

Boston's Economy 2021



The Boston Planning & Development Agency

We strive to understand the current environment of the city to produce quality research and targeted information that will inform and benefit the residents and businesses of Boston. Our Division conducts research on Boston's economy, population, and commercial markets for all departments of the BPDA, the City of Boston, and related organizations.

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The Effect of the COVID-19 Pandemic on Boston's Economy in 2020

The COVID-19 pandemic public health crisis required restrictive public health interventions that created severe economic disruptions across the world. Boston was significantly impacted by the pandemic and the resulting economic recession. This report focuses on the impact on Boston's economy in 2020.

Over the course of 2020, approximately 40,000 Boston residents had confirmed cases of COVID-19, and just over 1,000 Boston residents died.¹ In an effort to control the spread of the virus and save lives, the City and Commonwealth were forced

to restrict major portions of Boston's economy. On March 24th, a stay-at-home advisory was issued and non-essential businesses were ordered to close. On May 18th, a phased lifting of restrictions began. However, as of the end of December, some government restrictions remained in effect. Regardless of government restrictions, many residents chose not to participate in activities perceived to be high risk in order to avoid getting sick. This reduction in consumer demand and mobility had a profound impact on employment and economic security in Boston.

Employment

The onset of the COVID-19 pandemic caused record job losses among Boston residents. The unemployment rate is the most commonly used barometer of 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 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 4 weeks. The labor force includes both these unemployed workers, as well as those who are employed. A third group, those who do not have a job

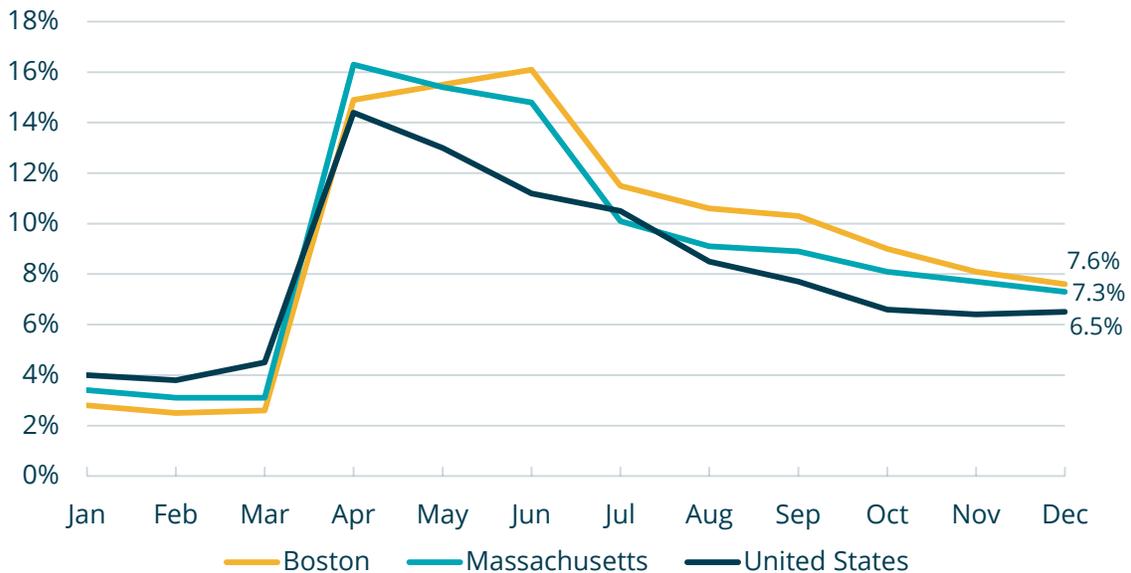
but who are not on temporary layoff and have not been actively looking, are counted as “not in the labor force” and omitted from the calculation entirely.

Unemployment Rate

Boston's unemployment rate skyrocketed with the shutdown of the economy at the onset of the pandemic. The city's unemployment rate rose from 2.5 percent in February to 14.9 percent in April and 15.5 percent in May, peaking at 16.1 percent in June.² Boston's unemployment rate fell after the peak in June, reaching 7.4 percent in December.

FIGURE 1

Unemployment Rates for Boston, Massachusetts, and the United States, 2020



Source: Massachusetts Executive Office of Labor and Workforce Development (EOLWD), BPDA Research Division Analysis, revised March 16th, 2021.

Labor Force

Between mid-February and mid-April, the number of employed residents fell by 83,536. Over that same time period, unemployed residents rose by 43,157. The remaining fall in employment showed up in the data as people leaving the labor force. These are likely people who were permanently laid off from their most recent job but saw little hope of finding a new one amidst the ongoing economic catastrophe, so reported themselves to the survey as not actively looking for work.

Downward movements in the unemployment rate in the fall were driven more by people leaving the labor force rather than returning to employment. Job growth slowed in the fall but reached 358,000 employed Boston residents in December - about 26,500 short of February levels.³ In December there remained 29,328 unemployed Boston residents, plus an estimated 7,000 Boston residents

who appear to have left the labor force since February 2020, meaning they are not working or actively looking for work.

As in any recession, workers may leave the labor force and stop actively looking for work due to pessimism about the likelihood of securing employment. However, the COVID-19 pandemic has brought additional obstacles to employment. Some workers may have left the labor force during the pandemic due to illness or fear of contracting the virus. Additionally, most schools and many child care facilities have been closed during the pandemic, forcing many parents to adjust their employment in order to care for their children. National data show that labor force participation of parents, especially mothers of young children, fell during 2020.

FIGURE 2

Employed and Unemployed Boston Residents, 2020



Source: Massachusetts Executive Office of Labor and Workforce Development (EOLWD), BPDA Research Division Analysis, revised March 16th, 2021.

Job losses were not felt equally among industries and among Boston residents. In June 2020, the peak month for unemployment claims, approximately 52 percent of Boston residents working in accommodation and food services and 21 percent of Boston residents working in retail trade filed for unemployment benefits.⁴ These industries tended to be lower-paid: the median income of full-time workers in 2019 was approximately \$32,000 in both accommodation and food services and retail trade.⁵ Workers in these industries had few financial resources to withstand job and income loss caused by the pandemic.

Economic Security of Boston Residents

Before the COVID-19 pandemic, Boston's real median household income increased by 4.1 percent annually from 2010 to 2019 and the share of households living below the federal poverty thresholds decreased by 22 percent. However, the COVID-19 pandemic has negatively impacted the economic security of Boston's residents.

Many Boston residents who lost their jobs or suffered loss of hours and income had difficulty affording food and housing. According to the American Community Survey (ACS), approximately 111,000 Boston residents or 17 percent of Boston's household population in 2019 lived below the federal poverty threshold, which is \$26,200 for a family of four. These residents had few resources to withstand the impact of the pandemic.

From March through December 2020, Greater Bos-

ton Food Bank locations distributed an average of 500,000 pounds of food per week in Boston, compared to about 353,000 pounds per week over the same period of time in 2019.⁶ Supplemental Nutrition Assistance Program (SNAP) recipients in Boston increased by 17.7 percent from January to December 2020, compared to a decrease of 1.8 percent from January to December of 2019.⁷ The Commonwealth's 211 hotline received 485 calls from Boston residents in April regarding food access, up from 45 average calls per month pre pandemic.

