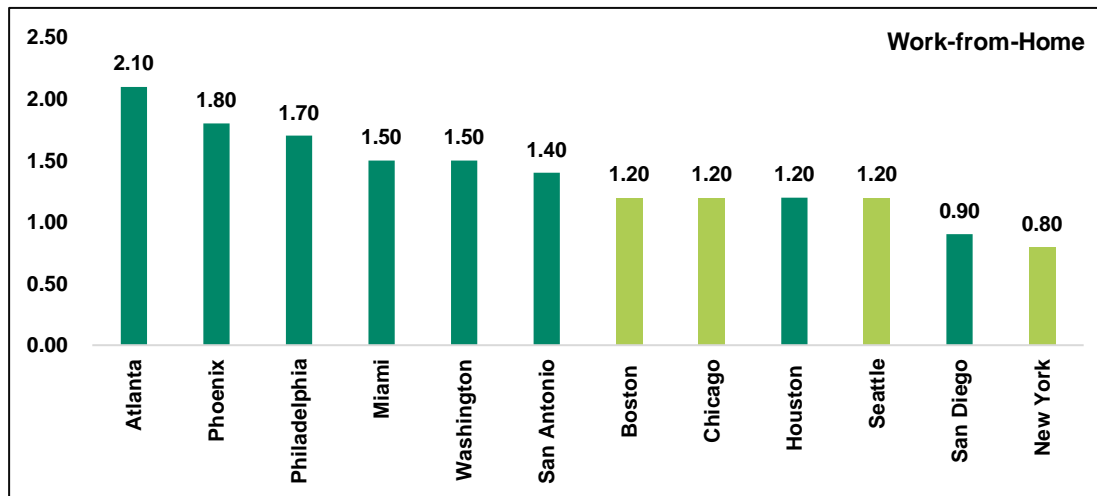
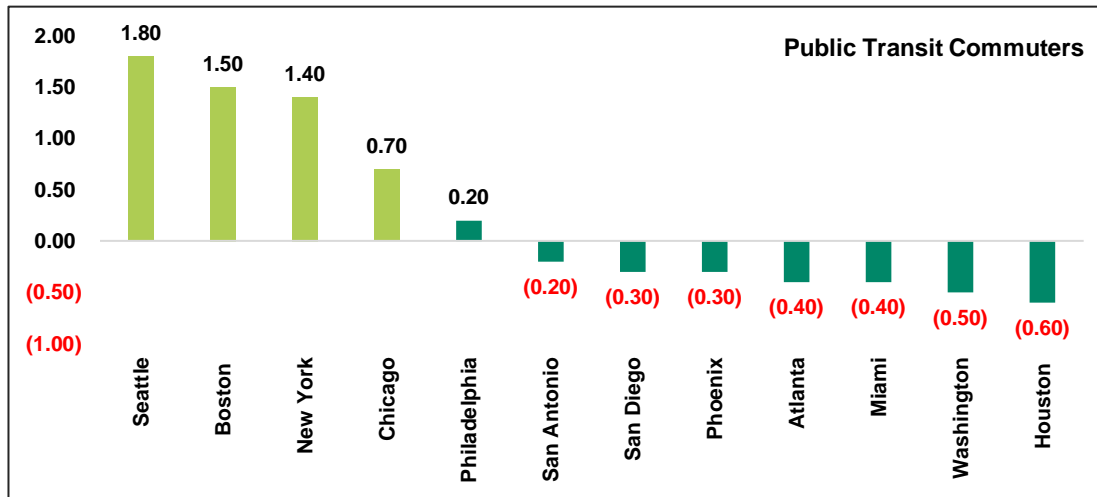
Market experts interviewed for this study and a body of industry literature indicate that Boston’s laboratory/R&D sectors will remain primarily in-person work environments.<sup>a</sup> Market evidence of this outlook is seen in the wave of laboratory and related office development undertaken in the teeth of the pandemic.

The same sources anticipate that the general office market will seek a range of hybrid outcomes, but that most will retain an office presence for multiple days per week. This may result in smaller space footprints relative to the workforce, but not in the widespread abandonment of office work.

Industry sources consider BPY a strong location for multifamily residential development, regardless of future commuting patterns.

<sup>a</sup> ABC/AECOM interviews of 13 market experts, February-March 2022. Interviewees represented the real estate, commercial and residential development, “eds and meds”, and institutional sectors.

**Figure ES-8: Percent Change, Public Transit Commuters and Work-from-Home, MSA, 2010-2019**



Trends that preceded COVID suggest that US regions with strong transit and desirable amenities are more resistant to work-at-home patterns. Figure ES-8, for example, compares trends in transit commuting and work-from-home patterns in 12 metro markets in the decade before the pandemic. Those, including metro Boston, where transit use was growing experienced lower rates of growth in remote work.

Source: A Better City/AECOM from US Census Transportation Products

## Key Finding 6: West of Boston

*The I-90 Allston Multimodal Project would contribute to economic development in the 35-mile corridor extending westward from BPY to Newton, MetroWest, and Worcester.*

Development at BPY can result in a new neighborhood and a center of innovation, employment, and commerce. The reinvented Turnpike exit will continue to connect Allston to the western suburbs and beyond. And thanks to West Station, the nine communities on the Framingham-Worcester rail line west of Boston will find BPY not only transit-accessible but **10 minutes closer to home than Back Bay and 15 minutes closer than South Station**. This enhanced accessibility and mobility can support development in the corridor through a web of economic synergies.

- Worcester is the second-largest city in New England and a Massachusetts **Gateway City**. Gateway Cities are targeted by state policy and by other institutions for regionally and

socially equitable growth. As of 2021, while the statewide median household income was \$84,325, the median in Worcester was \$51,647.<sup>a</sup>

- The revitalization of **Downtown Worcester** ([Figure ES-9](#)) is creating extensive multifamily residential development as well as commercial, civic, and institutional destinations, within walking distance of Union Station, the regional transit hub. Recent, current, and proposed residential development in Downtown totals over 3,500 units, with capacity for thousands more.<sup>b</sup>
- Worcester is home of eight colleges and universities and the **second largest life sciences cluster** in Massachusetts, with commercial and intellectual linkages to Boston and Cambridge.

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<sup>a</sup> MassINC, <https://massinc.org/our-work/policy-center/gateway-cities/about-the-gateway-cities/>.

[US Census Bureau, American Community Survey 2020 5-Year Estimates](#); as reported in Boston Globe, April 22, 2022.

<sup>b</sup> A Better City, Inc./AECOM review of Downtown Worcester development projects, including Greater Worcester Chamber of Commerce, (<https://www.worcesterchamber.org/economic-development/projects-underway/>).



- Framingham and Natick are planning **station area TOD** in their downtowns. There is significant infill opportunity, especially around Framingham’s MBTA/Amtrak station on the southern edge of downtown.
- **The Golden Triangle** straddles the Framingham-Natick town line at the Turnpike’s Exit 117 (old Exit 13). It is a 940-acre expanse of auto-oriented commerce. In the long term, as land use is diversified and intensified, the Triangle could become a mixed-use “edge city”, tied to BPY by Turnpike express rapid bus as well as first- and last-mile connections to the nearby regional rail stations.<sup>a</sup>
- Newton’s vision of **Washington Street** as a more developed, pedestrian-friendly, transit-oriented corridor dovetails with future rail service between its villages and West Station, as well as express bus service on the Turnpike. A separate MassDOT project will upgrade the three Newton stations, enabling them to serve trains in opposite directions simultaneously.
- The 2020 **MBTA Communities law** encourages multifamily zoning around stations.<sup>b</sup> This is a major state policy initiative aimed not only at equity and climate sustainability but at economic development as well, given the housing shortage and affordability crisis widely recognized as threats to the state’s competitive position. The number of station-area multifamily units that each corridor community would need to enable under local zoning to comply with the new law is shown in the “MBTA Zone Capacity” column of Table ES-4.
- A regional employment node at BPY, with thousands of jobs in walking distance of West Station, can help advance the state’s transit-oriented housing policy in all of the corridor’s rail communities.
- It is estimated that a net addition of over **4,300 households** will be needed to staff future jobs at BPY. Corridor communities have an opportunity to capture a significant share of them.

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<sup>a</sup> City of Framingham and Town of Natick, *Golden Triangle Planning Study* (<https://www.framinghamma.gov/DocumentCenter/View/33226/Full-Report-542-MB?bidId=>).

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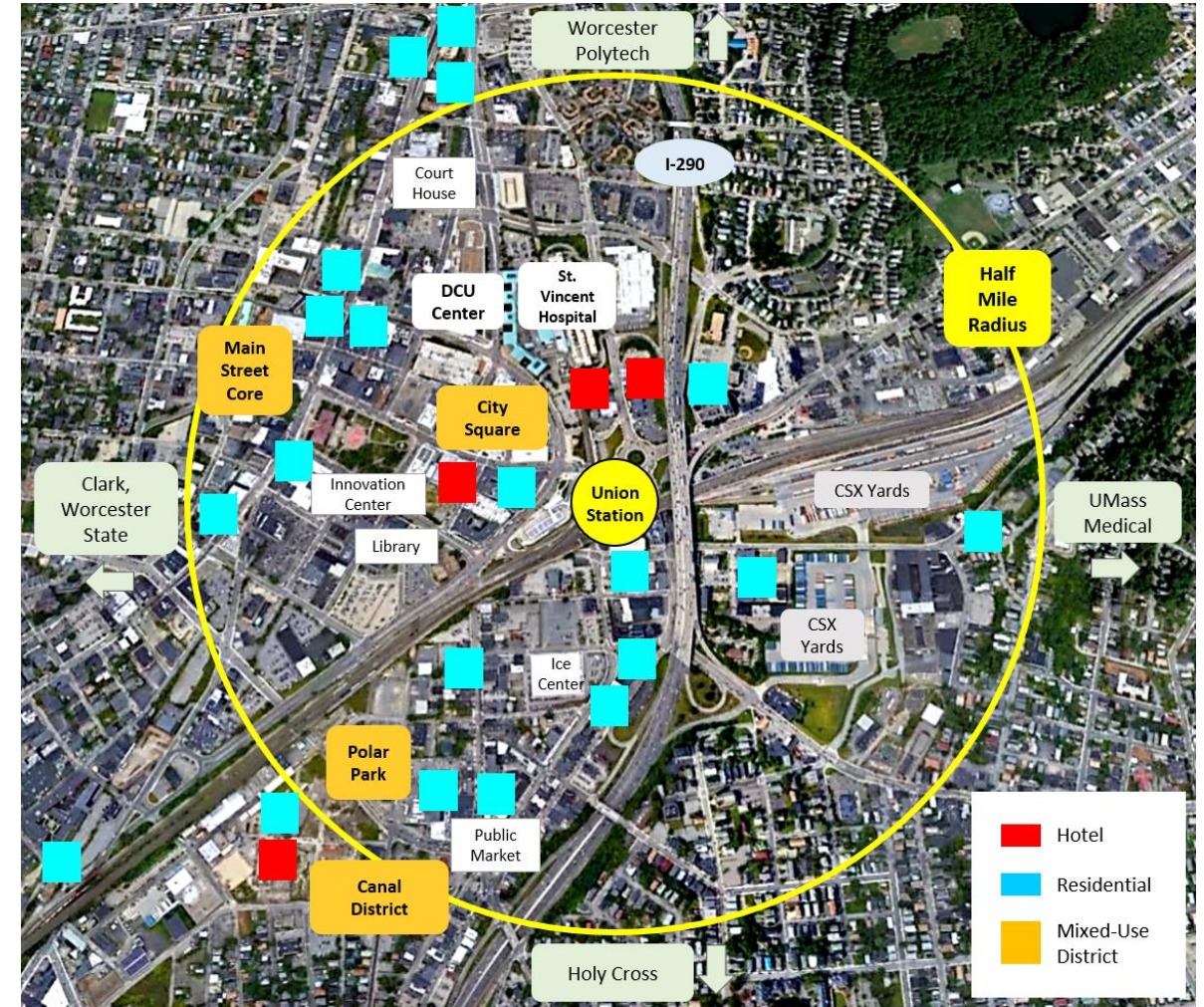
<sup>b</sup> Commonwealth of Massachusetts, Department of Housing and Community Development, MBTA Communities Law Draft Guidelines (<https://www.mass.gov/info-details/multi-family-zoning-requirement-for-mbta-communities#review-the-draft-guidelines>).

**Table ES-4: Housing Units in Corridor Station Areas**

Municipality	Existing Units, Municipality	Existing Units, Station Area(s)	MBTA Zone Capacity
Worcester	84,281	1,242	12,642
Grafton	7,760	10	1,164
Westborough	8,334	456	1,250
Southborough	3,763	374	750
Ashland	7,495	853	1,124
Framingham	29,033	2,490	4,355
Natick (2 stations)	15,680	5,660	2,352
Wellesley (3 stations)	9,282	2,695	2,321
Newton (3 stations)	33,320	5,261	8,330
<b>Totals</b>	<b>198,948</b>	<b>19,041</b>	<b>34,288</b>

Source: A Better City, Inc./AECOM, from MA Housing Partnership TOD Explorer Database and MA Department of Housing and Community Development (MBTA Communities Draft Guidelines. See explanation of [MBTA Zone Capacity](#) in Chapter 6.)

**Figure ES-9: TOD Near Worcester Union Station**



Source: A Better City, Inc./AECOM

# CHAPTER I: A REGIONAL ECONOMIC ENGINE

*Key Finding: Development at BPY would generate multi-billion dollar recurring annual benefits in jobs, wages, regional GDP, and state/ local tax revenues, as well as multi-billion dollar construction benefits.*

# INTRODUCTION

Chapter 1 of this study presents the study’s estimate of the **quantifiable economic benefits** of future development enabled by the I-90 Allston Multimodal Project. Specifically, the analysis addresses the mixed-use development that could occur over time at Beacon Park Yard (BPY) as a result of the Project’s reconfiguration of the transportation infrastructure defining the Project site.

The chapter consists of two sections:

- **Analysis of Economic Impacts**, in which the assumptions and methodology are explained. A key assumption, addressed in this section, is the use of the buildout forecast developed previously by the Metropolitan Area Planning Council (MAPC).
- **Estimate of Benefits**, in which two sets of results are presented—those arising from the **construction** of the future development, and those arising on a **recurring, annual basis** from the operation of the development once completed.

The reasonableness of using the MAPC forecast as illustrative of BPY’s long-term development potential (and consequently as the basis for the analysis in Chapter 1) is addressed in subsequent chapters.

- Chapter 2 places BPY in its future transit context once West Station and its associated improvements are in place.
- Chapter 3 uses precedent projects and Boston’s inner core market demographics to substantiate the prospect for large-scale, mixed-use development at BPY.
- Chapter 4 focuses on the life sciences sector and its potential to be a development driver.

It should be understood that this economic impact analysis is limited to future development. It does not include the construction impacts of the Multimodal Project itself or the quantifiable user benefits that the traveling public would derive from the improved transportation infrastructure. These important benefits are being analyzed by MassDOT as part of the Project’s environmental documentation.

# ANALYSIS OF ECONOMIC IMPACTS

## *Assumptions*

The potential development buildout at Beacon Park Yard, as forecasted by the Metropolitan Area Planning Council (MAPC), is 11.17 million square feet, or 10 million exclusive of parking.<sup>a</sup> This buildout assumes a mix of uses: research and development, residential, office, hotel, retail, and cultural. The forecast includes terra firma as well as air rights parcels and represents a scenario for BPY’s long-term development potential, extending beyond the Project’s 2040 “Build Condition” horizon. MAPC estimates that one-third of the buildout will occur by 2040.

MAPC also assumes an illustrative mix of uses, consisting of 45% residential; 25% R&D and/or office; and 30% other, complementary uses (retail, hotel, institutional, cultural). According to the MAPC forecast, the non-residential components would accommodate about 12,400 jobs.

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<sup>a</sup> MAPC, *FEIR Build Scenario Projections* (2019). [As noted previously](#), the buildout *Inclusive* of structured parking is 11.17 million square feet. For purposes of this estimate of benefits, the parking component is excluded, along with the costs of transportation infrastructure and air rights decking.

The MAPC forecast is not based on any master plan. It extrapolates the order-of-magnitude development that could occur at BPY based on its acreage, benchmarked densities from similar precedents, and the anticipated requirements for infrastructure, open space, and parking.

In the long run, development at BPY could turn out to be lesser or greater than 10 million square feet—depending on economic trends, local planning and zoning, and other factors. Similarly, the development that actually unfolds could reflect different mixes of housing, R&D, and other uses. The MAPC scenario, while illustrative of a range of possible outcomes, is consistent with a walkable, transit-oriented, mixed-use district, combining a residential neighborhood with a center of jobs and innovation.

Using the MAPC scenario as a guide, an estimate has been prepared of the regional economic benefits that would flow from the construction of the BPY development and from its recurring, annual operation once it is built.

# ANALYSIS OF ECONOMIC IMPACTS

## *Methodology*

Economic and fiscal impacts can be described as the sum of economic activity within a defined region resulting from an initial change in the economy, such as the opening of a new factory or a mixed-use development project.

The estimated direct, indirect and induced impacts are often referred to as the “**multiplier effects**”. The inter-industry relationships are captured in an input-output (I-O) model.

Input-output (IO) multipliers generated by EMSI were used for this analysis. With IO models, each round of impact uses inter-industry purchases to calculate an economic impact of jobs, earnings, and GDP.

Definitions for each round of impact are as follows:

- **Initial impact.** The “initial change”, which in this case applies to future vertical construction on the BPY site or the annual operation of the development once built.
- **Direct impact.** The first round of changes across industries as they impact on other industries, demanding more goods or services from the industries in their supply chains.
- **Indirect impact.** Subsequent ripple effects resulting from the direct impact, including sales changes across broader supply chains, due to inter-industry effects.
- **Induced impact.** The change due to the impact of the new earnings created by the Initial, direct, and Indirect changes. These earnings enter the economy as employees spend their paychecks on food, clothing, and other goods and services.

# ANALYSIS OF ECONOMIC IMPACTS

## *Methodology (continued)*

The total economic impact is the sum of all four rounds. In this analysis, impacts are calculated for three metrics:

1. **Jobs** created through the impact process.
2. **Earnings** paid out due to the impact process.
3. **Gross Domestic Product (GDP)**: value added through the impact process.

The analysis also estimates fiscal impacts associated with the “initial change”, including state income and sales taxes and municipal property taxes. It is important to understand that while the multiplier effects of a major development may be felt both inside and outside its host state and region, the income and sales taxes associated with the **initial change** are mostly retained in-state, and the property taxes flow entirely to the host jurisdiction—in this case, the City of Boston.

The estimate is calculated in **constant 2022 dollars**, placing the results in a dollar value frame of reference familiar to the reader. By using constant 2022 dollars, the analysis does not need to account for future inflation. (This method is distinct from discounted cash flow analyses, in which an inflation rate and a discount rate are applied. The purpose in those cases is to estimate the present value of future incomes and expenditures in order to evaluate the risk and reward of a potential investment.)

The timing of future development at BPY is unknown; it would be phased in response to market conditions. For purposes of this analysis, the buildout is assumed to occur over a 17-year period, corresponding roughly to MAPC’s projection that about one-third would occur by 2040.

# ESTIMATE OF BENEFITS

## Construction Period Benefits

- Construction of the full buildout scenario as forecasted by MAPC (the “initial investment” in Table 1-1) could create an estimated **24,300 construction jobs** (each job a person-year), paying, in 2022 dollars, **\$3.0 billion in earnings** and generating **\$6.0 billion** (the estimated construction value) in total GDP.
- Construction also generates ripple or multiplier effects as the initial investment courses through the economy. As described previously, an Input/Output analysis considers the initial change plus three layers of ripple or multiplier effects. When these are considered, the total impact could grow to nearly **54,800 jobs, \$5.5 billion in earnings**, and **\$13.8 billion** in total GDP.
- The Commonwealth of Massachusetts could collect an estimated **\$151.5 million** in income and sales taxes generated by construction.

Includes vertical development only, exclusive of parking and infrastructure.  
Source: AECOM data on vertical construction costs in metro Boston.

Table 1-1: Economic Impact of BPY Construction (\$2022)

Construction Period		
Category	Element	Estimate
Initial Investment	Jobs (FTE)	24,300
	Wages	\$3,008,750,000
	GDP	\$6,017,500,000
Direct Impacts	Jobs (Total)	6,100
	Earnings	\$566,299,000
	GDP	\$1,737,423,000
Indirect Impacts	Jobs (Total)	2,600
	Earnings	\$224,403,000
	GDP	\$624,372,000
Induced Impacts	Jobs (Total)	21,800
	Earnings	\$1,666,653,000
	GDP	\$5,420,003,000
Total Impacts	Jobs (Total)	54,800
	Earnings	\$5,466,105,000
	GDP	\$13,799,298,000
Construction Period Fiscal Benefits		
Income Tax	Labor	\$141,111,000
Sales Tax	Materials	\$9,402,300
Total Taxes		\$150,513,300



# ESTIMATE OF BENEFITS

## Recurring Annual Benefits

- Once the development is built, its operation—in wages, sales, supplies, and other expenditures—would produce a large **recurring or annual** impact, year after year. Again, development would be phased, and its annual impact in any given year would reflect only those portions that have been completed and opened. Once in place around 2050, the full program envisioned by MAPC could generate **12,400 jobs, annual wages of \$2.1 billion** and total annual GDP of **\$2.7 billion**.
- When the multiplier effects are added, the recurring annual benefit of the full development program could grow to 36,600 jobs, **\$4.2 billion in earnings** and **\$6.4 billion** in GDP.
- When the entire buildout is complete, on-going operations could generate an estimated \$238 million **annually** in state and local revenues—**\$151 million** in state income, sales, and hotel taxes, and **\$87 million** in Boston property taxes.

Table 1-2: Economic Impact of BPY Operations (\$2022)

Annual Operations, Year 20		
Category	Element	Estimate
Initial Change	Jobs	12,440
	Wages	\$2,058,350,000
	GDP	\$2,708,158,000
Direct Impacts	Jobs (Total)	6,100
	Earnings	\$609,637,000
	GDP	\$951,885,000
Indirect Impacts	Jobs (Total)	2,520
	Earnings	\$236,638,000
	GDP	\$384,696,000
Induced Impacts	Jobs (Total)	15,560
	Earnings	\$1,268,843,000
	GDP	\$2,327,443,000
Total Impacts	Jobs (Total)	36,620
	Earnings	\$4,173,468,000
	GDP	\$6,372,182,000
Annual Operations, Year 20, Fiscal Benefits		
Income Tax	Wages	\$96,536,600
Property Tax	Buildings	\$87,472,000
Sales Tax	Retail	\$40,625,000
Hotel-Motel	Hotel	\$14,105,000
Total Taxes		\$238,738,600

Source: A Better City, Inc./AECOM

# ESTIMATE OF BENEFITS

## *Concluding Observations*

The results reported here are estimates, based on a set of assumptions about events more than a decade in the future. To the extent that the buildout at Beacon Park Yard turns out to be less than or more than 10 million square feet, the economic impacts would vary accordingly. Similarly, if the mix of uses were substantially different than that assumed by MAPC, or if the ratio of square feet per employee were to change, the economic impact would be affected as well.

The estimates reported here, ***although merely illustrative***, suggest a major, positive impact on this region's future economic condition. The total annual impact on GDP of \$6.4 billion represents 1.3% of the Boston region's annual GDP of \$480 billion—an exceptional impact for a single geographic location in a metro region of 4.9 million people.<sup>a</sup>

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Bureau of Econ. Analysis, <https://apps.bea.gov/regional/bearfacts/>; US Census, <https://drive.google.com/file/d/1qFbaEsxyyDtK1kr4LO2VvyixjBUPXJo/view>

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<sup>a</sup> The estimated earnings and GDP impacts reported here, in 2022 dollars, are in the billions. If a 3% discount rate were applied to estimates of activity occurring 20 years in the future, the present value is approximately 36% of the 2022 constant dollar amount; if a 7% discount rate is applied, the present value of activity 20 years in the future is approximately 23% of the 2022 amount. The discounted values would still be large.

## CHAPTER 2: TRANSFORMATIVE ACCESS & MOBILITY

*Key Finding: With multimodal West Station at the center of future development, enhanced transit access to BPY would promote social equity, sustainability, and economic growth.*

# INTRODUCTION

Implementation of the Project would position BPY and the surrounding community as an extension of Boston’s transit-rich central core, served by regional rail, urban rail, rapid transit, and multiple bus routes and strongly connected to other high-value transit nodes. This chapter, which addresses the proposed transit improvements, includes these sections:

- **A Hub for TOD**, describing existing transit services and those that would be added with or enabled by the introduction of West Station;
- **Transit Growth Clusters**: a look at other key TOD districts in Boston’s central core to which BPY and the Allston community would be linked;
- **Modeling Accessibility**, an analysis of potential improvements in transit access to and from West Station;
- A mapping of **Environmental Justice Communities** that would benefit from the projected changes.



Figure 2-1: The Triple Bottom Line

## A Triple Bottom Line

With West Station in place, BPY could benefit Boston’s economy in three inter-related ways—a triple bottom line perspective reflected throughout this chapter.

- **Economic viability**, through workforce access and amenity; synergy with transit-connected institutional, R&D, and commercial clusters; and minimization of costly structured parking. In the study team’s interviews of market experts, transit was described as a **gravitational force** for development in metro Boston—not simply as traffic mitigation, but as a driver of locational decisions.
- **Equitable access** to and from jobs and services in a variety of places—in the central core, in the Framingham-Worcester corridor, and in other transit-served locations—without requiring additional car ownership
- **Sustainable growth** in a traffic-congested region where decarbonization is a widely held policy goal.

# A HUB FOR TOD

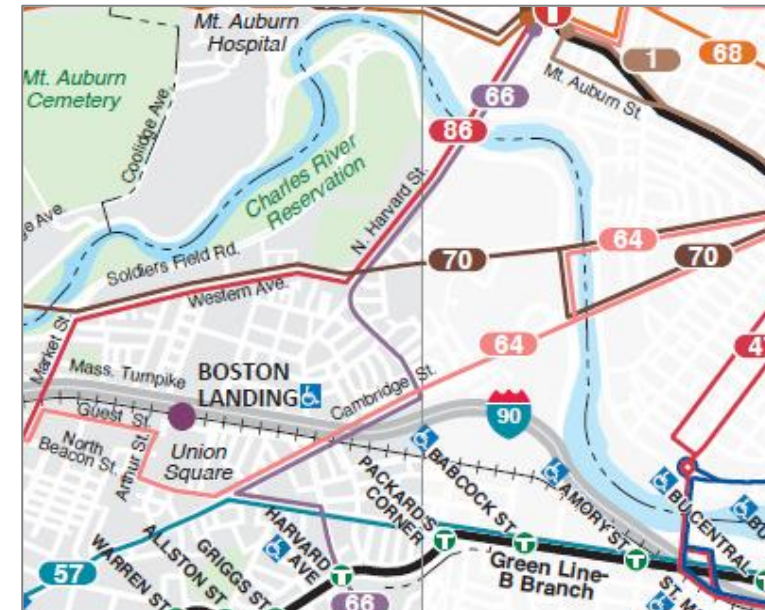
## Today's Transit Services

As of today, the area surrounding BPY is served by a number of transit modes. Access to these modes, and connectivity among them, are impeded by the Turnpike and rail yard, and none provide direct service to BPY.

- The **Green Line's B branch**, with stops on Commonwealth Avenue. The B branch serves the entire central subway (directly or with a single transfer) from the new Somerville extension through Lechmere, North Station, Downtown, Back Bay, and Kenmore; from the west it serves Brighton, Chestnut Hill, and Boston College.
- The **Boston Landing** station on the Framingham-Worcester commuter rail line. Located .85 track miles west of the proposed West Station, Boston Landing is about a one-mile walk to the Harvard Science & Engineering Complex or Packard's Corner.
- Five **MBTA bus routes**. The "via" reference denotes the street on which each route currently stops in the BPY/BU area; some would be rerouted to West Station:

- 57:** Kenmore to Watertown via Commonwealth Avenue;
- 64:** Kendall to Oak Square via Cambridge Street;
- 66:** Harvard Square to Nubian via No. Harvard Street;
- 70:** Waltham/Watertown to Cambridge, via Western Avenue;
- 86:** Sullivan/Union Square to Reservoir, via North Harvard St.

Figure 2-2: MBTA Bus Routes Serving BPY Area



Source: <https://www.mbta.com/schedules/bus>;  
<https://cdn.mbta.com/sites/default/files/2022-03/3-21-2022-mbta-system-brochure.pdf>.

# A HUB FOR TOD

## *Introducing Regional & Urban Rail*

West Station will make Allston a key stop on the Framingham-Worcester Line. As of 2019 (the last pre-COVID schedule), there were 20 weekday round trips between Worcester and Boston and 27 between Framingham and Boston. Worcester-originating trains included some that made all local stops; “zone expresses” making local stops as far as West Natick and then running express to Boston; and one daily Worcester-Boston Express.<sup>a</sup>

West Station should be understood in the context of other changes on the Framingham-Worcester Line:

- The MBTA is preparing a “[third track](#)” project between West Natick and Wellesley Farms, which will enable additional express service from Worcester and Framingham as well as greater reliability and reduced trip times.

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<sup>a</sup> [https://www.dbperry.net/MBTA/worcester/worcester\\_2019-05-20.pdf](https://www.dbperry.net/MBTA/worcester/worcester_2019-05-20.pdf)

- The MBTA is also undertaking separate [station improvement projects](#) at Worcester, Natick Center, and the three Newton village stations. These improvements will allow boarding or discharging trains in both directions simultaneously.
- With West Station in place, the MBTA could implement its **Rail Vision** concept in this corridor, using electrification or battery-powered electric multiple unit (EMU) vehicles. This would provide high-platform, “urban rail” service stopping **every 15 minutes** at Riverside (which would be restored as a commuter rail stop), the three Newton village stations, Boston Landing, West Station, Lansdowne, Back Bay, and South Station. Urban rail service is not part of the I-90 Allston Multimodal Project, but the potential inclusion of Allston in any such service would be **enabled** by the creation of West Station.<sup>b</sup>

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<sup>b</sup> <https://www.mbta.com/projects/rail-vision#alternatives>  
(see Alternative 5)

# A HUB FOR TOD

## *Enabling Grand Junction Service*

MassDOT is designing West Station to enable future passenger rail service on the Grand Junction Railroad. Owned by the MBTA, the Grand Junction begins at the West Station site, crosses the Charles River (on the rail bridge that cuts diagonally beneath the BU Bridge), and runs through East Cambridge, Somerville, and Charlestown to North Station. It is used today for freight trains and non-revenue transport of locomotives.

Grand Junction service is not part of the I-90 Allston Multimodal Project **but would be enabled by it**. With West Station in place, Grand Junction service could be implemented through a separate, future capital project. This study envisions a rail shuttle service with stops at Massachusetts Avenue/MIT, Kendall, and North Station (the black-and-yellow route shown in [Figure 2-4](#)).

Grand Junction service would create a short, frequent, one-seat connection linking BPY, BU, and the Allston neighborhood to MIT and Kendall. In their interviews for this study, experts in the region’s development, commercial real estate, and institutional communities focused on the Grand Junction, saying that it makes “Kendall and BPY effectively the same place”. The gain in synergy—for those living or working on both sides of the river—would make BPY a unique location.

Grand Junction service as envisioned here would also enable commuters arriving at North Station by commuter rail, Orange Line, or Green Line to reach West Station in roughly 10 minutes.

