

# Boston's Economy 2022



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# Contents

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The Effect of the COVID-19 Pandemic on Boston's Economy in 2021 . . . . . 4

Employment . . . . . 8

Commuting Patterns . . . . . 18

In-person Consumer Spending . . . . . 20

Travel & Hospitality Industry . . . . . 22

Real Estate Market . . . . . 26

Life Science Industry . . . . . 34

Residential Market . . . . . 38

Conclusion . . . . . 41

Appendix 1:  
Boston Payroll and Non-payroll Employment Estimates by Industry 2019-2020. . . . . 42

Appendix 2:  
Methodology for Estimating Payroll Employment in Boston by Industry for  
the Second Half of 2021 and 2019-2021 Payroll Employment by Industry . . . . . 43

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# The Effect of the COVID-19 Pandemic on Boston's Economy in 2021

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The COVID-19 pandemic and resulting business closures caused a sudden unprecedented spike in unemployment in Boston as in much of the country. Boston's unemployment rate peaked in June 2020 at 16.1 percent, a dramatic increase compared to 2.6 percent unemployment in March 2020.<sup>1</sup> Boston's unemployment rate fell back to 3.3 percent by December 2021.

The unemployment rate does not fully capture the employment impact of the pandemic. The City's resident labor force fell by approximately 12 percent in April 2020 as people stayed at home and did not seek work. However, the resident labor force has subsequently returned to its pre-pandemic levels, with some workers finding employment and others beginning to seek work.

The industries with the largest share of Boston residents continuing to claim unemployment benefits in October 2020 were the industries broadly categorized as in-person and support services - restaurants, hotels, retail stores, entertainment venues and cultural institutions, personal services such as hair salons, and support services such as janitorial work.<sup>2</sup> These industries were hard hit on several levels. They generally require in-person work, often in close physical proximity or with large groups of people. As such, they were initially closed by government mandate

and continue to be limited by customer health concerns.

Additionally, in-person and support service jobs in Boston rely on commuters and visitors whose numbers declined due to the pandemic. Cell phone data suggest that the number of commuters to Boston fell by about half during the pandemic.<sup>3</sup> Office space utilization in Boston has been low, below 20 percent for Downtown office towers throughout 2021.<sup>4</sup> Low office occupancy and longer-term office vacancies have hurt these support businesses such as restaurants, coffee shops, convenience stores, and pharmacies. Boston's office vacancy rate rose from around 6 percent in 2019 to 11 percent by the end of 2021.<sup>5</sup>

The COVID-19 pandemic has taken a toll on the travel and tourism industry. While air travel has been increasing since the near shutdown in spring 2020, the number of passengers at Logan International Airport in December 2021 was still 29 percent below that of December 2019.<sup>6</sup> Hotel occupancy fell to 5 percent in April 2020 but had recovered to a peak of 72.1 percent in October 2021 before falling with the onset of winter and the Omicron wave.<sup>7</sup> Seated restaurant dining was at half of January 2019 levels in the first week of January 2022.<sup>8</sup>

Industries that depend on in-person activity and the presence of commuters and visitors to Boston will likely continue to operate at a reduced level until the virus can be brought under control. However, the strength of the city's economy in healthcare and biomedical research may again prove an asset in the coming recovery. Hospitals, universities and private researchers in Boston have received more National Institutes of Health (NIH) funding than any other city in the country for 24 of the past 27 years,

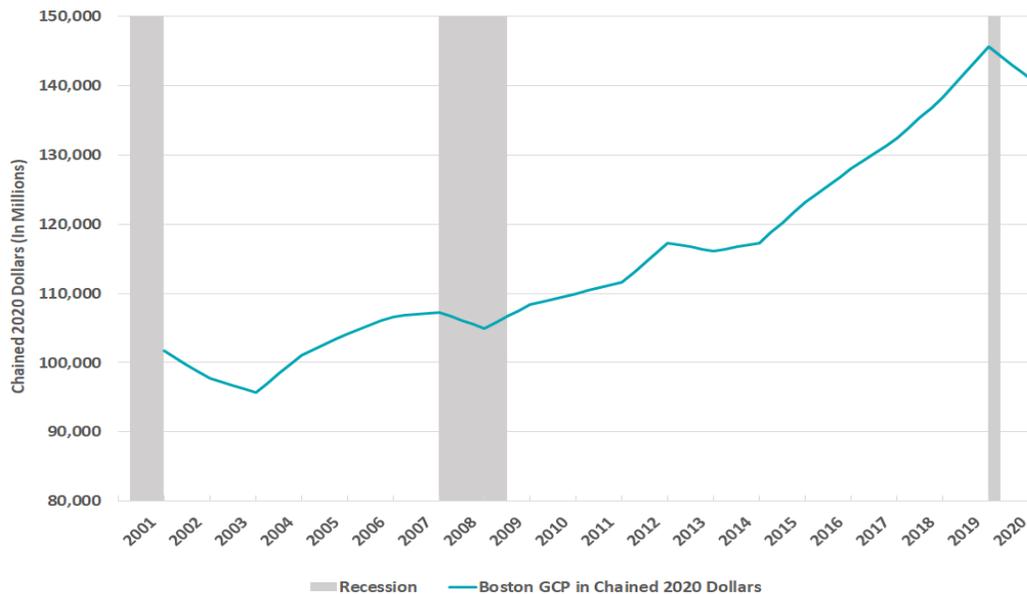
and medical research is expected to be crucial over the coming years as the world grapples with the pandemic. Even as vacancy and subleasing in the office market rise, demand for laboratory space continues to be strong, fueling development interest in several of the City's neighborhoods. Ultimately, controlling the virus remains the single most important step to returning to the strong economy that Boston experienced in the decade prior to the arrival of COVID-19.

### Boston's Gross City Product (GCP)

Boston's economy was experiencing robust growth leading up to the COVID-19 pandemic in March 2020. In 2019, Boston gross city product (GCP) reached \$145.6 billion (in 2020 chained dollars), a 5.3 percent increase from the previous year. In 2020, as many businesses in the city

closed or reduced operations during the COVID-19 pandemic, Boston GCP dropped by 3.5 percent to \$140.6 billion, still remaining higher than 2018's \$132.4 billion. Figure 1 summarizes Boston's annual GCP from 2001 to 2020, in 2020 chained dollars.

**FIGURE 1** Boston Annual GCP 2001-2020 (Millions of 2020 Chained Dollars)



Source: U.S. Bureau of Economic Analysis (BEA), and Massachusetts Executive Office of Labor and Workforce Development, (EOL-WD), BPDA Research Division Analysis.  
 Note: Gray bars represent recessions

The city's 2021 GCP has not been published, but strong measured growth at the federal and state levels suggests a promising economic recovery for Boston in 2021. The US economy grew at 5.7 percent in 2021, and quarterly data suggest both

US and Massachusetts GDP returned to pre-pandemic levels (2019Q4) in 2021Q2. Figure 2 summarizes Boston and Massachusetts GDP annual growth rates from 2001 to 2020, as well as US and Massachusetts GDP growth through 2021.

**FIGURE 2**  
**GDP Growth Rate & Recessions**



Source: U.S. BEA, Massachusetts EOLWD, BPDA Research Division Analysis.  
Note: Boston GCP data for 2021 were not yet available at the time of publication.

Boston's economic performance leading up to the pandemic consistently outpaced growth at the federal and state levels. After a short contraction in 2013, Boston's compound annual growth rate was 3.9 percent from 2013 to 2019, outperforming the state's 2.6 percent. The strong performance pushed Boston's share of the state's economy up from 22.3 percent in 2013 to 24.1 percent in 2019. During this economic boom, Boston saw steady

growth of its key industries, such as Finance and Insurance, Healthcare and Social Assistance, and Educational Services. The city also benefited from rapidly expanding industries such as information and professional, scientific, and technical services. This growth in Boston's export base supported growth in in-person services, such as retail trade, accommodation and food services, which grew in proportion to the overall size of Boston's economy.

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The COVID-19 pandemic caused unprecedented declines in in-person services sectors, with real GCP in accommodation and food services; arts, entertainment and recreation; and transportation and warehousing falling more than 40 percent between 2019 and 2020. Even amidst this economic turmoil, real GCP in some of the city's core sectors

such as information; professional, scientific, and technical services; and finance and insurance increased modestly. While sectoral GCP data are not yet available for Boston for 2021, employment data covered in the following section point towards recovery in the hardest hit sectors, though not yet reaching pre-pandemic levels.

### **Inflation**

From 2010 to 2020, prices rose at an annual average rate of 1.8 percent in Metropolitan Boston based on the BLS Consumer Price Index (CPI), while the national index grew at a 1.2 percent annual rate. During 2021, strong consumer demand, particularly for goods, combined with pandemic-induced disruptions in the supply chain put upward pressure on prices. The CPI averaged over the year rose by 3.3 percent in

the Metropolitan Boston area and 4.7 percent nationally. These annual rates average together show comparatively slow price growth through the early part of 2021 with accelerating prices nearing the year's end. The national CPI rose 7.1 percent between December 2020 and December 2021, and inflation continued to accelerate in the beginning of 2022.

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# Employment

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## Unemployment Rate

The unemployment rate is the most commonly used barometer for the state of the labor market. The unemployment rate is derived from the federal Current Population Survey and measures the share of those in the labor force from the prior week who were unemployed. Unemployment, in this case, means not having a job, being available to work, and either being on temporary layoff from an employer or having actively searched for work in the past four weeks. The labor force includes both these unemployed workers, and those who are employed. A third group, those who do not have a job but who are not on temporary layoff and have not been actively looking, are counted as “not in the labor force” and omitted from the calculation entirely.

According to the Massachusetts Executive Office of Labor and Workforce Development, Boston’s average unemployment rate for 2019 was 2.6 percent, 1.1 percentage points lower than the national unemployment rate. With the onset of the global COVID-19 pandemic, unemployment spiked in the spring of 2020, reaching 16.1 percent in June 2020. The surge in unemployment rate during 2020 was unprecedented in recent history in both size and speed. The national monthly

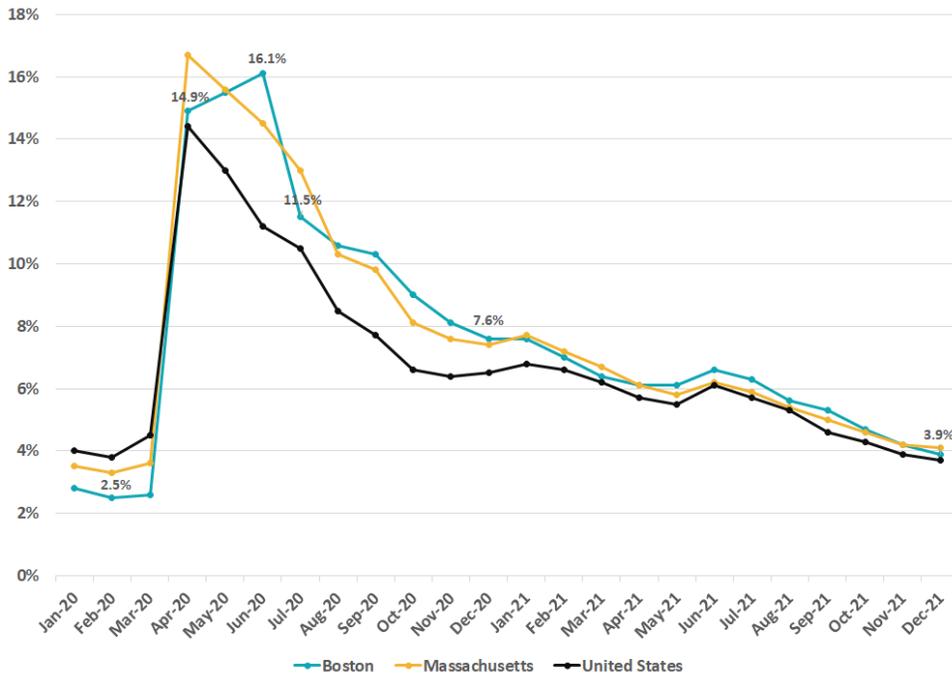
unemployment rate for April 2020 was the highest in the post-WWII period. The June rate for Boston was higher than any monthly or annual rate in our records, which include monthly data available back to 1990 and annual data back to 1969.

This recession has also seen an unusually fast recovery of the unemployment rate, particularly compared to the sluggish employment recovery from the Great Recession of 2008 and 2009. Boston’s unemployment rate fell to 7.6 percent by December of 2020, and reached 3.9 percent by December 2021. Figure 3 below shows the path of the unemployment rate in Boston, Massachusetts and the U.S. throughout 2020 and 2021. These rates are not seasonally adjusted to be comparable across geographies, as seasonally adjusted unemployment rates are not available at the municipality level.

We typically report the change in the annual average unemployment rate for Boston, which between 2020 and 2021 fell from 9.2 percent to 5.8 percent. Because of the timing of the recession and the large fluctuations throughout 2020 this measure somewhat understates the pace of the recovery.

FIGURE 3

### Unemployment Rates for Boston, Massachusetts, and the United States, 2020-2021



Source: Massachusetts EOLWD, BPDA Research Division Analysis.  
Note: Rates are not seasonally adjusted so as to be comparable across geographies

Increases in unemployment during the pandemic caused economic distress. Supplemental Nutrition Assistance Program (SNAP) recipients in Boston increased by 17.7 percent from January to December 2020, compared to a 1.8 percent decrease from

January to December of 2019.<sup>9</sup> From January through October 2021, the number of SNAP recipients in Boston increased an additional 6.2 percent, reaching 135,074, approximately 20 percent of Boston’s population.