In 2019, 65 percent of Boston residents lived in rental housing, and 47 percent were renters who paid more than 30 percent of their household income in rent.⁸ These households were particularly vulnerable to housing insecurity during the pandemic. Calls by Boston residents about housing/shelter issues to the Commonwealth's 211 hotline increased from an average of 160 per month prior to the pandemic to 741 in December 2020.

In response to the COVID-19 pandemic, the city of Boston established the Rental Relief Fund in early April to help Boston residents at risk of losing their housing due to pandemic related income losses. From April to September, the Fund distributed more than \$3 million in payments for more than 1,000 households.⁹ In October an additional \$5 million was apportioned to the Department of Neighborhood Development to continue the program.

Employment Located in Boston

Due to the COVID-19 pandemic and ongoing economic crisis, it has been important to understand a broad picture of employment located in Boston in 2020. Contact-intensive service industries like accommodation and food services have been badly hit by limits to both supply (government restrictions) and demand (declining customers). These industries needed immediate and effective aid from federal, state, and local governments and a wide range of support from local communities.

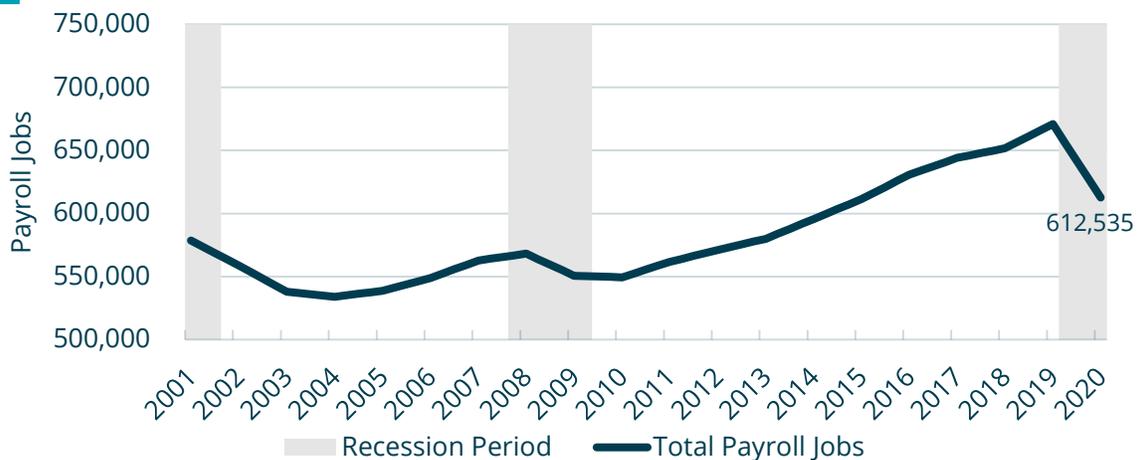
The Massachusetts Executive Office of Labor and Workforce Development (EOLWD) publishes quarterly and annual payroll employment by industry located in the city of Boston with a significant lag through the Quarterly Census of Employment and Wages (QCEW) or ES-202. For example, the full year of 2020 payroll employment in Boston is scheduled to be released in June of 2021. The second quarter of data, running through June of 2020 was released in December.

To estimate payroll employment by industry in

Boston in 2020, BPDA Research uses another employment data source, the Current Employment Statistics program (CES). CES runs monthly employer surveys to publish employment estimates by industry with less than one month lag. Unfortunately, CES does not cover city-level employment. The smallest geographic areas are metropolitan areas and divisions. We use 2020 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 2020. See Appendix 1 for further description of the job calculation methodology.

We estimate that the total number of payroll jobs located in Boston fell from 670,886 in 2019 to 612,535 in 2020 - a loss of approximately 58,000 payroll jobs (8.7 percent). This is a significant job loss for one year, much greater than the 15,000 average annual payroll jobs lost in Boston from 2001 to 2004 and the 17,500 payroll jobs lost in 2009.

FIGURE 3 Total Payroll Jobs in Boston, 2001 to 2020



Source: Massachusetts Executive Office of Labor and Workforce Development (EOLWD), ES-202 and CES, BPDA Research Division Analysis.

Jobs by Industry

The largest industries in Boston continue to be Health Care and Social Assistance (22.1 percent of payroll jobs) and Professional, Scientific, and Technical Services (15.2 percent of payroll jobs).

TABLE 1 Boston's 2020 Payroll Job Estimates by Industry

Industry	2018	2019	2020
Health Care and Social Assistance	136,585	140,306	135,667
Professional, Scientific, and Technical Services	86,257	93,128	93,080
Government	69,837	70,276	68,283
Finance and Insurance	67,421	67,702	67,601
Accommodation and Food Services	62,779	62,687	37,816
Educational Services	37,320	37,469	33,296
Retail Trade	33,757	35,549	32,713
Administrative and Waste Services	32,705	32,594	29,672
Information	18,477	21,015	21,074
Other Services, excluding Public Admin.	21,345	21,829	16,234
Transportation and Warehousing	18,493	19,334	15,544
Real Estate and Rental and Leasing	13,969	14,088	13,747
Construction	14,810	15,418	13,600
Wholesale Trade	9,259	9,923	8,876
Management of Companies and Enterprises	8,842	9,058	8,664
Arts, Entertainment, and Recreation	11,123	11,335	7,992
Manufacturing	7,213	7,616	7,259
Utilities	1,415	1,509	1,369
Natural Resources and Mining	51	52	46
Total	651,658	670,886	612,535

Source: Massachusetts Executive Office of Labor and Workforce Development (EOLWD), ES-202 and CES, BPDA Research Division Analysis.

Job losses in 2020 were not felt evenly across industries. Industries that rely on physical proximity and cannot be done remotely suffered significant job losses. By far the hardest hit industry was Accommodation and Food Services which lost almost 25,000 payroll jobs in 2020, a decline of almost 40 percent. The "Other Services" industry which includes per-