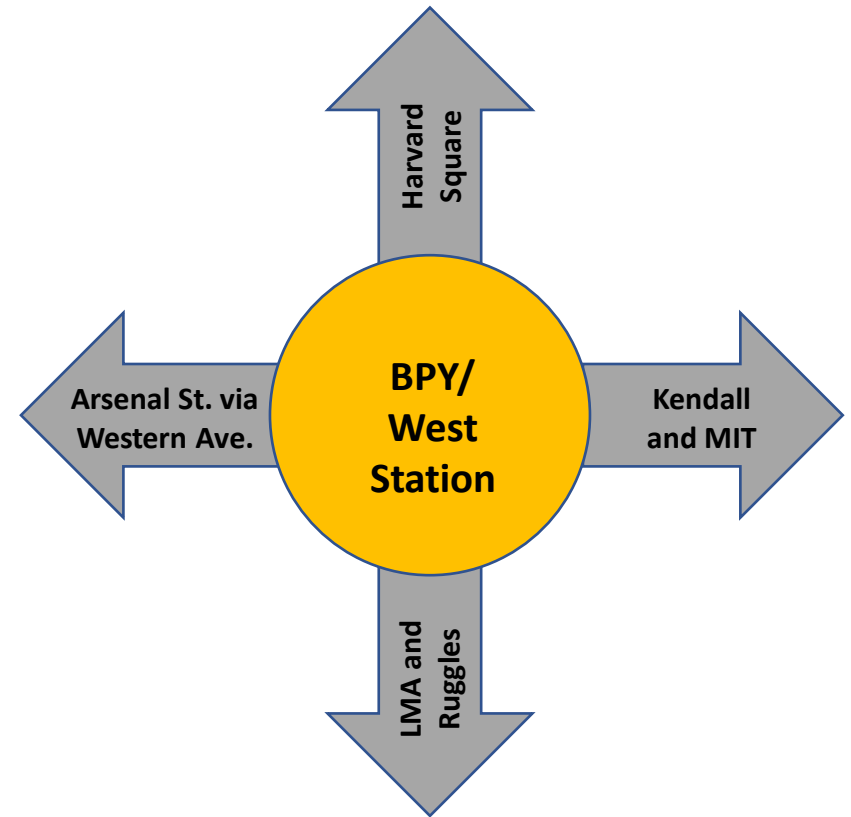
# A HUB FOR TOD

## *Creating 360 ° Bus & Shuttle Connections*

West Station would be a hub for bus and shuttle routes, both as an origin/destination for those services and as a key transfer point with the regional rail system. One can envision “360-degree” connections, including existing bus routes and new shuttles to and from:

- **MIT and Kendall Square**, likely running on Vassar or Albany Street alongside the Grand Junction rail corridor.
- The **Longwood Medical Area and nearby Ruggles Station**, a key transfer point on the Orange Line and the south commuter rail network. The route assumed here (the red dashed route in [Figure 3-4](#)) would intersect the Green Line at Fenway Station (D Branch) and Huntington Avenue’s LMA and Northeastern stops (E Branch).
- **Harvard Square** (the ped-bike network created by the multimodal project will enable bicycle connections as well). This connection would improve the existing MBTA 66 bus route.
- **Arsenal Street** in Watertown, an emerging life sciences cluster. This connection would improve the existing MBTA 70 bus route.

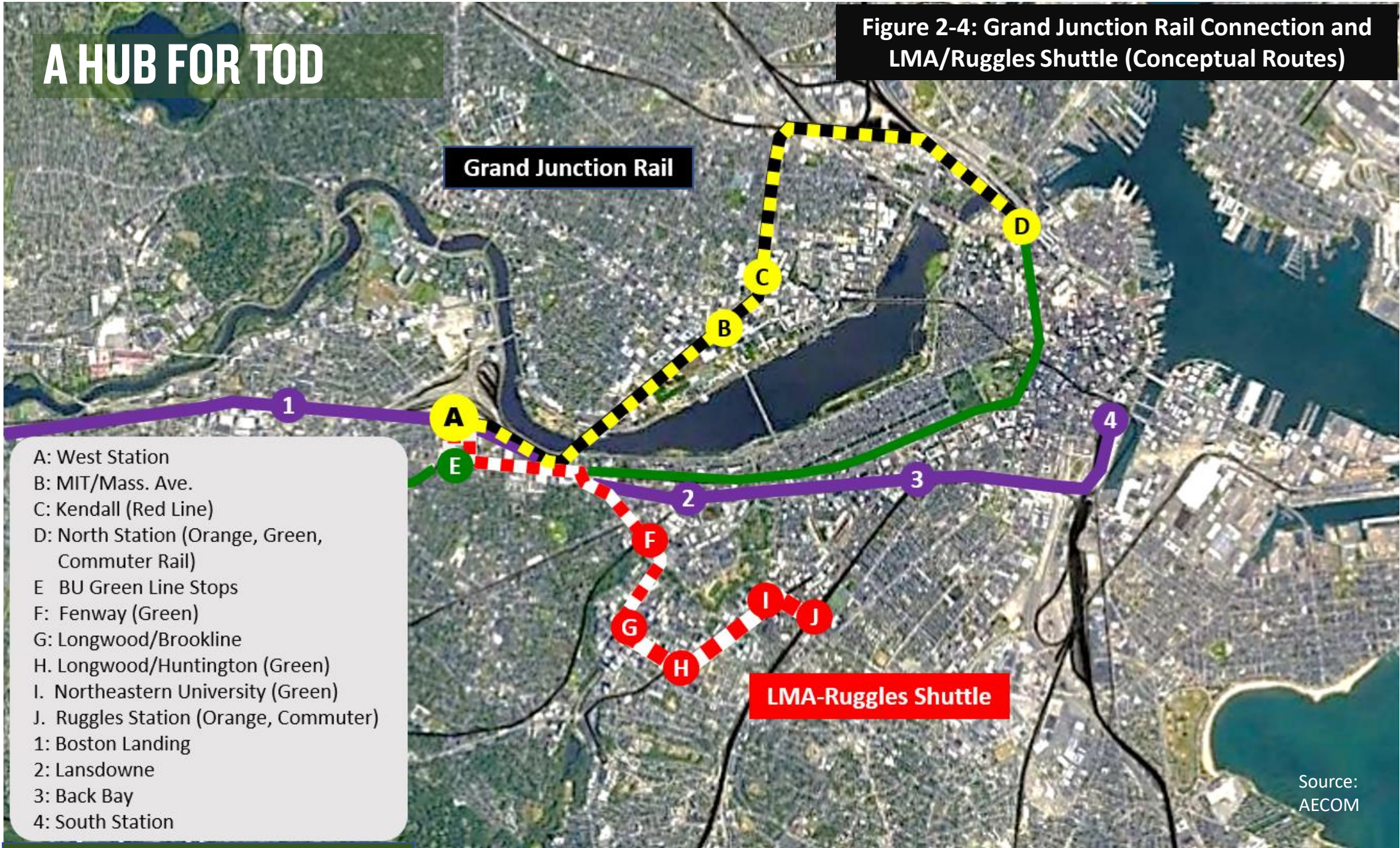
Figure 2-3: West Station as a Shuttle Hub





# A HUB FOR TOD

Figure 2-4: Grand Junction Rail Connection and LMA/Ruggles Shuttle (Conceptual Routes)



Source:  
AECOM

# TRANSIT GROWTH CLUSTERS

## *A Network of Strategic Nodes*

In *The Transportation Dividend* (2018), A Better City, Inc., and AECOM identified 24 highly interconnected TOD districts within the metro region’s 20-municipality Inner Core area. One was the combined station areas of Boston Landing and West Station.

Representing a strategic subset of the Inner Core’s TOD footprint, the **transit growth clusters** had the capacity, as of 2018, to accommodate most of the regional growth projected by MAPC in its “Stronger Region” scenario.<sup>a</sup> As estimated by AECOM, the transit growth clusters included:

- 49,000 housing units recently built, under construction, or in the pipeline and the capacity to add 49,000 more

- commercial space recently built, under construction, or in the pipeline corresponding to 146,000 jobs, and the capacity for 116,000 more.<sup>b</sup>

[Figure 2-5](#) shows an updated representation of the transit growth clusters. The interconnectivity of the clusters is obvious. For example: Alewife, Harvard, Kendall/MIT, Downtown (including Mass General), the Seaport, the Dorchester Avenue Corridor, JFK/UMass (Dorchester Bay City), and Quincy Center are connected by the Red Line. Virtually every origin/destination pair is connected directly by rapid transit or by a one-transfer trip.

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<sup>a</sup> See MAPC, 2014 Regional Growth Projections ([https://www.mapc.org/wp-content/uploads/2017/08/MetroBoston-Projections-Final-Report\\_1\\_16\\_2014\\_0.pdf](https://www.mapc.org/wp-content/uploads/2017/08/MetroBoston-Projections-Final-Report_1_16_2014_0.pdf)).

<sup>b</sup> <https://www.abettercity.org/assets/images/Transportation%20Dividend%20-%20FINAL%20-%2020012918.pdf>

# TRANSIT GROWTH CLUSTERS

## *A Network of Strategic Nodes (continued)*

These connections are not merely geographic; they facilitate institutional and commercial synergies and provide workforce access to job centers. [Table 2-1](#) focuses the web of transit connections on West Station. It assumes that West Station has been constructed, and that bus and shuttle connections from West Station to Harvard, Kendall, LMA-Ruggles, and Arsenal Street have been implemented.

The “Direct” column indicates one-seat, no-transfer connections. Where two dots appear, there are two alternative one-seat routes. The “1XFER” column is used where the best connection requires one transfer; the two dots indicate the two services that combine to make the trip.

- Of the 24 TOD clusters listed, 14 would have at least one single-seat connection to West Station.
- The remaining 10 clusters could connect to West Station with one transfer. (In four cases, both a direct connection and a one-transfer connection are shown; both are significant, depending on the particular locations within the affected cluster.)

# TRANSIT GROWTH CLUSTERS

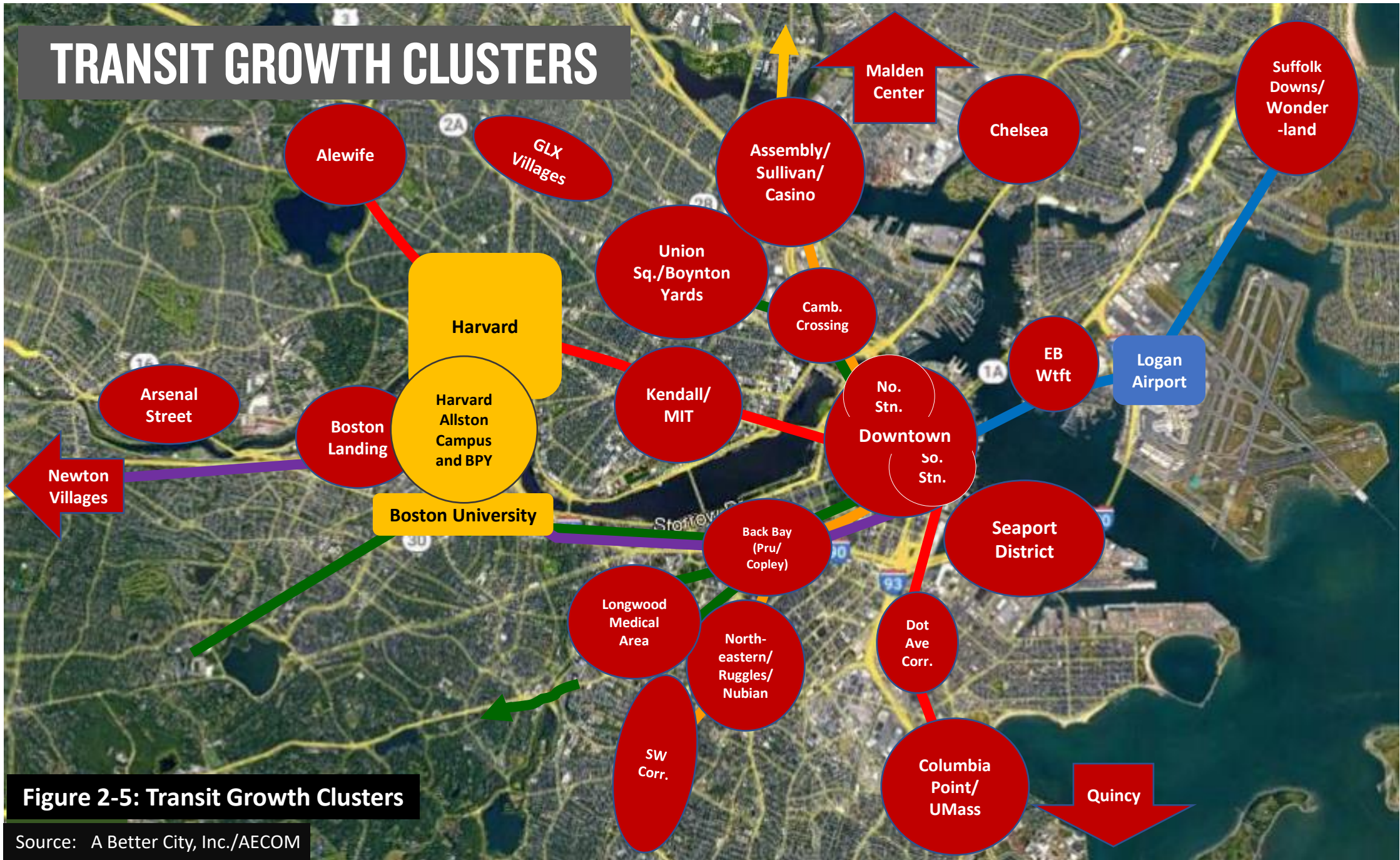

















































Figure 2-5: Transit Growth Clusters

Source: A Better City, Inc./AECOM

# TRANSIT GROWTH CLUSTERS

Table 2-1: Transit Connections to West Station (direct or single transfer)

Key TOD Cluster	Direct	1XFR
Downtown (General)	 	 
North Station *	 	
South Station		
Back Bay	 	
LMA/Fenway/Kenmore		
Kendall/MIT *	 	
Harvard		
Seaport		 
Dorchester Ave. Corridor		 
Columbia Pt/JFK/UMass		 
Northeastern/Ruggles/Nubian		 
Southwest Corridor		 

Key TOD Cluster	Direct	1XFR
Quincy Center		 
Cambridge Crossing *	 	
Union Sq./Boynton Yards		
Sullivan/Assembly/Casino		 
Green Line Extension Villages		 
Malden Center		 
Chelsea Station		 
East Boston Waterfront		 
Suffolk Downs/Wonderland		 
Alewife		 
Arsenal Street		
Newton Rail Villages		

-  Regional/urban rail
-  Red Line
-  Orange Line
-  Green Line
-  Blue Line
-  Shuttle
-  Silver Line

Source: A Better City, Inc./AECOM

\* A diamond indicates a connection that would be created if Grand Junction rail were implemented through to North Station.

# MODELING ACCESSIBILITY

AECOM performed a network analysis that considered existing transit services and walking distances, as well as future transit enhancements, to understand how mobility to and from the BPY/West Station area could change over time—for Allston residents commuting to jobs elsewhere in the region, and for residents of other communities commuting to jobs in Allston.

## ***Methodology***

The network analysis was based on General Transit Feed Specifications, or “GTFS”. Compiled by Google, these are transit agency route networks and timetables published in a common format for use in various software applications. The analysis for this study used the ***Network Analyst*** software platform (part of the ESRI ArcGIS suite of applications).

GTFS analysis determines whether a ***target destination*** can be accessed ***from a given location*** through a walking-plus-

transit trip of a **given duration, such as 45 minutes**. The software calculates the ***land footprint*** within which the desired trip can be achieved.

This GTFS analysis was performed for a target location in Beacon Park Yard adjacent to the future West Station. The analysis covered a two-hour period (6:30 to 8:30 AM) on a typical Wednesday.

GTFS analysis provides a modeled estimate of transit ***accessibility***. It is not a demand forecast or a ridership projection. Nor does it fully capture travel time improvements unless they result in a trip crossing the specified duration threshold. That said, many commuters would see trips that are already at or below the 45-minute threshold become shorter, more direct, or more convenient.

# MODELING ACCESSIBILITY

## *Analytic Scenarios*

Three transit access scenarios were considered in this analysis and are compared in the maps that follow.

### ***Scenario A***

- The redesigned interchange and street grid are implemented (enabling people to access the target BPY location).
- West Station is not implemented. Transit service reflects the **2019 network and schedule**.

### ***Scenario B: the above, plus:***

- **West Station added.** Rail service to West Station assumes: (a) “zone express” trains originating in Worcester every 30 minutes; (b) two inbound AM express trains from Worcester to Boston, including West Station; (c) local trains originating in Framingham every 30 minutes. West Station, Lansdowne, Back Bay, and South Station have four trains in each direction per hour.

- Shuttles between West Station and Kendall/MIT (15-minute headways) and LMA-Ruggles (10-minute headways). The MBTA #66 bus, with nine-minute peak headways, is the proxy for shuttle service to Harvard Square.

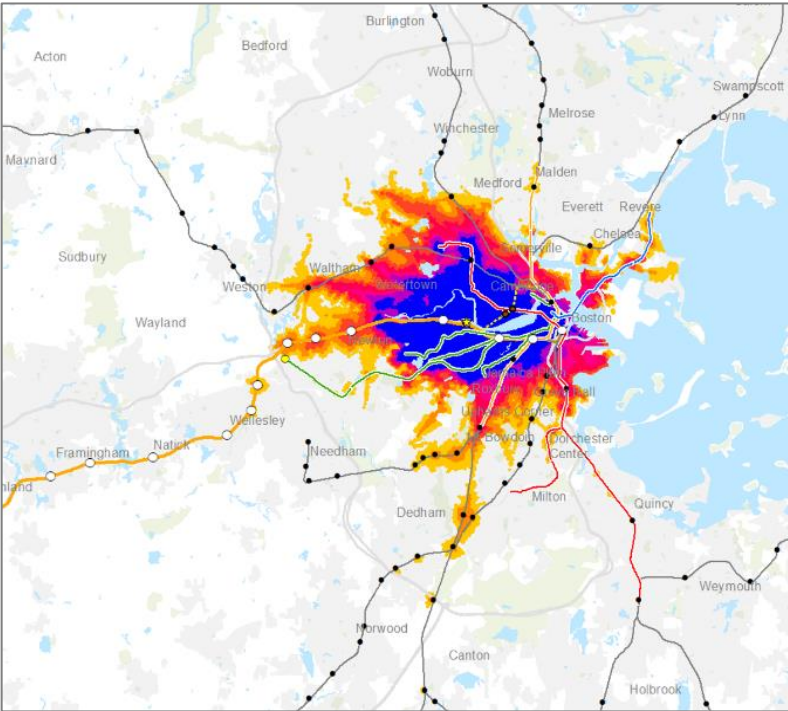
### ***Scenario C: the above, plus:***

- The rubber-tire shuttle to Kendall is replaced by a rail shuttle on the Grand Junction with 15-minute headways.
- One of the AM Worcester in-bound express trains interlines via the Grand Junction to North Station.
- Urban rail service with 15-minute headways added between Riverside and South Station, making all stops.

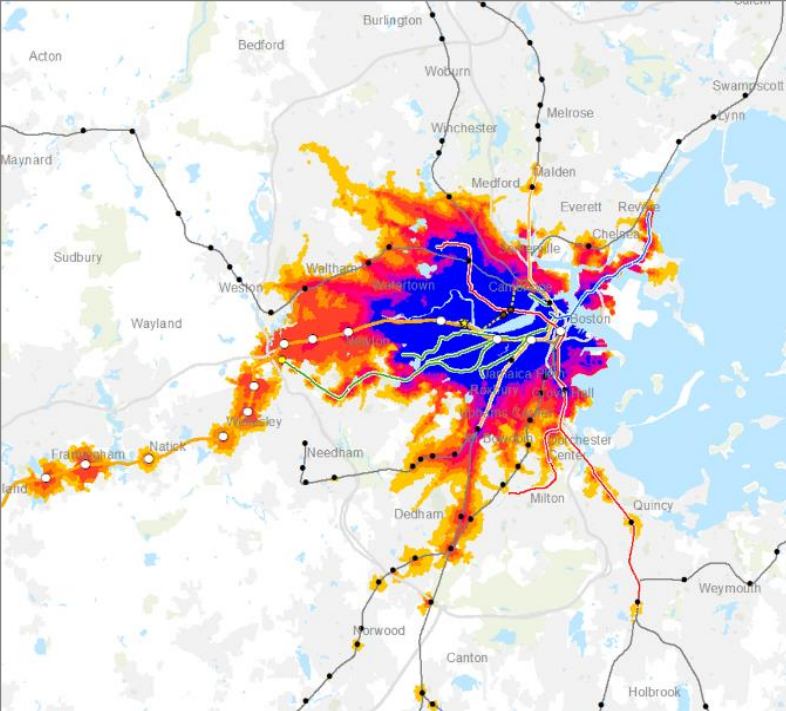
# MODELING ACCESSIBILITY

The three transit access scenarios are compared side-by-side on this page and displayed individually on the three pages that follow.

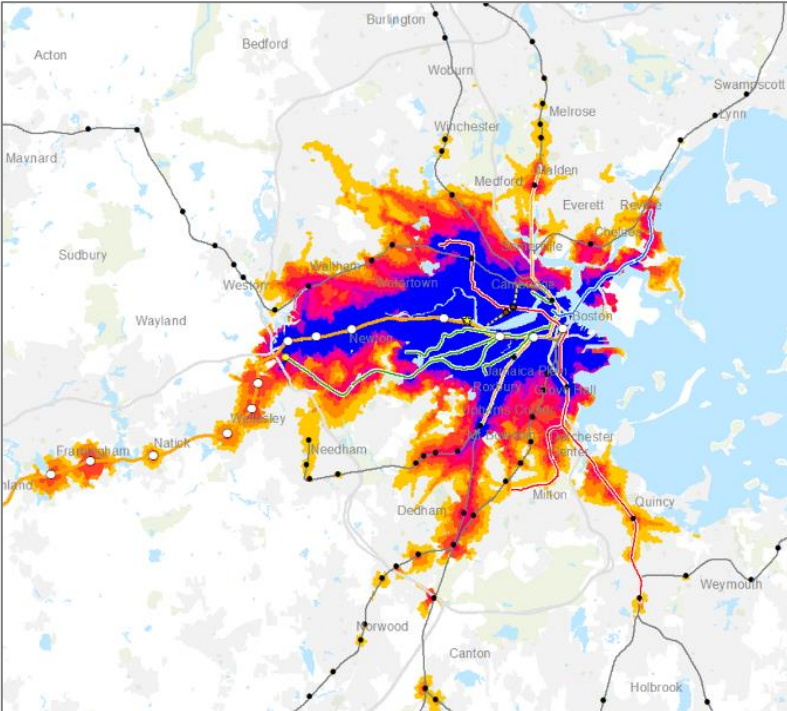
**Figure 2-6: GTFS Analysis, Scenarios Compared Side by Side**



**Scenario A**  
**2019 MBTA Network**



**Scenario B**  
**Scenario A plus:**  
**West Station and Key**  
**Shuttle Connections**



**Scenario C**  
**Scenario B plus:**  
**Grand Junction Rail**  
**Urban Rail**

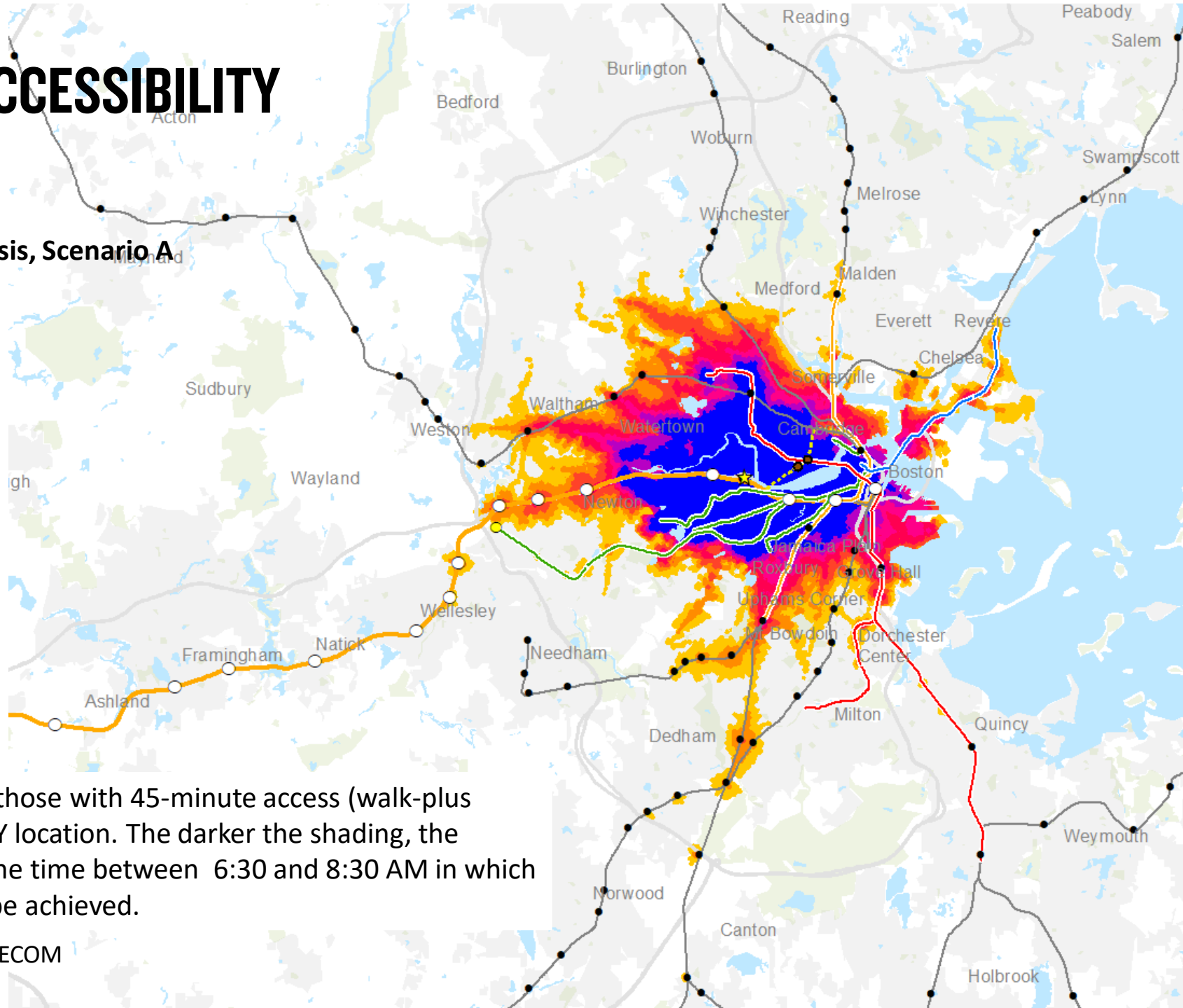
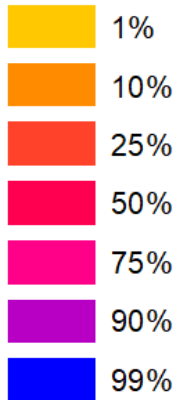


# MODELING ACCESSIBILITY

## A: 2019 NETWORK

Figure 2-7: GTFS Analysis, Scenario A

### Percent Access\*



\* The shaded areas are those with 45-minute access (walk-plus transit) to the target BPY location. The darker the shading, the greater the percent of the time between 6:30 and 8:30 AM in which the 45-minute trip can be achieved.

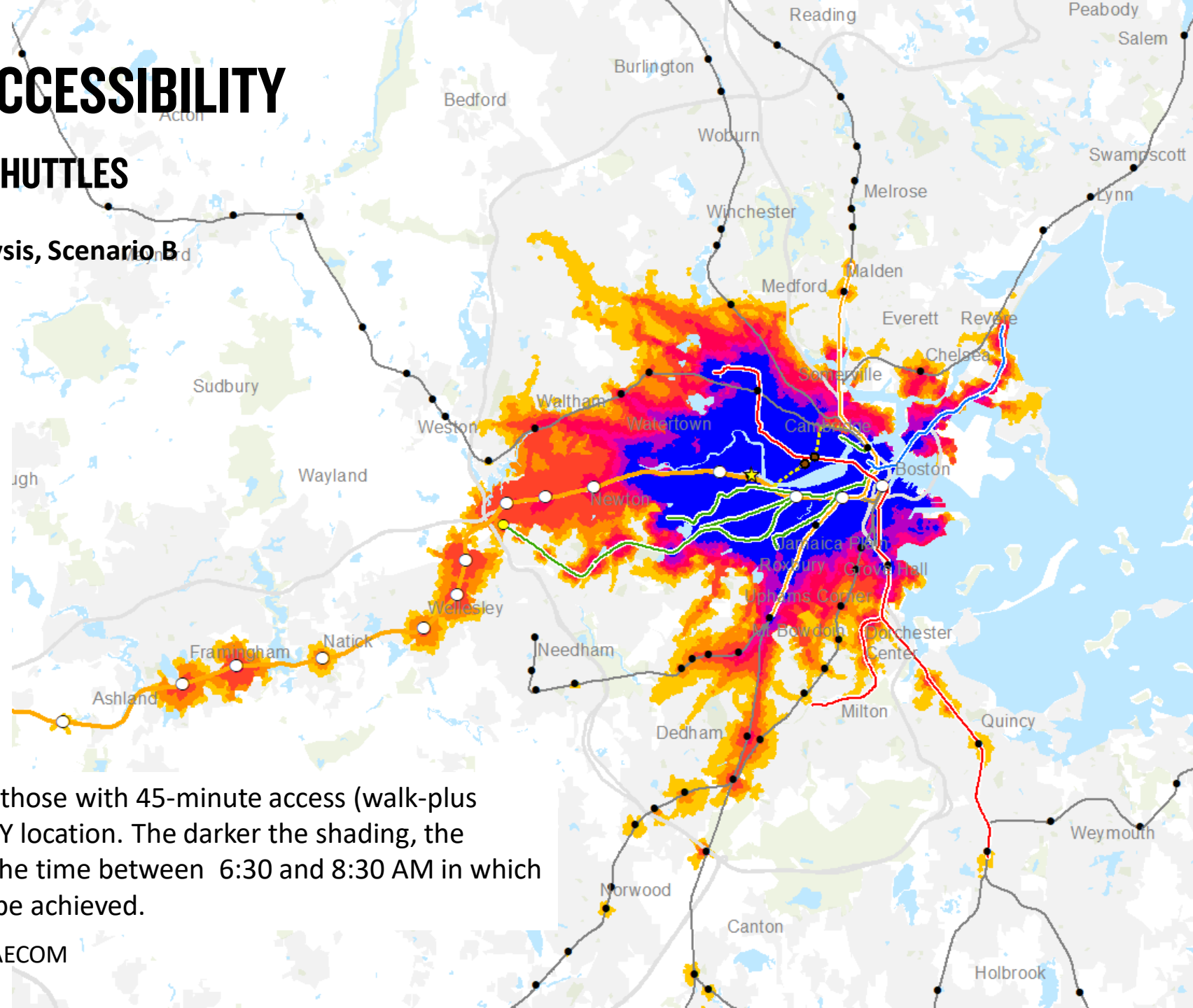
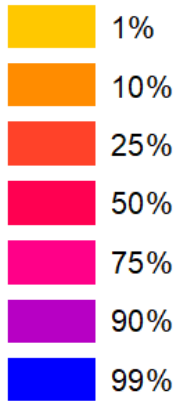
Source: A Better City, Inc./AECOM

# MODELING ACCESSIBILITY

## B: WEST STATION, SHUTTLES

Figure 2-8: GTFS Analysis, Scenario B

### Percent Access\*



\* The shaded areas are those with 45-minute access (walk-plus transit) to the target BPY location. The darker the shading, the greater the percent of the time between 6:30 and 8:30 AM in which the 45-minute trip can be achieved.

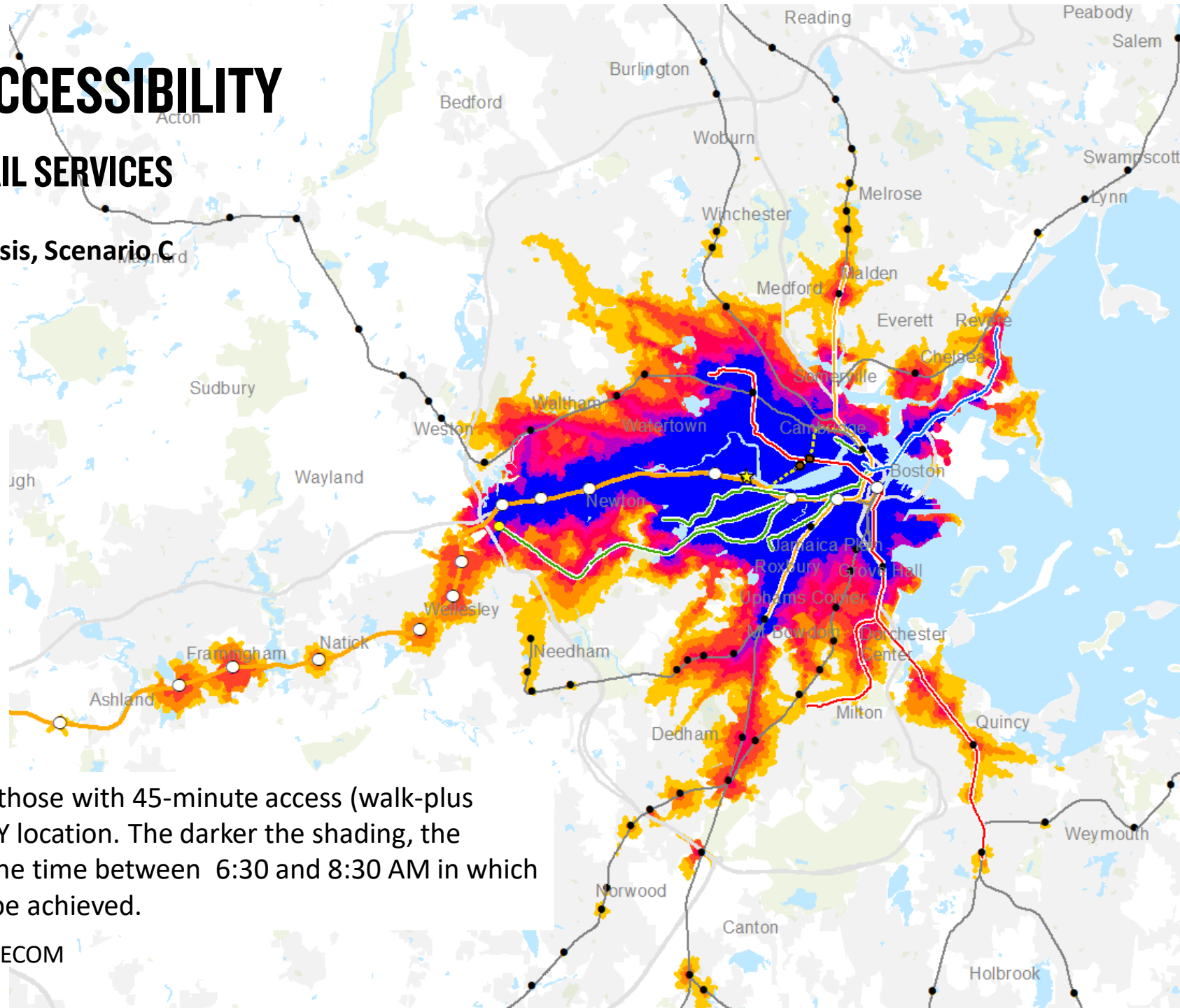
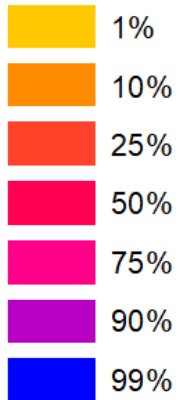
Source: A Better City, Inc./AECOM

# MODELING ACCESSIBILITY

## C: ADD ENABLED RAIL SERVICES

Figure 2-9: GTFS Analysis, Scenario C

### Percent Access\*



\* The shaded areas are those with 45-minute access (walk-plus transit) to the target BPY location. The darker the shading, the greater the percent of the time between 6:30 and 8:30 AM in which the 45-minute trip can be achieved.