#### Boston’s Resident Labor Force

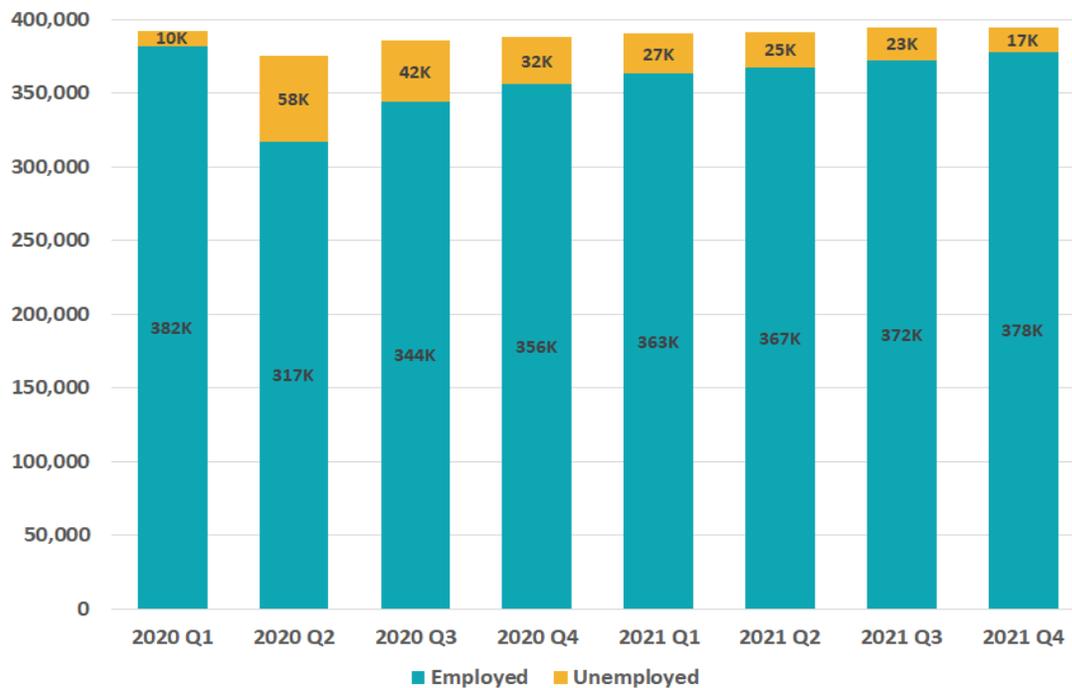
The labor market impact of the pandemic was not limited to the spike in unemployment. During the second quarter of 2020, with COVID raging and much of the economy shut down, the number of employed Boston residents was down by 65,014, but the number of unemployed residents rose by only 48,034. This fall in the size of the labor force

between Q1 and Q2 is visible in Figure 4, which depicts employment (in blue), unemployment (in orange) and the size of the labor force (the sum of the two). Boston’s labor force remained below its pre-pandemic level until the third quarter of 2021.

Many forces have pushed down labor force participation since the onset of the pandemic, and may continue to do so, despite the aggregate local labor force being back at its pre-pandemic level. Parents and other caregivers may have been unable to balance work with increased care responsibilities brought on by the pandemic and shutdowns in in-person childcare and schooling. Those with in-person jobs whose health or safety could have been compromised by returning to work may have chosen to take time away from

work. Those nearing retirement may have stepped away from work earlier than otherwise planned. As case counts and the availability of support services have fluctuated, the importance of these factors for each individual has varied. The growing overall labor force reflects both a return to labor force participation among some of those who had left over the prior year, as well as some new labor market entrants who may be just moving to the area or just finding their first job.

**FIGURE 4** **Employed and Unemployed Boston Residents, 2020-2021**



Source: Massachusetts EOLWD, BPDA Research Division Analysis.

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### **Employment Located in Boston**

Employment within the city of Boston fell dramatically at the onset of the pandemic, and recovery from this unprecedented labor market disruption continued through the end of 2021. BPDA Research typically reports the annual average of total jobs within the city of Boston. This more expansive definition covers workers on company payrolls of Boston establishments, as well as self-employed workers residing within the city. Because employment levels experienced substantial month-to-month movement throughout 2020 and 2021, we focus this year primarily on payroll employment data, which is available at monthly frequencies and with a shorter time lag. Our estimates for 2019 and 2020 annual average total jobs, and for 2019, 2020 and 2021 payroll employment can be viewed in Appendix 1 and Appendix 2 to this report.

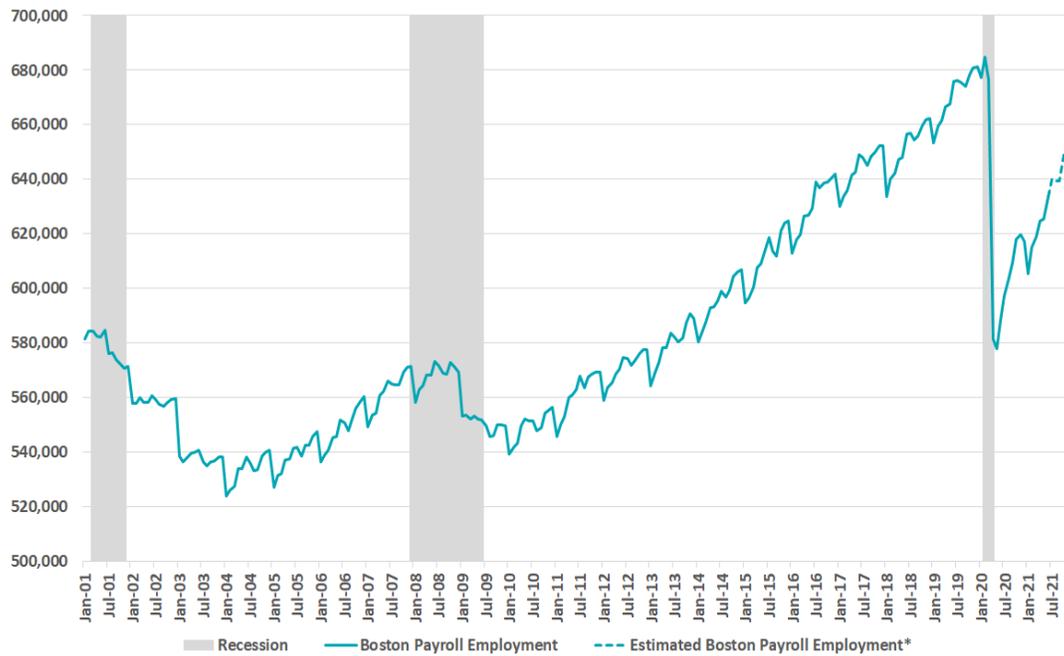
The Massachusetts Executive Office of Labor and Workforce Development (EOLWD) publishes quarterly and annual payroll employment by industry located in the city of Boston through the Quarterly Census of Employment and Wages (QCEW) or ES-202. These data are reported

with some lag, and are available up through the second quarter of 2021 as of the publication of this report. To estimate payroll employment by industry in Boston for the second half of 2021, BPDA Research uses the more timely Current Employment Statistics program (CES), also reported by EOLWD. CES runs monthly employer surveys to publish employment estimates by industry with less than one month lag. Unfortunately, the smallest geographic areas are metropolitan areas and divisions. We use 2021 monthly CES Metropolitan New England City and Town Area Division (NECTA Division) employment in combination with historical CES and ES-202 employment to estimate Boston City employment in the second half of 2021. See Appendix 2 for further description of the job calculation methodology.

Figure 5 depicts the payroll employment in Boston over the course of the twenty-first century. The onset of the pandemic in early 2020 saw Boston payroll employment fall by more than 100,000 jobs between February and April, a drop of just over 15 percent.

FIGURE 5

**Total Payroll Employment in Boston, 2001 to 2021**



Source: Massachusetts EOLWD, BPDA Research Division Analysis. Data for July 2021 through December 2021 are estimated by the BPDA Research Division using CES-790 data for the Boston-Cambridge-Newton NECTA Division.

**Jobs by Industry**

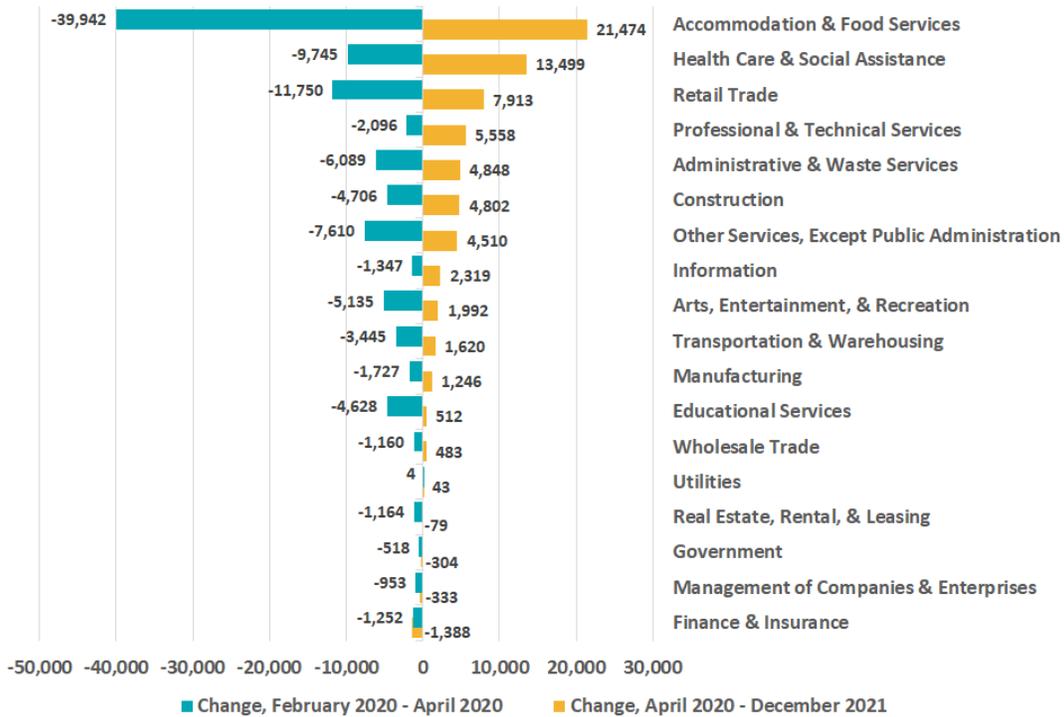
The employment crisis brought on by COVID-19 was concentrated in in-person service industries, which in many cases were shut down at the outset of the pandemic and where demand returned slowly even after restrictions had been lifted. The sectors with the largest absolute job losses in Boston between February and April of 2020 were Accommodation and Food Services (-39,942), Retail Trade (-11,750), and Health Care and Social Assistance (-9,745) where hospital

employment remained strong, but employment in places like dentist’s offices, physical therapy offices, and child care centers fell. Other Services, Administrative and Waste Services, and Arts, Entertainment and Recreation also lost more than 5,000 jobs each. Figure 6 compares the job change between February and April of 2020 to the jobs gained between April 2020 and December 2021 across sectors in Boston.

Some of these same service sectors have also seen the largest subsequent job gains from April 2020 through December 2021, though in most cases not enough to make up for the jobs lost. Accommodation and Food Services has added 21,474 jobs, just over half of the jobs lost between February and April. Employment in that sector remains down 30.4 percent, as can be seen in Figure 6. Retail Trade recovered 7,913 jobs, two thirds of its initial loss, and remains down 10.5 percent.

Recovery in Health Care and Social Assistance has been more complete, with 13,499 jobs added between April 2020 and December 2021, enough to raise employment 2.6 percent above its February 2020 level. Professional and Technical Services, up 5,558 jobs April 2020 to December 2021, and Information, up 2,319 jobs over that period, also saw gains that more than erased their early 2020 losses.

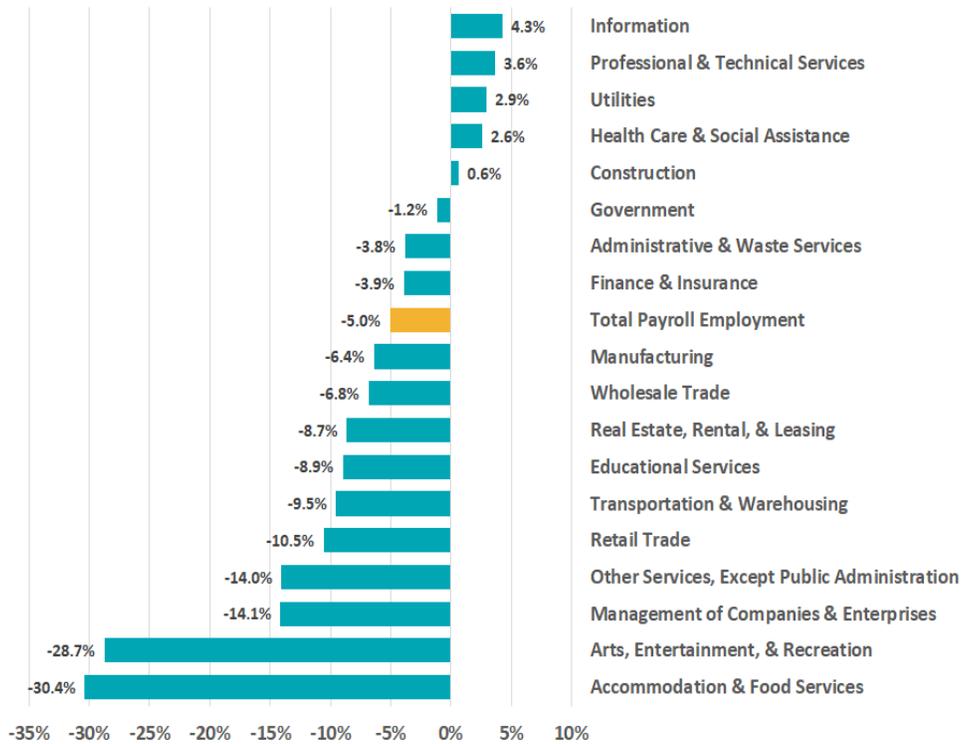
**FIGURE 6** Change in Payroll Employment, Crisis and Recovery



Source: Massachusetts EOLWD, BPDA Research Division Analysis.