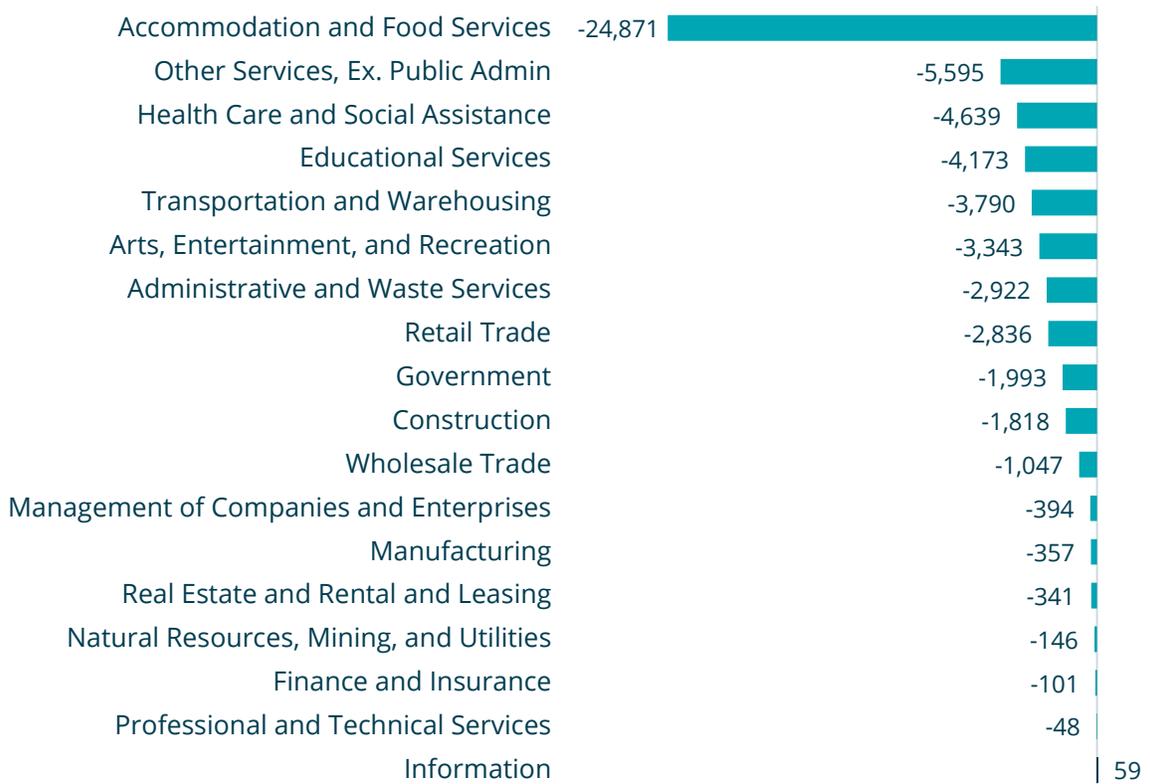
sonal care and service lost 5,595 payroll jobs, a 26 percent decline. The large industries Educational Services and Health Care and Social Assistance lost over 4,000 jobs each. Arts, Entertainment, and Recreation lost 30 percent of payroll employment - 3,343 jobs. Transportation and Warehousing lost 20 percent of payroll employment - 3,790 jobs.

The significant job losses in 2020 in industries with lower wages have exacerbated the human toll of the pandemic recession. Accommodation and Food Services and Food Services and Other Services are the two industries with the lowest wages and the largest

job losses. In contrast, the more highly paid industries such as Finance and Insurance and Professional, Scientific, and Technical Services have seen fewer jobs losses in the 2020 recession.

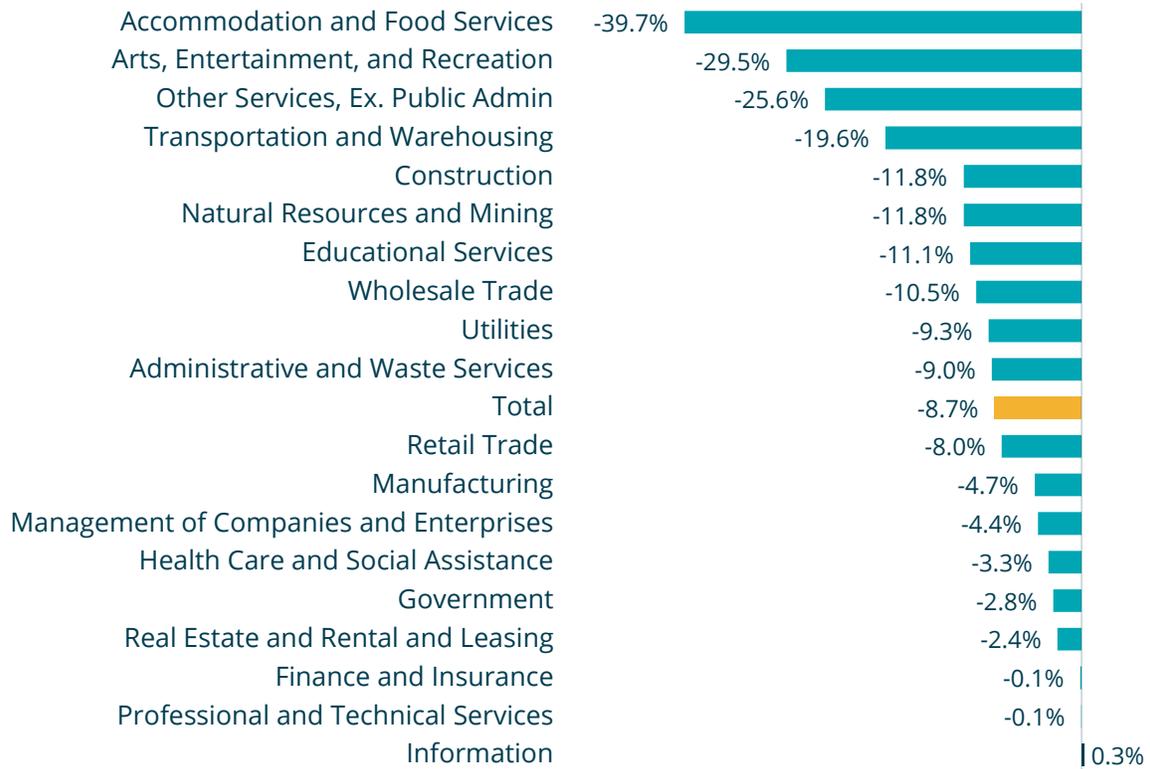
FIGURE 4

Job Loss by Industry, 2020



Source: Massachusetts Executive Office of Labor and Workforce Development (EOLWD), ES-202 and CES, BPDA Research Division Analysis.

Percentage Job Loss by Industry, 2020



Source: Massachusetts Executive Office of Labor and Workforce Development (EOLWD), ES-202 and CES, BPDA Research Division Analysis.

The hardest hit industries differed in the Dot Com recession in 2001 and the Great Recession of 2007 to 2009. In these two recessions, Professional and Financial Services were the top hit industries, together with Government in the Dot Com recession and Administrative and Waste Services in the Great Recession. The remaining job losses were more evenly distributed in other industries, which reflects a conventional recession pattern - as consumer demand declines overall,

economic activity shrinks in almost every industry. However, one exception is that a robust number of jobs were added in Boston in Healthcare and Educational Services during the two previous recessions, which helped cushion the impact of the economic contractions and paved the way for recovery in the city. The 2020 recession, due to the associated public health crisis, is following a significantly different trajectory than prior economic recessions.¹⁰