Source: A Better City, Inc./AECOM

# MODELING ACCESSIBILITY

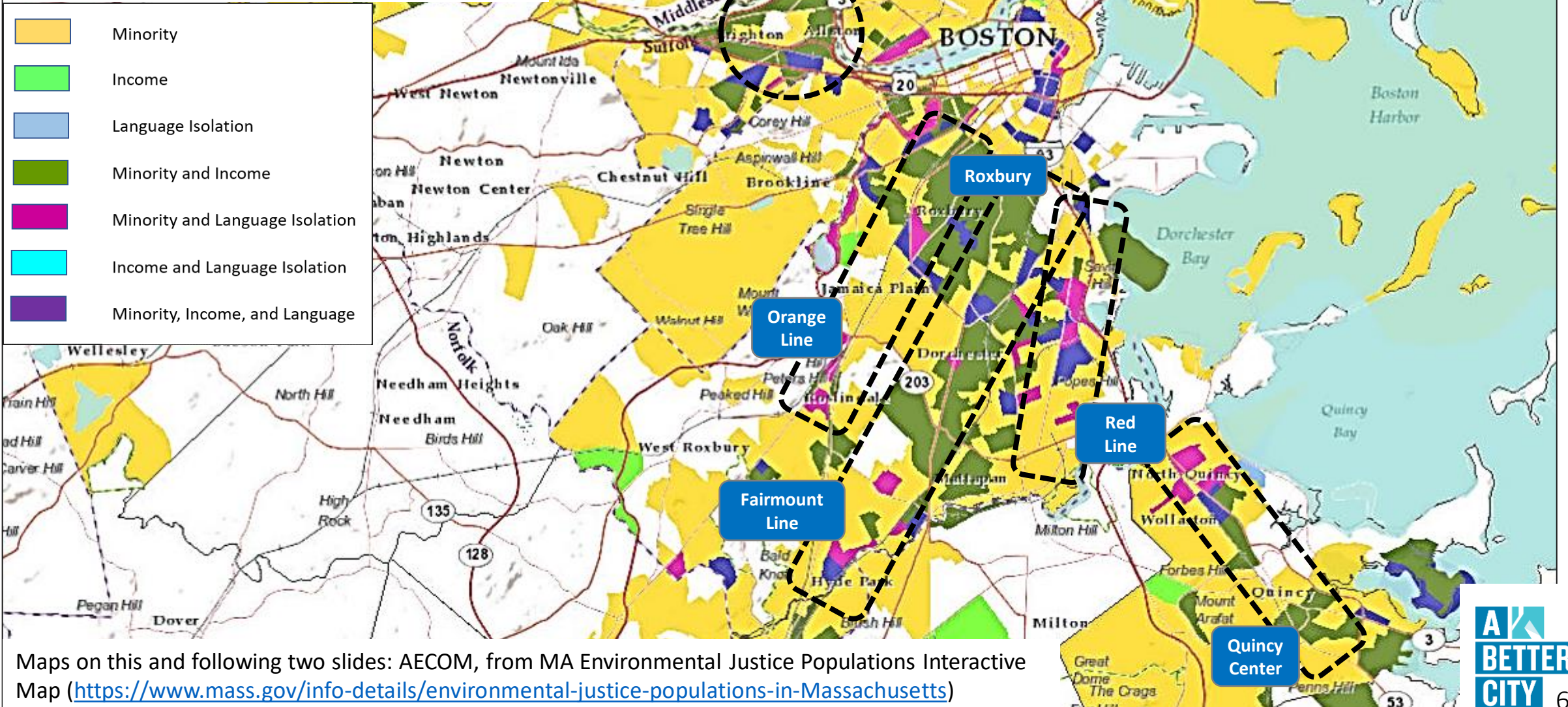
## *Key Takeaways*

This accessibility analysis strongly suggests that a multimodal West Station would provide enhanced access and mobility for the Allston community while making Beacon Park Yard and the adjoining lands a hub for sustainable TOD.

- BPY would have good transit access (i.e., a 45-minute transit-plus-walk commute) **to and from** most core areas. West Station and its enhanced shuttle connections would expand and deepen this network.
- Adding West Station would make BPY, BU, and the Allston community accessible (in a 45-minute trip or less) to and from Framingham-Worcester Line communities as far west as Ashland, while making those communities similarly accessible to Allston residents.
- The closer western suburbs (Newton and Wellesley) would gain significant access, encouraging use of transit rather than driving to Allston.
- As one progresses from Scenario “A” to “B” to “C”, significant 45-minute accessibility gains occur in **state-identified EJ communities**, including Boston’s Red Line, Orange Line, and Fairmount corridors; East Boston, Revere, Chelsea, Quincy, East Cambridge, East Somerville, Medford, Malden, Framingham, and others.
- At a **60-minute commute threshold**, the **Gateway Cities** of Worcester, Lynn, Salem, and Brockton would also gain access to and from BPY. Massachusetts Gateway Cities are municipalities of 30,000 people or more with defined levels of income or educational disadvantage.
- The equity implications of these patterns is shown by consulting the state’s **interactive map of environmental justice populations (which include Allston)**. **The relevant sections of this map are shown on the following three pages.**

# ENVIRONMENTAL JUSTICE COMMUNITIES

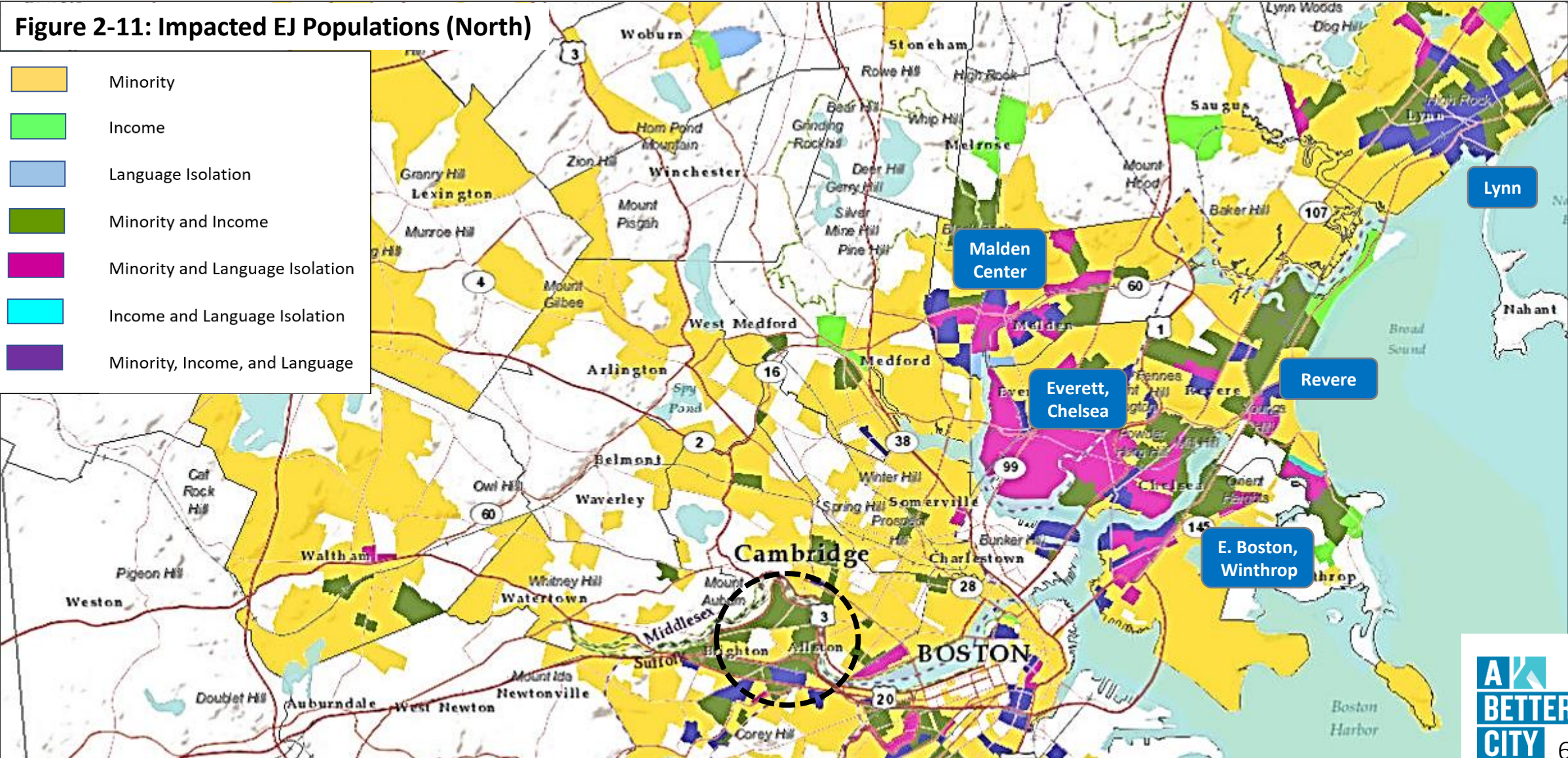
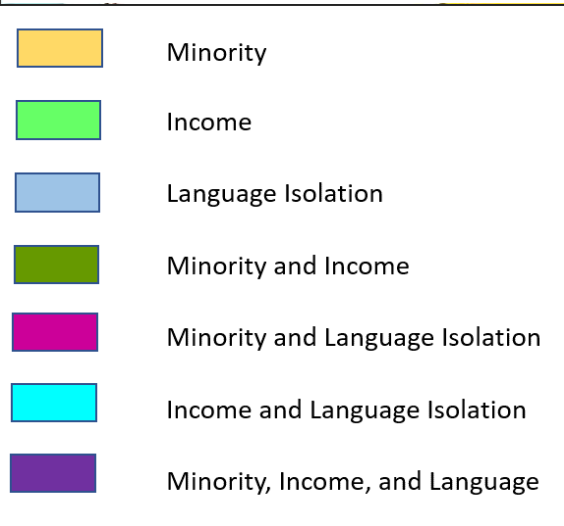
Figure 2-10: Impacted EJ Populations (South)



Maps on this and following two slides: AECOM, from MA Environmental Justice Populations Interactive Map (<https://www.mass.gov/info-details/environmental-justice-populations-in-Massachusetts>)

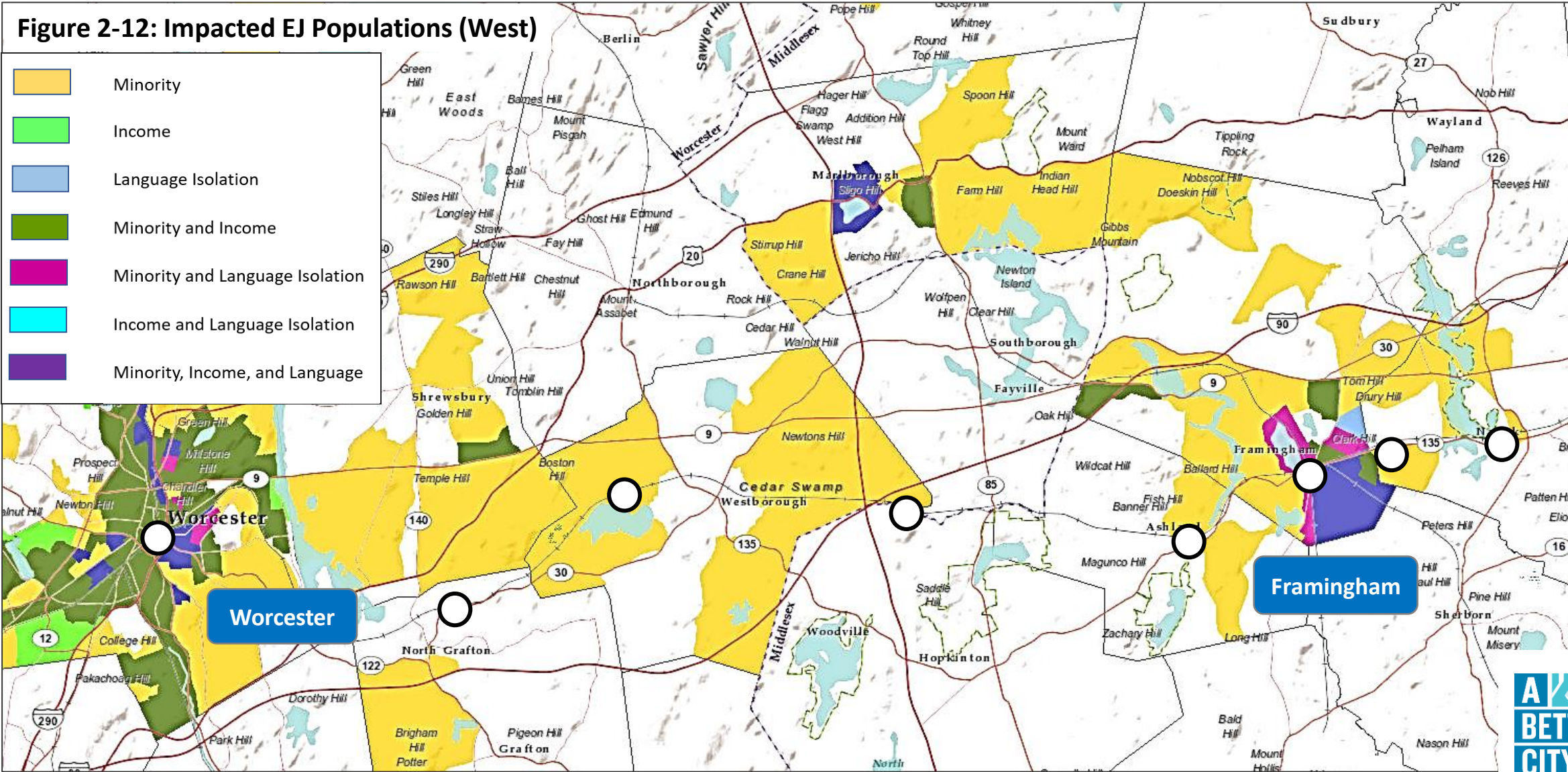
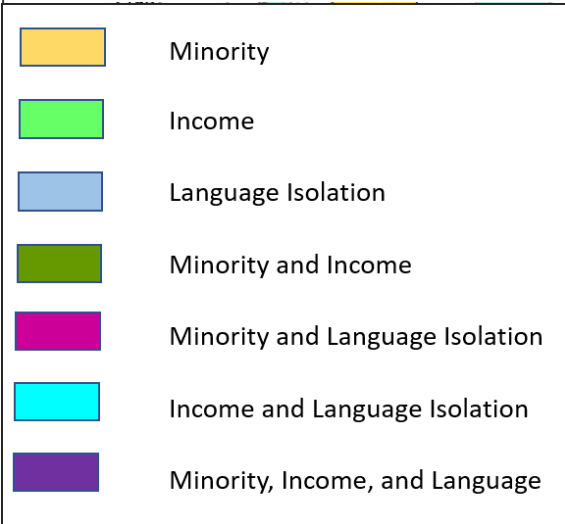
# ENVIRONMENTAL JUSTICE COMMUNITIES

Figure 2-11: Impacted EJ Populations (North)



# ENVIRONMENTAL JUSTICE COMMUNITIES

Figure 2-12: Impacted EJ Populations (West)



## CHAPTER 3: A ROBUST TOD MARKET

*Key Finding: A mixed-use transit-oriented development outcome of regional significance at BPY is supported by market precedent and by the underlying economic strength of Boston's central core.*



# INTRODUCTION

Chapter 3 addresses the reasonableness of the expectation that Beacon Park Yard would become the future site of mixed-use, district-scale transit-oriented development once the I-90 Allston Multimodal Project is complete.

This chapter begins with a discussion of the MAPC forecast for the potential long-term development buildout at BPY. As explained [previously](#), this study uses the MAPC forecast as a point of departure, assessing whether a range of outcomes encompassing the MAPC forecast is a reasonable expectation.

The remainder of the chapter comprises the following sections:

- A review of **Benchmark Projects** in the transit-rich central core of metropolitan Boston, to place the potential BPY in the context of their scale, density, and location.
- A review of **Air Rights Development Projects**, both in Boston and elsewhere, as benchmarks for the air rights portion of the potential development at BPY.
- A definition of **Boston's Central Core** and a comparison of its market demographics with the central cores of 12 peer cities.

The real estate, institutional, and market experts interviewed for this study were universally positive on BPY as a regionally significant development site, **assuming West Station** is part of the Multimodal Project. As a location for knowledge economy R&D and related enterprise, BPY was described as a unique site in the region, given its proximity to Harvard, MIT, Kendall, and Boston University; its central location in the “eds and meds” ecosystem; its transit connections to the other key central core transit growth clusters; and its high amenity value.

At the same time, these experts emphasized the site's capacity for mixed-use place-making, integration with the Allston community, neighborhood amenities, and open space as essential for success.

# INTRODUCTION

## ***BPY's Potential Buildout: the MAPC Forecast***

To support the planning and permitting of the Project, Metro Boston's regional planning agency, the Metropolitan Area Planning Council (MAPC), forecasted a potential buildout of approximately 11.17 million square feet at BPY, inclusive of structured parking. (If parking is excluded, the forecast of residential and commercial "end uses" is 10 million square feet.)<sup>a</sup> MAPC estimates that one-third of the forecasted buildout will occur by 2040.

As discussed [previously](#), this illustrative forecast was adopted by MassDOT as the basis for its environmental review of the Project. This study uses the MAPC forecast as a point of departure. It does not seek to validate it in detail or to propose any alternative development program, but rather to assess whether a range of outcomes encompassing the MAPC forecast is a ***reasonable expectation***, given market conditions and other known information.

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<sup>a</sup> All references to MAPC forecast: MAPC, *FEIR Build Scenario Projections* (2019).

The MAPC forecast represents a combination of terra firma and air rights development. The terra firma portion of the site consists of about 57 acres of land, before the construction of the future grid of streets and sidewalks. When streets and sidewalks are "netted out", the resulting area of defined land parcels is approximately 40 acres. For purposes of their forecast, MAPC further assumes that 20% of that land area will be dedicated to public open space (consistent with Harvard's *ERC Framework Plan* for the adjacent land area north of BPY). The MAPC forecast includes approximately 7.0 million square feet of terra firma development.

The potential air rights portion of the site—that is, the zone above the future Turnpike and railroad infrastructure—has a nominal footprint of 34 acres; MAPC assumes that half of this will be developable. The forecasted air rights buildout is 4.2 million square feet.

# BENCHMARK PROJECTS

## *District-Scale TOD*

Within the Boston region's central area, a series of transformative, transit-oriented districts can serve as benchmarks as to how BPY might develop with respect to scale, density, place in the region, and function. These sites are either organic districts or multi-phase projects of district scale. They include:

- Kendall Square and the Longwood Medical Area (LMA). These are specialized districts dominated by institutions and businesses engaged in educational, medical, and research activities. Both districts have endeavored in recent years to introduce a broader mix of uses and to develop a stronger sense of place.
- Four contemporary mixed-use development projects: Cambridge Crossing; the combination of Assembly Row and the neighboring XMBLY project; Dorchester Bay City; and Suffolk Downs. Each of these is a multi-

phased city-building effort, combining residential, commercial, and life science uses and tied to transit.

- The Seaport District, a planned expansion of Boston's central core through mixed-use, transit-oriented development. The Seaport includes several multi-phase development projects.
- The district formed by the Prudential Center, Copley Place, the Hynes Convention Center, and adjacent projects. Like BPY, the Prudential-Copley district included both terra firma and air rights development and represented an intentional westward expansion of Boston's core. A detailed case study of the Prudential-Copley district and its similarities to BPY is [summarized below](#) and included as an Appendix to this study.

The scope, scale, and density of these projects are summarized in [Table 3-1](#), which follows.

# BENCHMARK PROJECTS

Table 3-1: Benchmark Projects (Land Area, Buildout, FAR)

Site or District	Gross Land Area of Site/District	Area Allowing for Streets, Parks	Gross SF of Buildout	FAR Based on Gross Land Area	FAR Based on Adjusted Area
Beacon Park Yard	75	48	11,170,000	3.4	5.4
Kendall	50	30	4,760,000	2.2	3.6
Kendall MXD	4	3	1,060,000	5.7	9.4
LMA	131	79	20,400,000	3.6	6.0
post-2000	40	24	7,900,000	4.5	7.6
Assembly Row	50	30	5,692,486	2.6	4.3
XMBLY	9	6	1,600,000	3.9	6.6
Assembly + XMBLY	60	36	7,292,486	2.8	4.7
Seaport west	74	45	14,500,000	4.5	7.5
Seaport PDA	34	20	7,720,000	5.3	8.8
Cambridge Crossing	45	27	5,246,000	2.7	4.4
Dorchester Bay City	36	22	6,481,000	4.1	6.8
Suffolk Downs	161	97	16,200,000	2.3	3.8
Prudential Center	25	15	6,621,000	6.1	10.1

See [definitions](#) on next page.

BPY buildout is per MAPC, *loc. cit.*, and includes both terra firma and air rights components.

Source: A Better City, Inc./AECOM, based on MAPC, *loc. cit.* and individual project filings with the Boston Planning and Development Agency or the Massachusetts Environmental Policy Act office.

# BENCHMARK PROJECTS

## *Floor Area Ratio*

[Table 3-1](#) (preceding page) compares potential future development at BPY with other large-scale, transit-oriented developments based on land area, total buildout, and Floor Area Ratio (FAR). FAR—the ratio of buildout to lot size—is a common measure of density.

In comparing district-scale developments, one must be aware of the different ways in which streets, sidewalks, and open space may be reflected in calculating FAR. If the developer is building the streets and sidewalks, their land area may or may not be “netted out” for purposes of the official FAR. Similarly, publicly accessible open space may be included in the land area for FAR purposes or not, depending on whether it is to be publicly or privately owned.

For purposes of this benchmark comparison, our interest is not in the official, calculated FARs, whose methodologies differ, but on a standardized way of

comparing, at a high level, how densely the overall sites are developed as physical places. Consequently, the table uses the following standardized metrics:

- **“Gross Land Area”** is the total area of the site or district, without “netting out” streets, sidewalks, or open space.
- **“Area Allowing for Streets, Parks”** is the land area reduced by a standard allowance of 40% for streets, sidewalks, and open space.

The corresponding FAR measures are used to facilitate high-level comparisons among development locations of varying sizes and **do not** necessarily reflect any project’s official FAR calculated for entitlement purposes.<sup>a</sup>

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<sup>a</sup> The FARs listed in the table for Beacon Park Yard are based on the full buildout of 11.17, which includes structured parking. This is comparable to the other projects entries in the table. If parking is excluded, the projected buildout becomes 10 million square feet; the Gross Land Area FAR is 3.1, and the Adjusted Land Area FAR is 4.8.

# BENCHMARK PROJECTS

## *The Comparison*

***Future development at BPY in the 11 million square foot range forecasted by MAPC is consistent with precedent district-scale TOD outcomes in Boston’s central core area.***

The MAPC forecast is an estimate for planning purposes, illustrative of a range of possible outcomes at BPY. An objective of this analysis is to assess if this forecast is a reasonable expectation, based on several factors including the precedent projects identified in this section. [Table 3-1](#) shows that:

- With about 75 gross acres of land and air rights to work with and a forecasted 11.17 million square feet of development, BPY represents a historic city-building opportunity. But it is not a unique outlier in either land area or potential buildout. In land area, BPY is similar to

the western portion of the Seaport District and considerably smaller than Suffolk Downs and the Longwood Medical Area. In built square footage, BPY would be smaller than those three districts.

- Density in the range of the MAPC projection (as measured by an adjusted FAR of 5.4, is ***squarely in the range of the benchmark projects***. BPY would be denser than the Assembly projects, Suffolk Downs, and Cambridge Crossing, but ***not as dense*** as the western portion of the Seaport (Fan Pier, Pier Four, and Seaport Square); the Prudential-Copley district; recent developments at Kendall and the LMA; or Dorchester Bay City.

# BENCHMARK PROJECTS

## *The Prudential & Its TOD District*

The original Prudential Center (opened in 1965) had several features that would not (and should not) be emulated today: a suburban “superblock” form; a disjointed and isolated pedestrian realm; and no meaningful public process.

That said, it is in other ways a valuable benchmark project, offering important lessons for the potential development of Beacon Park Yard. A case study on “the Pru”, its companion projects Copley Place and the Hynes Convention Center, and the larger TOD district of which they are the center, is included as an **Appendix** to this study. The precedents of interest include the following:

- Comparable buildout, but ***denser than the MAPC projection*** for BPY. The Pru, Hynes, and Copley form a district of about 40 acres with about **10.5 million square feet** of combined buildout, for an overall FAR of 6.1. (This includes the Prudential’s substantial infill expansion program of the 1990s.)
- A major development initiative fueled by the ***ascendant industry cluster*** of its day—“FIRE” (finance, insurance, real estate) then, “eds & meds” and life sciences now.
- An ***intentional expansion and westward shift*** of the downtown core—tied to the Turnpike Extension and rail improvements, oriented to the western suburbs.
- A combination of terra firma and air rights development, with the air rights component planned and delivered as ***an integrated whole*** with the underlying highway and rail infrastructure.
- ***Transformative rail improvements***: creation of the modern Back Bay Station, enabling the subsequent connection to the Orange Line; and conversion of the Highland Branch commuter rail line to the Riverside Branch of the Green Line, facilitating access to the Prudential district.

# AIR RIGHTS DEVELOPMENT

The air rights component of MAPC’s BPY buildout scenario consists of roughly 4.2 million gross square feet, inclusive of parking, at an FAR of roughly 7.1. Development at this scale is consistent with precedent, both in Boston and elsewhere in the US.<sup>a</sup>

The narrative that “no air rights project has happened in Boston since Copley Place” is [no longer true](#), as the demand for land in Boston's central core has overtaken the cost and complexity of air rights development. South Station, Parcel 12, and Fenway Center are under construction; Parcel 13 and Back Bay/South End Gateway are expected to commence construction soon.

Air rights development at BPY would form the connective tissue between the adjacent neighborhoods and West Station. Absent air rights development, the Turnpike and railroad would continue to sever the Allston neighborhood and form a barrier between Harvard and BU. The key connection over the active rail lines on the south side of the yard could be foreclosed if delayed.

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<sup>a</sup> MAPC, *loc. Cit.*

It was the consensus of the real estate market experts interviewed for this study that air rights development at BPY will be feasible, given the high land values the site could generate. These experts see no inherent barrier to air rights development; the issue is how to mitigate and allocate the costs of decking and vertical circulation.

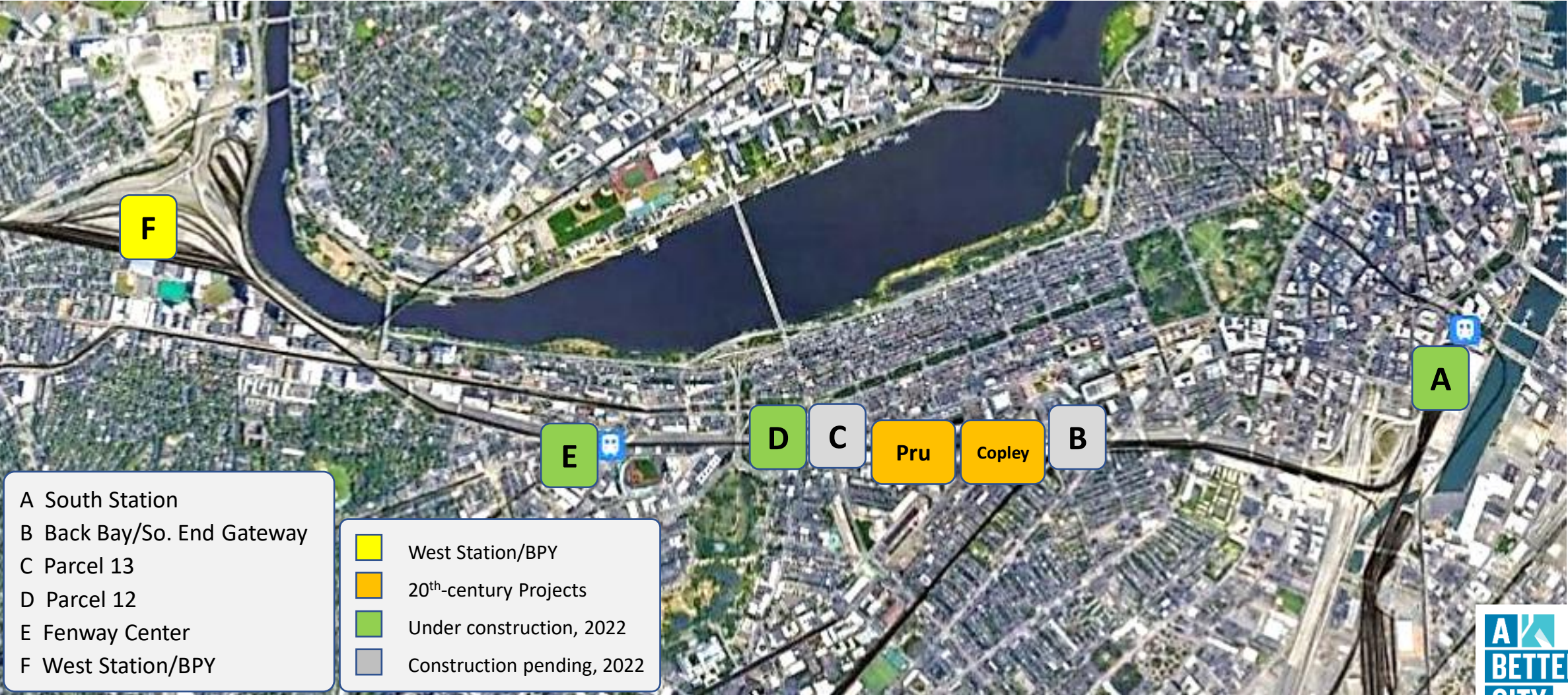
Experts expressed a range of views on timing. Some believe that air rights will materialize after most of the terra firma has established the market location; others see an opportunity to start air rights **alongside** the terra firma development. The key is to plan and design the air rights footprint, substructure, and vertical circulation up-front and integrate it with the design of the underlying transportation infrastructure.

There are precedents for [concurrent, integrated delivery](#) of an underlying infrastructure improvement and at least an initial phase of air rights development: the Prudential Center; MiamiCentral; Hudson Yards; and Chicago’s proposed One Central.



# AIR RIGHTS DEVELOPMENT

Figure 3-1: Air Rights Projects in Boston’s Turnpike Corridor



# AIR RIGHTS DEVELOPMENT

## *Benchmark Air Rights Projects*

[Table 3-2](#) (following page) compares the buildout and FAR of several Boston air rights projects with MAPC’s projected buildout for BPY. This comparison updates and expands the benchmarking analysis undertaken by MAPC in their build scenario analysis. For purposes of this air rights comparison, the square footages and resulting FARs are exclusive of structured parking.

- In terms of gross square footage, the BPY air rights would be roughly the size of Copley Place, and larger than any other air rights project except the Prudential Center. (The Prudential is a hybrid of air rights and terra firma construction; its 6.6 million square feet of development is not broken out into air rights and terra firma components.)

- In terms of density, however, the BPY air rights development would fall in the middle of the range.<sup>a</sup> It would have a higher FAR than the Prudential Center, South Station, or the Back Bay/South End Gateway, but a lower FAR than Parcel 12, Parcel 13, Copley Place, or the air rights portion of Fenway Center.