FIGURE 7

Percentage Employment Change by Industry February 2020 through December 2021



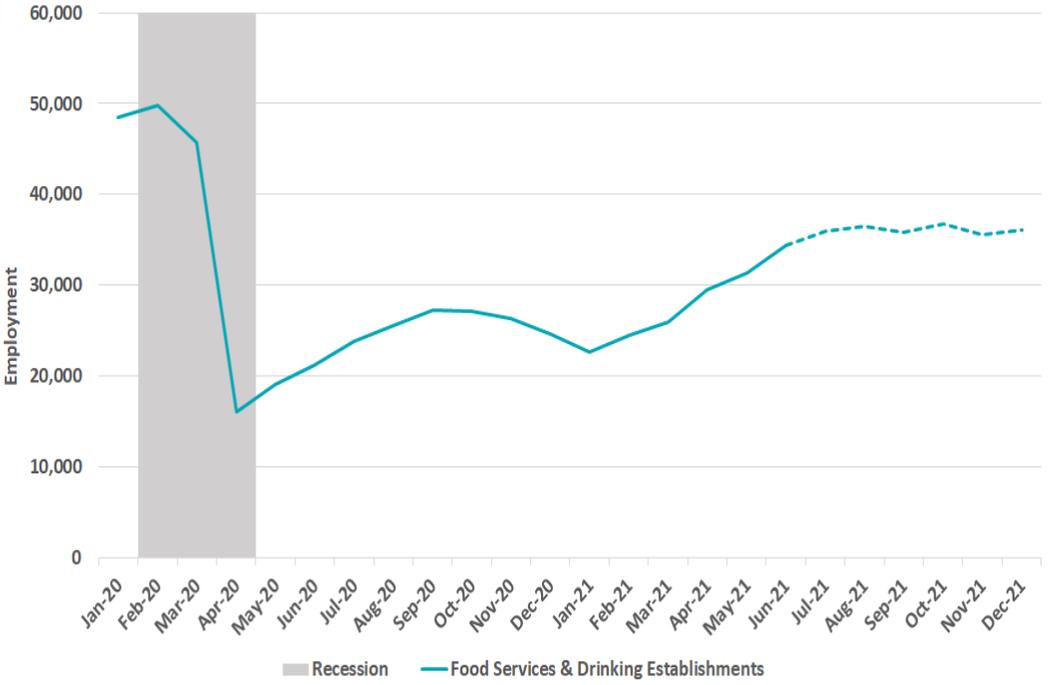
Source: Massachusetts EOLWD, BPDA Research Division Analysis

Figures 8 through 10 show the monthly path of the employment recovery in some of the sectors and subsectors of Boston’s economy that were hit hardest in the early months of the pandemic. Food Services and Drinking Places, a subsector of Accommodation and Food Services, is depicted by itself in Figure 8. Due both to the size of the industry and the severity of the pandemic’s impact on it, employment trends in this subsector have tracked well the ebbs and flows of overall employment growth in the city over the past two years. Food Services and Drinking Places

lost 33,720 jobs between February and April of 2020, two thirds of employment in the industry. The initial wave of reopening in the summer of 2020 brought back 11,171 jobs, just over a third of those lost, by September 2020, but growth stalled and then reversed amidst winter weather and resurgent COVID-19 case counts. Employment again ramped up as weather improved and vaccines became available in the first half of 2021. There were 11,791 jobs added between January and June of 2021, and those gains were retained through the end of the year.

FIGURE 8

### Monthly Payroll Employment in Selected Industries (1), 2020-2021



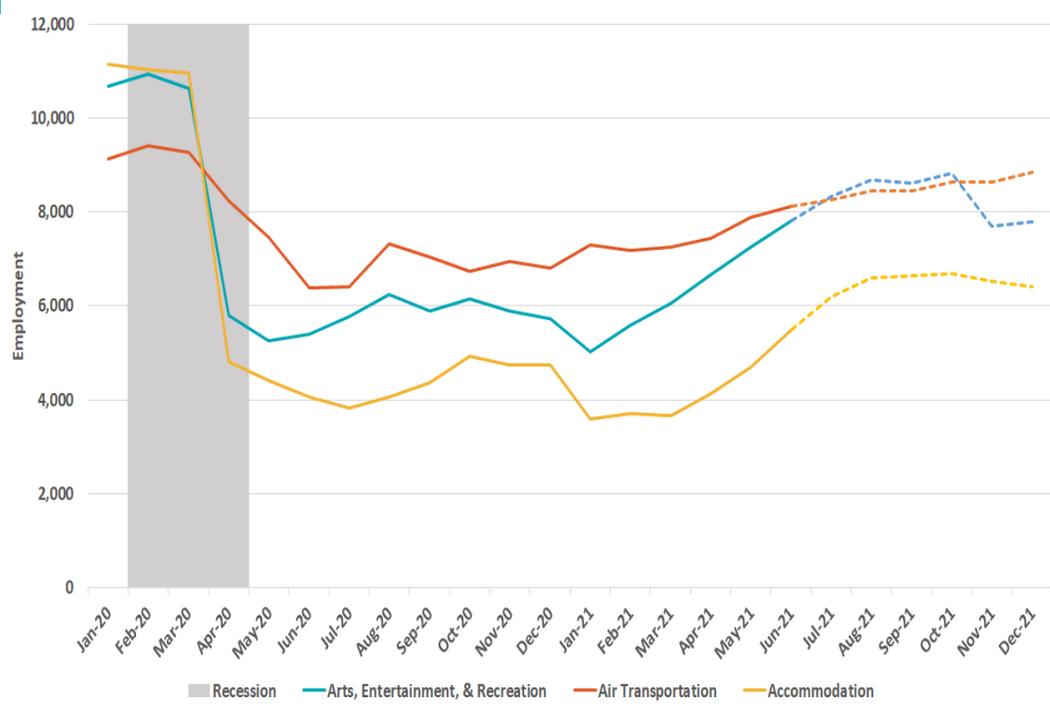
Source: Massachusetts EOLWD, BPDA Research Division Analysis.  
Note: Dashed line denotes estimated employment

Other sectors and subsectors that experienced severe pandemic impacts include Arts, Entertainment and Recreation, Air Transportation, and Accommodation, all shown in Figure 9. These three industries rely heavily on visitors to Boston, whose numbers decreased sharply at the outset of the pandemic and have not yet fully recovered. Of the three, Air Transportation employment has seen the most recovery, down only 6 percent from pre-pandemic levels as of December 2021. Employment in Accommodation, which fell 65

percent between February and July of 2020, remains down 42 percent as of December 2021. As we cover later in this report, hotel occupancy rates remain below pre-pandemic levels, though the size of the remaining employment gap by the end of 2021 was larger than might have been expected from the change in room occupancy alone. Whether a return to pre-COVID occupancy levels would bring Accommodation employment back to 100 percent of prior levels remains uncertain.

FIGURE 9

Monthly Payroll Employment in Selected Industries (2), 2020-2021



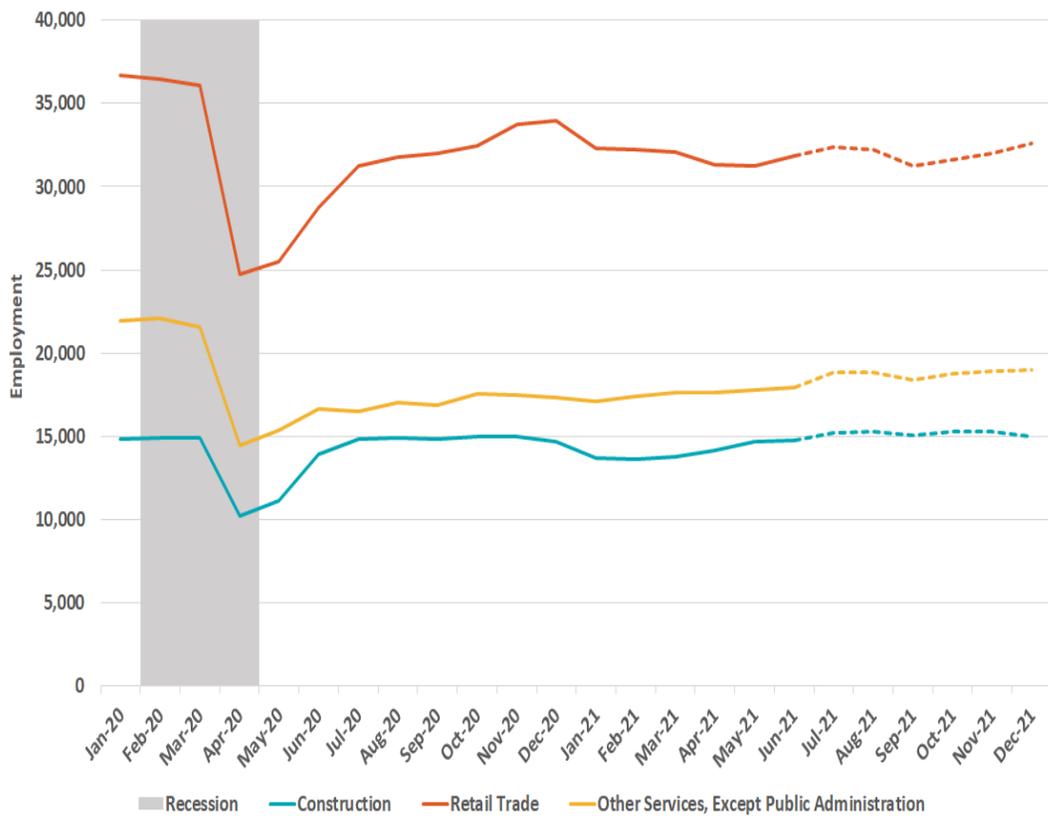
Source: Massachusetts EOLWD, BPDA Research Division Analysis.  
 Note: Dashed line denotes estimated employment

Some of the other sectors hit hard in the early months of the pandemic have seen little change in employment since the end of the first phase of the recovery. Employment in retail fell by a third between the first two months of COVID-19, but had recovered enough to be down only 12 percent by September of 2020. Since that point there has been little movement, and employment in the sector remained down 10.5 percent in December 2021, even at the height of Holiday shopping season. Employment in Other Services, which includes Personal Care and Laundry Services,

Repair and Maintenance, and Membership Organizations, also fell by a third at the outset of the pandemic and remains down 14 percent, with most of that recovery occurring by the fall of 2020. Construction also began to recover within the first few months of the pandemic, but unlike the other sectors, construction has recovered almost completely. Construction employment in December 2021 slightly exceeded employment in February 2020, though still lags behind December 2019 by 600 jobs.

FIGURE 10

### Monthly Payroll Employment in Selected Industries (2), 2020-2021



Source: Massachusetts EOLWD, BPDA Research Division Analysis.  
Note: Dashed line denotes estimated employment

## Commuting Patterns

Cell phone data suggest that the number of commuting trips to Boston fell by about half during the pandemic.<sup>10</sup> Holiday weeks show larger variation in the number of commuting trips to

Boston, but overall the number of commuting trips to Boston has remained less than half of 2019 levels throughout the pandemic.

**FIGURE 11** Percentage Change in the Number of Commuters Coming to Boston, Compared to the Same Week in 2019



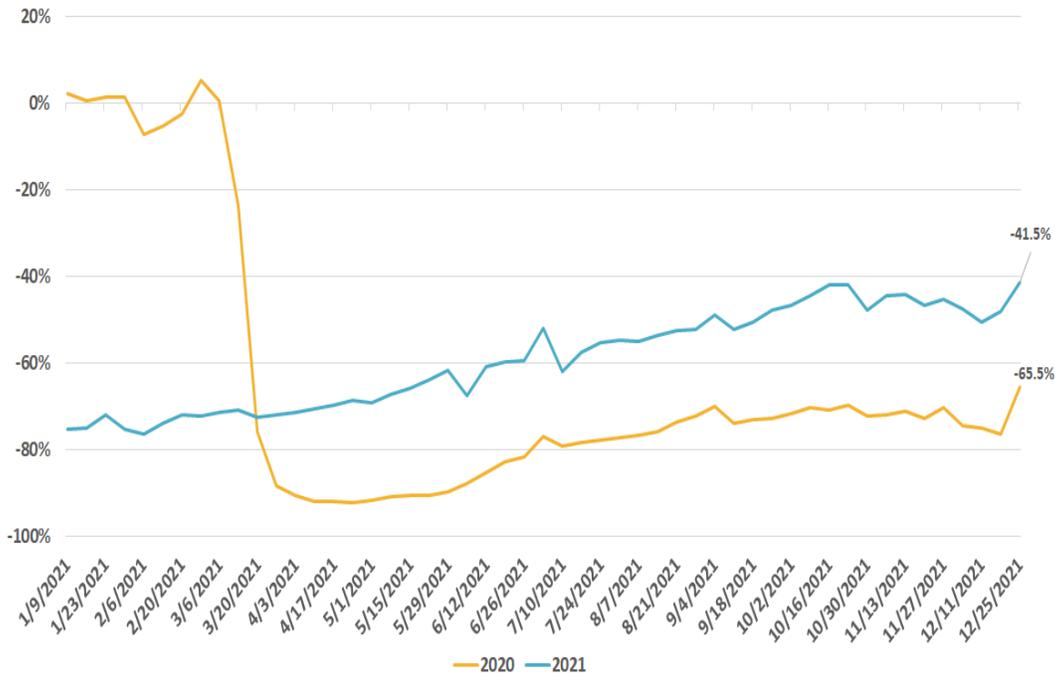
Source: Cuebiq mobility data. Cuebiq collects first-party data from anonymized users who have opted-in to provide access to their location data anonymously, through a GDPR-compliant framework. To preserve privacy home and work locations are aggregated to the census-block-group level.