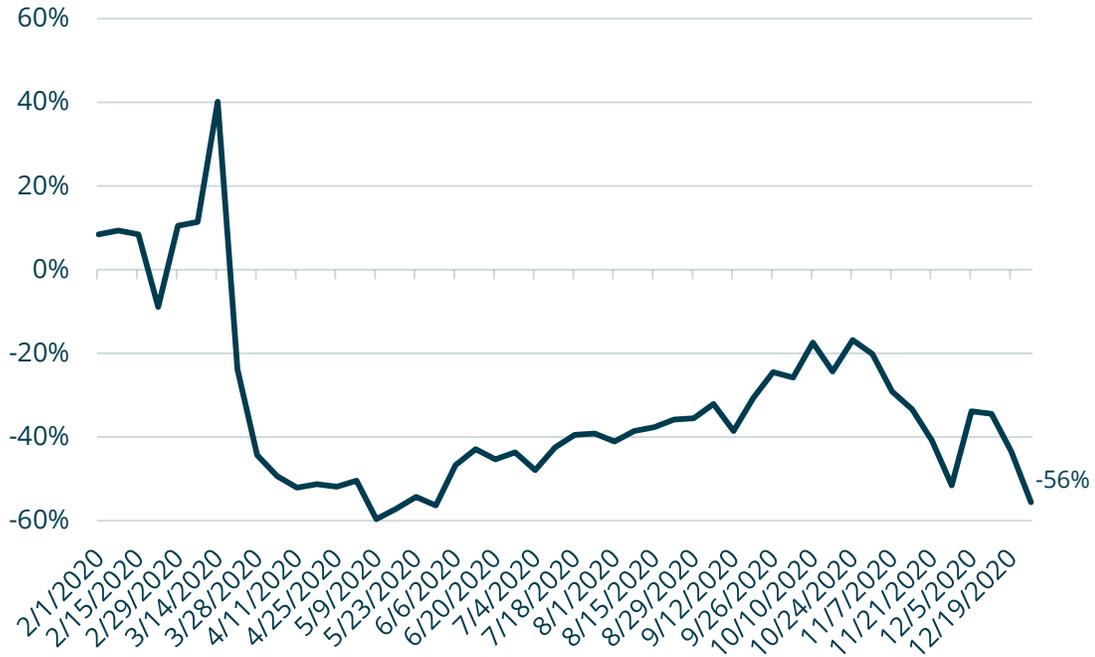
Commuting Patterns

When the stay-at-home order was issued in March, non-essential businesses were ordered to close or send staff to work from home. Based on cell phone mobility data, the number of commuters coming to Boston sharply declined. Figure 6 shows the weekly change in commuters coming to Boston over time compared to the average level in January.¹¹ Commuters coming to Boston were

down by 60 percent in May compared to January 2020 levels and then increased to 20 percent below January levels in late October. Commuter flows decreased again as Massachusetts entered the second wave of the COVID-19 pandemic, falling to 35 percent below January levels in early December, with even lower commuter flows during the Thanksgiving, Christmas, and New Year's holidays.

FIGURE 6

Percentage Change in the Number of Commuters Coming to Boston Compared to the Average Level in January 2020



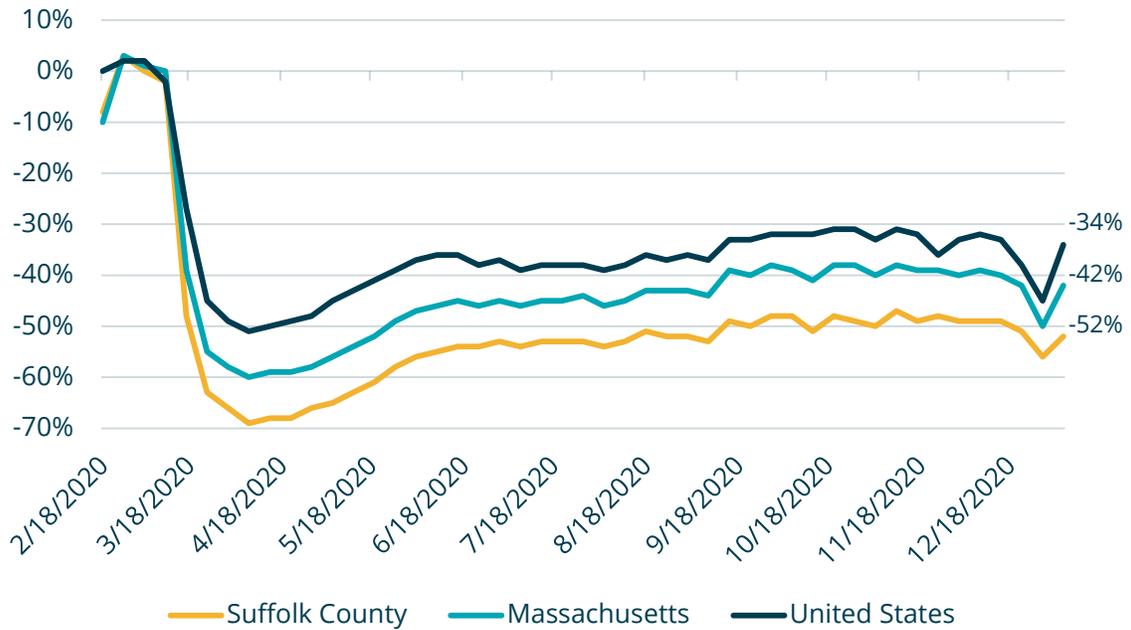
Note: Cuebiq collects first-party data from anonymized users who have opted-in to provide access to their location data anonymously, through a GDPR-compliant framework. To preserve privacy, home and work locations are aggregated to the census-block-group level.

Source: Cuebiq Mobility Data, BPDA Research Division Analysis.

Time spent in workplaces fell more sharply in Suffolk County than in other parts of the country. Figure 7 shows that Suffolk County time spent in workplaces fell by 70 percent in the spring, while falling by 60 percent in Massachusetts and 50

percent in the U.S. as a whole.¹² In the fall, Suffolk County time spent in workplaces remained 50 percent lower than January levels, compared to 40 percent lower for the state and 30 percent lower for the nation.

FIGURE 7 Percentage Change in Time Spent in Workplaces Compared to the Average Level in January 2020



Source: Google Community Mobility Reports, BPDA Research Division Analysis.

Reduced mobility and health concerns have led to a significant decrease in public transit ridership. In Figure 8, weekly validations at MBTA gated subway and train stations in Boston plummeted to the lowest level in the week ending April 18th, 2020

at only 8 percent of the same week in 2018 and 2019.¹³ When the economy began to open in late May, the ridership gradually picked up to 25 to 30 percent of the 2019 level until the end of year.

FIGURE 8 2020 Weekly Validations at MBTA Gated Stations in Boston Compared to the Corresponding Week in 2018 and 2019



Source: MBTA Datablog, COVID-19 and MBTA Ridership: Part 4, BPDA Research Division Analysis.

The Boston economy will not be able to turn the corner until people feel comfortable taking mass transit again. Overall, 39 percent of workers working in Boston took public transit prior to the pandemic with nearly 50 percent relying on the subway, 26 percent on the bus and 21 percent on the

commuter rail.¹⁴ In Downtown, Back Bay and in the West End, about half of employees commute to their workplace via public transit. Public transit is essential if Boston is to regain the jobs lost in 2020 and return to its pre-pandemic growth trajectory.