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<sup>a</sup> The BPY air rights development was assumed by MAPC to utilize half the theoretical air rights footprint of 34 acres, absent analysis of the technical feasibility, costs, and market conditions associated with this site.

# AIR RIGHTS DEVELOPMENT

Table 3-2: Boston Air Rights Projects (Buildout, FAR)

Project	Status	Built SF <sup>a</sup>	FAR	Uses
BPY Air Rights	Pre-planning	3,900,000	6.6	TBD
Prudential Center	Completed (1965, 2005)	6,621,000	6.1	Office, hotel, apartments, retail
Copley Place	Completed (1985)	3,400,000	8.2	Office, hotel, apartments, retail
South Station Air Rights	Under construction	1,981,000	5.5	Office, residential, hotel, bus station expansion
Back Bay/So. End Gateway	Construction pending	1,371,000	6.1	Apartments, office, retail
Parcel 13	Construction pending	432,000	8.0	Residential, hotel, retail
Parcel 12	Under construction	657,000	8.3	Office, lab, hotel, retail
Fenway Center (Entire)	Terra firma complete	1,059,000	5.4	Lab/R&D, apartments
Fenway Center Air Rights	Under construction	720,000	7.2	Lab/R&D

<sup>a</sup> Built square footage and FAR are *exclusive* of parking.

Source: A Better City, Inc./AECOM, based on MAPC, *loc. cit.* and individual project filings with the Boston Planning and Development Agency.

# AIR RIGHTS DEVELOPMENT

## ***Benchmark Air Rights Projects (continued)***

[Table 3-3](#) (following two pages) provides a brief narrative description of these same benchmark projects. Several features should be noted:

- The Prudential Center is Boston’s one large-scale example of an air rights project planned, designed, and delivered concurrently with its underlying transportation infrastructure improvement. The integrated planning and delivery of the Turnpike Extension, realigned railroad, and the initial phase of the Pru is described in detail in the Prudential Center case study, included elsewhere in this study.
- South Station and Back Bay/South End Gateway (Back Bay Station) are examples of projects that utilize pre-existing air rights structures for portions of their air rights development. South Station is a particularly complex project (witness the 30 years required to deliver despite its uniquely accessible location), in part because a portion of the platform area must be decked over and the elevated bus terminal expanded before development can occur on top.
- Among the air rights projects now underway above operating Turnpike and rail facilities, the Fenway Center air rights component is noteworthy in that it was able to conclude financing and enter construction immediately after its companion residential project, built on terra firma by a differently-composed development team. Real estate values and a realistic lease structure are driving this project, notwithstanding the need to build a two-acre deck, with bedrock foundations from scratch, above operating Turnpike and railroad facilities.

# AIR RIGHTS DEVELOPMENT

Table 3-3: Boston Air Rights Projects (Narrative Comment)

Project	Comments
Prudential Center	A hybrid terra firma and air rights project. The initial phase was <b>planned and built concurrently with the Turnpike Extension and railroad realignment, and the entire footprint created</b> , in the 1960s. It was significantly expanded (FAR increased by more than 50%) through multiple infill buildings and retail/pedestrian connectors in the 1990s.
Copley Place	An adjacent hybrid terra firma and air rights project (mostly air rights); it filled the “hole in the urban fabric” created by the interchange built to enable the Pru. The project is denser, more integrated, and higher-FAR than the Pru.
South Station Air Rights	A highly complex air rights project, combining three distinct “over-builds”: (i) atop the existing air rights bus terminal (whose substructure was built to support future mixed-use development above); (ii) above the open-air segment of the train platforms (expanding the bus terminal footprint and <b>concurrently</b> adding mixed-use development above); and (iii) building the main 682-foot office tower above the outdoor concourse at the head of the platforms. Only “ii” involves construction directly above operating rail infrastructure. The developer was originally designated in 1991; the project took three decades to materialize.

# AIR RIGHTS DEVELOPMENT

Table 3-3: Boston Air Rights Projects (Narrative Comment) *continued*

Project	Comments
<b>Back Bay/South End Gateway</b>	To be built on terra firma adjacent to, as well as air rights over, Back Bay Station. Use of the existing station and deck structures reduces the needed FAR. The developer will improve and operate the station’s public concourse and sidewalk areas.
<b>Parcel 13</b>	A mixed-use air rights project over the Turnpike, railroad, and Green Line subway at Boylston and Mass. Ave. (northeast quadrant). The project will reopen the Boylston Green Line entrance closest to Pru, Hynes. As of 2022, construction is pending.
<b>Parcel 12</b>	A mixed-use air rights project over the Turnpike and railroad at Boylston and Mass. Ave. (northwest quadrant). The program was changed to include a lab component. With Fenway Center, one of the two breakthrough air rights projects in the Turnpike corridor.
<b>Fenway Center</b>	A mixed-use, two-phase project on terra firma (apartments) and air rights (lab/office/R&D and garage). The project languished for a decade but broke through in 2016 with a restructured MassDOT lease allowing terra firma to be built first. The air rights phase was changed from office/residential to lab/office/R&D and a reduction in garage capacity; it was able to close and start immediately after terra firma, despite the cost of a two-acre deck built from scratch over operating highway and railroad. Lansdowne Station is in the core of project.

# AIR RIGHTS DEVELOPMENT

## *Integrated Planning & Delivery*

In addition to the [Prudential Center](#), projects in other cities demonstrate the strategy and value of approaching an underlying transportation improvement and its associated air rights development as an **integrated project**. This means planning the two concurrently, determining the precise locations and engineering requirements of footings and other substructure, building those into the infrastructure project, and, to the extent feasible, building some or all of the air rights deck up-front. Ideally, the initial phase of actual development can be delivered concurrently as well. Three projects are profiled on the following pages.<sup>a</sup>

- **MiamiCentral** is a completely integrated project, in which the tracks, elaborate intercity rail station, lower-level retail, and three towers were planned and delivered by a single set of affiliated private companies.

- **Hudson Yards**, a multi-phase city-building initiative on a scale suggestive of the entire BPY development site, was designed and decked concurrently with the extension of the Number 7 subway below. (The decking covers not only the subway and its new station but the much larger MTA rail yards.)
- **One Central**, a proposed megaproject above Chicago's lakefront rail infrastructure, would be delivered concurrently with a new station and greatly enhanced rail service.

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<sup>a</sup> It should also be noted that, while not typically categorized as air rights projects, two mixed-use developments in Boston's **Bulfinch Triangle** were constructed on decking purpose-built above the Green and Orange Line subways as part of the Big Dig-era North Station improvements. This enabled MassDOT and the Boston Redevelopment Authority to solicit developer proposals as the transit projects concluded.

## MiamiCentral

**AIR RIGHTS PROJECT:** Three towers including 800 residential units and 400,000 sq. ft. of office and retail; built above new, five-track transit station served by Brightline and Tri-Rail.

**DECKING STRUCTURE:** The Brightline/Tri-Rail station is itself built on air rights, with two cross-streets below. The towers are built partly on decking and supports above the tracks, with their cores on terra firma between the east and west tracks.

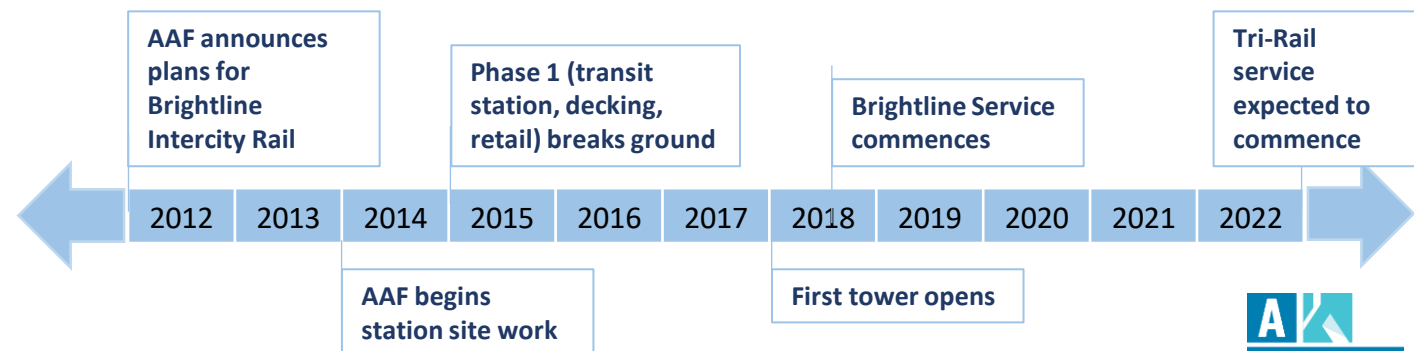
### MAJOR STAKEHOLDERS:

- **All Aboard Florida (AAF):** Master developer and owner of station, track, and platform
- **Brightline Intercity Rail:** Brand name for AAF's privately owned and operated intercity rail service
- **South Florida Regional Transportation Authority** Owner/operator of Tri-Rail; station tenant
- **Miami Dade Transit:** Operates Metrorail and Metromover, which interconnect with MiamiCentral
- **City of Miami:** Entered into 99-year lease with AAF for air rights above streets and sidewalks



Figure 3-2: MiamiCentral Station

Brightline/Official Press Photo accessed <https://miami.eater.com/2021/8/25/22640605/citizens-miamicentral-food-hall>





## Hudson Yards

**AIR RIGHTS PROJECT:** 18 million sq. ft. of office, residential, hotel, retail, school, cultural facilities, and 14 acres of open space. Built concurrently with the No. 7 subway extension and station, over 28-acre yard where Long Island Rail Road (LIRR) trains are stored.

**DECKING STRUCTURE:** Two decks (East and West platforms) over 30 active LIRR train tracks, allowing LIRR trains to run to and from Penn Station during construction.

### MAJOR STAKEHOLDERS:

- **Related Companies & Oxford Properties (Joint Venture):** Master developer; constructed deck in conjunction with new development
- **Metropolitan Transit Authority:** Leased the site to the Joint Venture for 99 years for \$1 billion
- **City of New York:** Financed and built concurrent extension of No. 7 subway

Figure 3-3: Hudson Yards

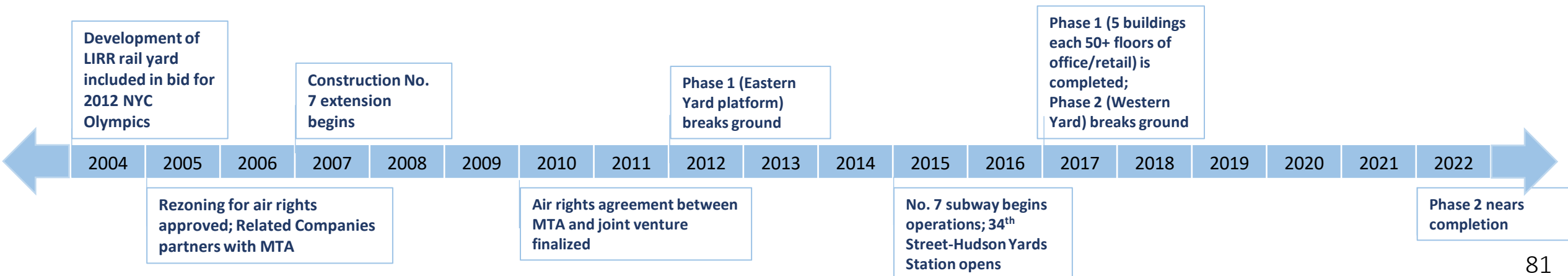


Figure 3-4: Proposed One Central Development

## One Central, Chicago (proposed)

**AIR RIGHTS PROJECT:** Proposed 20 million sq. ft. of commercial, residential, hospitality, health, and education space above 32-acre Metra railyard, to be built in phases along with rebuilding the Metra railyard, moving the mainline tracks, decking over the yard, and developing a new integrated transit hub.

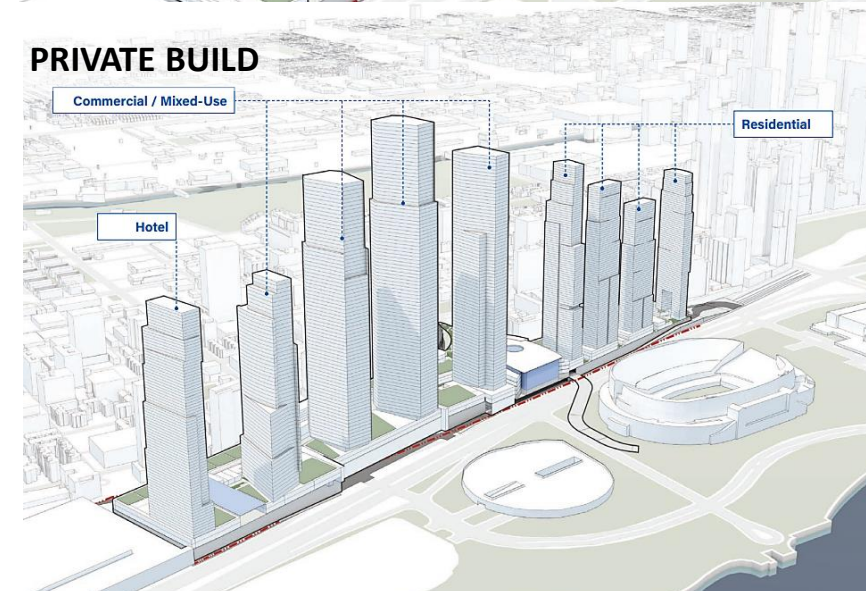
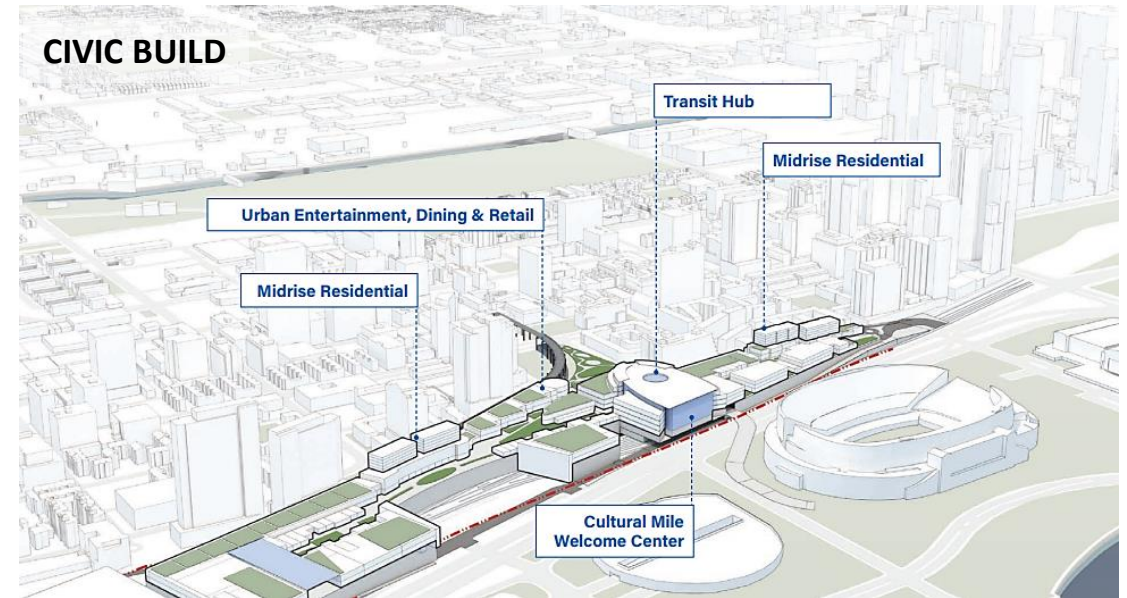
**DECKING STRUCTURE:** Deck would be built in the initial phases as part of the civic build/transit hub development

### MAJOR STAKEHOLDERS

- **Landmark Development:** Proposed master developer of vertical development and transit hub
- **State of Illinois:** Conditionally approved public-private partnership with Landmark to develop Civic Build (transit hub and associated civic assets); state would purchase the transit hub over 20 years
- **Metra (public regional rail provider) :** Owns the railyard and tracks
- **Northern Indiana Commuter Transportation District (NICTD):** Current user of the rail yard and tracks
- **Amtrak:** Potential future user of the transit hub
- **Chicago Transit Authority:** Potential owner/operator of “el” rail extension to the site

Images:

[https://www.chicago.gov/content/dam/city/depts/dcd/general/mega/one\\_central\\_draft\\_pres\\_012521.pdf](https://www.chicago.gov/content/dam/city/depts/dcd/general/mega/one_central_draft_pres_012521.pdf)



20 million sq. ft. of commercial, residential, hospitality, health/wellness, and educational space

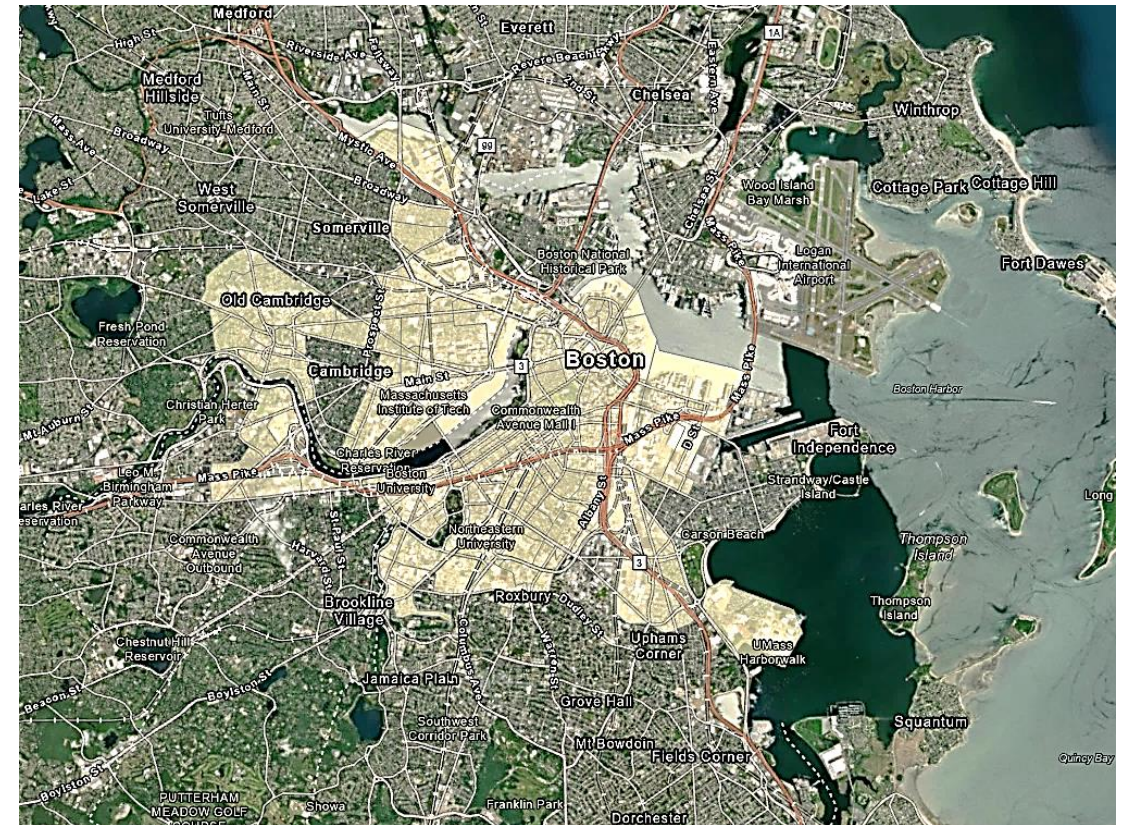
# BOSTON'S CENTRAL CORE

BPY represents an opportunity to expand Boston's transit-rich central core. To further understand the context for future large-scale development, AECOM has developed a comparative set of *central core* areas in 13 major US cities.

The central core is defined as *downtown plus those contiguous areas* characterized by, or appropriate for, commercial, multi-family, institutional, and mixed-use development. Boundaries are defined based on either a specific "Central Area" boundary (e.g., Chicago) or AECOM's city-specific judgment, factoring in zoning, land use conditions, and regional plans.<sup>a</sup>

Boston's defined central core is shown on the right. It extends east-west from the South Boston Waterfront to BPY, and north-south from Assembly Square to Columbia Point. It includes the institutional ecosystem comprised of MIT, Harvard, Boston University, Northeastern, UMass Boston, and the Longwood Medical Area.

Figure 3-5: Boston's Central Core



Source: AECOM

<sup>a</sup> Boundaries are also tied to census tracts or zip codes to access available data sets.

# BOSTON'S CENTRAL CORE

## *Peer Cities Comparison: a Summary*

Compared to the central core areas of other major US cities, Boston's central core demonstrates economic and demographic characteristics conducive to large-scale, mixed-use development. Several of these attributes are addressed in the pages that follow.

In summary: in 2019, among 13 major US cities—many of them larger in population—Boston had:

- the largest and densest central core population outside Manhattan;
- the most central core jobs outside Manhattan or Chicago and among the highest central core job densities;
- among the highest levels of central core median income and income growth;
- by far the highest percentage of metro population living in the central core and nearly the highest percentage of jobs located there;
- by far the largest central core student population;
- a [structurally unique concentration](#) of life sciences activity.

# BOSTON'S CENTRAL CORE

## *Population, Jobs, & Density*

Boston has the highest central core population and population density outside of New York; the most central core jobs outside of New York and Chicago; and one of the highest job densities.

These high densities occur despite the inclusion of as-yet undeveloped areas in Boston's defined central core.

Source: U.S. Census Bureau & EMSI Zip Code jobs data. Population density is calculated based on census tract population (1990-2019) and land area in square miles. Job density is calculated based on ZIP Code job data (2010-2019) and corresponding land area in square miles. Land areas exclude water. Numbers rounded to nearest hundred.

**Table 3-4: Central Core Population, Jobs, and Density (13 Cities)**

City	Central Core (2019)			
	Population	Jobs	Pop/SM <sup>a</sup>	Jobs/SM
<b>Boston</b>	<b>264,000</b>	<b>508,000</b>	<b>29,000</b>	<b>55,000</b>
NYC Downtown	358,000	848,000	74,000	175,000
NYC Midtown	261,000	1,379,000	63,000	333,000
Chicago	210,000	737,000	21,000	72,000
Philadelphia	165,000	331,000	23,000	46,000
Seattle	94,000	219,000	26,000	60,000
Los Angeles	83,000	140,000	13,000	21,000
Atlanta	68,000	171,000	9,000	22,000
Miami	63,000	51,000	22,000	18,000
Dallas	47,000	95,000	8,000	15,000
San Diego	42,000	86,000	15,000	30,000
Houston	41,000	136,000	6,000	20,000
San Antonio	26,000	60,000	4,000	9,000
Phoenix	15,000	18,000	4,000	5,000

<sup>a</sup> Per square mile

# BOSTON'S CENTRAL CORE

## *Income*

Boston's central core median income, and income growth, are among the highest in these key US cities.

**Table 3-5: Central Core Income and Income Growth (13 Cities)**

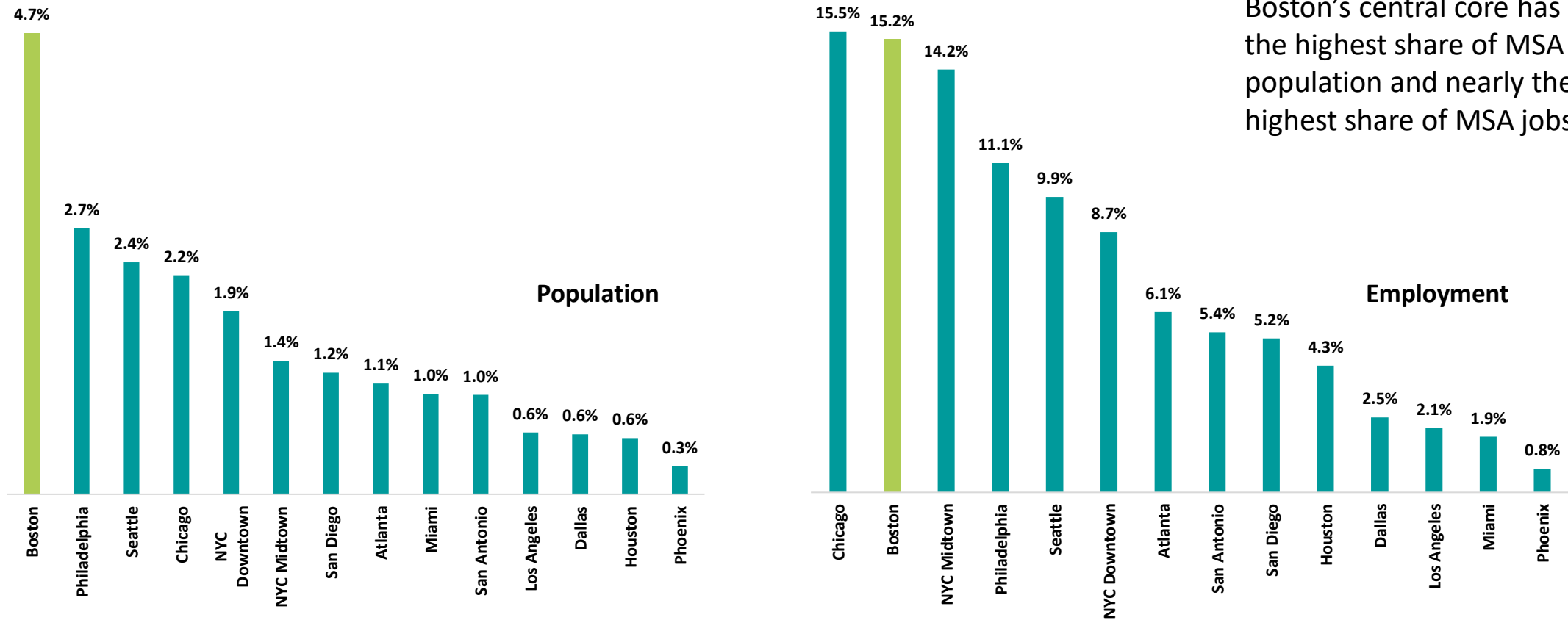
Central Core	2010 Med Income	2019 Med Income	Net Change	'10-'19 CAGR <sup>a</sup>
Los Angeles	20,200	39,100	18,900	7.6%
Seattle	41,100	69,500	8,400	6.0%
<b>Boston</b>	<b>53,400</b>	<b>87,400</b>	<b>34,000</b>	<b>5.6%</b>
San Diego	43,400	70,100	26,700	5.5%
Miami	52,600	83,900	31,300	5.3%
San Antonio	20,800	32,200	11,400	5.0%
Philadelphia	54,000	83,400	29,400	4.9%
Atlanta	37,500	53,900	16,400	4.1%
Houston	62,400	89,300	26,900	4.1%
NYC Midtown	92,500	128,900	36,400	3.8%
Chicago	79,200	103,900	24,700	3.1%
NYC Downtown	79,800	102,400	22,600	2.8%
Phoenix	29,900	38,300	8,400	2.8%
Dallas	78,200	82,000	3,800	0.5%

<sup>a</sup> Compounded annual growth rate

Source: U.S. Census Bureau

# BOSTON'S CENTRAL CORE

Figure 3-6: Central Core Population and Employment as Percent of MSA (2019)



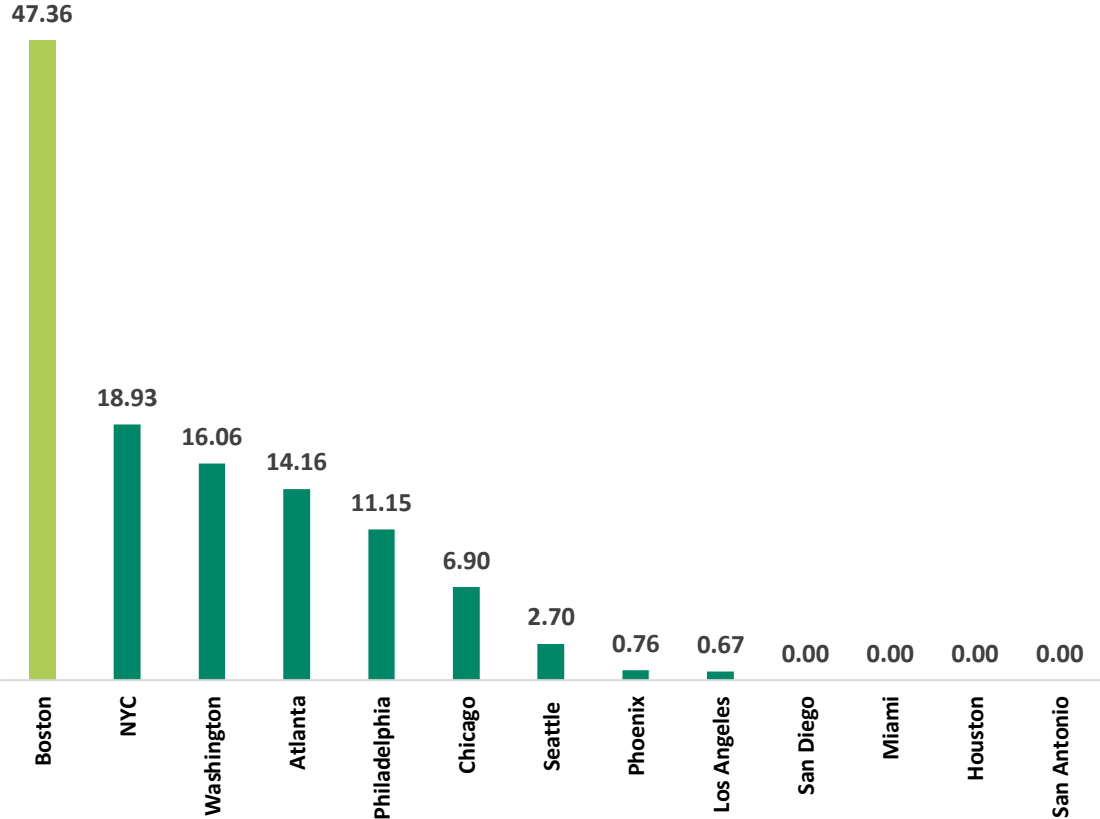
## *Position in MSA*

Boston's central core has by far the highest share of MSA population and nearly the highest share of MSA jobs.