MBTA ridership has reflected the disruptions of the pandemic, including the reduced number of commuters. MBTA ridership fell dramatically with the onset of the pandemic in the spring of 2020.

While ridership has slowly recovered, ticket validations at gated stations in Boston remained 41.5 percent below 2019 levels as of December 2021.<sup>11</sup>

FIGURE 12

### 2020 and 2021 Weekly Validations at MBTA Gated Stations in Boston Compared to the Corresponding Week in 2019



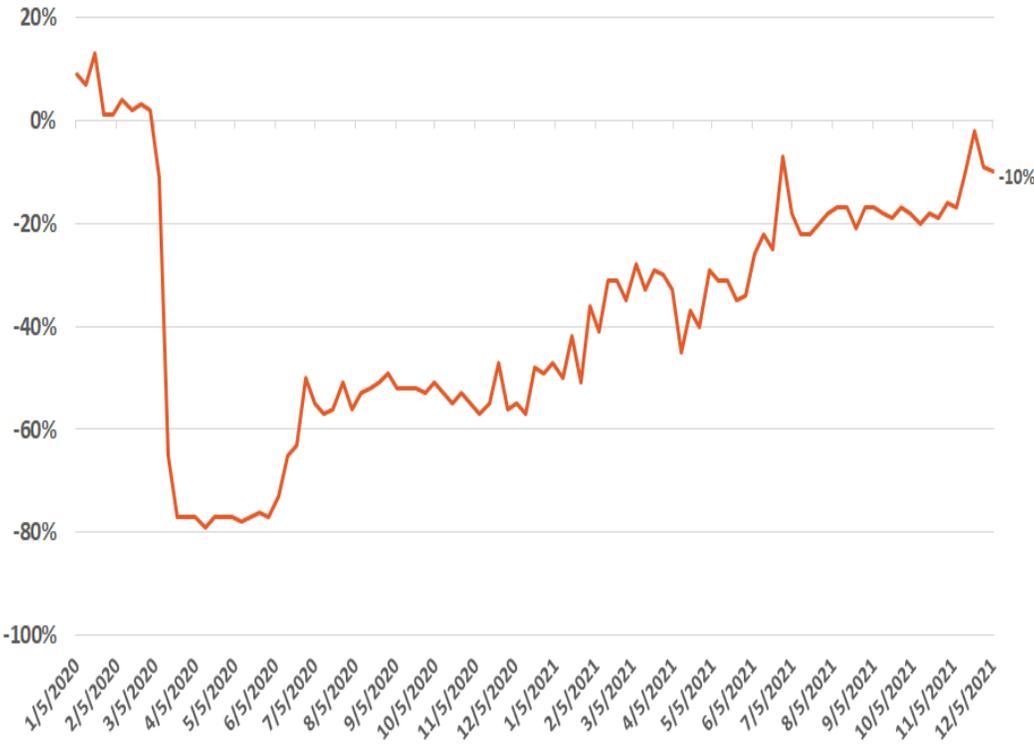
Source: MBTA Datablog; Covid-19 and MBTA Ridership, BPDA Research Division Analysis.

# In-person Consumer Spending

In-person consumer spending in Boston fell dramatically with the initial pandemic shutdowns, but has been increasing steadily since June 2020. At the beginning of 2021, in-person consumer

spending was approximately 40 percent below 2019 levels, but by the end of 2021 it had risen to approximately 10 percent below 2019 levels.

**FIGURE 13** Percentage Change in Overall In-Person Consumer Spending in Boston Compared to Average Level in Same Week in 2019



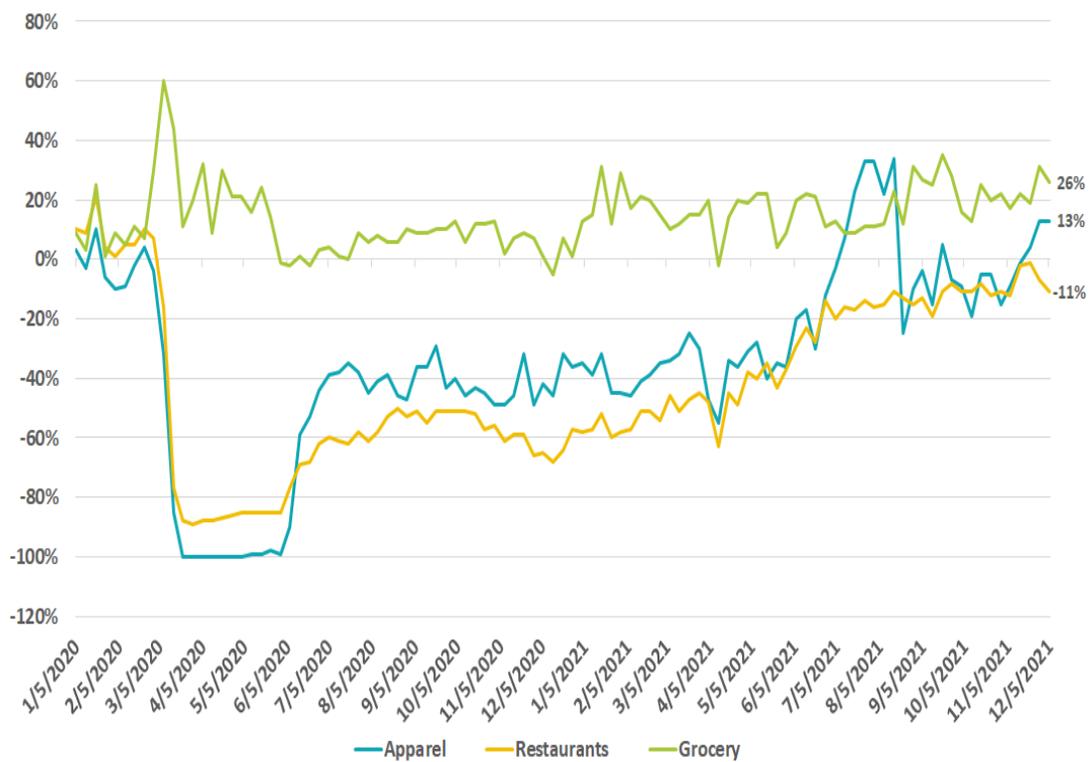
Source: Mastercard Geographic Insights from January 1st, 2019 to December 26th, 2021

Spending at grocery stores has remained elevated throughout the pandemic as consumers ate at home more often. In-person apparel spending dropped to zero in the initial shutdown but has been steadily increasing, reaching close to 2019

levels in the fall of 2021. Restaurant spending also fell precipitously in the spring of 2020, but had recovered to about 10 percent below 2019 levels in the fall of 2021.

FIGURE 14

**Percentage Change in Boston In-Person Consumer Spending by Sector Compared to Average Level in Same Week in 2019**



Source: Mastercard Geographic Insights from January 1st, 2019 to December 26th, 2021

When evaluating the consumer spending graphs above, taking account of inflation means the buying power of a dollar of consumer spending

in December 2021 was 8.5 percent lower than in December 2019.

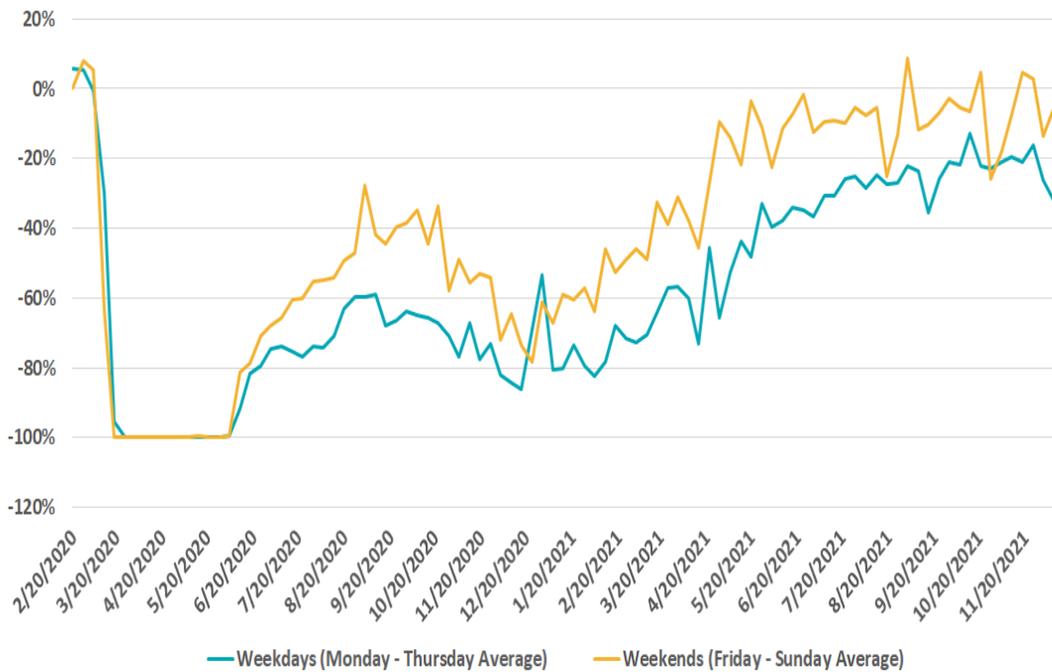
# Travel & Hospitality Industry

Seated dining on weekends (Friday through Sunday) had almost recovered to 2019 levels in the fall of 2021 before dipping at the end of the

year. With reduced commuter flows, weekday seated dining has recovered more slowly, reaching 80 percent of 2019 levels in the fall of 2021.

FIGURE 15

**Percent Change in Seated Diners compared to Same Week in 2019**



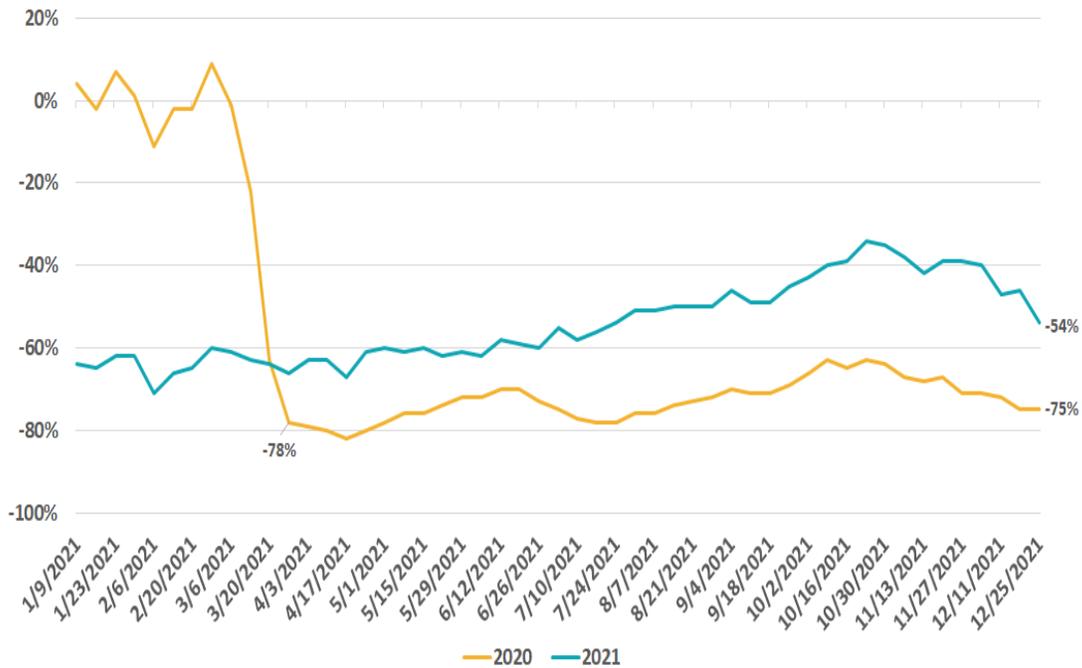
Source: OpenTable, compared to the same day of the week of same week in 2019

### Visitors to Boston

With the COVID-19 crisis, visits to Boston declined dramatically in the spring of 2020 and have been slowly returning. Domestic visits to Boston recovered to 66 percent of October 2019 levels in

October 2021 before falling back to 46 percent of 2019 levels at the end of December 2021 as the Omicron wave hit the city.

**FIGURE 16** Percentage Change in the Number of Visitors Coming to Boston, Compared to the Average Level in the Same Week in 2019



Source: Cuebiq mobility data. Cuebiq collects first-party data from anonymized users who have opted-in to provide access to their location data anonymously, through a GDPR-compliant framework. To preserve privacy home and work locations are aggregated to the census-block-group level.