Consumer Spending

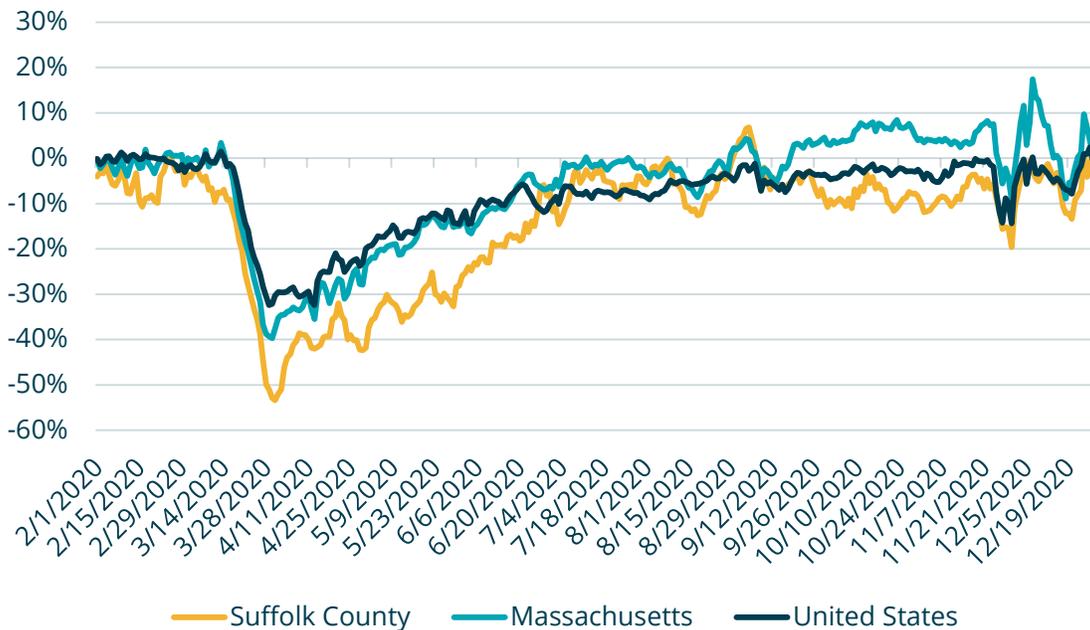
Consumer demand depends on 1) income to afford to spend and 2) safe access to goods and services. Boston residents who maintained their jobs during the pandemic still had income to spend, but may have shifted their spending patterns in light of the public health risks (such as limiting restaurant dining). However, for residents who lost their jobs or a significant portion of their income, lack of financial resources became a driving factor behind consumer spending decisions.

Overall consumer spending by residents of Suffolk County fell by 55 percent during the month of March as the COVID-19 shutdown began.¹⁵ This consumer spending, which includes both online and in-person transactions, gradually rose before

plateauing at 5-10 percent below January levels in late June. Overall consumer spending by residents of Suffolk County was more negatively impacted compared to spending by Massachusetts residents, perhaps in part because the unemployment rate in Suffolk County has been higher than that of the state as a whole. As of December 26, 2020, overall consumer spending by Suffolk County residents had risen to around 1 percent below January levels, while consumer spending by Massachusetts residents had increased to 3.7 percent above January levels. Figure 9 shows overall consumer spending compared to January 2020 for residents of Suffolk County, Massachusetts, and the U.S.

FIGURE 9

Change in Overall Consumer Spending Compared to January 2020



Source: Affinity Solutions, BPDA Research Division Analysis, January 2021.

In-Person Consumer Spending

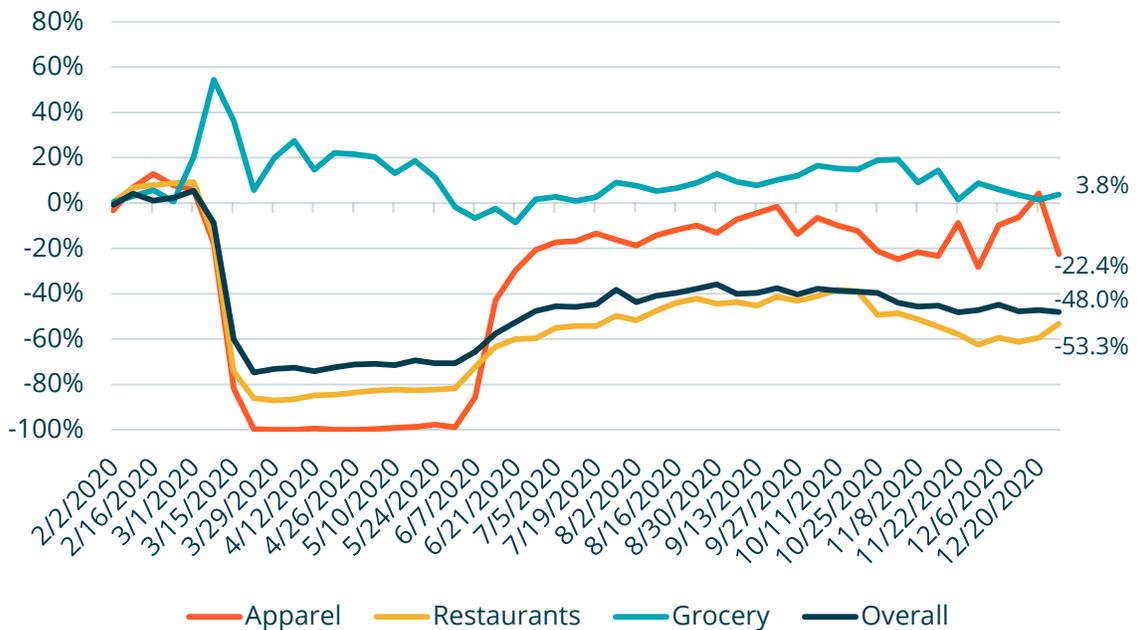
Total in-person spending in Boston collapsed with the lockdowns of mid-March, but increased during the summer months when COVID-19 case counts fell and stores could reopen. From August through mid-October, in-person spending in Boston remained at approximately 40 percent below January levels.¹⁶ In-person consumer spending in late-November was slightly lower than in earlier weeks at 47 percent below January levels (Figure 10).

Boston in-person spending on groceries has been elevated throughout the pandemic, as people eat at home more often. In April, grocery spending

was 21 percent above January levels.¹⁷ In-person restaurant spending fell by more than 80 percent in the spring, but gradually increased through the summer months, recovering to 38 percent below January levels in the week of October 11th. However, increasing COVID-19 case counts and colder weather prompted a decline in in-person restaurant spending to around 60 percent below January levels in late November and December. In-person apparel spending fell to close to zero in the spring as non-essential clothing stores were ordered to close, but recovered to about 7 percent below January levels by September 2020.

FIGURE 10

Percentage Change in In-Person Consumer Spending in Boston Compared to the Average Level in January 2020



Source: MasterCard Geographic Insights from January 1st, 2020 to December 31st, 2020, BPDA Research Division Analysis.

Businesses in Boston

Reduced consumer demand due to the pandemic continues to impact Boston businesses. Small business revenue in Suffolk County fell by two-thirds from January to April 2020.¹⁸ As of the end of December, small business revenue in Suffolk County was still down by 60 percent compared

to January levels. Revenue for small businesses in the leisure and hospitality sector fell by 87 percent in April and is still down 75 percent in December. Revenue for small businesses in the retail and transportation sectors fell by 63 percent in April and was still down 53 percent in December.