Source: U.S. Census Bureau

# BOSTON'S CENTRAL CORE

Figure 3-7: Central Core College/University Student Housing Population (Thousands, 2020)



## *Student Population*

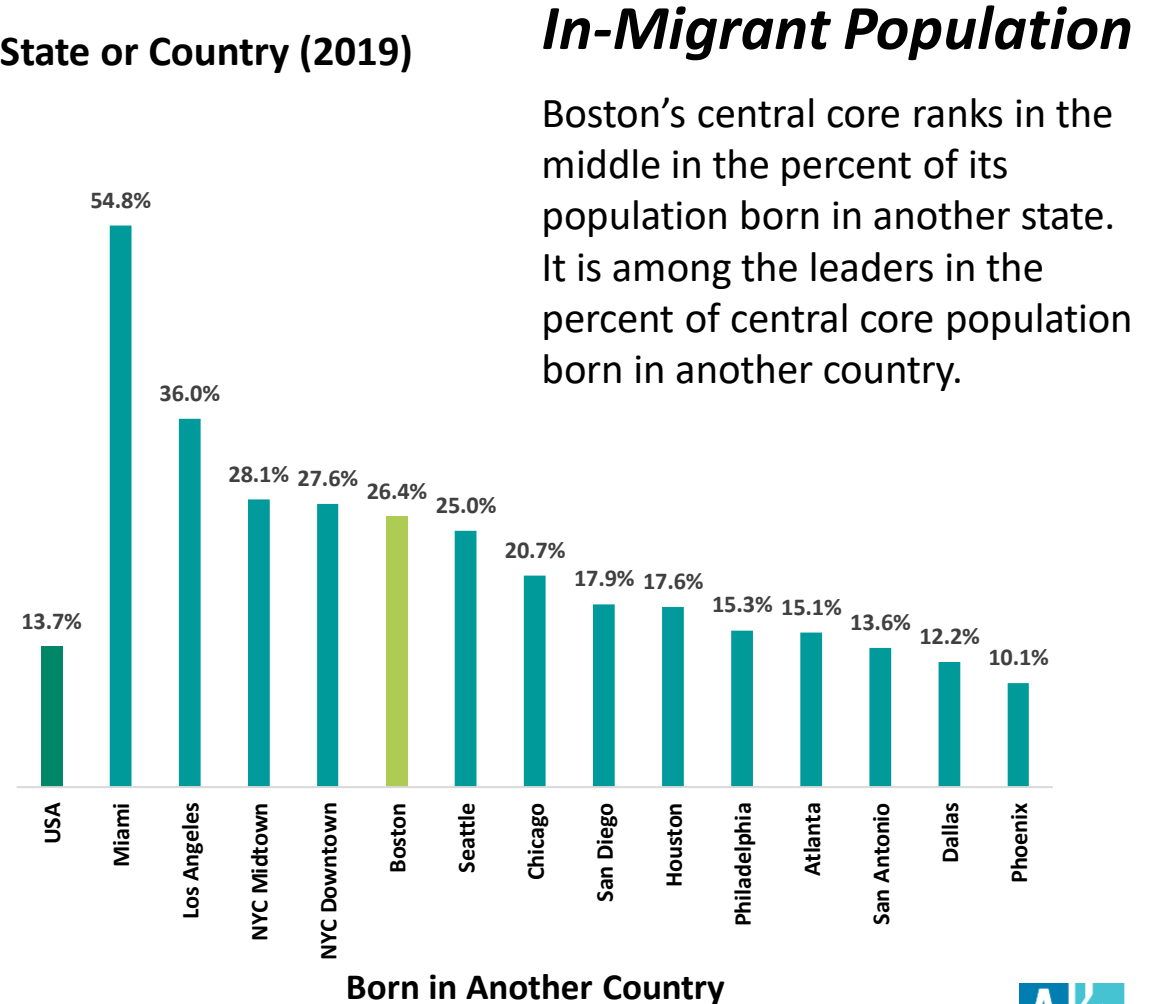
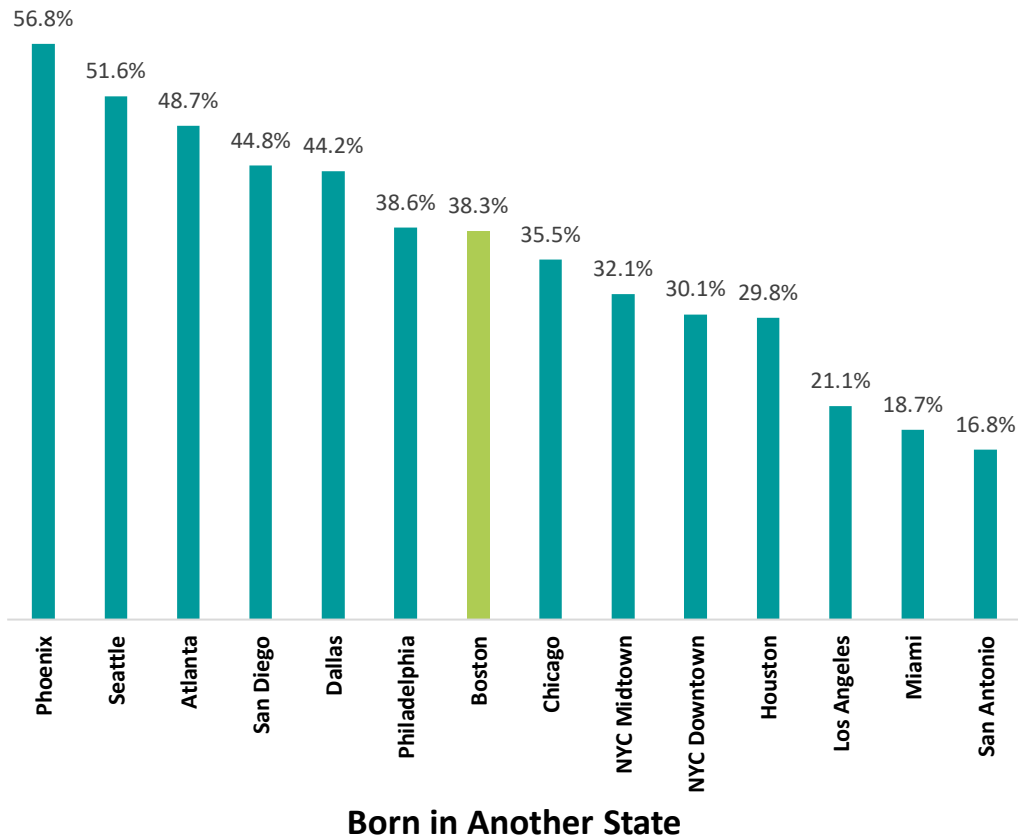
Boston has by far the highest central core student population, indicative of Boston's status as an [incubator for talent](#).

Source: U.S. Census Bureau



# BOSTON'S CENTRAL CORE

Figure 3-8: Percent of Central Core Population Born in Another State or Country (2019)



## *In-Migrant Population*

Boston's central core ranks in the middle in the percent of its population born in another state. It is among the leaders in the percent of central core population born in another country.

Source: U.S. Census Bureau

## CHAPTER 4: GLOBAL LIFE SCIENCE LEADERSHIP

*Key Finding: Boston enjoys a structurally unique concentration of talent, funding, and investment in the life sciences. At the nexus of Boston's life sciences ecosystem, BPY is pivotal to the region's continued life sciences success and the US' global position.*

# INTRODUCTION

Chapter 4 addresses the potential for the life sciences sector to be a driver of future mixed-use development at BPY. This Introduction [includes](#) a brief overview of the extraordinary role that metropolitan Boston plays in the national life sciences sector. As one expert interviewed for this study put it, “This is the life sciences century, and we’re the global center of it.” The chapter then turns to two analyses :

- A **Multicity Comparison** of metro Boston with other US metro regions. Whether at the metro level or in the comparison of central city core areas, the analysis demonstrates Boston’s nationally unique concentration of life science activity and resources.
- An analysis of **Real Estate Development** with respect to life sciences in Boston and adjoining communities. BPY is located in the heart of Boston’s life sciences institutional **ecosystem** and at the epicenter of the **spatial clusters** in which life sciences development is concentrated. The analysis identifies the gravitation of current laboratory and associated development to urban-style buildings in mixed-use , transit-oriented settings.

The real estate, institutional, and market experts interviewed for this study offered two key insights:

- For reasons of location, amenity, and access, BPY is a uniquely attractive site for future life sciences development. For BPY to attract such development a decade from now, the sector need not continue to expand indefinitely at its current rate; rather, there needs to be a subset of high-value activity that seeks proximity to, and synergy with, Harvard, MIT, and the Longwood Medical Area.
- Even if life sciences were to wane significantly as a driver of real estate demand, metro Boston is a global incubator of science and innovation talent **generally**. “There will be a next big thing, and the center of innovation activity will want to be in the core of the academic and medical ecosystem.”

# INTRODUCTION

## *Life Sciences & the Regional Economy*

Metro Boston's global leadership in the life sciences has been extensively documented in published industry research, a sampling of which is cited below.

- As of 2021, JLL, Inc., ranks metro Boston the **#1 life sciences cluster in the US**. This is of foundational significance for metro Boston in terms of jobs, wages, investment, and regional growth. It is also integral to the global competitive position of the United States.<sup>a</sup>
- Life sciences activity and investment in metro Boston appear to be  **durable**. The sector attracts an outsized share of research funding and venture capital, which can fuel demand for built space a decade from now. Roughly **one-third of all US therapy development** is occurring in metro Boston. Boston's position in life sciences has been compared to that of the Bay Area in digital technology.<sup>b</sup>
- Metro Boston has a global concentration of research universities, STEM graduates, and startups. JLL recently ranked Boston the **#4 innovation cluster in the world** and

**#2 in the world for innovation talent**. These resources include, but extend beyond, the life sciences sector.<sup>c</sup>

- Metro Boston's primacy in life sciences is the continuation of a longer-term reinvention of the regional economy, from primarily manufacturing- and maritime commerce-based before World War II to primarily knowledge-based after 1970.<sup>d</sup>

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<sup>a</sup> JLL, Inc., *2021 Life Sciences Lab Real Estate Report*; <https://www.us.jll.com/en/trends-and-insights/research/life-sciences-real-estate-outlook>

<sup>b</sup> JLL, Inc., *loc. cit.*; CBRE, Inc., *US Life Sciences Trends—November 2021*; <http://cbre.vo.llnwd.net/grgservices/secure/CBRE%20Life%20Sciences%20Trends%202021.pdf?e=1652751632&h=ae8f9f6f666a1d256761be06860f6740>; MassBIO, *2021 Industry Snapshot*; [https://www.massbio.org/wp-content/uploads/2021/08/2021-INDUSTRY-SNAPSHOT\\_FINAL.pdf](https://www.massbio.org/wp-content/uploads/2021/08/2021-INDUSTRY-SNAPSHOT_FINAL.pdf)

<sup>c</sup> JLL, Inc., *Innovation Geographies 2022*; <https://www.us.jll.com/content/dam/jll-com/documents/pdf/other/jll-2022-innovation-geographie.pdf>.

<sup>d</sup> Edward Glaeser, *Reinventing Boston* (Harvard University and National Bureau of Economic Research, 2003); <https://www.nber.org/papers/w10166>; Boston Redevelopment Authority, *A History of Boston's Economy, Transition and Growth—1970-1998* (1999) <http://www.bostonplans.org/getattachment/15ca7a2f-56d1-4770-ba7f-8c1ce73d25b8>

# A MULTICITY COMPARISON

## *Methodology*

AECOM collected and analyzed industry data for the top 20 metropolitan statistical areas (MSAs) by population (as of 2019), and five custom-defined **central core** areas based on zip codes.

Data was collected from EMSI (a US-based labor market data and analytics firm) by six-digit North American Industrial Classification System (NAICS) codes and life science research and development (R&D) funding from the Higher Education Research & Development Survey (HERDS). Regional price parity indices from the Bureau of Economic Analysis (BEA) were also incorporated.

Data was aggregated into industry clusters, or collections of NAICS Codes. AECOM identified three primary clusters for analysis:

- Biological / Life Science Services (e.g. healthcare services, veterinary)
- Biological / Life Science Research (e.g. R&D, experimentation, innovation)
- Biological / Life Science Manufacturing (e.g. pharmaceutical and instrument manufacturing)

The analysis uses a **location quotient (LQ)** for multicity comparisons. Location quotients are ratios of proportions between a child geography and one of its parent geographies. For example, if 10% of the jobs in Utah were in the finance industry, compared to only 5% of jobs in the U.S., the job LQ for finance in Utah would be 2.0 (10% / 5%). For this analysis, all LQs are relative to US levels.

# A MULTICITY COMPARISON

## *A Concentration Unique in the US*

Compared to other major metro regions, metro Boston enjoys a concentration of life sciences resources unique in the United States. Several comparative measures are addressed in the pages that follow. In summary:

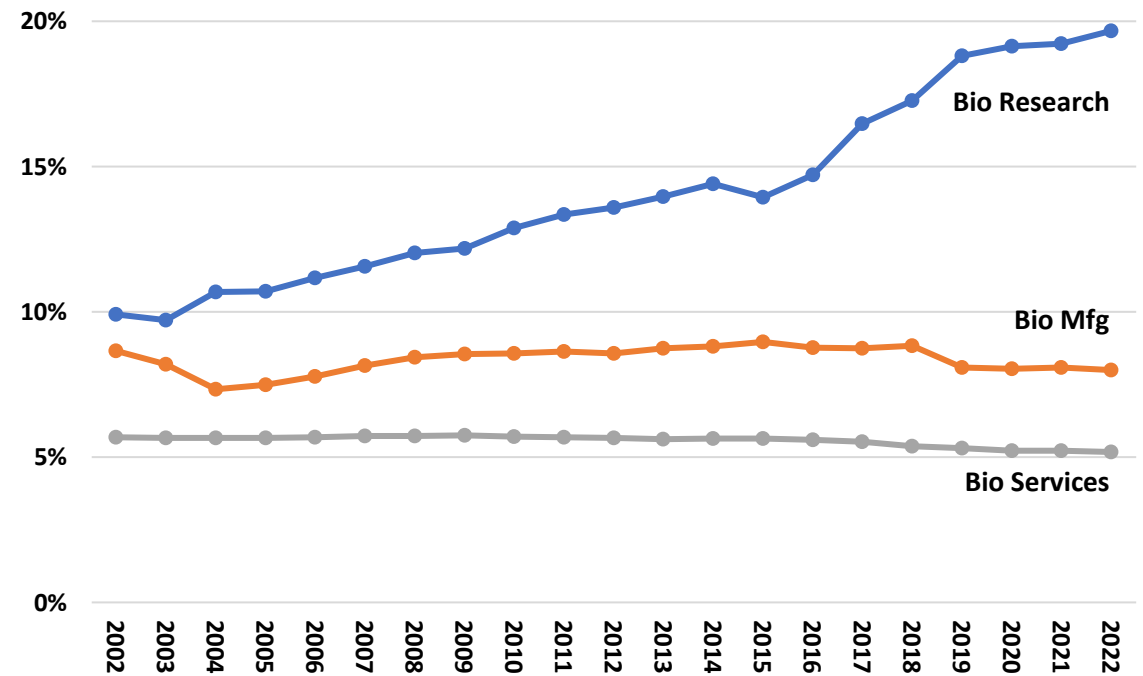
- Metro Boston has more life science research jobs than **any other MSA** in the country.
- Metro Boston has **nearly 20% of the total** life science research jobs in the country's top 20 MSAs.
- As of 2019, 2.5% of jobs in metro Boston were in life science research, compared to only 0.4% in the U.S. This yields a **nationally leading LQ of 5.7**.
- Unlike other leading MSAs, life science research is **highly concentrated in Boston's central core**, as defined for this study. As of 2019, over 30% of life science research jobs in Boston were located in the [central core](#).

# A MULTICITY COMPARISON

## *Metro Boston's Share of Life Sciences Jobs*

- The graphic to the right depicts the share of jobs in the top 20 metro areas that the Boston metro represented by year. Nearly 20% of life science research jobs **out of all such jobs in the top 20 metros** are in Boston.
- Since 2015, the Boston metro has added jobs in life science research significantly faster than the average of the top 20 metros, causing an increase in share from 14% in 2015 to 19% in 2019.
- Shares in the life science manufacturing and service clusters have been mostly stable since 2002.

Figure 4-1: Boston MSA Share of Top 20 MSA Life Sciences Employment (2020, by Industry Cluster)



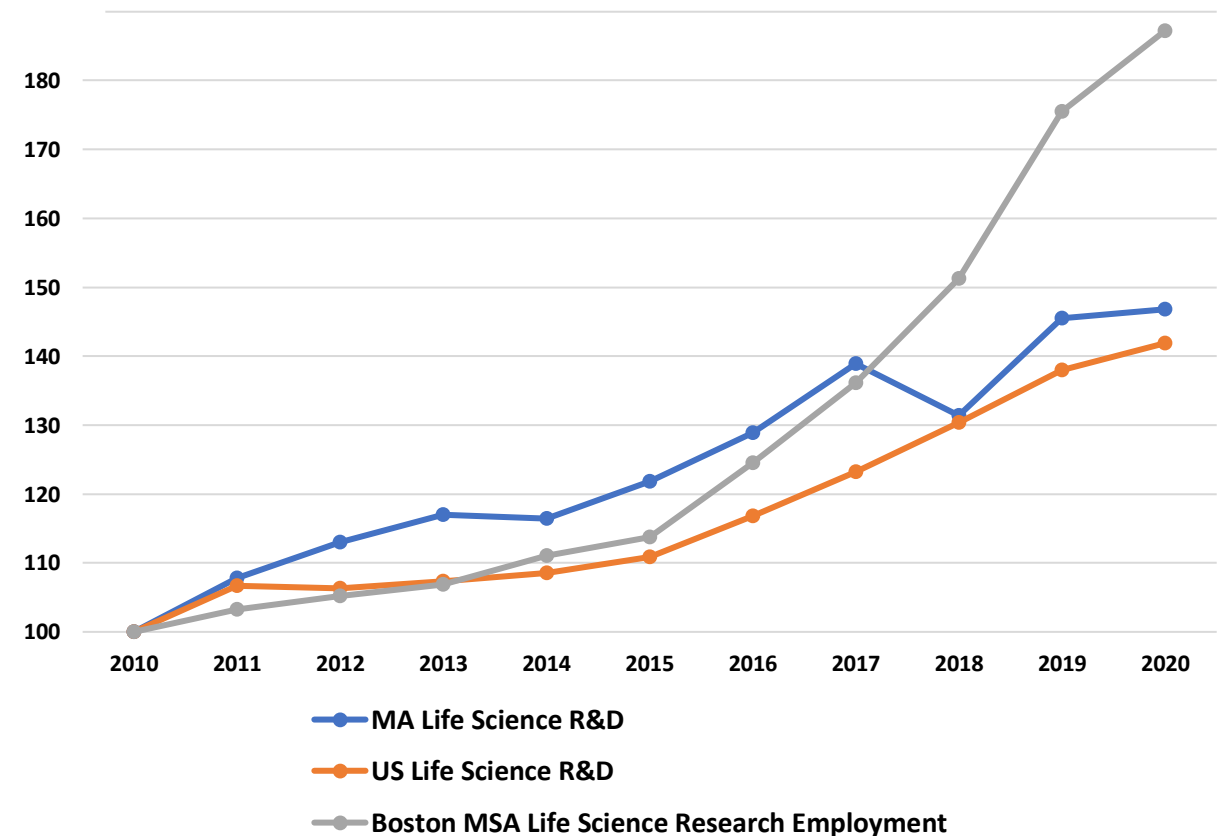
Source: A Better City, Inc./AECOM, from EMSI data

# A MULTICITY COMPARISON

## Research Funding & Job Growth

- Since 2010, Massachusetts has experienced an increase in higher education funding for life science research, except in 2018.
- Since 2010, growth in higher education research funding has been accompanied by sustained life science research job growth.

Figure 4-2: Index of Higher Education R&D Spending in Life Sciences and Boston MSA Life Science Research Jobs (Base Year=2010)



Source: A Better City, Inc./AECOM from EMSI, HERDS



# A MULTICITY COMPARISON

## Regional Concentration

- In 2019, Boston was the ninth largest metro area by total jobs. There were 2.9 million jobs in the metro region.
- As of 2019, metro Boston had the **highest job location quotient (LQ) for life science research** activities of the top 20 metro areas. The location quotient has historically been higher than average, but since 2010 it has increased at a faster rate than its long-term average.
- Metro Boston also maintains a higher than average job LQ for bio manufacturing activities, though these jobs tend to be concentrated outside the central core.
- Metro Boston's life science service sector (primarily healthcare service related) has maintained a job LQ close to 1 since 2000.

Figure 4-3: Life Sciences Cluster Percent of Total Jobs in Boston MSA (2019)

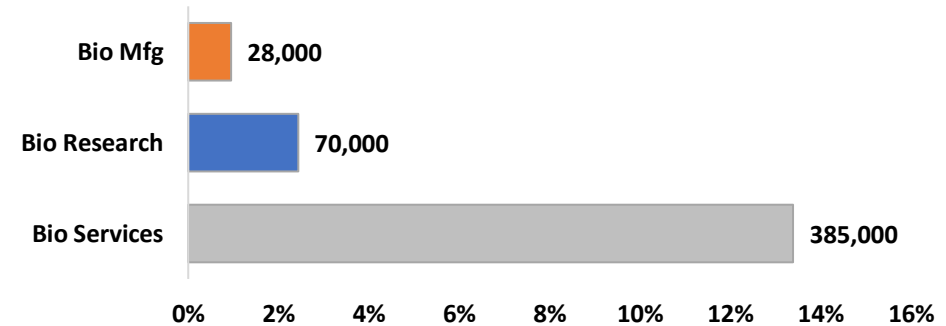
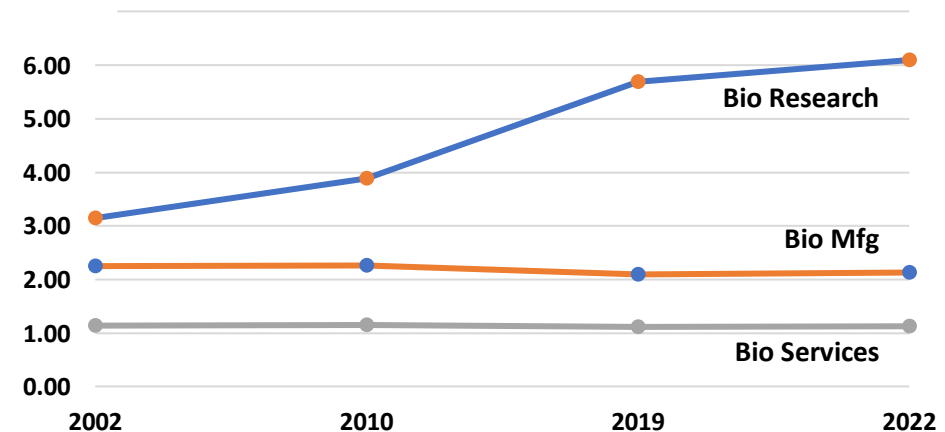


Figure 4-4: Location Quotient (LQ) Trends in Boston MSA



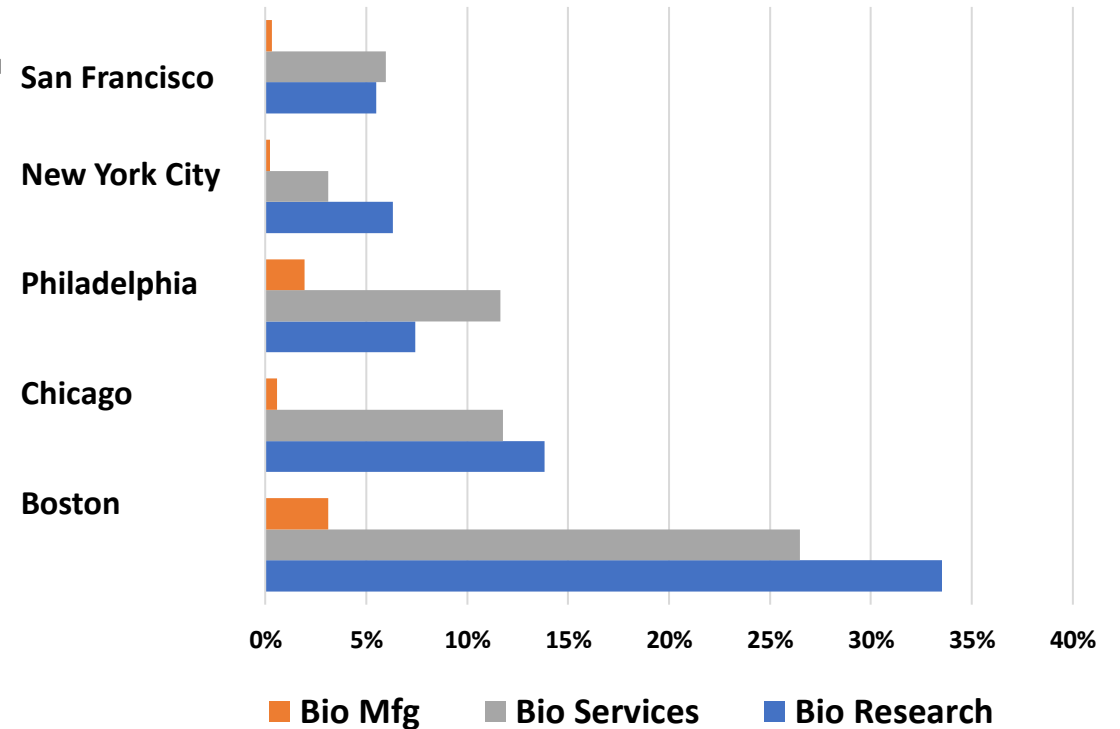
Source: A Better City, Inc./AECOM, from EMSI data

# A MULTICITY COMPARISON

## Central Core Concentration

- Unlike other top life science metros, Boston's life science jobs are **highly concentrated in the central core**.
- Life science research is most concentrated, with over 30% of the Boston MSA's life science research located there.
- Common among central core areas is a low concentration of life science manufacturing. In all MSAs included in this analysis, fewer than 5% of jobs in life science manufacturing were located in the central area. Nevertheless, life science manufacturing employment was more concentrated in Boston's central core than other major metros (3% vs. 0-2% on average).

Figure 4-5: Percent of MSA Jobs in Central Core by Cluster (2019)



Source: A Better City, Inc./AECOM, from EMSI data

# A MULTICITY COMPARISON

Figure 4-6: MSA Employment Rankings, All Jobs and Bio Clusters (2019)

MSA	All Jobs (2019) Rank	Bio Mfg Jobs (2019) Rank	Bio Research Jobs (2019) Rank	Bio Services Jobs (2019) Rank	All Jobs Growth (10 -19) Rank	Bio Mfg Job Growth (10 -19) Rank	Bio Research Job Growth (10-19) Rank	Bio Services Job Growth (10-19) Rank
New York	1	1	3	1	11	19	11	8
LA	2	2	7	2	14	10	14	10
Chicago	3	4	8	3	18	13	18	18
Dallas	4	9	18	5	2	12	19	2
DC	5	12	5	9	12	9	16	12
Houston	6	16	12	8	3	3	15	7
Philadelphia	7	7	6	4	17	16	9	17
Atlanta	9	17	16	11	7	7	4	5
Boston	8	6	1	6	13	15	3	16
Miami	10	10	17	7	9	17	5	11
San Francisco	11	5	2	14	8	4	2	14
Phoenix	12	11	19	12	4	1	1	4
Seattle	13	13	9	15	5	5	7	9
Minneapolis	14	3	13	13	15	11	13	13
Detroit	15	20	10	10	20	14	10	19
Riverside	17	18	20	18	1	20	17	3
Denver	18	15	14	19	6	8	6	1
San Diego	16	8	4	20	10	2	8	6
Baltimore	19	19	11	16	16	18	12	15
St. Louis	20	14	15	17	19	6	20	20

Source: A Better City, Inc./AECOM, from EMSI data

Rank 1 - 5	Rank 6 - 10	Rank 11 - 15	Rank 16 - 20
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## Employment

- As of 2019, the Boston MSA ranked eighth among 20 major MSAs in total jobs.
- But the Boston MSA ranked #1 in *life science research* employment. It had the most such jobs among all 20 metros.
- The Boston MSA ranked sixth in jobs in the two other life science clusters: bio manufacturing and bio services.

# A MULTICITY COMPARISON

Figure 4-7: MSA Wage Rankings, All Jobs and Bio Clusters (2019)

MSA	All Workers Earnings (2019) rank	Purchasing Parity (2019) Rank	Bio Mfg Earnings (2019) Rank	Bio Research Earnings (2019) Rank	Bio Services Earnings (2019) Rank	All Workers Earnings Growth (10-19) Rank	Bio Mfg Earnings Growth (10-19) Rank	Bio Research Earnings Growth (10-19) Rank	Bio Services Earnings Growth (10-19) Rank
New York	2	19	8	3	7	16	19	1	20
LA	8	16	12	9	6	9	13	20	8
Chicago	9	7	2	10	16	13	3	19	9
Dallas	14	12	14	6	11	5	20	5	11
DC	5	14	3	16	8	18	4	16	19
Houston	6	5	5	8	10	14	1	7	4
Philadelphia	10	9	4	5	14	19	9	18	14
Atlanta	16	3	13	19	13	7	17	13	6
Boston	4	15	6	2	3	3	12	3	15
Miami	19	13	19	17	18	10	7	4	12
San Francisco	1	20	1	1	1	1	2	2	1
Phoenix	18	4	20	18	12	11	10	12	18
Seattle	3	17	11	7	2	2	8	8	2
Minneapolis	12	6	10	12	15	6	14	15	7
Detroit	15	2	18	11	17	20	18	17	16
Riverside	20	10	16	20	9	17	15	11	13
Denver	7	11	15	15	5	4	11	9	3
San Diego	11	18	7	4	4	8	6	6	10
Baltimore	13	8	9	13	19	15	5	10	17
St. Louis	17	1	17	14	20	12	16	14	5

Source: A Better City, Inc./AECOM, from EMSI data

Rank 1 - 5	Rank 6 - 10	Rank 11 - 15	Rank 16 - 20
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## Wages

- As of 2019, life science wage **levels** in the Boston MSA ranked higher than wages for all workers in the MSA. Boston was fourth in overall wages, but its life science research and life science service workers had the second and third highest wages in the top 20 metros. Bio manufacturing wages were among the leaders at sixth.
- From 2010-2019, Boston MSA wage **growth** in life science research was third nationally, in line with the Boston MSA's overall earnings growth. Bio service and manufacturing wages, while ranking high in absolute terms, grew more slowly.

# REAL ESTATE DEVELOPMENT

## *Published Industry Research*

The life sciences are driving an unprecedented demand for built space in metro Boston. The Boston real estate market has added nearly 20 million square feet of life science space since 2011, tripling supply. An additional 5-6 million square feet is under construction as of 2022, with a total of at least 20 million under construction or in the approval pipeline. Multiyear demand continues to exceed supply.

These conditions are reported in several recent industry research publications:

- JLL, Inc., *2021 Life Sciences Lab Real Estate Report*; <https://www.us.jll.com/en/trends-and-insights/research/life-sciences-real-estate-outlook>; JLL, Inc., *Big Bets 2022: Bold Predictions for Boston's Commercial Real Estate Industry*; <https://hello.jll.com/bostonbigbets2022>
- CBRE, Inc., *US Life Sciences Trends—November 2021*; <http://cbre.vo.llnwd.net/grgservices/secure/CBRE%20Life%20Sciences%20Trends%202021.pdf?e=1652751632&h=ae8f9f6f666a1d256761be06860f6740>
- Lincoln Property, Inc., *Lab Market Report Q1 2022*; [https://www.lpcboston.com/wp-content/uploads/2020/07/MktReport\\_Lab\\_Q12022.pdf](https://www.lpcboston.com/wp-content/uploads/2020/07/MktReport_Lab_Q12022.pdf)
- MassBIO, *2021 Industry Snapshot*; [https://www.massbio.org/wp-content/uploads/2021/08/2021-INDUSTRY-SNAPSHOT\\_FINAL.pdf](https://www.massbio.org/wp-content/uploads/2021/08/2021-INDUSTRY-SNAPSHOT_FINAL.pdf)
- Boston Real Estate Times, *Boston Tops the Nation*; <https://bostonrealestatetimes.com/boston-tops-the-nation-in-life-sciences-space-demand-capital-investment-and-new-construction-in-progress/>

# REAL ESTATE DEVELOPMENT

## *Mapping Life Sciences Development*

AECOM has prepared an [analytic map](#) showing the geographic and age distribution of laboratory development. Project locations were extracted from current COSTAR data; projects proposed too recently to be captured in that dataset were added manually, based on official project review filings at the Boston Planning and Development Agency or the Massachusetts Environmental Policy Act office (MEPA).

The map shows the location of all identified lab (or lab plus associated office) buildings of 100,000 square feet or more—whether pre-existing, under construction, or officially proposed and under review.<sup>a</sup>

The map is color-coded by building age. It shows that the existing inventory was delivered mostly since 2000; outside of Kendall, the inventory consist chiefly of post-2010 projects and those currently under construction or proposed.

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<sup>a</sup> While some current projects involve the conversion of general office space to laboratories, the market is dominated by purpose-built new construction.

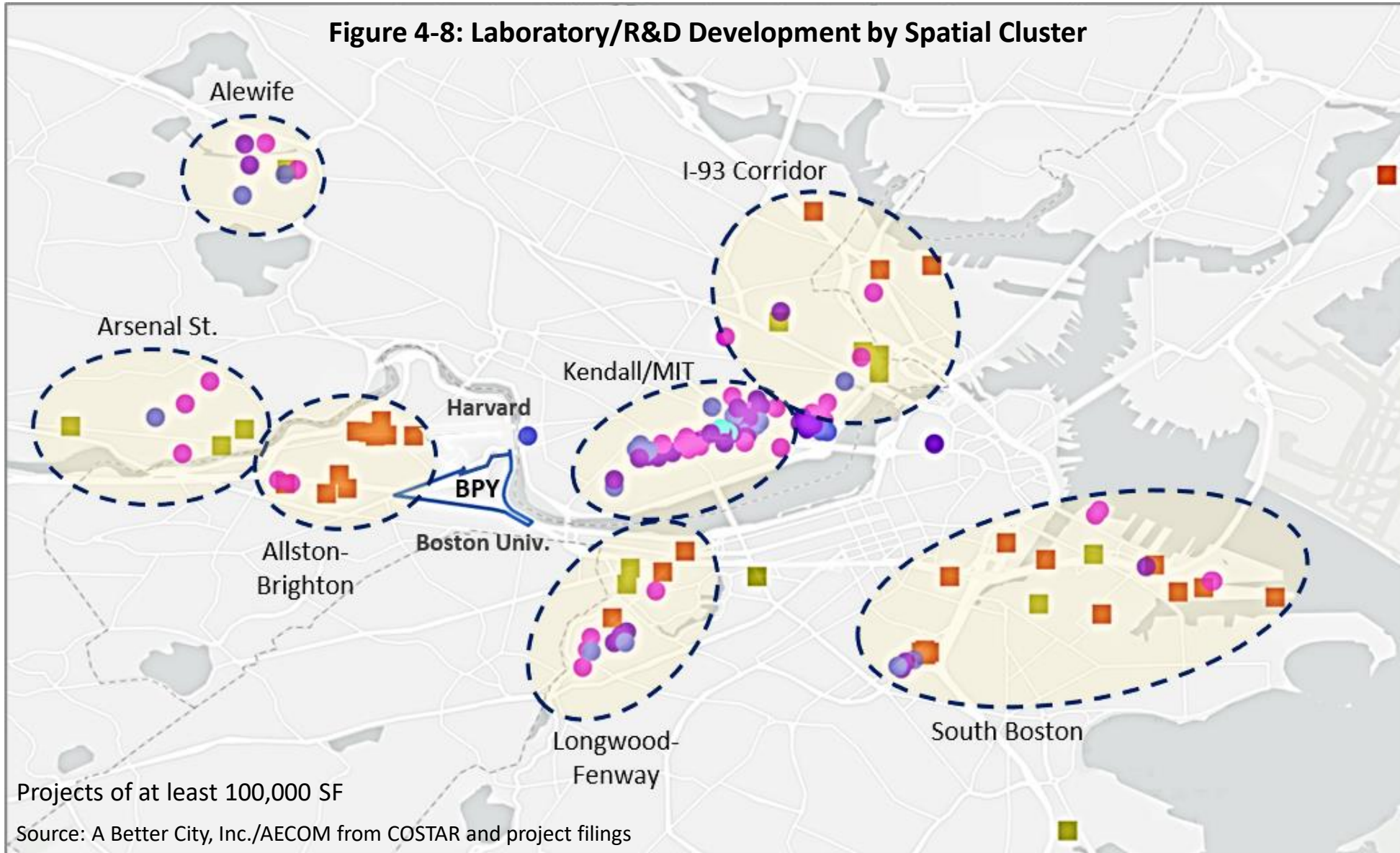
The uniquely dense concentration of existing lab space at Kendall/MIT is self-evident. The wave of current, recent, and proposed life sciences development is occurring throughout the region, including Suffolk Downs, Waltham, Malden Center, JFK/UMass, and elsewhere. However, it is concentrated in ***seven primary geographic clusters:***

- ***Kendall/MIT***
- ***LMA/Fenway/Kenmore***
- ***South Boston***
- ***I-93 Corridor east and north of Kendall***
- ***Arsenal Street in Watertown***
- ***Allston-Brighton west of BPY***
- ***Alewife***

[Table 4-1](#) on the next page lists some of the principal life sciences projects in these clusters.