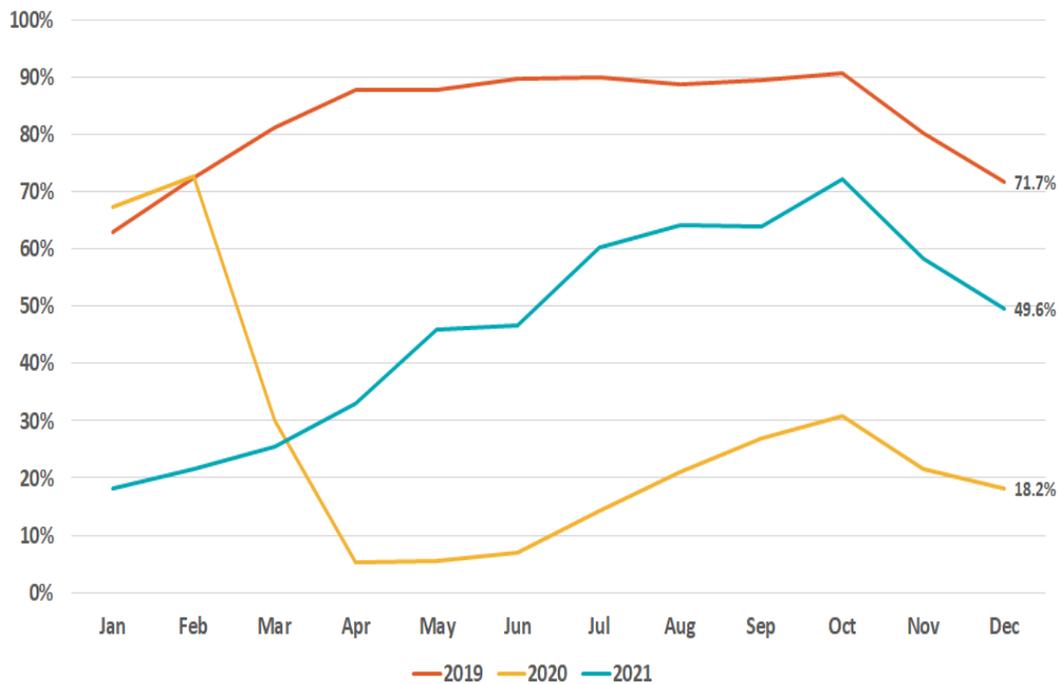
## Hotel Occupancy

Hotel occupancy in Boston typically peaks in October. The average occupancy rate of hotels in Boston was 90.7 percent in October 2019, according to the Pinnacle Perspective Monthly Report. Boston hotels were closed to general

public accommodation from late March to early June 2020 due to the COVID-19 pandemic. Hotel occupancy has since recovered somewhat, reaching 30.8 percent in October 2020 and rising to 72.1 percent in October 2021.

FIGURE 17

**Boston Hotel Occupancy Rate by Month, 2019-2021**



Source: Pinnacle Perspective Boston Monthly Report

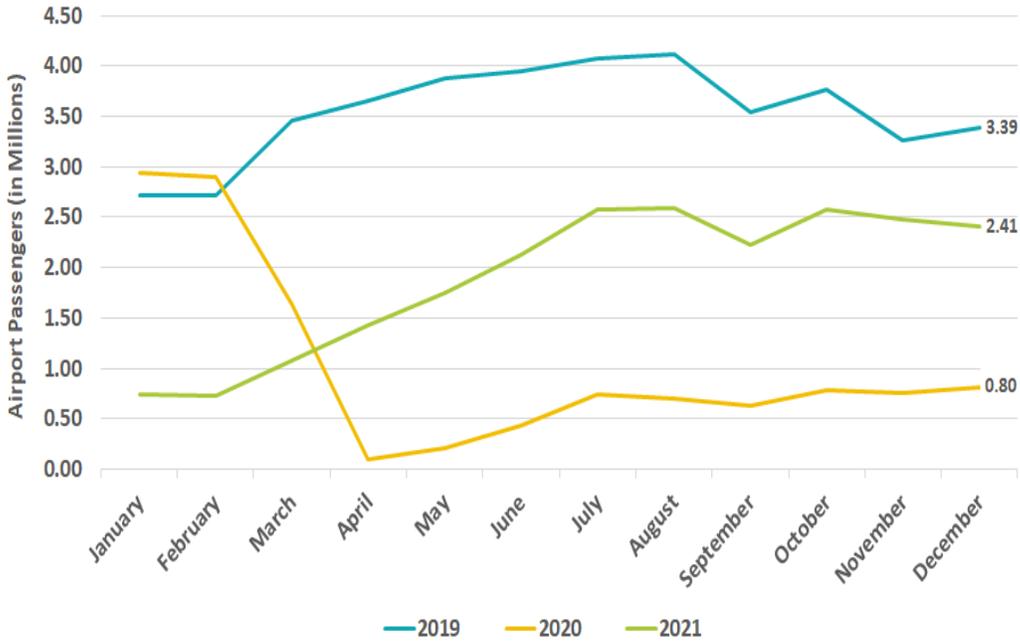
## Air Travel

Logan Airport served a total of 42.5 million domestic and international passengers in 2019. The onset of the pandemic caused passenger volume to fall in April 2020 to 2.6 percent of April

2019 levels. Passenger volume gradually increased throughout 2021 but remained at 71.1 percent of 2019 levels in December 2021.

FIGURE 18

### Monthly Passengers at Logan Airport, 2019-2021



Source: Massachusetts Port Authority, Aviation General Management (Massport)

# Real Estate Market

## Article 80 Development Approvals

The BPDA oversees a development review process (Article 80) that requires BPDA Board approval of all development projects larger than 20,000 square feet, or residential projects with 15 or more units. The volume of projects approved

by the BPDA Board is an indicator of future real estate growth. 2021 was a strong year for development approvals with 14.6 million square feet of development approved by the BPDA Board.

FIGURE 19

**Total Square Feet Approved by Year - Residential and Non-Residential - 2014-2021**



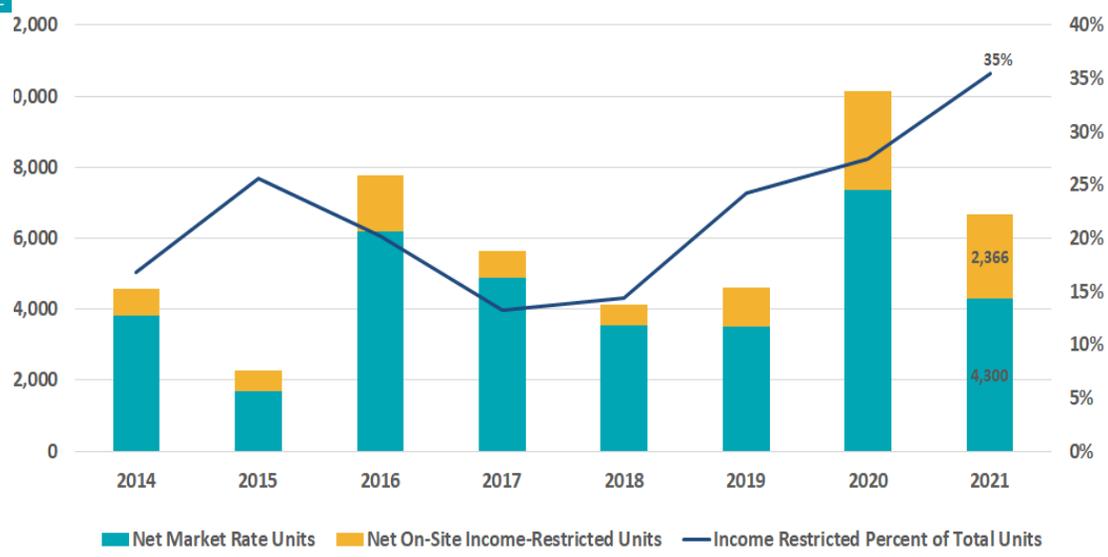
Source: BPDA Research Division Pipeline Database and Analysis, January 12, 2021.

In 2021, the BPDA Board approved 7.1 million square feet of new housing, for a total of 6,666 new housing units across the City. Of these

units, 2,366 are on-site income-restricted units, a higher proportion than in recent years.

**FIGURE 20**

**Percentage of Income-Restricted Units to All Approved Units, 2014 to 2021**



Source: BPDA Research Division Pipeline Database and Analysis, March 16, 2022

Article 80 approvals in 2021 showed a shift away from office and hotel development. The BPDA Board approved a net increase of 3.2 million square feet of office development in 2020, but just 100,000 square feet in 2021. There was a net decrease in hotel development approved in 2021,

with project changes slightly reducing the approved hotel development. However, 2021 Article 80 Board approvals were strong for R&D space with a net increase of 3.1 million square feet.

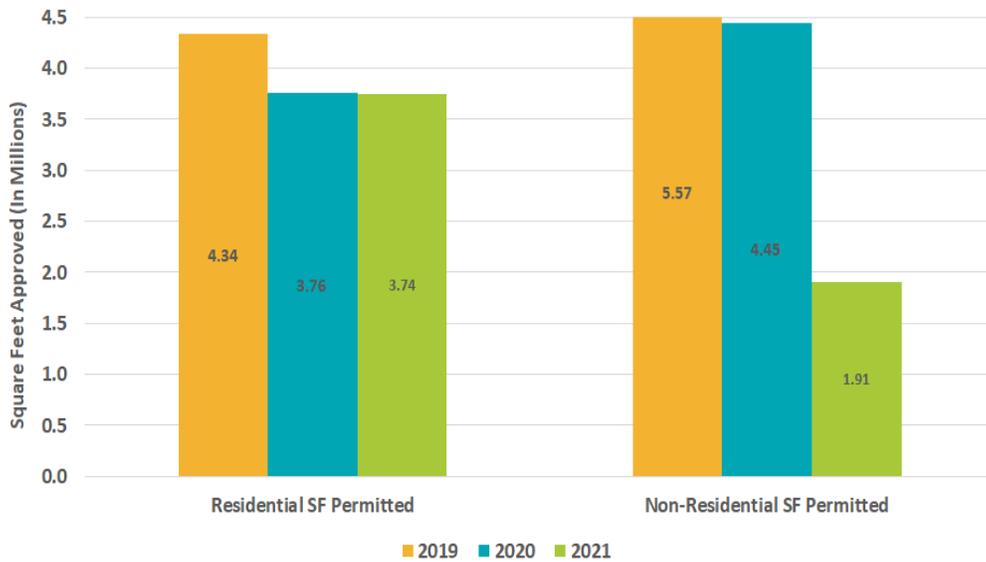
### Construction Activity

The square footage of construction permits issued in Boston has fallen from 9.8 million in 2019 to 8.1 million in 2020 to 5.6 million in 2021. The decline in construction starts was particularly

dramatic in non-residential construction, which fell from 5.6 million in 2019 to 4.4 million in 2020 to just 1.9 million in 2021.

FIGURE 21

### Square Footage of Construction Start Permits Issued 2019-2022

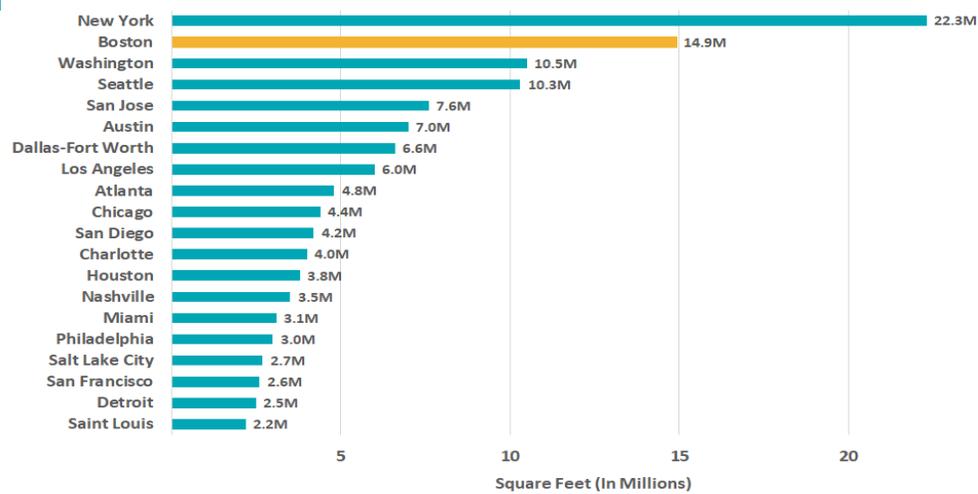


Source: City of Boston Mayor's Office of Housing;

Despite this recent decline in non-residential space under construction of any metropolitan construction starts, as of the first quarter of 2022, the Boston metropolitan area had the most office area in the country except for New York.<sup>12</sup>

FIGURE 22

### Office Space Under Construction as of Q1 2022 by Metropolitan Area



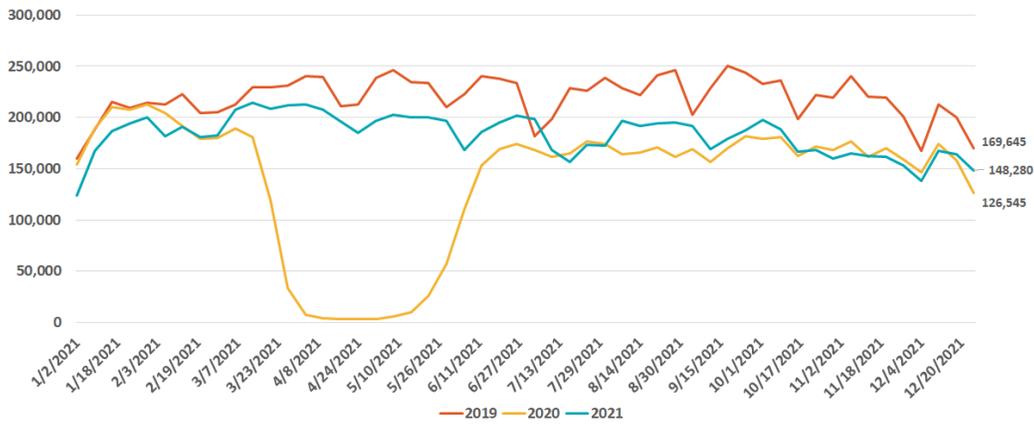
CoStar, Boston Office Review, March 2022

Construction hours worked on Boston development projects have remained lower in 2021 compared to pre-pandemic levels. Compared

to 2019 levels, construction hours worked were 36 percent lower in 2020 and 17 percent lower in 2021.