Travel & Hospitality Industry

The COVID-19 pandemic had a devastating impact on the travel and hospitality industry. Restaurants were limited to take-out and delivery service from March 17th to June 8th 2020. The City of Boston lifted licensing regulations to allow takeout/delivery at all restaurants, and created a guidebook for offering take-out and delivery. On June 8th, outdoor seated dining was allowed. The City granted temporary outdoor seating licenses to Boston restaurants that meet the requirements, and provided resources to help with the restaurants' conversion to outdoor dining service. On June 22nd, indoor seated dining began with restrictions on capacity, which on December 26th were reduced to 25 percent capacity.

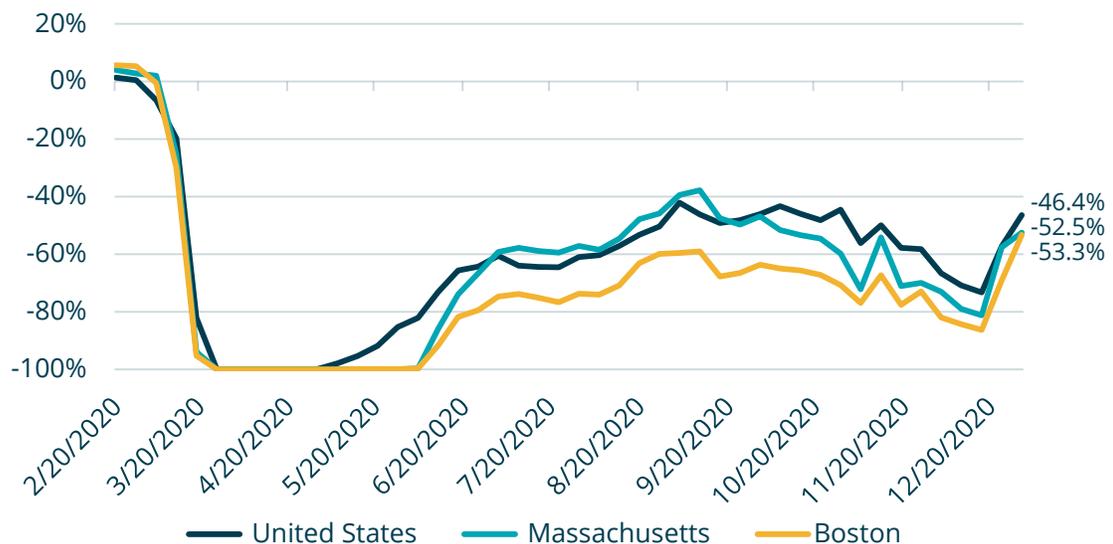
In addition to government restrictions, many people did not feel safe eating indoors at restaurants during the pandemic. According to polls conduct-

ed on Nextdoor, the majority of Boston residents responded that they would "never dine" indoors in the next month. The share of respondents saying they would not dine indoors in the next month remained constant at an average of 72 percent from July 2020 through January 2021. Poll respondents commented that they felt more comfortable dining outside or doing takeout from restaurants.

Seated restaurant dining remains far below 2019 levels. Weekend diners slowly increased through the summer, reaching 60 percent of 2019 levels in September.¹⁹ However, colder weather and increasing COVID-19 cases drove weekend diners down to approximately 35 percent of 2019 levels in December. Weekday dining in Boston has been hit even harder with the smaller numbers of commuters and visitors coming into Boston each day.

FIGURE 11

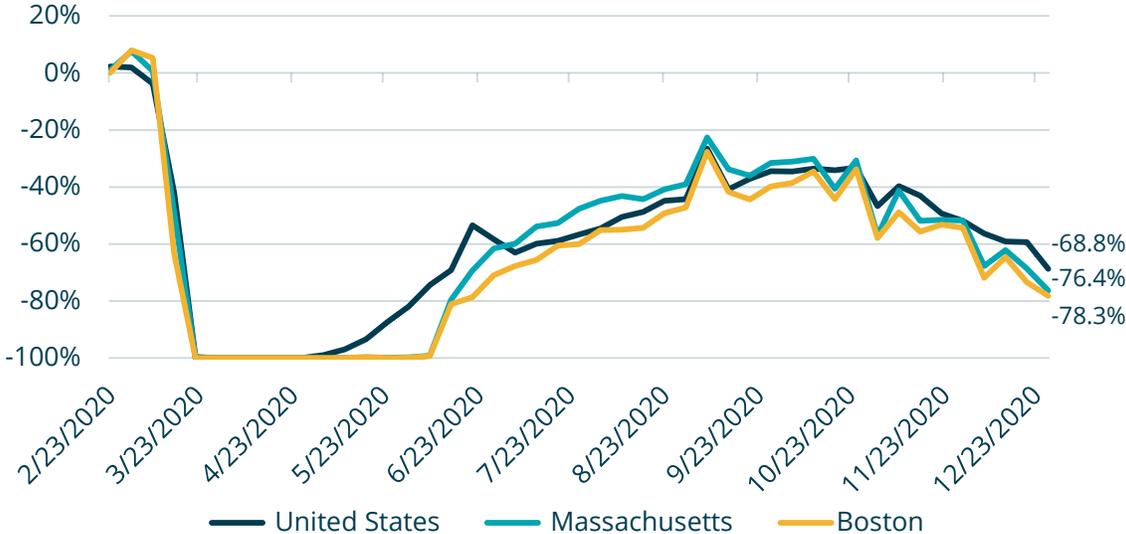
Percentage Change in Seated Diners on Weekdays (Monday to Thursday Averages), 2020



Source: Operable Industry Data, BPDA Research Division Analysis.

FIGURE 12

Percentage Change in Seated Diners on Weekends (Friday to Sunday Averages), 2020



Source: Operable Industry Data, BPDA Research Division Analysis.



Visitors to Boston

Public health concerns, government restrictions and the economic recession limited the number of visitors coming to Boston in 2020. Based on cell phone mobility data, visitors to Boston sharply declined in March 2020. As case counts declined and regulations eased in the summer, visitors to Boston gradually increased but remained below pre-pandemic levels. Figure 13 shows the weekly change in visitors coming to Boston over time compared with the average levels in January 2020. Visitors are defined as people who spent time in

Boston, but did not live or work in the city. In late March/early April the total number of visitors coming to Boston dropped by about 55 percent.²⁰ In July, the number of visitors coming to Boston rose to 40 percent below the pre-pandemic January level. Post-pandemic visitors to Boston peaked in October at 20 percent below January levels, before falling off again as the weather grew colder and case counts increased. The year 2020 ended with visitors back at 40 percent below January levels.