# REAL ESTATE DEVELOPMENT

Figure 4-8: Laboratory/R&D Development by Spatial Cluster



# REAL ESTATE DEVELOPMENT

**Table 4-1: Major Laboratory/R&D Projects in the Seven Spatial Clusters (See [Figure 4-8](#))**

Kendall/MIT	LMA/Fenway	South Boston	I-93 Corridor	Arsenal Street	Allston-Brighton	Alewife
One Charles Park/One Rogers	Fenway Center	Seaport Square	Cambridge Crossing	202 Arsenal St.	Nexus	Acorn Park Drive
Ragon Institute	Fenway Corners	Parcel P, Block N	G, H, U	Arsenal Yards	Allston Yards	Cambridge Park Drive
325 Binney Street	Landmark Center	601 Congress St. Conversion	XMBLY	Watertown Mall	176 Lincoln	The Quad
SoMA 3	Longwood Place	701 Congress St.	Boynton Yards	500 Forge	119 Braintree	180 Fawcett
Third Street at Kendall	Kenmore Square North	420 E Street	Union Square	Arsenal on the Charles	1170-90 Soldiers Field Road	IQHQ/GPC Biotech Campus
	109 Brookline Avenue	A Street	15 McGrath Highway	85 Walnut Street		
	Wentworth/500 Huntington	On the DOT	RISE Sullivan Square	66 Galen Street		
		Boston Ship Repair	Hood Park			
		Drydock Avenue	425 Medford Street			
		Innovation Square				
		310 Northern Ave.				
		88 Black Falcon				

Projects of at least 100,000 SF built since 2014, under construction, or currently proposed. Projects proposed in 2022 Q2 may not be included. Sources: COSTAR, BPDA filings, MEPA filings, BLDUP Boston



# REAL ESTATE DEVELOPMENT

## ***BPY: a Strategic Location***

As shown in [Figure 4-8](#), these spatial clusters surround Beacon Park Yard. BPY is not only adjacent to Harvard, MIT, Kendall, Boston University, and the Longwood Medical Area, but at the epicenter of life sciences development in Boston and Cambridge. It was identified as a unique location for life sciences R&D and associated enterprise development by the industry and market experts interviewed for this study.

Several of these experts distinguished between the current, urgent expansion of biotech's real estate footprint, as multiyear demand greatly exceeds supply, and the expectation that breakthrough R&D and its spinoff enterprise development will maintain a locational preference for Harvard, MIT, and Longwood. As Kendall and Longwood build out, BPY will, in the opinion of these experts, present a unique attraction.

The seven major spatial clusters, as well as the secondary locations identified on the map, have taken root in transit-rich locations, with connections to each other, the universities and medical centers, and the regional workforce. The Red Line, for example, connects Alewife, Harvard, Kendall/MIT, Downtown Boston, South Boston, and JFK/UMass, as well as major new residential clusters in the Dorchester Avenue Corridor and Quincy Center.

With West Station, as shown in Chapter 2, BPY will be [conveniently connected](#) to these locations. Future direct connections to Kendall, Harvard (and the Red Line), Watertown, and the LMA would enhance BPY's central position. So would direct rail service connecting West Station to Lansdowne, Back Bay, and South Station.

# REAL ESTATE DEVELOPMENT

## *Consistent with Mixed-Use Place Making*

Laboratory development is often associated with low-rise buildings and large floorplates. However, the high demand for life sciences R&D space in the Boston-Cambridge core has resulted in multi-story buildings among projects now under construction or proposed.

Most of the projects [listed](#) and [mapped](#) on the preceding pages include life sciences buildings of at least five stories, some higher. Taller buildings may house a combination of laboratory space on the lower floors and associated office space above.

Multi-story lab and lab-plus-office construction is “proof of concept” that this type of development can occur in high-value, high-demand locations—particularly where transit access allows the cost of structured parking to be reduced.

The prevalence of such development suggests that BPY could accommodate life sciences or similar research-intensive activities in a way that does not require inefficient, low-FAR, suburban-style development. Such development would be land-consumptive and compete with other uses, such as housing and open space.

At the same time, current lab and lab-plus-office development is not generally gravitating to downtown-scale towers. In fact, much of this development is occurring in mixed-use, transit-oriented settings that BPY would seek to emulate.

## CHAPTER 5: NEW & DURABLE GROWTH

*Key Finding: Development at BPY would represent net new economic growth to the Boston region and, as a mixed-use district, is unlikely to be seriously impacted by post-COVID shifts in work patterns.*

# INTRODUCTION

The analyses presented in Chapters 2, 3, and 4 support the potential for Beacon Park Yard to attract mixed-use, transit-oriented development of regional significance once the I-90 Allston Multimodal Project has been built.

It is important to consider two questions about how that growth might unfold. The two sections constituting this chapter are organized around these questions.:

- To what extent would future development at BPY represent **net new growth** in the metro Boston economy? The first section of the chapter addresses this question, using analysis of historical land absorption in Boston's central core and the status of potentially competing district-scale TOD sites.
- The **future of work** in post-pandemic metro Boston, and its possible impacts on development and commuting patterns, is not yet understood. Are there indicators, however preliminary, of the extent to future which mixed-use development at BPY might be affected?

# NET NEW GROWTH

The value of Beacon Park Yard in the metro Boston economy will reflect the extent to which its future development constitutes **net new growth**, rather than development which would have happened anyway somewhere else in the region.

MAPC and MassDOT project that between 2010 and 2040 (the horizon year for the current Long Range Transportation Plan), approximately 250,000 jobs and 340,000 households will be added to the region as it continues to grow.<sup>a</sup>

Normally, the regional land use forecast is circumscribed by “control” totals for households and employees, such that a major development outcome in one location must be balanced by a reduction in the growth forecast elsewhere.

However, for BPY and the adjacent lands in the I-90 Allston Multimodal Project area, MAPC has determined that future jobs (at least those created through 2040) should be viewed as occurring *outside* the regional control totals—in other words, that they may be considered **net new** to the region.<sup>b</sup>

An objective of this study is to assess the reasonableness of this forecast. There is no empirical way to prove that development expected to begin a decade from now will be net new to the regional economy. However, the three arguments outlined below support the “net new” position.

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<sup>a</sup> MAPC, 2019 FEIR Build Scenario)

<sup>b</sup> *Ibid.*

# NET NEW GROWTH

## 1. *A Location-Driven Innovation District*

University and healthcare-related R&D and its spinoff enterprise development would be attracted to BPY by institutional and talent proximity, notwithstanding BPY's probable high land values. The real estate and institutional experts interviewed for this study uniformly envision BPY as a Kendall-like innovation opportunity. A large-scale innovation district of this type is *by nature* a regional growth asset, as opposed to more commoditized activity that could seek lower-cost locations.

## 2. *Net New Households*

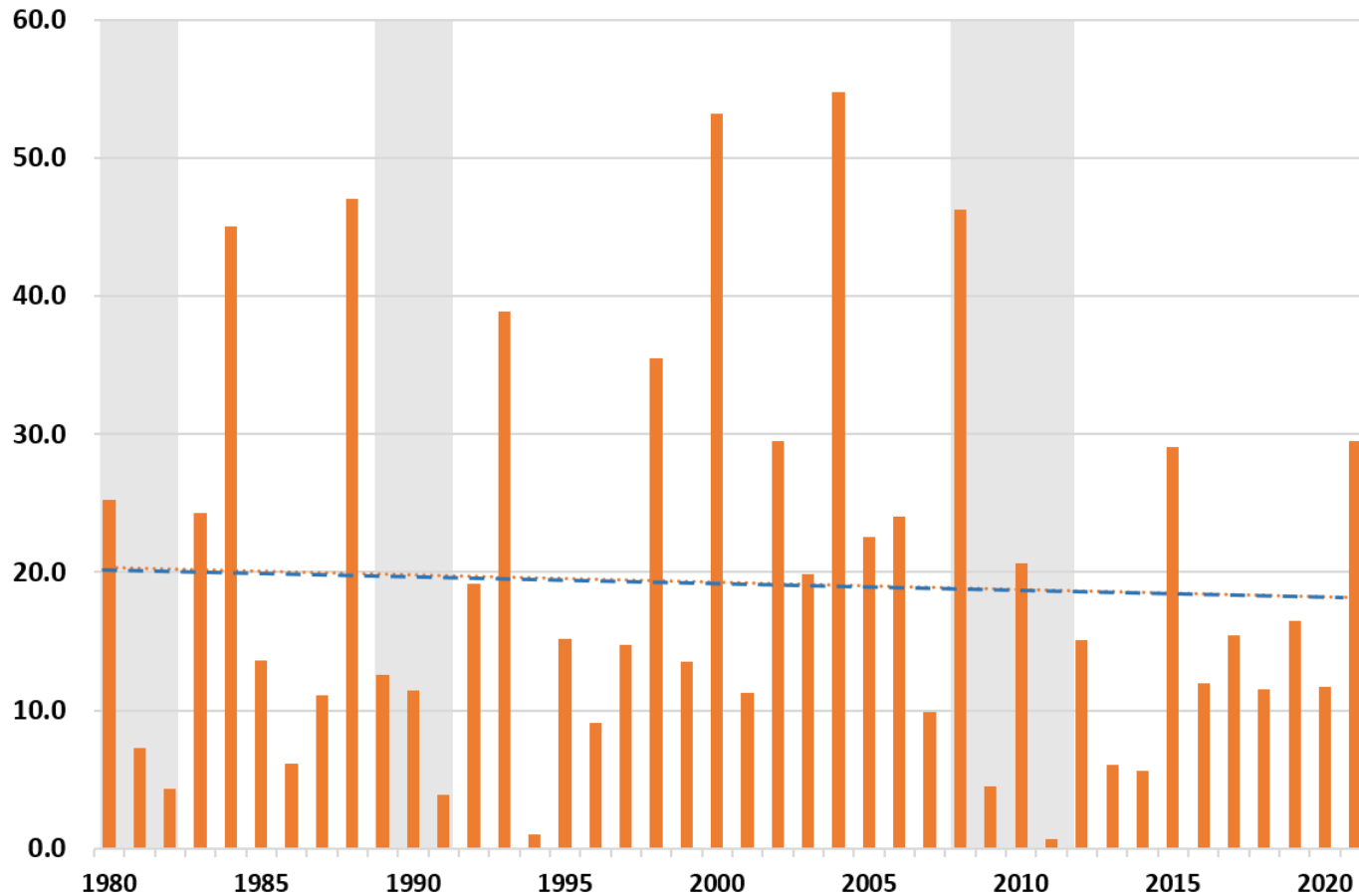
The region needs hundreds of thousands of net new housing units to sustain employment growth and promote equity. According to MAPC, new jobs at BPY would require **over 4,300** net new households, in the Project area and the region as a whole, to staff them. To the extent that new housing in and around BPY addresses this need, it is doubly "net new".

## 3. *Land Absorption*

The new urban district envisioned at BPY would be a vibrant, *mixed-use community* that responds to market demands for housing, lab, office, retail, and cultural space in the central core. BPY represents a substantial subset of the land available for such development. In the context of the central core's historic rate of land absorption, BPY does not appear likely to "cannibalize" development that would otherwise occur at those sites. This argument is presented on the following two pages.

# NET NEW GROWTH

Figure 5-1: Annual Land Absorption by Acres in Boston's Central Core, 1980-2020



## Land Absorption in the Central Core

- AECOM assembled COSTAR data across recent decades to understand density and absorption in Boston's central core. Development in Boston's central core has absorbed land at an average rate of **19 acres a year** since 1980.
- At that rate, the supply of developable land and air rights at BPY represents roughly three years' worth. (The terra firma development parcels total approximately 40 acres, while the air rights zone would occupy a portion of the 34-acre nominal air rights footprint.)

Source: A Better City, Inc./AECOM from COSTAR

# NET NEW GROWTH

Table 5-1 Major TOD Sites, Available

Location	Raw Acres	Adjusted <sup>a</sup>
Seaport and Fort Point <sup>b</sup>	50	
Assembly Station <sup>b</sup>	30	
Dorchester Bay City	36	
Cambridge Crossing <sup>b</sup>	15	
Union Sq/Boynston Yds/Inner Belt	50	
Hood/Sullivan Sq	25	
Arsenal Street <sup>b</sup>	10	
Western Ave.	50	
Mid-sized sites <sup>c</sup>	25	
<b>Subtotal</b>	<b>291</b>	<b>189</b>
<b>BPY and Allston Landing North</b>	<b>110</b>	<b>72</b>
Suffolk Downs	160	
Everett	64	
Chelsea	30	
<b>Subtotal</b>	<b>254</b>	<b>165</b>
<b>Total</b>		<b>426</b>
<b>Allowance for small sites</b>	<b>75</b>	<b>75</b>
<b>Grand Total. Adjusted Acres</b>		<b>501</b>
<sup>a</sup> Adjustment factor for streets, parks	0.65	
<sup>b</sup> Remaining land area (approximate)		
<sup>c</sup> Hynes, Parcel 3, Flower Exchange, Globe Site		
Time horizon at average 19 acres/year	26 years	2048

Source: A Better City, Inc./AECOM analysis of major TOD sites

## Land Absorption in the Central Core

- BPY should be understood in the context of other large-scale TOD districts in the central core. Table 5-1 lists these with their estimated remaining acreage. The total is adjusted by a developable land factor of .65—a standardized allowance of 35% of large, transformative sites for streets, sidewalks, and open space.
- “BPY and ERC” is the combined area of BPY and Harvard’s adjacent Enterprise Research Campus site. “Mid-Sized Sites”, totaling approximately 25 acres, are Parcel 3 near Ruggles Station, the proposed redevelopment of the Hynes Convention Center, the former Boston Globe site, the former Flower Exchange, and Washington Village near Andrew Square. “Allowance for Small Sites” refers to generic individual parcels on which infill redevelopment may occur. These are not adjusted for streets, sidewalks, and open space.
- All told, these sites represent roughly 500 acres of developable land. If the long-term average rate of absorption persists, successful development at BPY **would not** divert development from these other districts. All of them, **including BPY**, will be needed to maintain central core growth at historic levels, and the land inventory comprising these sites would be developed by 2050.



# FUTURE OF WORK

The “future of work” in post-COVID metropolitan Boston, and in the US at large, is a matter of informed speculation rather than established empirical fact. It is reasonable to ask whether future development will materialize as previously anticipated when both industry news and the popular media are replete with the slow and partial return to office work and competing predictions of a “new normal”.

Among the real estate, institutional, and market leaders interviewed for this study, there was a consensus that the potential of Beacon Park Yard as a site for ***mixed-use development*** is likely to be resilient for several reasons.

- Laboratory and other R&D activities are and will remain a primarily in-person work environment. That the real estate market is highly confident of this expectation is evident in the [millions of square feet](#) of laboratory space launched by developers during the pandemic. Some back-of-house staff may shift to hybrid, but the core research activities are five-day on-site jobs.
- The general office sectors, on the other hand, will settle into a range of “new normals” involving hybrid work and smaller office space footprints to varying degrees. The interviewees predicted that most sectors and businesses will not give up the office outright—“too much would be lost”; but there is concern in the industry about shrinkage and obsolescence of existing office inventory, particularly in older buildings.
- There was a consensus that Beacon Park Yard will be a ***strong multifamily housing location***. Reasons include the general expectation that regional housing demand will continue to exceed supply for the foreseeable future, as well as the locational advantages of BPY from a transit, employment proximity, and amenity point of view.
- There was a further consensus (assuming that West Station and its related transit improvements are implemented) that the residential component of BPY would not be impacted by a shift of general office

# FUTURE OF WORK

Work to a hybrid work pattern. Such a shift might enhance the attractiveness of central, highly connected sites like BPY, where housing would be close to transit and urban amenities, and hybrid commuters could reduce their car ownership. Several interviewees observed that BPY could be an exceptional commuter **origin**, given transit connections to other key employment clusters as well as the ability for some to both live and work in the Allston/West Station area.

- One potential post-COVID growth paradigm is a “barbell” pattern, in which residential growth continues in the central core but also gravitates to outlying communities served by commuter rail and offering aspects of the urban lifestyle on a smaller scale. Such a trend would reinforce BPY as both a residential location and an employment destination, given its regional accessibility via West Station.<sup>a</sup>

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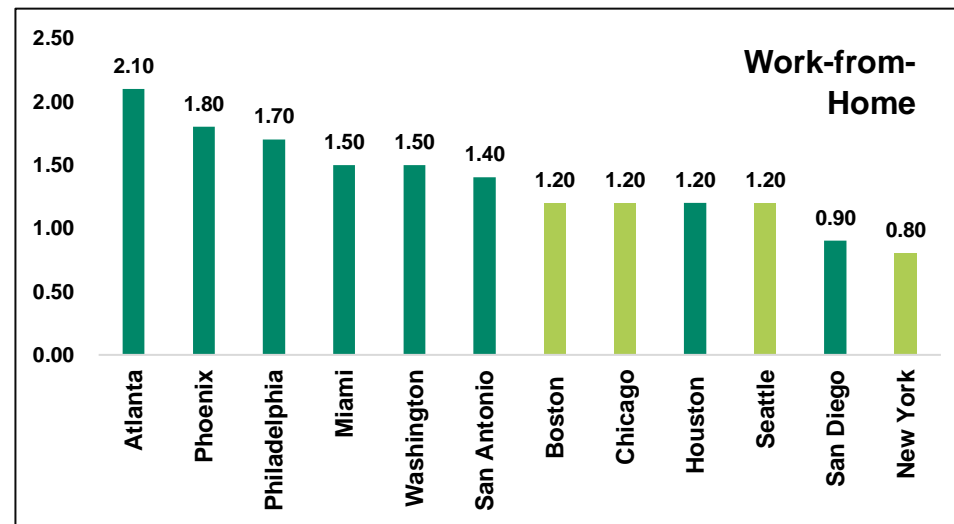
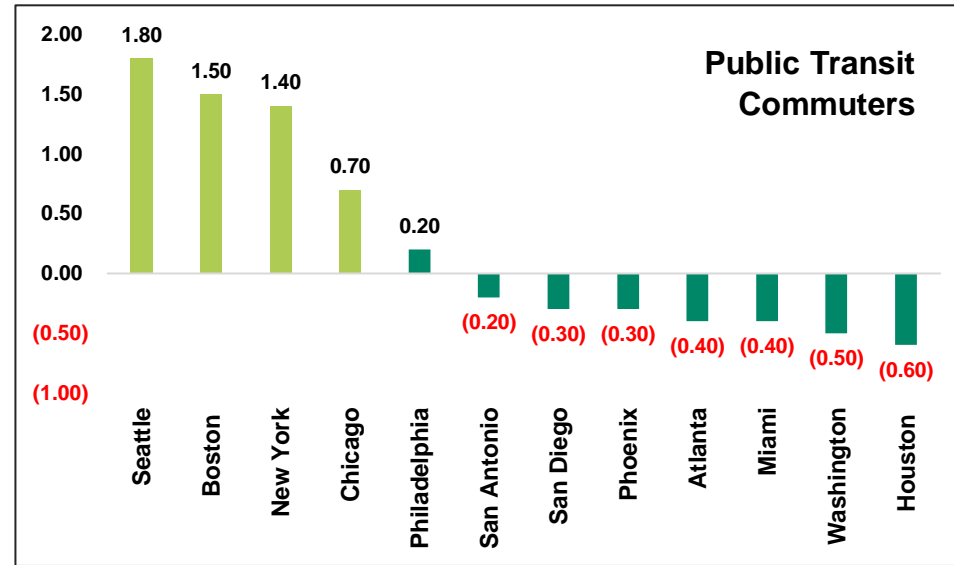
Source: AECOM interviews with 14 experts from the institutional, life sciences, and real estate sectors.

<sup>a</sup> See, for example, JLL, Inc., *Big Bets 2022: Bold Predictions for Boston’s Commercial Real Estate Industry*; <https://hello.jll.com/bostonbigbets2022>

# FUTURE OF WORK

- Trends that preceded COVID suggest that US regions with strong transit and desirable amenities are more resistant to work-at-home patterns.
- Figure 5-2, for example, compares trends in transit commuting and work-from-home patterns in 12 metro markets in the decade before the pandemic. Those metros, including Boston, where transit use was growing experienced lower rates of growth in remote work.

Figure 5-2: Percent Change, Public Transit Commuters and Work-from-Home, MSA, 2010-2019



Source: A Better City, Inc./AECOM from US Census Transportation Products

## CHAPTER 6: WEST OF BOSTON

*Key Finding: The I-90 Allston Multimodal Project would contribute to economic development in the 35-mile corridor extending westward to Newton, MetroWest, and Worcester.*

# INTRODUCTION

The economic benefits of the I-90 Allston Multimodal Project and the future development of Beacon Park Yard are not limited to Boston’s central core. They extend throughout the regional economy, as shown in Chapter 1, but they also represent a geographically specific opportunity for [the corridor](#) that extends westward from Allston—to Newton, Wellesley, Natick, Framingham, Ashland, Southborough, Westborough, Grafton, and Worcester. These communities are home to 14 existing stations. Boston Landing, the station within Boston immediately west of Allston, is a fifteenth.

The analysis begins with two general sections:

- **Existing Conditions**, addressing ridership, current and projected land use, and other characteristics;
- **Potential Changes**, including the implementation of the Project (both West Station and the Turnpike interchange improvements), and public policy changes, such as the 2020 law promoting multifamily development near transit.

The chapter then turns to a qualitative, place-based assessment of potential transportation improvements in **each corridor community** and the associated potential for transit-oriented development (TOD). These discussions are focused on the rail stations and their catchment areas, but they also address locations (such as Newton Corner and the Framingham-Natick Golden Triangle) where express bus service on the Turnpike could support TOD.

The analysis indicates a substantial potential for TOD. In Worcester, this would reinforce and intensify a wave of development that has already begun. In other communities, the proposed transportation improvements are consistent with local land use and development plans.

# INTRODUCTION

The relationship between corridor development and the I-90 Allston Multimodal Project hinges on the emergence of a regionally (and nationally) significant center of knowledge-based research, commerce, and employment in Allston. This includes the 75 acres of land at **Beacon Park Yard** (BPY) to be unlocked by the redesigned interchange and the insertion of West Station, as well as the larger district formed by Harvard’s Allston campus and Boston University. By rail, these jobs will be **10 minutes closer to home than Back Bay** and **15 minutes closer than South Station**.

At the same time, West Station will also connect the surrounding residential neighborhoods—existing households as well as new residential development at BPY itself—to the job markets of corridor communities.

Finally, West Station will enable implementation of rail service on the Grand Junction, connecting the corridor communities to Kendall, MIT, and North Station.

This is not to suggest that future station area development in the corridor would be primarily attributable to activity in Allston—rather, that Allston would **contribute** to such development through a series of synergies.

- Worcester is emerging as the revitalized economic engine of Central Massachusetts. Its development agenda is centered on downtown, where a mix of commercial, residential, civic, institutional, and athletic uses has crystallized within walking distance of Union Station. Allston would serve as both a work destination and a labor market origin for Worcester’s core.
- An “eds and meds” city, Worcester is home of the second largest life sciences cluster in Massachusetts. This cluster already enjoys a commercial and intellectual synergy with Boston and Cambridge.

# INTRODUCTION

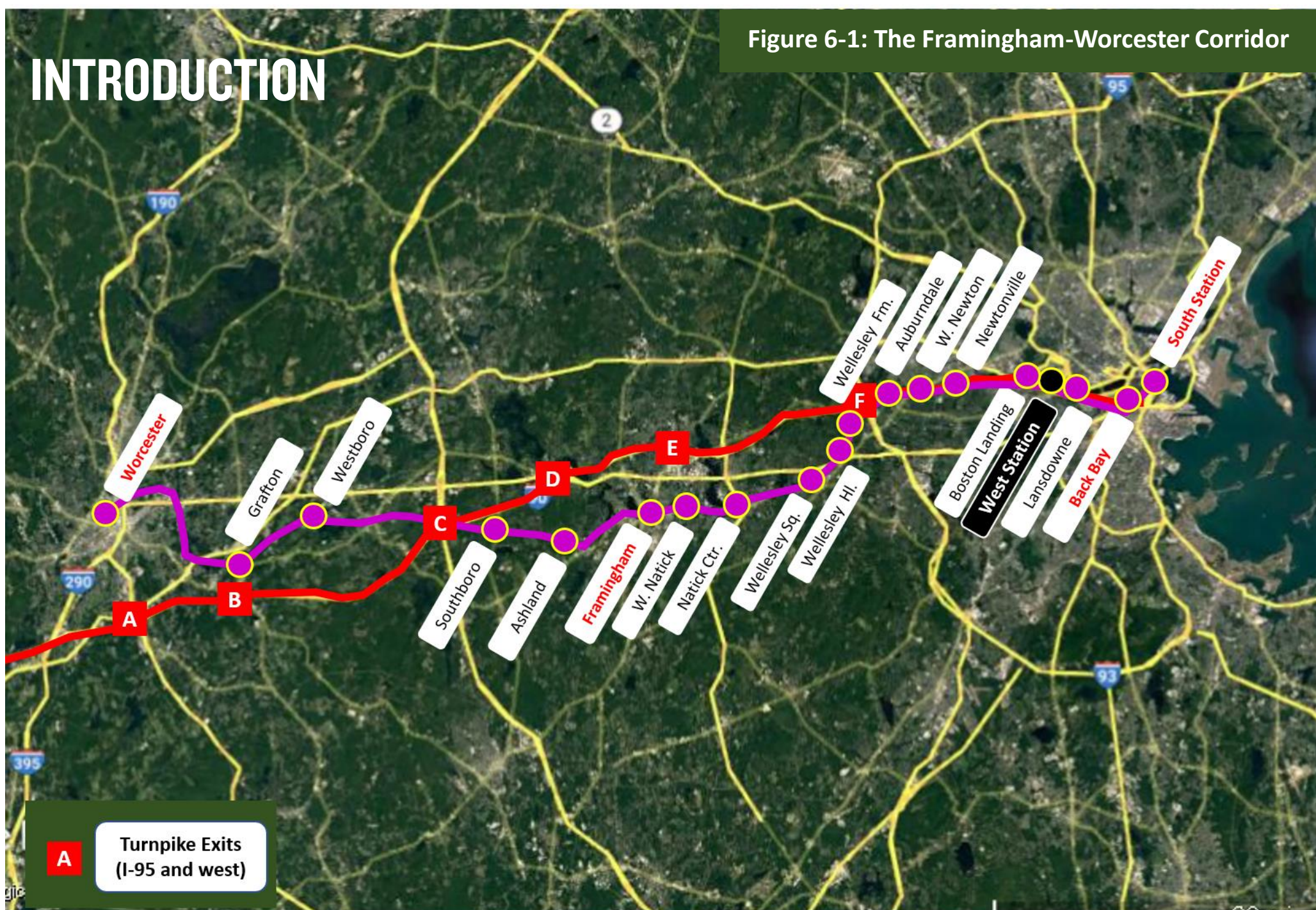
- Framingham and Natick have created plans for downtown station area TOD. Opportunities for infill, reuse, and larger-scale redevelopment are present in both towns, particularly Framingham.
- The Golden Triangle is the expanse of commercial development at Exit 117 (the old Exit 13) on the Framingham-Natick boundary. The two towns have undertaken a joint planning study that recognizes the ongoing decline of brick-and-mortar retail and the opportunity for the major property owners to diversify and intensify future land use. The Golden Triangle could be a mixed-use “edge city”, accessible to Allston by express rapid bus as well as first-mile shuttle connections to the rail line.
- Newton’s plan to make Washington Street a more developed, pedestrian-friendly, transit-oriented corridor dovetails with future, frequent rail service between its closely spaced villages and West Station.

The rail improvements already programmed for this corridor, combined with access to Allston, Kendall, and North Station, can encourage the development of more multifamily housing. This is already a reality in Worcester, Ashland, and Newtonville.

The “MBTA communities” law and its regulatory guidance strongly encourage multifamily zoning around the stations, while the companion “housing choice law” facilitates rezoning for that purpose. Three corridor towns have recently completed Housing Production Plans that target their station areas for multifamily growth. Each corridor community is already projected to grow its household population substantially by 2040; the opportunity to cluster that growth around the stations—a sustainable and equitable pattern—is enhanced by the prospect of a direct, frequent commute to an employment hub on the western edge of central Boston.

Figure 6-1: The Framingham-Worcester Corridor

# INTRODUCTION





# EXISTING CONDITIONS

## *The Corridor*

The transportation corridor extending westward from Allston is defined by the Massachusetts Turnpike and the Framingham-Worcester commuter rail line. This railroad, owned by MassDOT from Worcester eastward, also carries Amtrak’s Lake Shore Limited and rail freight service. If the proposed East-West Rail project is implemented, it will run on this alignment as well. The corridor is illustrated in the map on the [preceding page](#).

This study is focused largely on the importance of West Station. Introducing a station as part of the Allston Interchange Multimodal Project would create connectivity that does not exist today, particularly for potential rail users in the Framingham-Worcester corridor. That said, the Turnpike is a critical connection that the Allston project will preserve and upgrade. The Turnpike exits serving this corridor are listed in Table 6-1 at the right.

Table 6-1: Turnpike Exits in the Corridor

Map Key	Exit (Old)	Exit (New)	Location
A	10A	94	Millbury (Rt. 146)
B	11	96	Millbury/Grafton (Rt. 122)
C	11A	106	Westborough (I-495)
D	12	111	Framingham (Rt. 9)
E	13	117	Framingham/Natick (Rt. 30)
F	14/15	123	Newton (I-95/St. 128)
G	16	125	W. Newton (Rt. 16)
H	17	127	Newton Corner (Washington St.)
I	18/20	131	Allston Interchange
J	22	133	Prudential/Copley
L	24	134	I-93/South Station

Source: AECOM from <https://www.mass.gov/doc/exit-renumbering-i-90/download>. “Old” and “new” exits refer to MassDOT’s recent renumbering.

# EXISTING CONDITIONS

## *Station Areas*

[Table 6-2](#) on the following page compiles some basic comparative information about the 15 existing stations west of Allston. These data include:

- The estimated numbers of households and of employees in the half-mile radius surrounding each station. These provide an idea of how densely or sparsely each station area is developed. (It is understood that for commuter or “regional” rail, the catchment area from which riders may be drawn—and within which transit-supportive development might be undertaken with appropriate first- and last-mile connection—is often larger than a half-mile. These opportunities are addressed qualitatively in the station-specific sections that follow.)

It is readily apparent that Worcester, Framingham, and Boston Landing are the most highly developed station areas (Worcester even more so because considerable residential and commercial development has been

completed since these data sources were generated; see [Figure 6-3](#)). Several other station areas contain significant development.

- The number of publicly available parking spaces at each station. Park-and-ride is certainly not the only type of last-mile connection, but it reflects in part the level of existing demand in the areas surrounding more isolated, less developed stations.