FIGURE 23

### Construction Hours Worked, 2019-2021



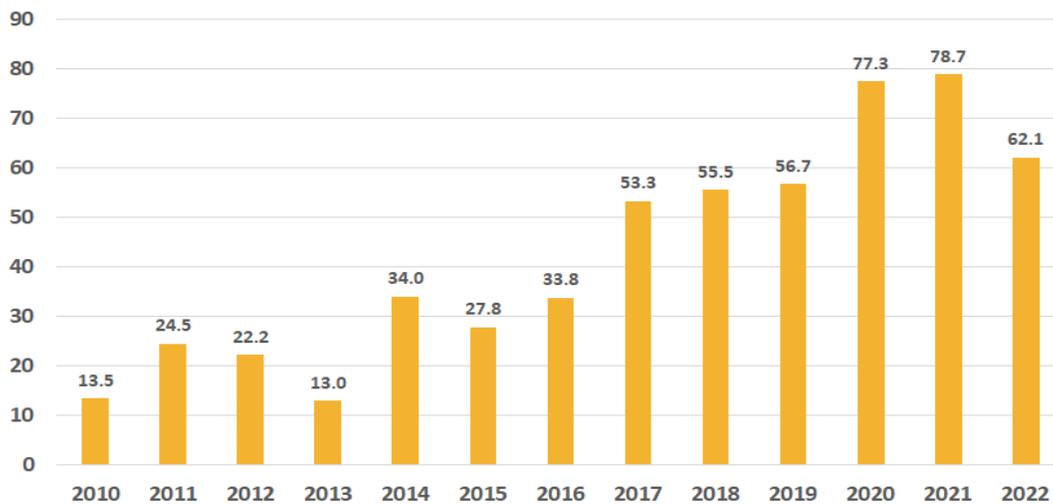
Source: Boston Resident Jobs Policy Office, Boston Jobs Policy Compliance Reports

As construction is completed, new real estate development adds to the city's property tax rolls, providing additional funds for city goods and services. In FY2021, there was an increase in

Boston's property tax levy of \$78.7 million due to new real estate growth.<sup>13</sup> This fell to \$62.1 million for FY2022.

FIGURE 24

### Property Tax Levy from New Growth (in millions of USD)



Source: City of Boston Assessing Department

### Retail Real Estate Market

The Boston retail real estate market slowed during the pandemic. Boston’s retail vacancy rate in 2021 was 2.4 percent, up from 2.2 percent in

2020. Retail market rents fell from \$48.27/sf in 2019 to \$46.19/sf in 2020 to \$46.00/sf in 2021.

### Office Real Estate Market

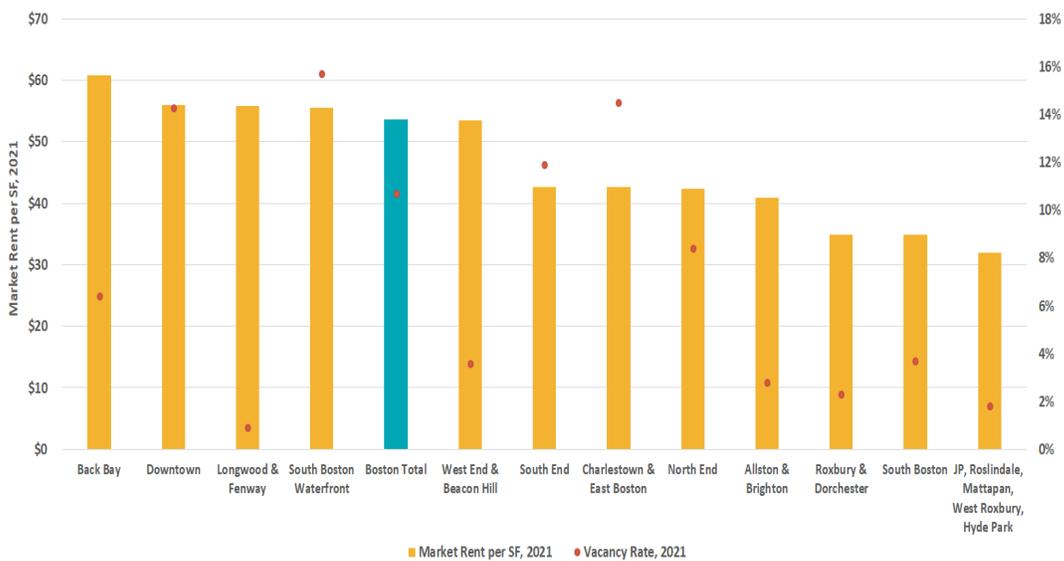
As of 2021, Boston had approximately 115 million square feet of office space with 48 million square feet in Downtown, 17 million square feet in Back Bay, and 15 million square feet in the South Boston Waterfront.

Low office occupancy and longer-term office vacancies hurt support businesses such as restaurants, coffee shops, convenience stores, and pharmacies. Boston’s office vacancy rate rose from around 6 percent in 2019 to 11 percent by the end of 2021.<sup>15</sup> Office vacancy rates were above the citywide average in the South Boston Waterfront, Downtown, Charlestown, and East Boston.

Office space utilization in Boston has been low during the pandemic, below 20 percent for Downtown office towers throughout 2021.<sup>14</sup>

FIGURE 25

**Boston’s Commercial Office Real Estate by Neighborhood, 2021**



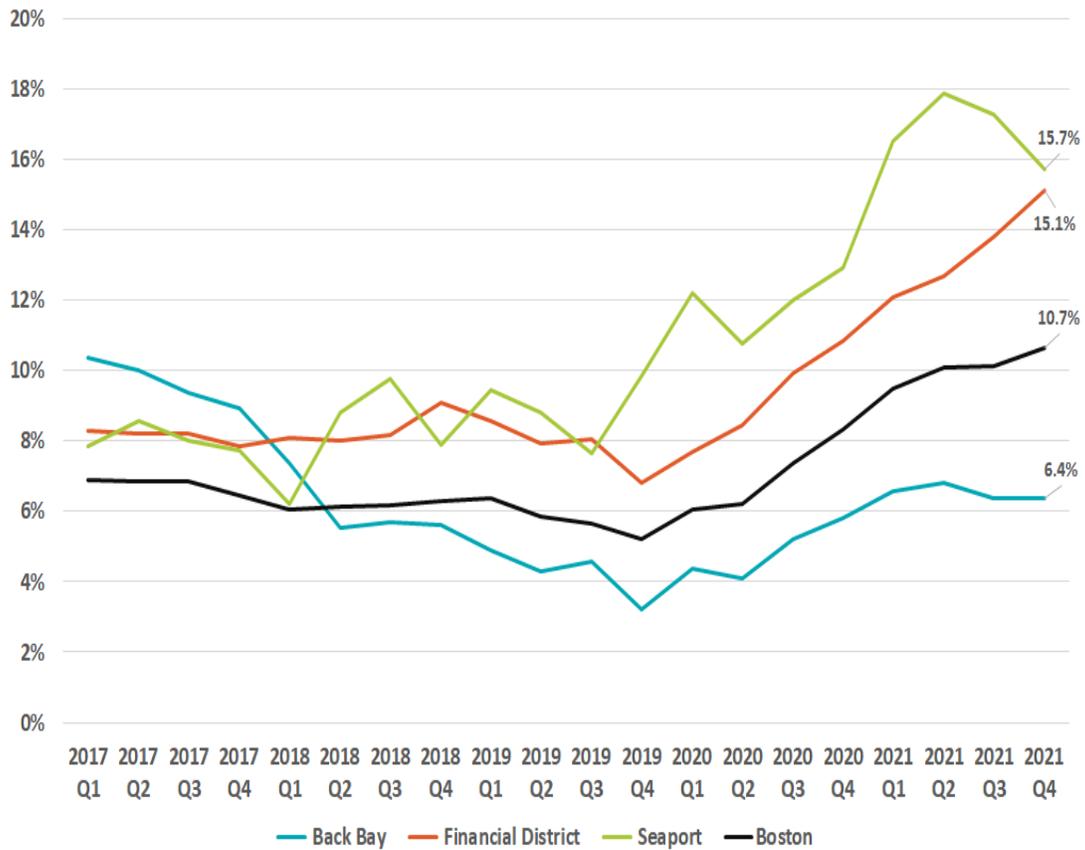
Source: CoStar, accessed February 2022

Office vacancy rates continued to rise throughout 2021 in Boston's financial district, while beginning to fall from a high level in the Seaport and stabilizing in Back Bay. CoStar's base forecast is for

Boston office vacancies to stabilize at around 10 percent, which is the historical average for the past 15 years.<sup>16</sup>

FIGURE 2.6

**Office Market Vacancy Rate for Boston's Three Largest Submarkets, Quarterly 2017 to 2021**



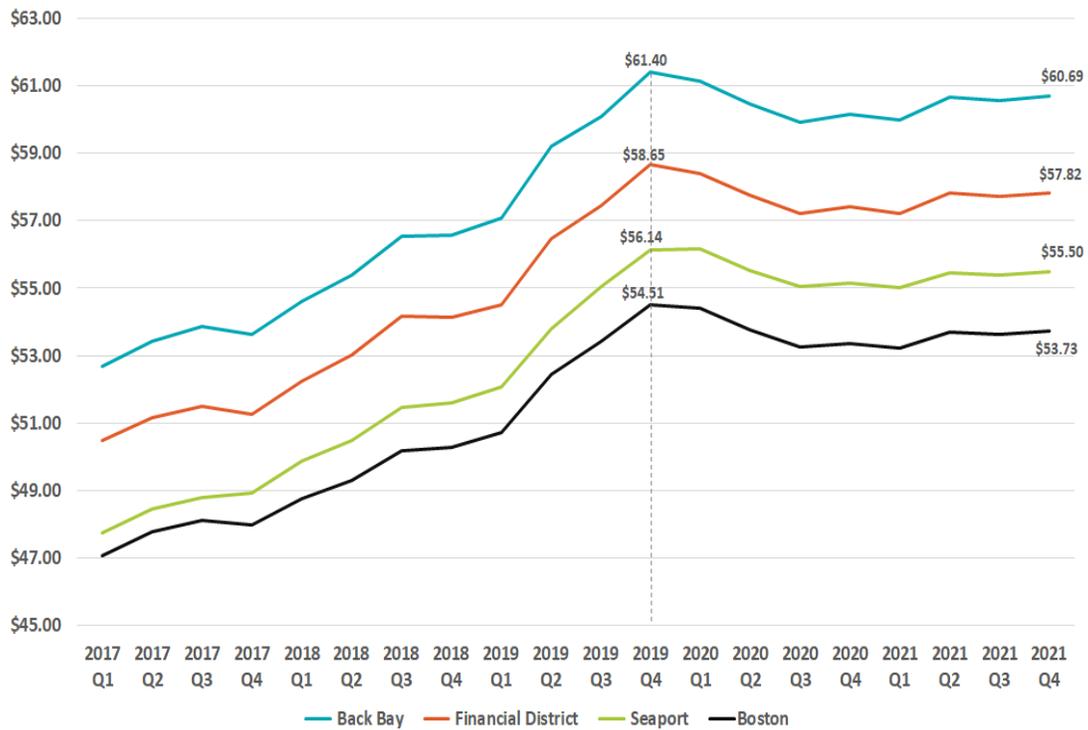
Source: CoStar, accessed February 2022

Average market rent per square foot in 2021 for offices was \$53.70 citywide. Back Bay had the highest office rents at \$60.84. Asking rents for office space recovered and stabilized in 2021

after a dip in 2020. However, according to CoStar, landlords have made concessions that have brought down effective rents below asking rents.

FIGURE 27

**Office Market Rents for Boston's Three Largest Submarkets, Quarterly 2017 to 2021**



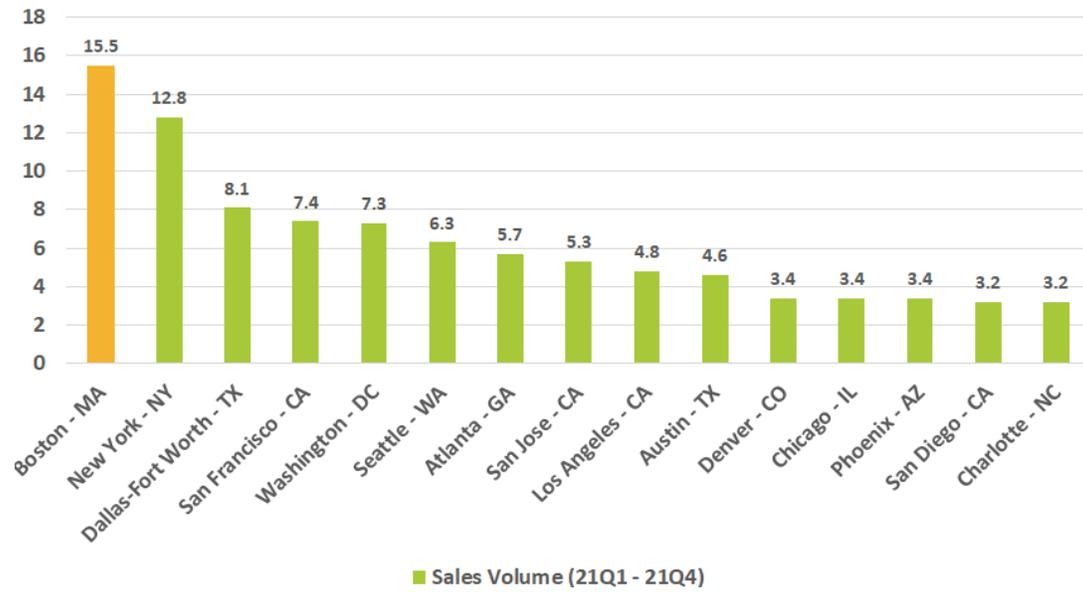
Source: CoStar, accessed February 2022

Even though the pandemic impacted demand for office space, Boston remains an attractive place for office employers. In 2021 the Boston

metropolitan area saw the largest office sales volume in the nation, with \$15.5 billion in sales.

FIGURE 28

### Top 15 Metropolitan Areas by Office Sales Volume in 2021



Source: CoStar, Boston Office Review, March 2022

Office tenants have shown an increasing demand for high quality office space with amenities to attract workers back to the office.<sup>17</sup> Compared to the rest of the country, Boston has older office

stock: 26 percent of office buildings were built before 1950.<sup>18</sup> These older buildings may be opportunities for repurposing or replacement.

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## Life Science Industry

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Driven in part by the COVID-19 pandemic, demand for biomedical research has strengthened growth trends in the life science industry in Boston, impacting both real estate and employment.