FIGURE 13

Percentage Change in the Number of Visitors Coming to Boston, Compared to the Average Level in January 2020



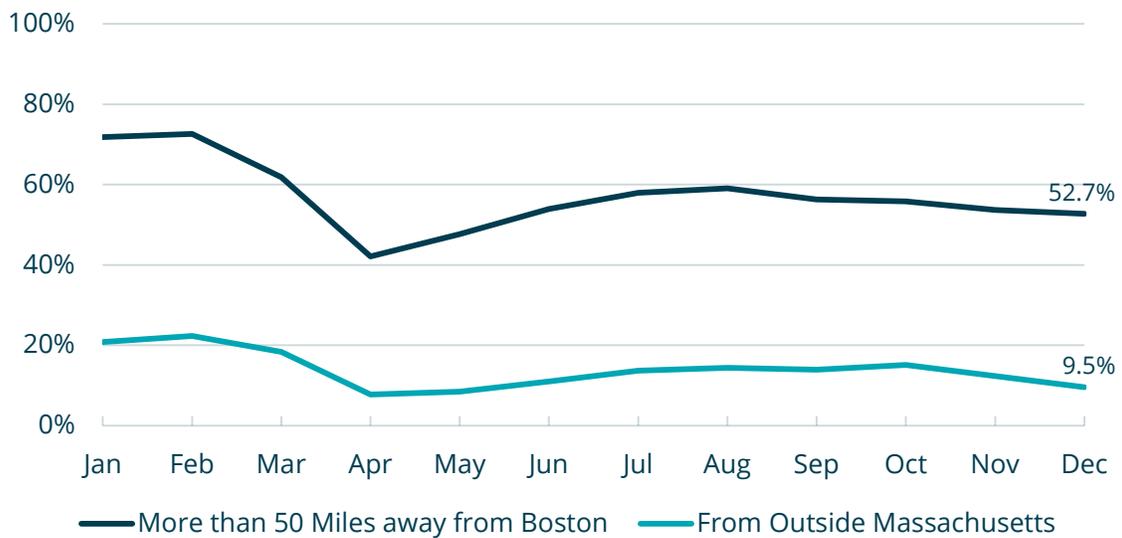
Note: Cuebiq collects first-party data from anonymized users who have opted-in to provide access to their location data anonymously, through a GDPR-compliant framework. To preserve privacy, home and work locations are aggregated to the census-block-group level.

Source: Cuebiq Mobility Data, BPDA Research Division Analysis.

Government-imposed travel restrictions on international and interstate travel as well as concerns about the safety of air travel have encouraged people to spend their vacation and leisure time closer to home. In February 2020, 72 percent of visitors to Boston came from more than 50 miles away (shown in Figure 14).²¹ In contrast, in December 2020, 53 percent of visitors to Boston came

from more than 50 miles away. This shift is significant because visitors from farther away are likely to spend more time in Boston and spend more money, especially on things like hotel accommodations. In February 2020, 22 percent of visitors to Boston came from outside of Massachusetts. In December 2020, only 10 percent came from outside of Massachusetts.

FIGURE 14 Share of Visitors to Boston Coming from more than 50 Miles away/ from Outside of Massachusetts in 2020



Note: 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.

Source: Cuebiq Mobility Data, BPDA Research Division Analysis.

Boston has been one of the top ranking cities in the U.S. for conventions, trade shows and large scale meetings with many of the city's venues booked five years in advance. In 2019, the Greater Boston Convention and Visitors Bureau (GBCVB) hosted 336 events at the Hynes Convention Center, Seaport World Trade Center, and Boston Convention and Exhibition Center (BCEC).²² Convention and meeting travel generated an operational

revenue of \$79.1 million and had an economic impact of \$870 million in 2019. In 2020, the GCVB expected to host 79 conventions at the Hynes Convention Center and Boston Convention and Exhibition Center. However, the COVID-19 pandemic and bans on large gatherings forced the cancellation or postponement of the remaining 53 conventions planned after mid-March.

Boston is a popular vacation destination with historical and cultural attractions such as the Freedom Trail, Faneuil Hall, Fenway Park, Boston Common and Public Garden. Together the Museum of Science, the New England Aquarium and the Museum of Fine Arts welcomed approximately 4 million visitors in 2018, and were the highest attended attractions in Boston.²³ Visitors also come to Boston to enjoy the local restaurants and attend performances such as the Boston Symphony Orchestra and theater productions. With the COVID-19 crisis, many of these attractions were temporarily closed in March. Some institutions began to reopen in July with Phase 3 of the reopening plan; however, in December, a rollback of the reopening plan necessitated closure of cultural institutions once again.

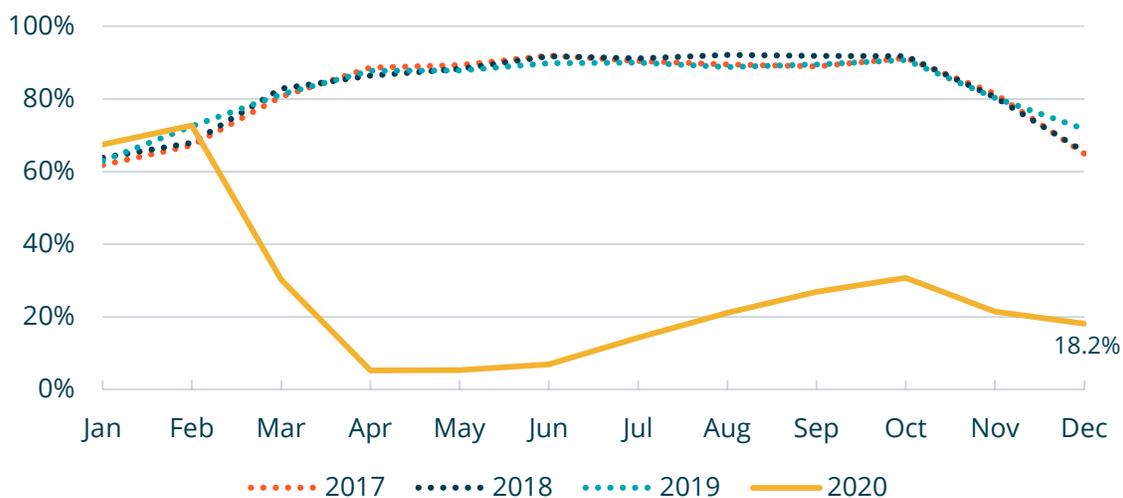
Additionally, many Boston visitors have travel plans related to colleges and universities. In a normal year, families, current and prospective students, and alumni travel to Boston and take

advantage of the opportunity to enjoy the city's attractions. Due to the COVID-19 pandemic, restricted on-campus activities and reduced enrollment have limited visits to Boston by parents, prospective students, and alumni in 2020.

Hotel Occupancy

Hotels in Massachusetts were restricted to housing for front-line workers and quarantining residents from March 23rd to June 8th, 2020. Since then, hotels have been allowed to open to the public, although restrictions on travel and consumer caution have kept occupancy low. Prior to the pandemic, the annual occupancy rate of Boston's 93 hotels had remained above 80 percent since 2013.²⁴ Hotel occupancy plummeted to 5 percent in April 2020 before gradually rising to 31 percent in October. However, with the rising of COVID-19 cases again as well as entering the low season of the hotel market, the occupancy rate declined to 18 percent in December.

FIGURE 15 Boston Hotel Occupancy Rate by Month, 2017 to 2020



Source: *The Pinnacle Perspective Boston/Cambridge Monthly Report, 2017-2020, BPDA Research Division Analysis.*

Air Travel

2019 was a record-breaking year for passenger traffic at Boston's Logan International Airport, reaching 42.5 million passengers, a 3.9 percent increase from the prior year. International passenger traffic increased 9.7 percent from 2018 to 2019.²⁵ However, air passenger travel at Logan Air-

port in 2020 was a fraction of normal levels due to the pandemic, as seen in Figure 16. Total passengers at Logan Airport fell to less than 3 percent in April 2020 before rising to 23 percent in November, compared to the same month in 2019.