# EXISTING CONDITIONS

Table 6-2: Station Areas—Housing, Employment, and Ridership

Station	Units within Half-Mile	Employees Half-Mile	Parking Spaces	Ridership 2018 (Inbound)
Worcester	2,218	10,933	500	1,298
Grafton	10	640	386	524
Westborough	456	1,242	448	737
Southborough	374	116	372	518
Ashland	853	548	693	907
Framingham	2,490	6,062	294	995
West Natick	3,138	1,156	178	904
Natick Center	2,522	2,410	71	697
Wellesley Square	1,220	4,473	224	591
Wellesley Hills	810	2,482	55	322
Wellesley Farms	665	125	190	285
Auburndale	1,144	1,500	35	203
West Newton	1,670	2,715	161	243
Newtonville	2,447	3,612	0	429
Boston Landing	3,915	10,230	0	479

Source: AECOM from original sources as follows:

Units: The Massachusetts Housing Partnership TOD Explorer database, using assessor and Costar data bases: <https://mhpcenterforhousingdata.shinyapps.io/todex/>.

Employees: MAPC's Information Station data base (data as of 2014; for approximation only): [Information Station \(tstation.info\)](http://tstation.info)

Parking: MBTA, <https://www.mbta.com/schedules/CR-Worcester/timetable>

Ridership: MBTA: <https://www.mass.gov/doc/worcester-line-2018-0/download>

# EXISTING CONDITIONS

## *Ridership*

[Table 6-2](#) also lists each station’s weekday ridership numbers (in the form of daily inbound boardings) from 2018, the last pre-COVID year for which such numbers are published.

- The Framingham-Worcester Line is the MBTA’s second busiest, after Providence-Stoughton. In 2018 the Framingham-Worcester line had a total of **9,353** daily weekday inbound boardings—**up about 45%** from 2012. A similar number of people boarded outbound, completing a round trip.
- Of the inbound total, 9,132 boarded at the 15 stations listed in [Table 6-2](#)—those located west of the future West Station. These riders are generally commuting to jobs at Lansdowne, Back Bay, or South Station.

- These 15 stations also had 544 **outbound** boardings.<sup>a</sup> Some of these occurred in the morning (people “reverse commuting” to work west of their home communities, including some riding all the way to Worcester). Most of these non-core originating outbound trips occurred in the evening (people returning home from an inbound commute to jobs in Newton, Wellesley, or MetroWest).

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Source: MBTA, <https://www.mass.gov/doc/worcester-line-2018-0/download>

<sup>a</sup> The remaining 8,740 daily outbound boardings occurred at the three primary destination stations: South Station, Back Bay, and Lansdowne; these are largely PM peak trips returning home at the end of the workday.)

# POTENTIAL CHANGES

## ***West Station: Regional & Urban Rail***

As of 2022, there are 19 weekday round trips between Worcester and Boston and 24 between Framingham and Boston. (As of 2019, the last pre-COVID schedule, there were 20 and 27, respectively.) These trains provide a variety of local, zone express, and direct express services, which are described in detail in the location-specific sections that follow. There is currently no station stop at Allston. While it is possible to get off at Boston Landing and walk to the BPY area, that 20-25 minute walk is inhospitable in bad weather.

***West Station will make Beacon Park Yard a key stop on the Framingham-Worcester Line.*** As BPY is developed, its regionally significant concentration of jobs and workers will have a direct rail connection to Central Massachusetts, MetroWest, Wellesley, and Newton. For commuters living in those areas, BPY will be roughly 10 minutes closer to home than Back Bay and 15 minutes closer than South

Station. West Station will benefit from several improvements already underway on the Framingham-Worcester Line:

- The Third Track project, which will add an 11-mile express track from West Natick to Wellesley Farms and upgrade West Natick and the three Wellesley stations. This will enable additional “Heart to Hub” express trains from Worcester to Boston as well as additional zone express trips; make all services more reliable; and potentially reduce trip times. This project is now in design and is expected to be completed in 2030.<sup>a</sup>

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<sup>a</sup> <https://cdn.mbta.com/sites/default/files/2021-06/2021-06-21-fmcb-17-worcester-triple-track-contract-accessible.pdf>

# POTENTIAL CHANGES

## *Regional & Urban Rail (continued)*

- Station upgrades at [Worcester](#) (a second platform to serve trains heading in opposite directions at the same time); [Natick Center](#) (ADA-compliance); and the [three Newton stations](#) (a second platform to serve trains in both directions, ADA-compliance, and better integration with the street network).
- With West Station in place, the MBTA could implement its **Rail Vision** plan in this corridor. This would provide electrified, high-platform, “urban rail” service, stopping **every 15 minutes** at Riverside (which would be restored as a commuter rail stop), the three existing Newton village stations, Boston Landing, West Station, Lansdowne, Back Bay, and South Station.<sup>a</sup>

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<sup>a</sup> <https://cdn.mbta.com/sites/default/files/2019-10/rail-vision-alternative5-oct2019-accessible.pdf>

Building West Station and integrating it with these other planned and potential improvements would significantly expand the “footprint” of transit accessibility to BPY, in the region in general and in the Framingham-Worcester corridor. In particular. These gains are illustrated in the **Accessibility Analysis** found in [Chapter 2](#) of this study.

# POTENTIAL CHANGES

## *Public Policy: Housing Development*

Between now and 2040, metropolitan Boston is expected to grow in both employment and population. The Metropolitan Area Planning Council (MAPC) has prepared estimated growth figures for every city and town. As shown in [Table 6-3](#), the number of households in the corridor communities west of Boston is projected to grow by margins of 10%-30%, and by 15% in the aggregate. Jobs, by comparison, are projected to grow in these corridor communities by only 3%, with most of that growth occurring in Worcester and Framingham.

- Where and how projected residential growth occurs is important for several policy reasons: municipal finances, quality of life, access to jobs, affordability, traffic congestion, climate sustainability. The most efficient, sustainable, and equitable way for residential growth to unfold is in proximity to the corridor's transit stations, or with convenient first- and last-mile connections to them.

This includes the rail stations as well as places readily served by express bus service using the Turnpike—such as the future redevelopment of the Golden Triangle.

- By contrast, if the projected residential growth takes the form of auto-dependent, land-consumptive sprawl, the outcome will be more costly for cities and towns, less equitable, and less climate-friendly. Alternatively, if the projected residential growth does not materialize at levels consistent with regional workforce requirements, the result will be less economic growth and a less competitive region. This issue was reinforced repeatedly by the real estate and knowledge economy experts interviewed for this study.

# POTENTIAL CHANGES

## *Housing Development (continued)*

In 2020, the legislature enacted, and Governor Baker signed, an economic development law that included significant changes in how residential development is regulated by cities and towns. The key changes:

- **Housing Choice Law:** the statewide zoning enabling law (Chapter 40A) was amended to make a series of local zoning actions relating to multifamily housing development subject to a simple majority vote of the City Council or Town Meeting, rather than the two-thirds vote that generally applies.<sup>a</sup>
- **MBTA Communities Law:** defined “MBTA communities” — including all of those on the Framingham-Worcester Line—are required to create at least one multifamily zoning district, located at least in part within a half-mile of a station. Depending on the type of transit service

involved, the state has calculated a minimum multifamily unit capacity to be enabled, as-of-right, in each affected municipality; these are listed in the right-hand column of [Table 6-4](#). The law does not mandate the creation of any units, and some of the mandated capacity already exists. That said, for communities that comply, the targets are substantial.<sup>b</sup> The opportunity arises to address them in ways that would, by definition, help cluster potential housing growth near rail transit and give those households a convenient, direct connection to the employment destination that will emerge at BPY.

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<sup>a</sup> <https://www.mass.gov/info-details/housing-choice-legislation>

<sup>b</sup> The stated penalty for non-compliance is ineligibility for several state grant programs, the most important of which—the Massworks local infrastructure program—is one of the Commonwealth’s principal local economic development tools.



# POTENTIAL CHANGES

## *Housing Development (continued)*

MAPC has estimated that to staff the projected employment growth at BPY, the metro region will need to accommodate **4,340 net new households**—over and above those already projected.

- Some of these are assumed to be housed at BPY (part of a larger residential component); the remainder are assumed to be distributed among all the region’s communities based on current trends. The share projected for the Framingham-Worcester rail communities is small—only 108 net additional households, most of them in Newton (50), Framingham (30), and Natick (18).
- However, a random distribution is not pre-ordained. Districts directly linked to West Station could attract a substantial share of these knowledge-based workers without worsening peak hour congestion.

## *Gateway Cities & Regional Centers*

The state commitment to Gateway Cities cuts across a range of policy areas. Worcester is a founding Gateway City. State policy also recognizes the role of regional urban centers such as Framingham (whose population and median income resemble those of Gateway Cities).

In its 2018 report on transformative TOD in Gateway Cities, the Massachusetts Institute for a New Commonwealth (MassINC) prepared a [focused case study](#) on the Worcester station area. The report uses the Framingham-Worcester Line as an example of how a long-term shift from “commuter rail” to frequent, bidirectional “regional rail” would spur economic development. A direct link to West Station would be integral to this strategy.<sup>a</sup>

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<sup>a</sup> <https://massinc.org/research/the-promise-and-potential-of-transformative-transit-oriented-development-in-gateway-cities/>

# POTENTIAL CHANGES

## *Station Communities: Potential Growth*

**Table 6-3: Station Communities—Employment and Population Projections, 2040**

Municipality	Employment		Households	
	Current	2040	Current	2040
Worcester	98,509	102,769	72,121	79,304
Grafton	4,172	4,364	7,677	10,121
Westborough	24,519	25,583	7,302	8,828
Southborough	7,171	7,345	3,657	4,265
Ashland	5,836	6,094	7,251	8,363
Framingham	51,776	53,621	28,353	33,198
Natick	24,217	23,839	14,496	16,887
Wellesley	22,743	23,019	9,018	10,456
Newton	48,394	49,385	32,902	38,674
<b>Totals</b>	<b>287,337</b>	<b>296,019</b>	<b>182,777</b>	<b>210,096</b>

Source: A Better City, Inc./AECOM, from Central Transportation Planning Staff; Land Use Assumptions by TAZ (2022)

# POTENTIAL CHANGES

## MBTA Communities Law

Source: A Better City, Inc./AECOM from:

Left and right: MBTA Communities Law Draft Guidelines Table (<https://www.mass.gov/info-details/multi-family-zoning-requirement-for-mbta-communities#review-the-draft-guidelines>);

Middle: MA Housing Partnership TOD Explorer database (<https://mhpcenterforhousingdata.shinyapps.io/todex/>),

<sup>a</sup> MBTA Zone Capacity” is the multifamily *zoning* capacity that a municipality will have to include in its station-area zoning district to comply with the MBTA Communities Law (under current draft state guidance). The law does not require the *production* of any specific number of units—only the zoning that would enable it.

<sup>b</sup> Newton has three commuter rail stations as well as multiple stations on the D Branch of the Green Line. The City could therefore comply with the 2020 law in a variety of ways, not necessarily concentrated on the three commuter rail stations.

Table 6-4: Station Communities—Housing Units

Municipality	Existing Units, Municipality	Existing Units, Station Area(s)	MBTA Zone Capacity <sup>a</sup>
Worcester	84,281	1,242	12,642
Grafton	7,760	10	1,164
Westborough	8,334	456	1,250
Southborough	3,763	374	750
Ashland	7,495	853	1,124
Framingham	29,033	2,490	4,355
Natick (2 stations)	15,680	5,660	2,352
Wellesley (3 stations)	9,282	2,695	2,321
Newton (3 stations) <sup>b</sup>	33,320	5,261	8,330
<b>Totals</b>	<b>198,948</b>	<b>19,041</b>	<b>34,288</b>

# WORCESTER

## *Union Station*

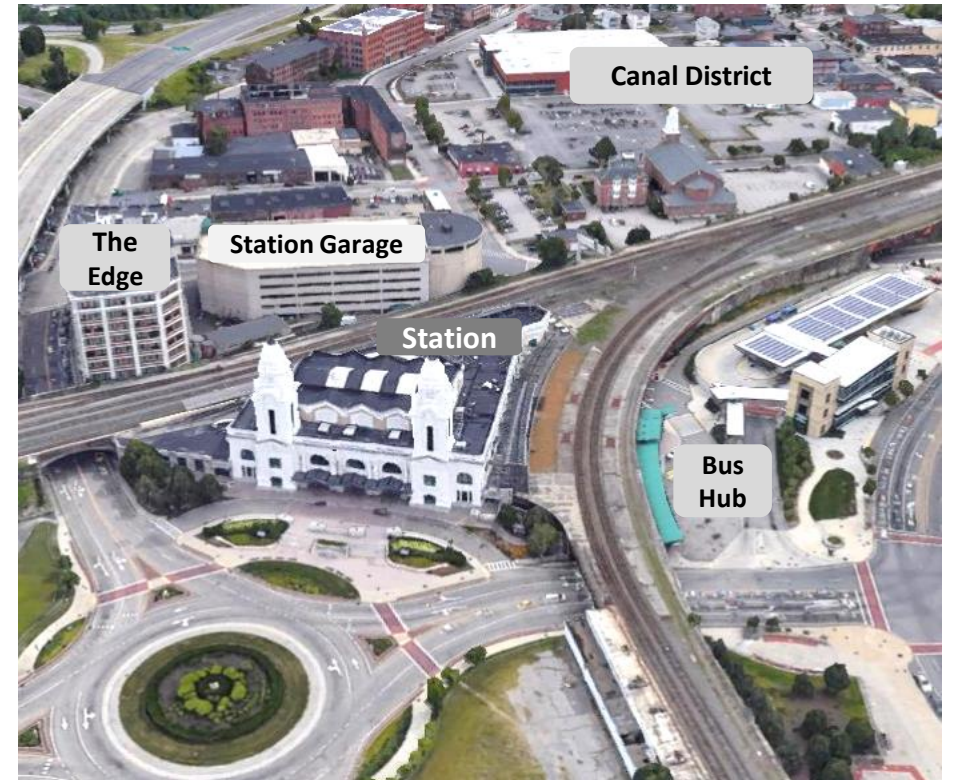
Union Station is a rail and transit hub located on the eastern edge of downtown. It is the terminus of the MBTA Framingham-Worcester Line, a stop on Amtrak's Lake Shore Limited, and a key stop on the proposed East-West Rail. The station is owned and operated by the Worcester Redevelopment Authority.

- The MBTA is currently implementing a \$44 million project to add a second rail platform, allowing Union Station to board trains heading in opposite directions.<sup>a</sup>
- The Worcester Regional Transit Authority (WRTA)'s central bus hub, served by over 20 WRTA routes, is part of the Union Station complex. It is also served by Greyhound and Peter Pan.<sup>b</sup> Station-area TOD includes The Edge, the adaptive reuse of an historic building in the Union Station block as rental apartments.

<sup>a</sup> <https://www.mbta.com/projects/worcester-union-station-improvements>

<sup>b</sup> (<https://www.therta.com/schedules/>)

Figure 6-2: Worcester Union Station



Source: A Better City, Inc./AECOM

# WORCESTER

## *Union Station (continued)*

- Worcester is served by **19 weekday round trips to Boston**; in 2019 (pre-COVID), there were 20, including one daily peak-hour “Heart to Hub” direct express. Some peak-hour trains make local stops as far as West Natick and then run express to Boston—a pattern known as “zone express” service. Today, the scheduled trip time from Worcester to Boston on zone express trains is 67 minutes (1:07) to Boston Landing; 72 minutes (1:12) to Lansdowne; 77 minutes (1:17) to Back Bay; and 83 minutes (1:23) to South Station.<sup>a</sup>
- With West Station in place, zone express service from Worcester to Allston would take about 69 minutes. Worcester would thus have a direct connection to a regionally significant concentration of knowledge

<sup>a</sup> <https://www.mbta.com/schedules/CR-Worcester/timetable>

economy jobs **10 minutes closer to home than Back Bay and 15 minutes closer than South Station.**<sup>b</sup>

- If the Heart to Hub Express stops at West Station, Worcester will have peak hour express service to BPY taking less than an hour. (The pre-COVID express time to Lansdowne was 55 minutes.) Moreover, the Third Track project is expected to allow additional express trains and to shave minutes off express and zone express travel times.
- West Station will allow a simple transfer to the future Grand Junction shuttle to Kendall and North Station, as well as the flexibility to route some Worcester trains direct to North Station.

<sup>b</sup> Sixty-nine minutes is two minutes longer than the current trip time to Boston Landing. It is assumed that trip times to destinations east of West Station would be lengthened by two minutes due to the additional stop.

# WORCESTER

## *Downtown TOD Potential*

Union Station’s potential TOD area is effectively cut in half by I-290, with established residential and institutional neighborhoods and CSX’s intermodal freight yard to its east (see [Figure 6-3](#)). But the districts to the west, north, and south of Union Station have attracted significant reinvestment.

- The DCU Center (Worcester’s hockey, basketball, and concert venue) preceded the restoration of rail service but has become an important rail destination. St. Vincent Hospital, opened in 2000, is the station’s major institutional neighbor.
- In its 2018 study of the potential for transformative TOD in Massachusetts’ Gateway Cities, the Massachusetts Institute for a New Commonwealth (MassINC) prepared a case study on Worcester. Through an analysis of vacant and underutilized property, MassINC estimated

that with an aggressive public strategy and optimal buildout, Union Station’s half-mile walkshed could accommodate nearly 24,000 net new residents (a nine-fold increase at that time) and nearly 7,000 net new jobs (a one-third increase), achieving a model TOD balance of 50% population, 50% jobs.<sup>a</sup> The extent to which this potential is realized over time could be influenced by convenient access to Allston and Kendall.

- Two transformative, district-scale initiatives are underway. Worcester Commons, a failed downtown shopping mall, is being replaced by the multi-building, mixed-use **City Square**. The **Canal District**, an old industrial area south of the station, is reemerging as a mixed-use neighborhood

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<sup>a</sup> MassINC, Daniel Hodge and Ben Forman, The Promise and Potential of Transformative TOD in Gateway Cities (<https://2gaiae1lifzt2tsfgr2vil6c-wpengine.netdna-ssl.com/wp-content/uploads/2018/04/TTOD-Report.pdf>).

# WORCESTER

## *Downtown TOD Potential (continued)*

anchored by Polar Park, home of the Boston Red Sox' top minor-league affiliate. Both of these initiatives have received infrastructure and financing support from various state programs.

- Downtown is attracting a wave of multifamily housing development, through new infill construction and adaptive reuse of industrial buildings. [Figure 6-3](#) shows 20 residential projects recently completed, under construction, or proposed. Combined, these projects represent **over 3,500 units**, almost all of them undertaken since 2015. People living within easy walking distance of Union Station would have a “Heart to Hub” express trip time of under an hour from their apartment door to West Station.

- Downtown is also undergoing reinvestment in civic and cultural destinations such as the Public Library, Memorial Auditorium, the Olympia and Hanover Theaters, a new public market, and a new ice skating center; public plazas; restaurants; four hotels (three in close proximity to Union Station); office buildings; and Quinsigamond Community College’s Innovation Center.<sup>a</sup>

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<sup>a</sup> <https://www.worcesterchamber.org/economic-development/projects-underway/>)

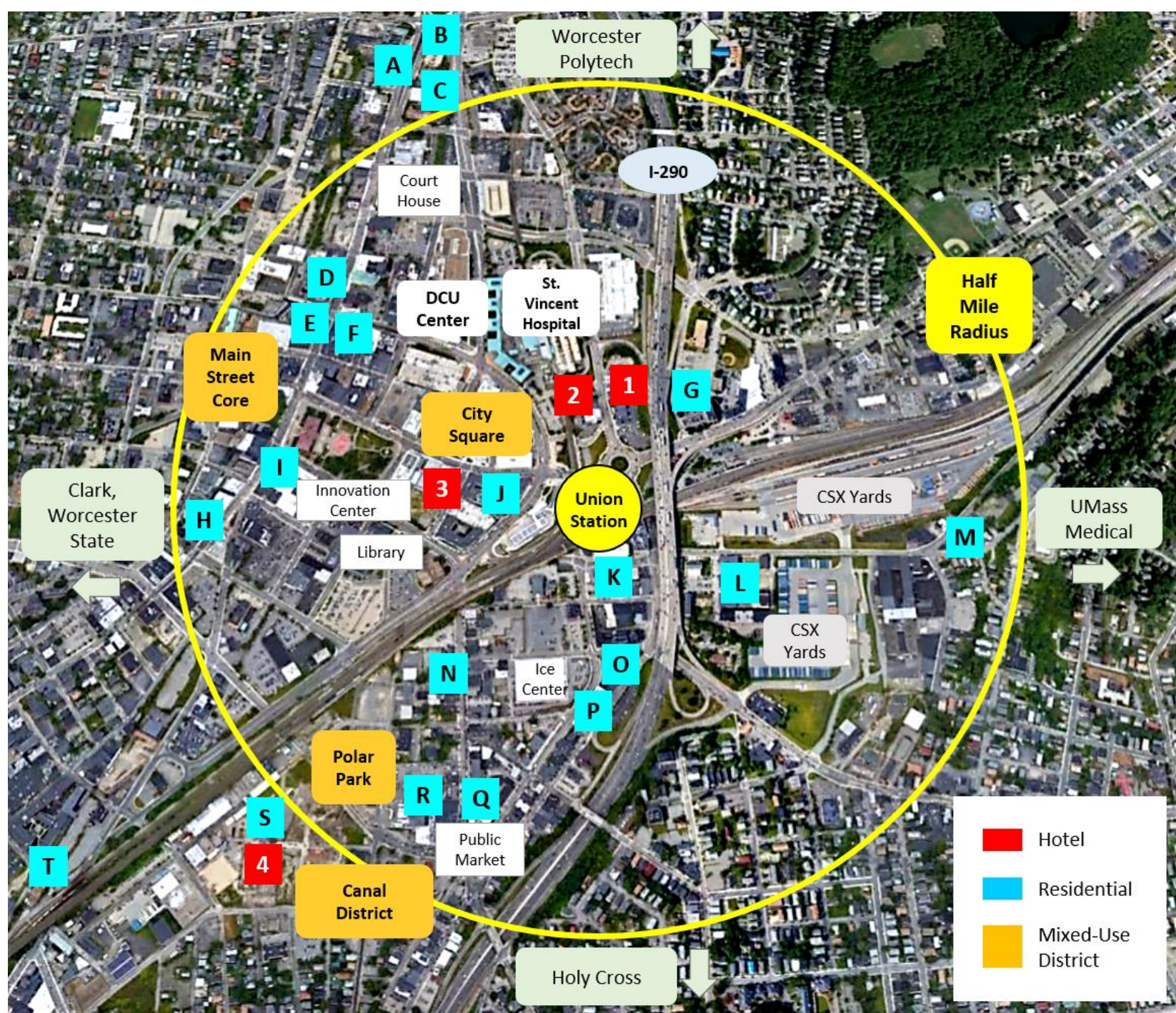
# WORCESTER

**Figure 6-3: Union Station TOD**

Source: A Better City, Inc./AECOM

## Multifamily Developments

- A Courthouse Lofts
  - B Voke Lofts (pre-2015)
  - C One Lincoln Square
  - D 322 Main
  - E Commerce Building
  - F Main Micro Lofts (pre-2015)
  - G Mount Carmel
  - H The 6Hundred
  - I Grid District
  - J 145 Front at City Square
  - K The Edge at Union Station
  - L 274 Franklin (proposed)
  - M 100 Wall
  - N The Cove
  - O Walker Lofts
  - P Canal Lofts (pre-2015)
  - Q Kelley Square Lofts
  - R Table Talk Lofts
  - S Polar Park Apartments
  - T Junction Shop Lofts
- Hotels**
- 1 Homewood Suites
  - 2 Home2 Suites
  - 3 AC by Marriott
  - 4 Polar Park Hotel (proposed)



Source: (<https://www.worcesterchamber.org/economic-development/projects-underway/>); <https://www.worcesterma.gov/agendas-minutes/legal-notices/boards-commissions/planning-board/2022/20220223.pdf> (for 274 Franklin).



# WORCESTER

## *Worcester & the Knowledge Economy*

Worcester is an “eds and meds” town. It has eight colleges and universities, including the University of Massachusetts Medical Campus and its associated biotech park. Hospitals include UMass Memorial Medical Center, its satellite hospitals, and St. Vincent. There has been pronounced growth in Professional, Scientific, and Technology Services.<sup>a</sup>

Outside of Boston-Cambridge, Worcester has the largest *life science cluster* in Massachusetts.

- The original Worcester Biotech Park was a state-local, public-private partnership, initiated in the 1980s. It was developed by the Worcester Business Development Corporation (WBDC) on surplus state land. The REACTORY, adjacent to the original Biotech Park, is a

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<sup>a</sup> <https://www.worcesterchamber.org/wp-content/uploads/2014/10/Worcester-Regional-Competitiveness-Outlook-FINAL.pdf>

specialized biomanufacturing park with multiple building-ready sites, It is being developed by WBDC on newly surplus state land. Regional economic development leaders view biomanufacturing as a potential niche cluster for Worcester—an affordable “opportunity to keep it in Massachusetts”.<sup>b</sup> The mixed-use complex anchored by Polar Park includes a planned 200,000-square foot life sciences building. This is the first entrée of the life sciences sector into the revitalization of Downtown Worcester.<sup>c</sup>

<sup>b</sup> <https://thereactory.com/>

<sup>c</sup> <https://bostonrealestatetimes.com/new-mixed-use-development-in-worcester-to-bring-lab-office-and-retail-space-to-polar-park/>

# WORCESTER

## *Synergy with Boston-Cambridge*

- According to regional economic development leaders, the Worcester life sciences cluster is enmeshed with Boston and Cambridge companies. Those companies can pay significantly lower rents in Worcester, enjoy proximity to the Central Massachusetts universities, and still be close to Boston.
- The Regional Chamber reports that 20-25 companies with Boston or Cambridge bases have opened satellites in the Worcester area. This provides a hybrid work option (split schedule between Boston and Worcester, which was developed pre-COVID); it is also a talent acquisition portal.
- The enhanced synergy of faster, more frequent Worcester-Boston rail service is significant to the life sciences cluster. West Station would provide direct access to BPY, while enabling –through the Grand Junction connection—direct or single-transfer service to MIT/Kendall. There is a “shrinking sense of time and distance” between the Worcester and Boston economic communities.

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Source: Interview with Timothy P. Murray, President and CEO, Worcester Regional Chamber of Commerce (2022).

# GRAFTON, WESTBOROUGH, & SOUTHBOROUGH

These three stations are located in lightly developed areas, serving principally as park-and-ride collector stations for surrounding communities. As shown in [Table 6-2](#), each has more parking spaces than any station outside of Worcester and Ashland, and their combined parking capacity is nearly 1,200. These stations offer access to the MassPike, Route 122, and Route 30 (Grafton); Route 9 (Westborough); and the MassPike/Route 495 interchange (Southborough).

- Grafton Station is located near the state’s Cummings School of Veterinary Medicine. Some multifamily housing and significant employers are located near Westborough Station.
- Worcester-Boston trains serve all three of these stations. As of today, there are 19 daily round trips. Some inbound peak hour trains make local stops

(including these three) as far as West Natick and then run express to Boston; the reverse is true for outbound peak hour trains.<sup>a</sup>

- With West Station in place, Grafton and Westborough will have a “zone express” trip of less than an hour to the major employment destination of BPY. From Southborough, the train trip would take about 45 minutes.

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<sup>a</sup> <https://www.mbta.com/schedules/CR-Worcester/timetable>

# METROWEST: ASHLAND

## *Ashland Station*

Ashland Station is located a mile west of downtown. As of today, it is served by **19 weekday round trips to Boston**.

Ashland trains originate in Worcester, and during morning and evening commuting hours, several of these trains make local stops as far as West Natick and then run express to Boston. Today, the scheduled trip time from Ashland to Boston on these “zone express” trains is 42 minutes to Lansdowne, 45 minutes to Back Bay, and 53 minutes to South Station.<sup>a</sup>

With West Station in place, zone express service from Ashland to BPY will take about 37 minutes. The Third Track will also allow additional express service. Ashland would thus have a frequent, direct connection to a regional concentration of knowledge economy jobs **10 minutes closer to home than Back Bay and 16 minutes closer than South Station**.

<sup>a</sup> <https://www.mbta.com/schedules/CR-Worcester/timetable>

<sup>b</sup> Ashland Zoning Bylaw; <https://ecode360.com/12620188>

<sup>c</sup> <https://www.mass.gov/doc/ashland-plan/download>

## *TOD Potential*

- The station is a focus of Ashland’s planning and zoning.<sup>b</sup> The **Rail Transit District** adjoins the station and is geared toward multifamily housing, senior housing, and knowledge-based jobs. Cirrus Apartments, a 398-unit rental complex marketed for its proximity to the train, opened in 2017 as the first major project in the RTD.
- The **Ashland Downtown District** (ADD), adopted in 2021, is a form-based, mixed-use town center code. While downtown is a mile from the train station, the two can be easily connected by shuttle, bus, and bicycle. The 2010 Economic Policy Plan identified downtown’s unrealized potential as a major opportunity.
- Ashland’s recent Housing Production Plan, adopted in 2021, explicitly focuses its multifamily development strategy on the downtown and the station area.<sup>c</sup>
- Ashland has the largest park-and-ride capacity of any station on the line (693 spaces). The MBTA-owned surface lots cover approximately 14 acres, which could eventually accommodate joint development with structured parking.