According to CBRE, the city of Boston has over 12 million square feet of life science lab space, with 4.8 million square feet in the Seaport and 2.7 million square feet in Allston/Brighton/Longwood. Demand for lab space has been incredibly strong. 2021 saw 1.3 million sq. ft. of positive absorption of life science space in Boston.<sup>19</sup> At the end of 2021 rents for life science space were \$103.24 per sq. ft. (NNN) in Boston and \$104.49 per sq. ft. in the Seaport. Vacancy was almost nonexistent at 0.1 percent at the end of 2021. CBRE estimates that an additional 1.8 million square feet of newly constructed or converted lab space will be delivered in 2022.

The growth in the life science industry in Boston has been driving recent development trends, with new projects proposing lab/R&D space and previously approved projects proposing changes to pivot towards lab/R&D space. 88 Black Falcon Avenue, a new project in South Boston Waterfront, was approved in May 2021 and will add 327,600 square feet of lab space. Another new project, the 100 Hood Park Drive Addition in Charlestown, will add 151,700 square feet of lab space as well

as ground floor retail. 321 Harrison, a previously approved office project that was already under construction, came back to the BPDA Board in July 2021, changing its primary square footage from office to lab space. This project will add 220,000 square feet of lab space to the South End. 321 Harrison is expected to deliver in late 2022 and is already more than half pre-leased.<sup>20</sup> Parcel 12 in Back Bay was approved in 2019 as a mixed-use development. In December 2021, the Parcel 12 developers returned to the BPDA Board to convert 118,191 square feet of the retail and office space into lab space. Overall, approximately 3.1 million square feet of research and development space was approved in 2021.

Boston's dominance in the life science research field is reflected in research funding grants received from the National Institutes of Health (NIH). The NIH, under the U.S. Department of Health and Human Services, is the nation's largest source of funding in biomedical research. Boston is the second highest NIH funded city in the nation. In FY 2021, Boston researchers received \$2.4 billion in NIH funds, just behind New York City's \$2.9 billion. Cambridge, Massachusetts received \$462.7 million in NIH funding.

The NIH funded 4,224 awards at 52 Boston organizations. Boston's largest hospitals, Massachusetts General Hospital and Brigham & Women's Hospital, are among the top 25 NIH funding recipients in the United States. Collectively, these two hospitals received 1,621

awards and almost \$1 billion in NIH funds. Their combined funding represents 40 percent of all funding within Boston and 29 percent of all funding within Massachusetts.

**TABLE 1**  
**Top Boston Organizations for NIH Awards, FY2021**

Organization name	Awards	Funding (Millions)
Massachusetts General Hospital	1,006	\$601
Brigham and Women's Hospital	615	\$357
Boston Children's Hospital	409	\$219
Broad Institute, Inc.	115	\$182
Harvard Medical School	384	\$176
Boston University Medical Campus	302	\$173
Dana-Farber Cancer Institute	269	\$160
Harvard School of Public Health	190	\$152
Beth Israel Deaconess Medical Center	228	\$128
Massachusetts Institute of Technology	274	\$117
<b>Total of Top Boston Recipients</b>	<b>3,792</b>	<b>\$2,265</b>

Source: National Institutes of Health "NIH Awards by Location and Organization," FY2021, BPDA Research Division Analysis

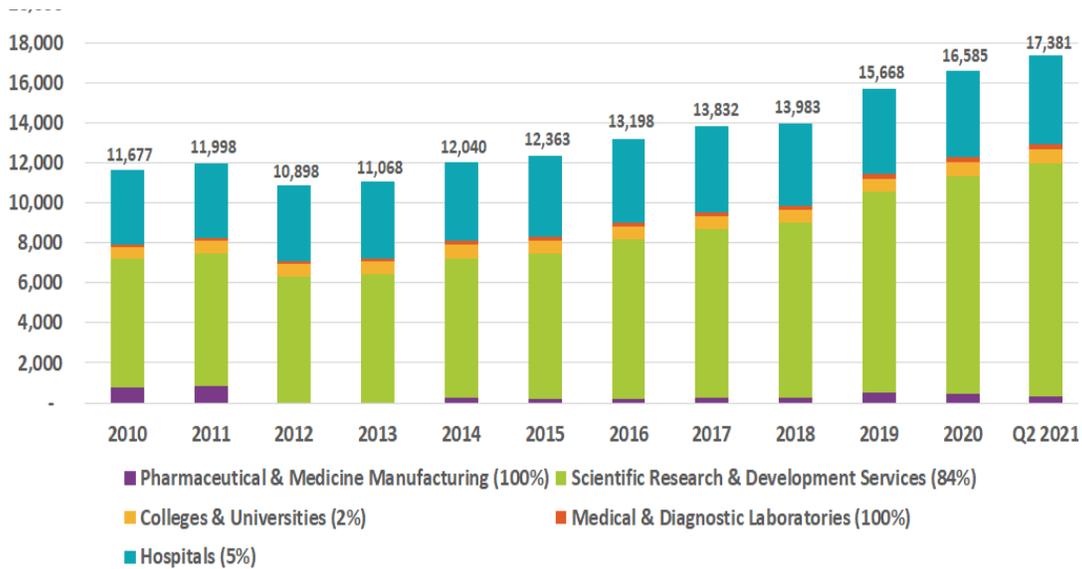
While most NIH funding in Boston goes to hospitals and universities, one percent went to private sector companies. The highest funded private sector company in Boston was Lyndra Therapeutics Inc. which received two awards that totaled approximately \$13 million. Arietis won two awards that totaled approximately \$2.2 million and Centrexion Therapeutics Corporation received an award of approximately \$2 million. The combined funding of these three companies

represents 56 percent of all funding among private sector companies within Boston.

Boston life science employment has been steadily increasing over the past decade, growing by 49 percent since 2010.<sup>21</sup> Scientific research and development services outside of hospitals and colleges employed 11,646 people in Boston in 2021, up 81 percent from 2010.

FIGURE 29

### Boston Life Science Employment



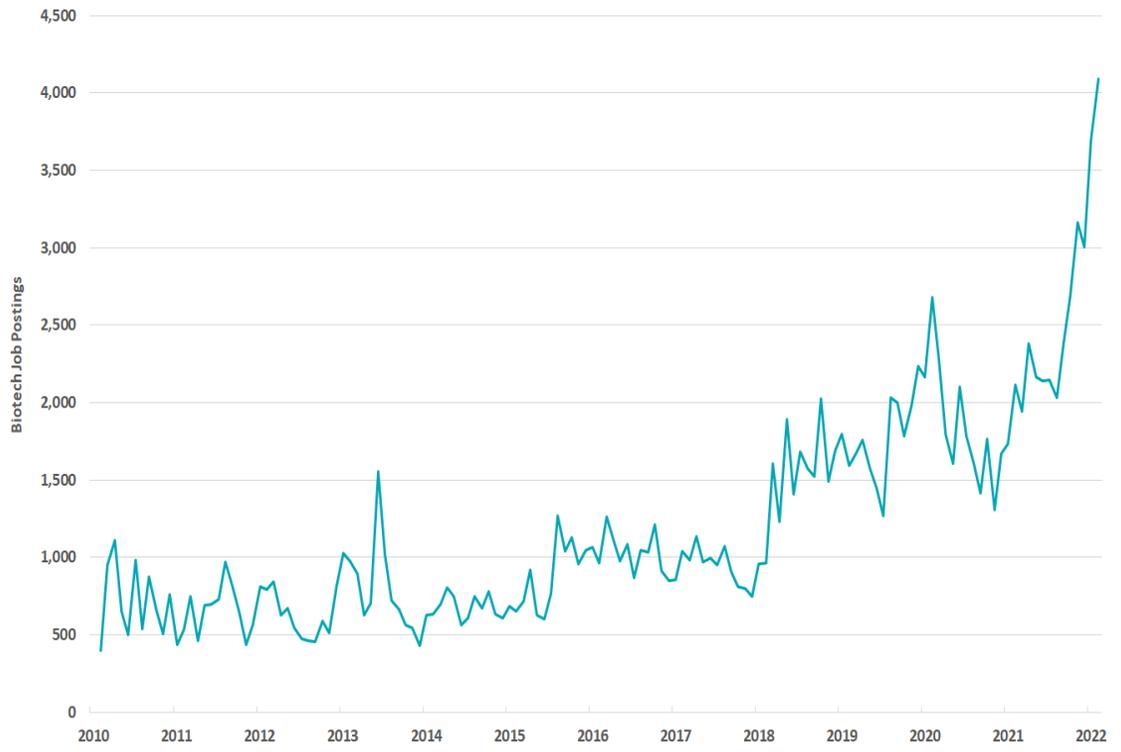
Source: MassBio, Industry Snapshot, 2015, Massachusetts EOLWD, BPDA Research Division Analysis  
 Note: MassBio defined the “life science” industry as NAICS 3254: Pharmaceutical Manufacturing, including biologics (100%); NAICS 6215: Medical testing laboratories (100%); NAICS 5417: Scientific Research and Development services (84%); NAICS 54138: Testing Laboratories (30%); NAICS 622: Hospitals (4.5%); NAICS 6113: Universities (1.9%).

Biotech job postings in Boston have been on the rise. Burning Glass Technologies, which collects data on job listings posted on major job boards and company websites, defines biotech jobs as those requiring knowledge of scientific fields such as biochemistry and genetics, laboratory techniques such as chromatography and clinical research, and/or experience with technology that incorporates biological processes such as biosensors and bio-chips. According to Burning Glass

data, Boston saw a high number of biotech job postings in 2020, despite the COVID-19 pandemic, with over 21,500 job postings. In 2021, biotech job postings in Boston surged past that record, hitting 27,869 total postings. The graph of monthly biotech job postings (Figure 30) shows a temporary dip at the onset of the pandemic in 2020, followed by accelerating job posting growth through 2021.

FIGURE 30

### Monthly Biotech Job Postings in Boston 2010-2021



Source: Burning Glass Technologies Labor Insight Jobs, BPDA Research Division Analysis

## Residential Market

Launched in 2014 and revised in 2018, the Housing Boston 2030 plan set a goal of 69,000 new housing units built from 2010 to 2030. Overall housing starts are on target to reach the 2030 goal of 69,000 units, with 39,326 units permitted

from 2011 through 2021.<sup>22</sup> Housing completions in 2021 set a record, with 4,050 units coming online, following a strong year for housing production in 2020 with 4,029 new units completed.<sup>23</sup>

TABLE 2

**Weighted Average Advertised Rents by Neighborhood**

Neighborhood	2019	2020	2021
Allston	\$2,271	\$2,200	\$2,161
Back Bay	\$3,364	\$3,322	\$3,250
Bay Village	\$2,892	\$2,616	\$2,508
Beacon Hill	\$2,884	\$2,761	\$2,567
Brighton	\$2,198	\$2,172	\$2,183
Charlestown	\$2,876	\$2,837	\$2,852
Chinatown	\$3,084	\$2,815	\$2,784
Dorchester	\$2,175	\$2,211	\$2,352
Downtown	\$3,798	\$3,662	\$3,534
East Boston	\$2,188	\$2,196	\$2,293
Fenway	\$2,581	\$2,538	\$2,500
Hyde Park	\$1,901	\$1,887	\$2,071
Jamaica Plain	\$2,498	\$2,491	\$2,511
Longwood	\$2,504	\$2,424	\$2,478
Mattapan	\$1,975	\$2,052	\$2,169
Mission Hill	\$2,449	\$2,387	\$2,419
North End	\$2,821	\$2,680	\$2,586
Roslindale	\$1,956	\$2,033	\$2,152
Roxbury	\$2,302	\$2,317	\$2,465
South Boston	\$2,880	\$2,880	\$2,961
South Boston Waterfront	\$4,811	\$4,438	\$4,269
South End	\$3,231	\$3,193	\$3,076
West End	\$3,493	\$3,369	\$3,278
West Roxbury	\$2,069	\$2,060	\$2,175
<b>Citywide</b>	<b>\$2,512</b>	<b>\$2,496</b>	<b>\$2,534</b>

Source: Rental Beast and MLS Averages weighted by ACS 2019 5-Year Estimates, by BPDA neighborhood. Data includes studios, 1-, 2-, and 3-bedroom listings. Leather District is included in Downtown

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Data for 2021 real estate trends were provided by the Boston Mayor's Office of Housing. Rental data are provided to the Mayor's Office of Housing by Multiple Listing Service (MLS) and Rental Beast, an online database of rental listings.<sup>24</sup> Citywide weighted average advertised rents rose 1.5 percent between 2020 and 2021, more than offsetting the pandemic-induced slide observed between 2019 and 2020. However, modest overall movements in rents at the citywide level disguise much larger swings at the neighborhood level. Over the two year period between 2019 and 2021, outer neighborhoods with lower densities, larger units and traditionally lower rents saw large rent increases, with Roslindale, Mattapan, Hyde Park, Dorchester, Roxbury, and West Roxbury all seeing increases between 5 and 10 percent. Conversely, dense neighborhoods with smaller units and higher rents per square foot saw their rents fall. Bay Village, the South Boston Waterfront, Beacon Hill, Chinatown, the North End, Downtown, and the West End all saw rents fall between 6 and 13 percent between 2019 and 2021.

The annual averages presented here also do not capture some of the volatility that took place at quarterly or evenly monthly frequencies in the rapidly evolving rental market of 2020 and 2021. Measures of the market that attempt to provide quality consistent rental metrics at monthly frequencies suggest that the Boston area market

reached its lowest levels in the fourth quarter of 2020 and the first quarter of 2021 before strongly rebounding by September 2021.<sup>25</sup> These data are consistent with lower student demand for rental housing during the 2020-2021 school year in which many colleges provided remote instruction and recovered student demand at the start of the 2021-2022 school year when colleges returned to in-person instruction.

The median sales price for a single-family home in Boston rose to \$745,000 in the 2021 according to sales record data provided by Banker & Tradesman and DND. This reflects a 5.6 percent increase in real terms over 2020. In the Back Bay, Beacon Hill, and the South End the median single-family sales price was over \$3 million. Mattapan had the lowest median single-family sales price at \$557,500.

The median condo sales price fell 2.5 percent in real terms from 2020, reaching \$690,000 in 2021. The most expensive neighborhoods for condominiums were the South Boston Waterfront and Downtown which had median sales prices over \$1 million. West Roxbury and Hyde Park had the least expensive condominiums with median sales prices under \$500,000.

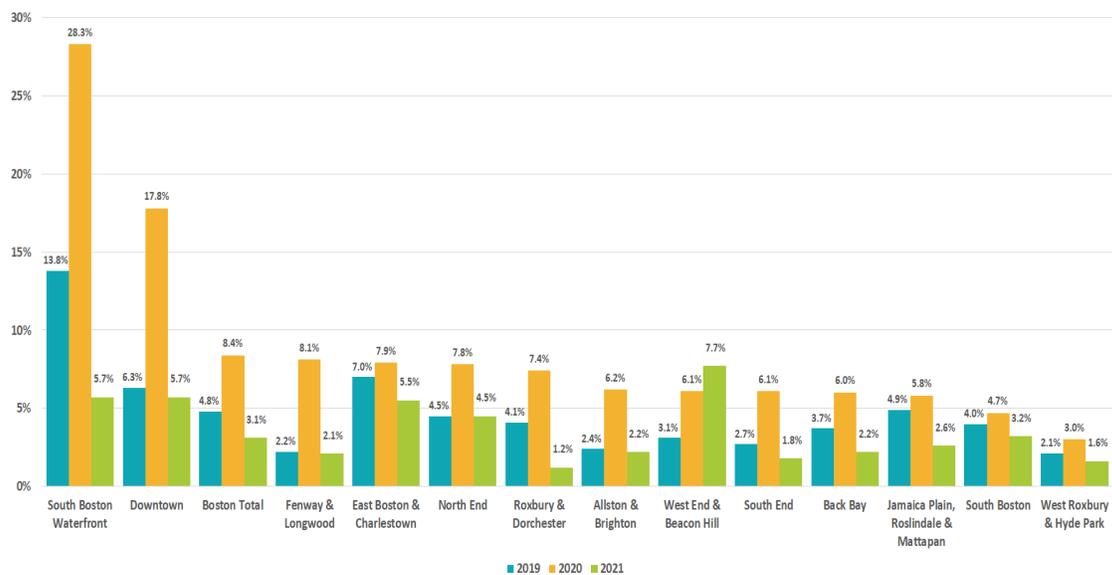
## Multi-Family Residential Vacancies

The disruptions of the pandemic caused temporary large increases in vacancy rates in residential buildings with five or more units. However, the residential market recovered in 2021 with vacancy rates in large buildings falling to below 2019 levels. Citywide multi-family vacancy rates rose from 5.0 percent in 2019 to 9.2 percent in 2020 before falling to 3.3 percent in 2021.<sup>26</sup> According to CoStar data, in 2020 there

were 3-4,000 more vacant units citywide in larger multi-family buildings than in 2019 or 2021, demonstrating a temporary decrease in demand for residential space in Boston.

The South Boston Waterfront and Downtown had large increases in vacancies in 2020, but vacancy rates in both neighborhoods fell to 5.7 percent in 2021, below their 2019 levels.

**FIGURE 31** Multifamily Residential Vacancy Rates by Neighborhood



Source: CoStar, BPDA Research Division Analysis

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## Conclusion

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Demand to live in Boston is strong and appears to have recovered from the pandemic. Vacancies are down and rents and sales prices are up. Construction starts and BPDA Board approvals of residential projects are strong.

Employment of Boston residents has recovered significantly with unemployment falling to 3.9 percent in December 2021 and the number of employed Boston residents almost returning to pre-pandemic levels.

Boston has regained approximately two thirds of the payroll jobs lost in the spring of 2020, but payroll employment located in Boston remains about five percent below pre-pandemic levels. Job loss and recovery have been uneven across industries with payroll employment in accommodation and food services, ending 2021 at 30 percent below pre-pandemic levels.

Commuting into Boston remains well below pre-pandemic levels. Weekly commuting trips remain at less than half of 2019 levels. Office space vacancies have increased and office rents have been stable. Construction starts and Article 80 approvals of office projects are lower than recent pre-pandemic years. However, life science research and development, which often must be done on-site, is driving strong demand for employment and lab development.

Demand to visit Boston is still lower than pre-pandemic levels. In the second half of 2021, visits to Boston were approximately 20 percent below

the same weeks in 2019. Long distance visits may have been hit harder: hotel occupancy and Logan passenger volume remain significantly below 2019 levels.

Fewer commuters and visitors, as well as public health concerns among Boston residents, have led to depressed in-person spending in Boston. In the second half of 2021, in-person spending in Boston was approximately 20 percent below the same weeks in 2019.

Taken together, these measures of employment and activity reflect substantial progress in Boston's economic recovery from the COVID-19 pandemic. The worst fears from the early months of COVID-19 – that the pandemic would lead to prolonged economic stagnation and a permanent urban exodus – have not come to pass. Instead, unemployment has fallen rapidly by the standards of prior recessions, residential demand has returned, and developers are betting on Boston's future as the hub of life science innovation. Still, many parts of the economy are far from full recovery, and questions remain about what to expect going forward. Will visitors to the city return and spur for additional employment recovery in Boston's entertainment and hospitality sectors? Will 2022 bring a "return to normal" for commuting levels and office occupancy? If not, what might a "new normal" look like? This report shows a city and its economy responding to the novel challenges of the past two years and continuing to work towards full recovery.

## Appendix 1: Boston Payroll and Non-payroll Employment Estimates by Industry 2019-2020

TABLE A1

**Boston Payroll and Non-payroll Employment Estimates by Industry 2019-2020**

Industry	2019	2020
Natural Resources and Mining	278	303
Utilities	1,823	1,883
Construction	21,697	20,438
Manufacturing	8,401	7,485
Wholesale Trade	11,880	11,255
Retail Trade	40,319	36,056
Transportation and Warehousing	38,362	33,057
Information	23,361	23,055
Finance and Insurance	94,883	94,205
Real Estate and Rental and Leasing	37,650	36,471
Professional and Technical Services	113,180	114,178
Management of Companies and Enterprises	10,129	9,136
Administrative and Waste Services	40,023	35,989
Educational Services	66,402	65,355
Health Care and Social Assistance	148,769	147,471
Arts, Entertainment, and Recreation	19,089	13,373
Accommodation and Food Services	65,645	38,055
Other Services, Ex. Public Admin	34,006	29,603
<b>Total Jobs</b>	<b>851,468</b>	<b>792,420</b>

Source: U.S. BEA, Massachusetts EOLWD, BPDA Research Division Analysis

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## Appendix 2: Methodology for Estimating Payroll Employment in Boston by Industry for the Second Half of 2021 and 2019-2021 Payroll Employment by Industry

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To estimate Boston monthly payroll employment in the second half of 2021, we take the monthly employment by industry in the first half of 2021 in Boston City from ES-202 and monthly employment by industry in the same period in Boston-Cambridge-Newton MA NECTA Division from CES. We calculate the ratios between the two monthly employment datasets for every industry. Then we average the ratios and apply them to the Boston NECTA employment (from CES) by industry in the second half of 2021 to get Boston City payroll employment by industry in the second half of 2021.

The assumption is that the Boston City employment (from ES-202) share of Boston NECTA employment (from CES) stays the same between the first and the second half of 2021. This assumption is based on the fact that the sampling frame and weighting for the CES is built upon ES-202, which allows the total employment discrepancy between two databases to be under 3 percent on average.<sup>27</sup> Also, Boston City employment makes up nearly one-third of Boston NECTA Division employment in ES-202. Any monthly employment trend in the Boston-Cambridge-Newton MA NECTA Division in CES should give informative early estimates of the second half of 2021 Boston City payroll employment.

But there are some limitations in this assumption. One structural challenge is that because ES-202 and CES are two separate employment estimate programs using different methodologies, some irreconcilable systematic employment estimate differences in certain industries cannot be avoided.<sup>28</sup> Perhaps more importantly, Boston City and Boston-Cambridge-Newton MA NECTA Division are two geographic levels with different industrial structures. For example, as an urban center, Boston City concentrates more service jobs in the leisure and hospitality industries. As long as these differences remain consistent over time the methodology can account for this. However, if one area was hit particularly hard by the pandemic, as might be the case for restaurants and retail in Downtown Boston compared to suburban locations, this methodology would miss that. Further, employment in some industries has a stronger seasonal pattern, such as Arts, Entertainment, and Recreation, and Accommodation and Food Services. The magnitude of seasonality might differ between the city and metro area.

In light of these challenges, we make some adjustments when estimating. For Arts, Entertainment and Recreation, we use the June 2021 ratio to estimate July and August 2021 employment. This reflects stronger summer hirings in the suburban area than in the city. For Accommodation and Food Services, we use the June 2021 ratio to estimate the third and fourth quarters of 2021 to count the fact a faster recovery occurred in the city for this industry after the vaccines were widely rolled out in the middle of

2021. For Government, we add an additional 1.8 percent to July and August 2021 ratios, an increase seen in the summer of 2019 in this industry.

Having the second half of 2021 payroll employment estimates and combining them with the first half of 2021 ES-202 monthly employment, we report 2021 payroll employment by industry together with 2019 and 2020 in the following table:

TABLE A2

**Boston Payroll Employment Estimates by Industry 2019-2021**

Industry	2019	2020	2021
Natural Resources and Mining	52	64	57
Utilities	1,509	1,599	1,397
Construction	15,418	14,092	15,258
Manufacturing	7,616	6,717	7,177
Wholesale Trade	9,923	9,426	9,486
Retail Trade	35,549	32,260	32,591
Transportation and Warehousing	19,334	15,249	17,565
Information	21,015	20,708	21,782
Finance and Insurance	67,702	66,850	66,666
Real Estate and Rental and Leasing	14,088	13,396	13,058
Professional and Technical Services	93,128	93,898	97,861
Management of Companies and Enterprises	9,058	8,304	8,389
Administrative and Waste Services	32,594	28,599	30,249
Educational Services	37,469	40,145	38,008
Health Care and Social Assistance	140,306	139,427	138,896
Arts, Entertainment, and Recreation	11,335	7,031	8,076
Accommodation and Food Services	62,687	35,568	46,004
<b>Total Jobs</b>	<b>670,886</b>	<b>620,765</b>	<b>639,188</b>

Source: Massachusetts EOLWD, BPDA Research Division Analysis

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## Endnotes

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- 1 Massachusetts Executive Office of Labor and Workforce Development (EOLWD), Labor Force and Unemployment Data
- 2 NAICS industries: 1. Accommodation and Food Service, 2. Administrative and Support and Waste Management, 3. Transportation and Warehousing, 4. Other Services, 5. Arts, Entertainment, and Recreation, 6. Retail Trade
- 3 Cuebiq mobility data. Cuebiq collects first-party data from anonymized users who have opted-in to provide access to their location data anonymously through a GDPR-compliant framework
- 4 CBRE, <https://www.cbre.us/research-and-reports/Boston-Office-Figures-Q3-2021>
- 5 CoStar
- 6 Massachusetts Port Authority, Aviation General Management (MassPort)
- 7 The Pinnacle Perspective Boston Monthly Report
- 8 OpenTable
- 9 Massachusetts Department of Transitional Assistance
- 10 Cuebiq mobility data. Cuebiq collects first-party data from anonymized users who have opted-in to provide access to their location data anonymously through a GDPR-compliant framework
- 11 MBTA Datablog
- 12 CoStar
- 13 Boston Assessing Department. Includes prior year amended growth.
- 14 CBRE, <https://www.cbre.us/research-and-reports/Boston-Office-Figures-Q3-2021>
- 15 CoStar
- 16 Costar presentation to BPDA, March 25, 2022
- 17 CoStar presentation to BPDA, March 25, 2022
- 18 CoStar, as of Q12022
- 19 <https://www.cbre.com/insights/figures/boston-metro-life-science-figures-q4-21>
- 20 <https://www.cbre.com/insights/figures/boston-metro-life-science-figures-q4-21>
- 21 Note: MassBio defines the “life science” industry as NAICS 3254: Pharmaceutical Manufacturing, including biologics (100%); NAICS 6215: Medical testing laboratories (100%); NAICS 5417: Scientific Research and Development services (84%); NAICS 54138: Testing Laboratories (30%); NAICS 622: Hospitals (4.5%); NAICS 6113: Universities (1.9%).
- 22 Boston Mayor’s Office of Housing
- 23 Boston Mayor’s Office of Housing
- 24 Because the sample of rental listings in a given month or year does not necessarily represent the compositions of units in each neighborhood or the City as a whole, DND uses a weighted average methodology to compare rents across time periods. By holding the compositions of units by bedroom and neighborhood constant based on their share in the ACS, this methodology isolates

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- changes in rent levels from other changes in the sample.
- 25 For one such metric, see the Zillow Observed Rent Index (ZORI) available at <https://www.zillow.com/research/data/>
  - 26 CoStar, BPDA Research Division Analysis. Vacant space refers to all space not currently occupied by a tenant, regardless of any lease obligation. Vacant space could be space that is either available or not available. For example, vacant space includes sublease space that is currently being paid for by a tenant but not occupied by that tenant and space that has been leased but not yet occupied because of finish work being done.
  - 27 Nick Dobbins (2018), Variations in Employment in the CES and QCEW Programs.
  - 28 Variations in Employment in the CES and QCEW Programs by Nick Dobbins (2018) provides a detailed explanation of differences between ES-202 (QCEW) and CES, <https://mn.gov/deed/newscenter/publications/trends/sept-2018/ces-qcew.jsp>

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