# METROWEST: FRAMINGHAM

## *Framingham Station*

Framingham Station is located on the southern edge of downtown, at the intersection of the MBTA-owned main line, Route 135 (Waverly Street), and Route 126 (Concord Street). The historic H. H. Richardson station is now a restaurant; the modern high-platform station is immediately west of the historic building. Framingham is the Framingham-Worcester Line's second busiest non-Boston station, after Worcester. Framingham Station is a stop on Amtrak's Lake Shore Limited and would be served by the proposed East-West Rail. The station is operated by the MetroWest Regional Transit Authority (MWRTA), which serves the station with multiple fixed bus routes and a weekday last-mile commuter shuttle.<sup>a</sup>

- As of today, Framingham is served by **24 weekday round trips to Boston**; in 2019 (pre-COVID), there

<sup>a</sup> <https://www.mwrta.com/>

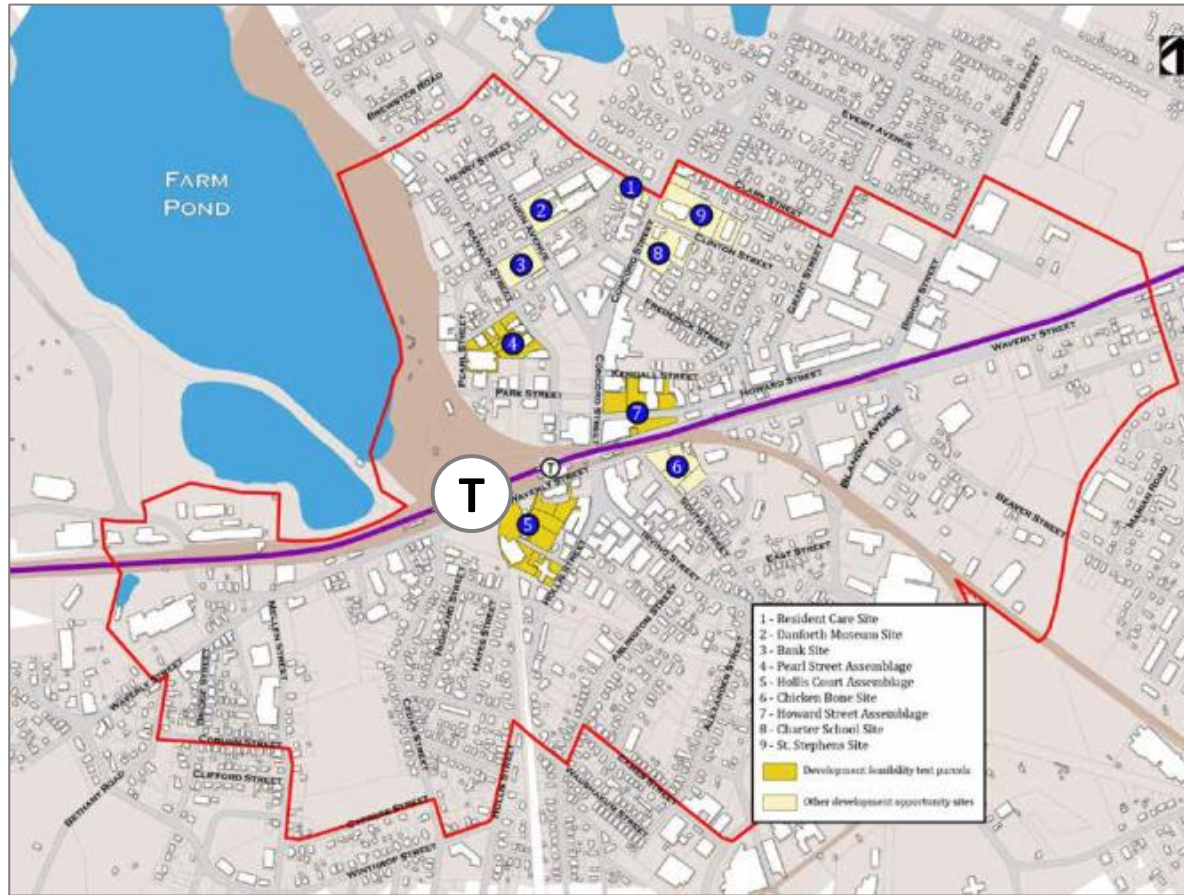
<sup>b</sup> (<https://www.mbta.com/schedules/CR-Worcester/timetable> )

were 27. Several trains originating in Worcester make local stops as far as West Natick and then run express to Boston. Today, the scheduled trip time from Framingham to Boston on these “zone express” trains is 32 minutes to Lansdowne, 37 minutes to Back Bay, and 43 minutes to South Station.<sup>b</sup>

- With West Station in place, express service from Framingham to BPY with a stop at West Natick would take about 27 minutes. The Third Track will also allow additional express service. Framingham would thus have a frequent, direct connection to a regionally significant concentration of knowledge economy jobs **10 minutes closer to home than Back Bay and 15 minutes closer than South Station.**

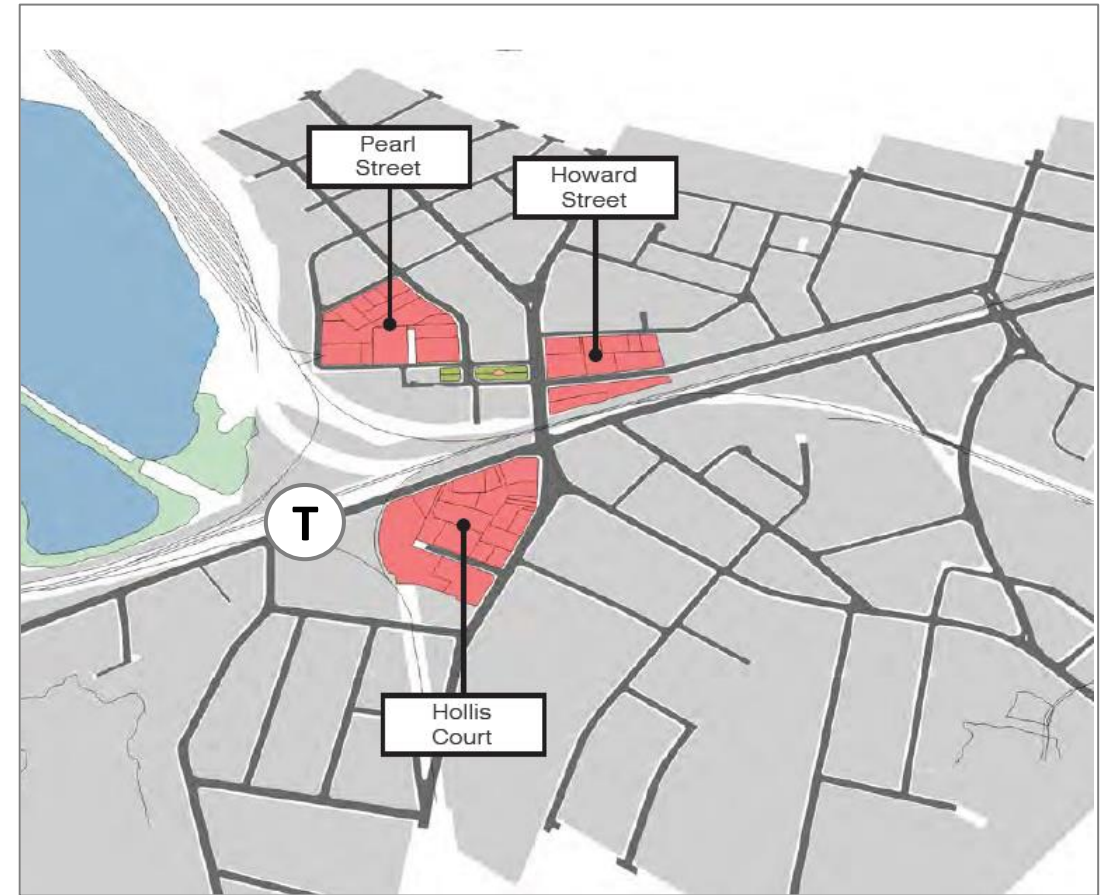
# METROWEST: FRAMINGHAM

Figure 6-4: Downtown Framingham TOD Study Area



Source: MAPC and Framingham, *Downtown TOD Action Plan*

Figure 6-5: Potential Redevelopment Sites



Source: *ibid.*, *Development Feasibility Memo*

# METROWEST: FRAMINGHAM

## *Station Area TOD Potential*

In 2015, the Metropolitan Area Planning Council (MAPC) and the City (then the Town) of Framingham cosponsored a *Downtown TOD Action Plan*.

- The study identified nine potential TOD redevelopment sites within a ten-minute walk of the station and prepared a detailed development feasibility analysis for three of them (the Hollis Court, Pearl Street, and Howard Street assemblages), clustered within the immediate station vicinity.
- The three potential assemblages each consist of multiple parcel ownerships. Together, they amount to just under 15 acres of land. Taking into account then-current market conditions, the study team created a set of illustrative scenarios utilizing a combination of infill development and

reuse of existing buildings. These scenarios, if implemented, would result in approximately **550 residential units** and **100,000 square feet** of commercial space.

- The three infill scenarios described above were presented as illustrative of what could occur at these locations, which were in turn a subset of what might unfold, over time, in the larger station walkshed and last-mile catchment area.

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Source: MAPC and City of Framingham *Downtown TOD Action Plan* (2015). The Final Report and the detailed Development Feasibility Memorandum are available at:

[https://www.mapcorg/wp-content/uploads/2017/11/Final-Report\\_web.pdf](https://www.mapcorg/wp-content/uploads/2017/11/Final-Report_web.pdf)

[https://www.mapc.org/wp-content/uploads/2017/11/Development-Feasibility\\_web.pdf](https://www.mapc.org/wp-content/uploads/2017/11/Development-Feasibility_web.pdf)

# METROWEST: FRAMINGHAM

## *Station Area TOD Potential (continued)*

- The Final Report recommended a series of implementing steps, including rezoning; a reduction of parking requirements in the TOD area; the utilization of financing incentives and state infrastructure programs; and enhancement of the public realm and ped-bike network. The Report also acknowledged the long-standing proposal to grade-separate Route 135 beneath Route 126, so as to decongest peak station area traffic.
- Framingham enacted TOD rezoning in 2015.<sup>a</sup> In addition to the three “assemblages” identified in the *Downtown TOD Action Plan*, there are 10-15 acres of land, including and surrounding the station and its parking lot, owned by the MBTA, CSX, and an affiliated railroad.<sup>b</sup>

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<sup>a</sup> <https://www.framinghamma.gov/1811/Transit-Oriented-Development>

<sup>b</sup> <https://framinghamma.mapgeo.io/datasets/properties?abuttersDistance=100&latlng=42.276337%2C-71.417172&previewId=134-75-9209-000&zoom=18>



# METROWEST: NATICK

## *Natick Center Station*

The MBTA is implementing a \$36.2 million upgrade of Natick Center Station. It will make the station accessible and reserve space for a future center platform as part of the Third Track.<sup>a</sup>

- Natick Center is served by **21 weekday round trips to Boston**. Most trains serving Natick make all local stops to Boston. (Some skip the three Newton stops.) Today, the scheduled trip time from Natick Center to Boston on an all-stop train is 35 minutes to Lansdowne, 40 minutes to Back Bay, and 46 minutes to South Station.<sup>b</sup>
- With West Station in place, all-stop service from Natick Center to BPY will take about 30 minutes, assuming the Third Track project shaves three minutes off today's trip time. Natick Center would thus have a frequent, direct connection to a regionally significant concentration of knowledge economy jobs **10 minutes closer to home than Back Bay and 16 minutes closer than South Station**.
- The MetroWest Regional Transit Authority serves the station with multiple fixed bus routes and a weekday commuter shuttle.<sup>c</sup>

<sup>a</sup> <https://www.mbta.com/projects/natick-center-station-accessibility-improvements>

<sup>b</sup> <https://www.mbta.com/schedules/CR-Worcester/timetable>

<sup>c</sup> <https://www.mwrta.com/>

**Figure 6-6: Natick Center Station Improvements**



Rendering; source: MBTA

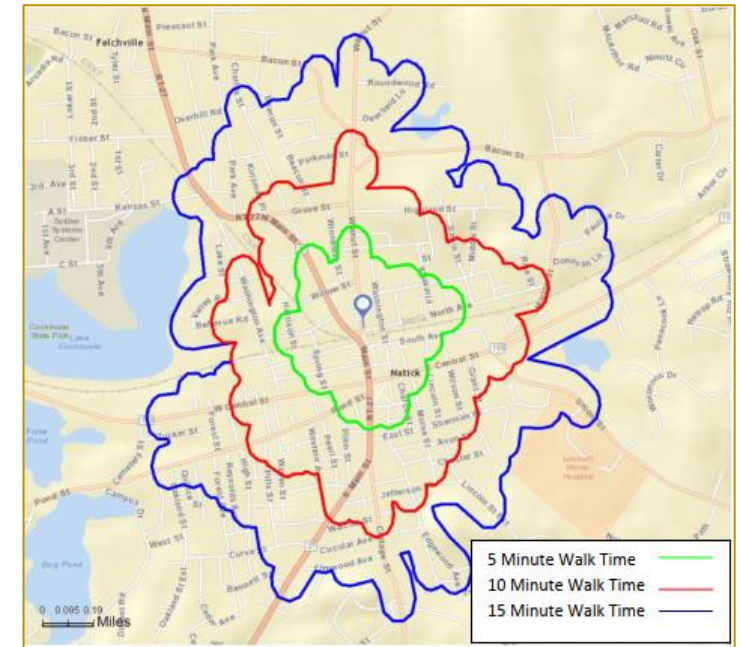
# METROWEST: NATICK

## *Station Area TOD Potential*

MAPC and the Town sponsored the TOD-focused *Natick Center Plan* (2016).<sup>a</sup> The plan targets local retail, small-scale offices, cultural, uses, and multi-family housing, using both infill and enhancement. For the five-year period 2016-2020, the study estimated that Natick could capture several hundred units' worth of unmet multifamily demand in MetroWest, with Natick Center and West Natick (site of the Town's other station) as target areas.

- The Plan recommends zoning changes to expand the footprint and versatility of Natick's Downtown Mixed-Use and Housing Opportunity Overlay districts.
- Natick has completed one of the region's most recent Housing Production Plans. The 2021 plan emphasizes Natick Center as a location for additional multifamily and mixed-income housing, explicitly because of the TOD/transit setting.<sup>b</sup>

**Figure 6-7: Natick Center Station Walkshed**



Source: MAPC/Natick, *Natick Center Plan*

<sup>a</sup> [https://www.mapc.org/wp-content/uploads/2017/09/Natick-Center-Plan-Report\\_June2016-Final.pdf](https://www.mapc.org/wp-content/uploads/2017/09/Natick-Center-Plan-Report_June2016-Final.pdf)

<sup>b</sup> <https://www.mass.gov/doc/natick-plan/download>

# METROWEST: THE GOLDEN TRIANGLE

## *An Evolving Edge City*

The Golden Triangle is a 940-acre expanse of developed land straddling the Framingham-Natick border. The triangle shape is roughly formed by Route 9, Route 30, and Speen Street. Located at Exit 117 (old Exit 13) of the Massachusetts Turnpike, the Golden Triangle is the home of Shoppers World, Natick Mall, and other destination retail properties, as well as hotels, offices, and some multifamily development.

- The two host municipalities jointly undertook the *Golden Triangle Planning Study*, published in 2018. The study was motivated by the transportation challenges associated with existing development, as well as the recognition that many large-scale malls in the US are losing retail business and repositioning themselves as mixed-use development opportunities.<sup>a</sup>

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<sup>a</sup> <https://www.framinghamma.gov/DocumentCenter/View/33226/Full-Report-542-MB?bidId=>

- There are 10.3 million square feet of existing development in the Golden Triangle. Under existing zoning, effectively no net new growth would be possible (50,000 square feet). However, under a set of zoning changes proposed by the study team, **five million square feet** of net new growth would be allowed.
- The study analyzed two growth scenarios that were more conservative—10% and 20% (i.e., approximately one million and two million square feet of net new growth), respectively. These scenarios assume that retail will decline, mixed-use development will prevail, and the current pattern of superblocks and extensive surface parking will be transformed over time. In the 20% growth scenario, there would be about 1700 new residential units.

# METROWEST: THE GOLDEN TRIANGLE

## *An Evolving Edge City (continued)*

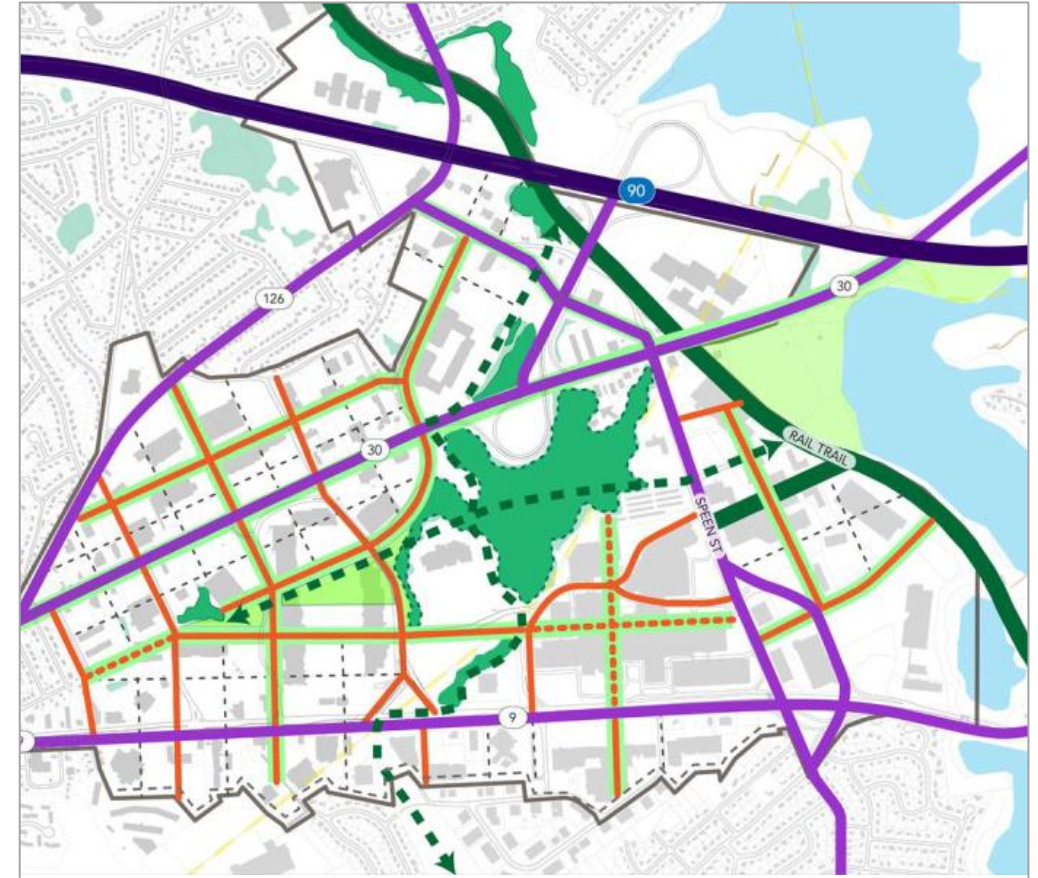
- In AECOM’s judgment, the evolution of the Golden Triangle into a denser, more vibrant “edge city” could be reinforced by its highway and rail connectivity to BPY and the larger Allston employment center. Express bus rapid transit (BRT) could connect the two sites via the Turnpike, generating far more ridership than the Logan Express does today from the same location. Such service could be “built in” to any Golden Triangle plan.
- So too could a direct last-mile connection to the rail line. A frequent shuttle will be needed to collect riders in the Golden Triangle and take them to West Natick Station, where zone express trains stop; such a service could use Speen Street and Route 135. ***An express trip from West Natick to West Station would take about 24 minutes.*** When completed, the Cochituate Rail Trail will provide a direct bicycle route between the Golden Triangle and Natick Center Station, for commuters seeking local service.

# METROWEST: THE GOLDEN TRIANGLE

Figure 6-8: Existing Golden Triangle



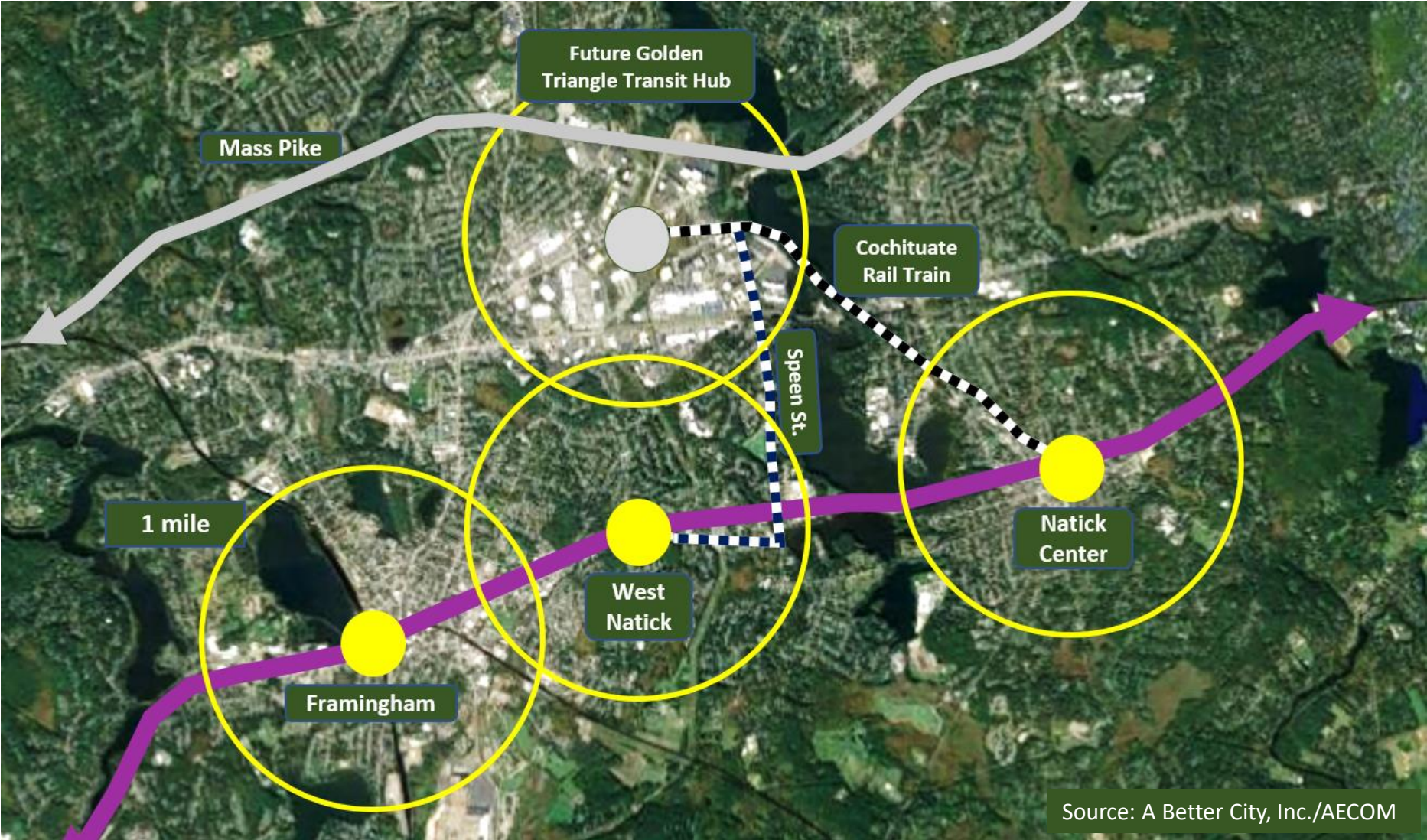
Figure 6-9: Illustrative Street Grid and Open Space



Source of both images: City of Framingham and Town of Natick, *Golden Triangle Planning Study (2018)*

# METROWEST: THE GOLDEN TRIANGLE

Figure 6-10: The Big Triangle—the Framingham-Natick Station Areas



# WELLESLEY & NEWTON

## *The Wellesley Stations*

- Wellesley has three stations: Wellesley Square and Wellesley Hills are located in mixed-use commercial districts. Wellesley College is within walking, cycling, and shuttle distance of Wellesley Square. Wellesley Farms serves a residential area with neighborhood park-and-ride.
- All three stations are to be modernized as part of the MBTA Third Track project, whose eastern terminus is Wellesley Farms.
- As of today, 21 daily round trips serve the three Wellesley Stations.<sup>a</sup>
- With West Station in place, the Wellesley stations would be approximately 20, 17, and 14 minutes, respectively, from BPY.

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<sup>a</sup> <https://www.mbta.com/schedules/CR-Worcester/timetable>

## *Wellesley TOD Potential*

- Wellesley's current Housing Production Plan was adopted in 2018. It identifies a need for about 400 net additional permanently affordable units, with some consensus to develop in the vicinity of Wellesley Square and Wellesley Hills Stations.<sup>b</sup>
- Wellesley initiated but ultimately rescinded a proposal to develop multifamily housing on the park-and-ride lots at Wellesley Square Station. However, the opportunity remains to redevelop these lots (roughly three acres of Town-owned property) in a transit-oriented fashion.

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<sup>b</sup> ([https://www.wellesleyma.gov/DocumentCenter/View/12079/Wellesley-HPP-FINAL\\_Approved-by-BOSPB92418](https://www.wellesleyma.gov/DocumentCenter/View/12079/Wellesley-HPP-FINAL_Approved-by-BOSPB92418))

# WELLESLEY & NEWTON

## *The Newton Villages*

Newton has three closely spaced stops: Auburndale, West Newton, and Newtonville. Located directly alongside the Turnpike, they generate limited ridership—in 2018 (pre-COVID), fewer than 1,000 daily inbound trips combined. The stations are uninviting, non-ADA compliant, and able to accommodate trains in only one direction at a time.

- All three stations will be modernized by the MBTA to become ADA-compliant, more accessible and attractive for all, and (with dual side platforms) able to serve trains in both directions simultaneously. This will allow increased service, including implementation of Rail Vision with trains to Boston every 15 minutes.<sup>a</sup>
- With West Station in place, Auburndale, West Newton, and Newtonville would be approximately 14, 11, and eight minutes, respectively, from BPY. If Grand Junction

service were implemented as well, the Newton villages would be less than a half-hour from Kendall—a trip that now takes 45-60 minutes, depending on time of day.

- Under Rail Vision, Riverside—the terminus of the Green Line D Branch—would also become the terminus of the 15-minute urban rail service to Boston. The [Riverside mixed-use TOD](#) project includes a garage of 2,135 parking spaces—1,000 reserved for MBTA use. Park-and-ride users from Newton and adjoining communities would gain a frequent, direct rail connection to Allston, as would bus routes and commuter shuttles serving Riverside.
- Newton Corner is not a rail stop, but it is served by frequent MBTA express bus service to Copley and downtown. When West Station is in place, it could become an additional express bus origin and destination for Newton Corner.

<sup>a</sup> <https://www.mbta.com/projects/newton-commuter-rail-stations-accessibility-improvements>



# WELLESLEY & NEWTON

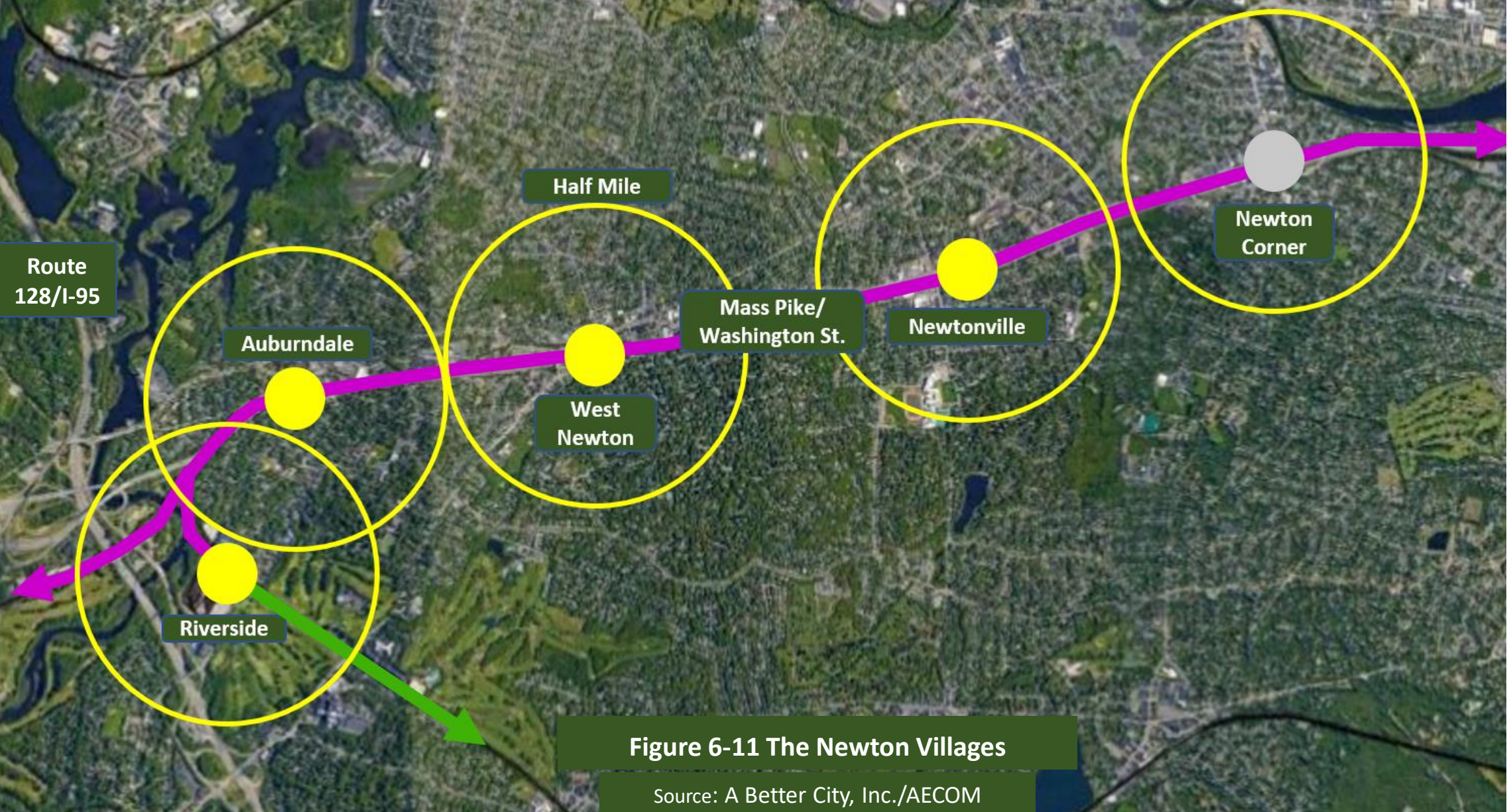


Figure 6-11 The Newton Villages

Source: A Better City, Inc./AECOM

# WELLESLEY & NEWTON

## *Newton TOD Potential*

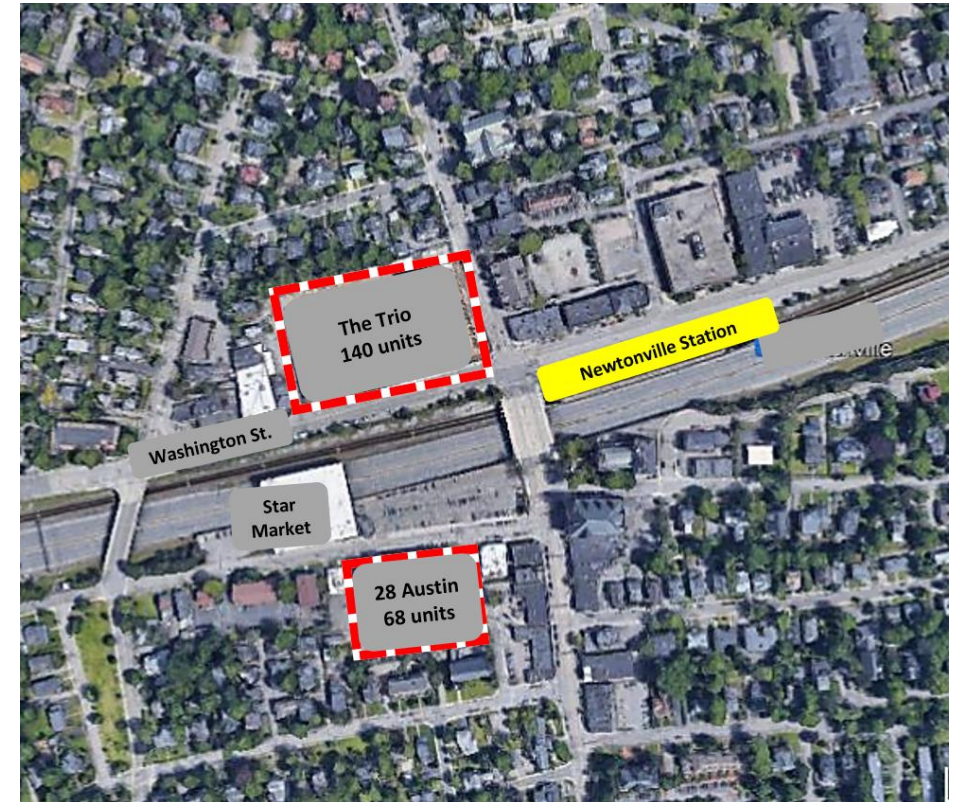
A frequent, direct rail connection to BPY would dovetail with Newton's strategy for the affected villages.

- A significant amount of multifamily housing has been proposed, and several projects undertaken, in the Newtonville and West Newton station areas. At Newtonville (as shown at the right), two built projects immediately adjacent to the station (28 Austin and The Trio) include 208 units as well as retail and restaurants.<sup>a</sup>
- A 302-unit project, Dunstan East, has been approved and will be located a short walk from West Newton Station.<sup>b</sup>

<sup>a</sup> <https://www.newtonma.gov/government/planning/development-review/high-interest-projects/austin-street>; <https://www.newtonma.gov/government/planning/development-review/high-interest-projects/washington-place-washington-st-walnut-st>

<sup>b</sup> <https://www.newtonma.gov/home/showpublisheddocument/68190/637539113940130000>

Figure 6-12: Newtonville Multifamily Development



Source: A Better City, Inc./AECOM

# WELLESLEY & NEWTON

## *Newton TOD Potential (continued)*

- These developments are representative of a broader strategy for this corridor. In 2019, the City adopted the ***Washington Street Vision Plan*** as an amendment to the City's Comprehensive Plan. The plan covers the corridor from Newton Corner to West Newton, with particular emphasis on the Newtonville and West Newton station areas. Key goals include bustling village centers, an enhanced business climate, housing diversity (multifamily housing serving a range of incomes), R&D lab or office space in each village, and placemaking. Greater height (three to six stories) is envisioned in the immediate station vicinities and along Washington Street generally. All of these outcomes are linked to multimodal transportation, including MBTA implementation of Rail Vision.<sup>a</sup>
- In 2021, the City approved a major joint development project at the MBTA's Riverside Station. It will replace the surface parking lots with 370,000 square feet of R&D office/laboratory space, 550 residential units, and 22,000 square feet of retail, as well as the shared-use garage described previously.<sup>b</sup>

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<sup>a</sup> <https://www.newtonma.gov/home/showpublisheddocument/41574/637417539659000000>

<sup>b</sup> <https://www.newtonma.gov/home/showpublisheddocument/66900/637508980640670000>

# CONCLUSION



The I-90 Allston Multimodal Project will preserve and modernize an essential regional and national highway asset. By introducing a new multimodal hub, West Station, it will enhance transit access and connectivity to the surrounding neighborhoods, underserved sections of Boston, and the larger region west of the city. In the process, it will unlock a mixed-use, transit-oriented development opportunity of regional significance and scale at an exceptionally strategic location—Beacon Park Yard. This report makes several key findings:

- Development directly enabled by the Project—on the BPY land it will uncover and make accessible—will generate high levels of construction period employment, permanent employment, regional earnings and GDP, and public revenues.
- With West Station at the center of existing and future development, BPY and the Allston neighborhood—an Environmental Justice community—will become significantly more transit-accessible. This enhanced accessibility will be bi-directional—for local residents

traveling out-bound to jobs or services in other parts of the region, and to workers from other communities commuting in-bound to Allston. Jobs in Allston will be highly accessible to other EJ communities, transit-oriented downtowns, and Gateway Cities.

- Future development at BPY at the scale envisioned by the Metropolitan Area Planning Council is supported by market precedent and by the underlying strength of Boston’s central core.
- One anticipated driver of the development opportunity is the life sciences sector, a key to metro Boston’s regional competitive position and to the global competitive position of the US.
- By creating a regional hub of innovation, commerce, and employment with direct rail access on the Framingham-Worcester Line, the Project will contribute to economic development and smart growth in the 35-mile rail corridor extending westward from Allston to Newton, MetroWest, and Worcester.



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