FIGURE 16

Monthly Passengers at Logan Airport, 2017 to 2020



Source: Massachusetts Port Authority, Aviation General Management (Massport), January 25, 2021.

Real Estate Market

The COVID-19 pandemic has altered the pace of development in Boston as construction activity was paused in the spring and the development review activities had to be restructured and moved online out of public health considerations.

Article 80 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.

In March 2020, the Boston Planning & Development Agency (BPDA) paused the public review process for all development projects and Board meetings were moved online. In April, the Board

did not vote on any Article 80 development projects and the May, June, and July Board meetings only approved projects that had already completed their public processes. By the fall, the BPDA board had fully pivoted to a virtual development review process, with many new projects going before the board.

Despite initial setbacks during the spring and summer, the BPDA approved 15.89 million square feet of new development.²⁶ 2020 was a record breaking year in comparison to the past seven years. During Mayor Walsh’s administration, from 2014 to 2020, over 82.3 million square feet of new or renovation projects were approved, estimated to bring approximately 77,000 construction jobs and 67,000 new permanent jobs to the city. Data in Figure 17 below show the approved square footage by year during this time.

FIGURE 17 Total Square Feet Approved by Residential and Non-Residential, 2014 to 2020



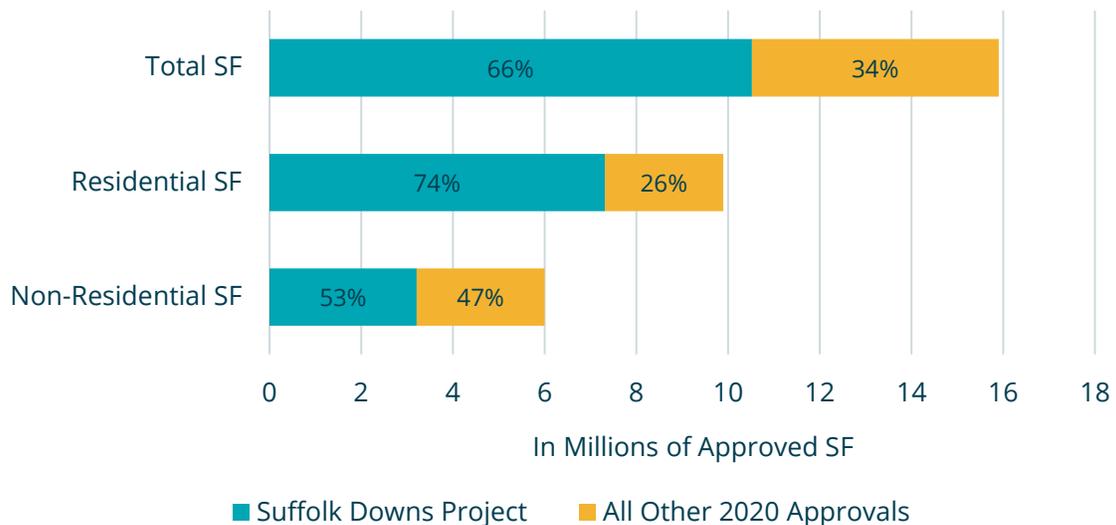
Source: BPDA Research Division Pipeline Database and Analysis, January 12, 2021.

A major contributor to the 2020 approval total is the Suffolk Downs Redevelopment which approved 7,150 new residential units in East Boston. This 10 million square foot mixed use project in

East Boston accounts for 66 percent of the total development square footage approved and 71 percent of the total housing units approved.²⁷

FIGURE 18

Suffolk Downs in Context with All Other 2020 Project Approvals



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

In 2020, the BPDA approved 3.4 million square feet of new office space. These office developments will come on line over the coming years. Approved projects with office space include:

- **401 Congress Street**, in the South Boston Waterfront, will bring 285,500 square feet of office space and 207,000 square feet of life-science space, along with outdoor public space.
- The **South Boston Innovation Campus** in the South Boston Waterfront will bring a 10-story office building with over 380,000 square feet of office, laboratory, and research and development space.

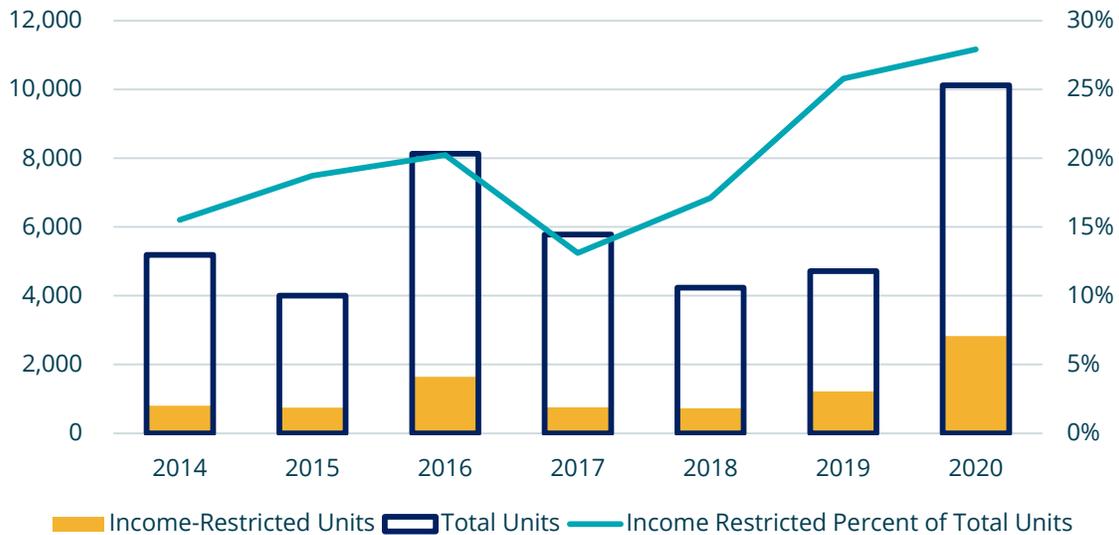
- The new **WBZ-TV/CBS Studio** in Allston will replace the existing WBZ-TV/CBS facility with a smaller, modern, energy-efficient 63,000 square foot building with a more compact carbon footprint.
- A notice of project change was approved in 2020 for **Fenway Center - Parcel 7 Air Rights** in Fenway. This second phase of the Fenway Center planned development area will create 180,000 square feet of office space, over 500,000 square feet of research and development space, and space for residential and retail uses.

2020 was a strong year for residential approvals. In 2020 nearly two-thirds of approved project square footage was residential – accounting for 9.9 million square feet. This translates to over

10,123 new residential units, of which 2,826 are income-restricted. In comparison to earlier years, 2020 also had a larger percentage of income-restricted units, at 27.9 percent.

FIGURE 19

Percentage of Income-Restricted Units to All Approved Units, 2014 to 2020



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

In addition to Suffolk Downs, other large residential projects approved by the BPDA Board in 2020 included Washington Village (746 units) in South Boston, 1252-1270 Boylston Street (451 units) in Fenway, and Allston Green (349 units) in Allston.

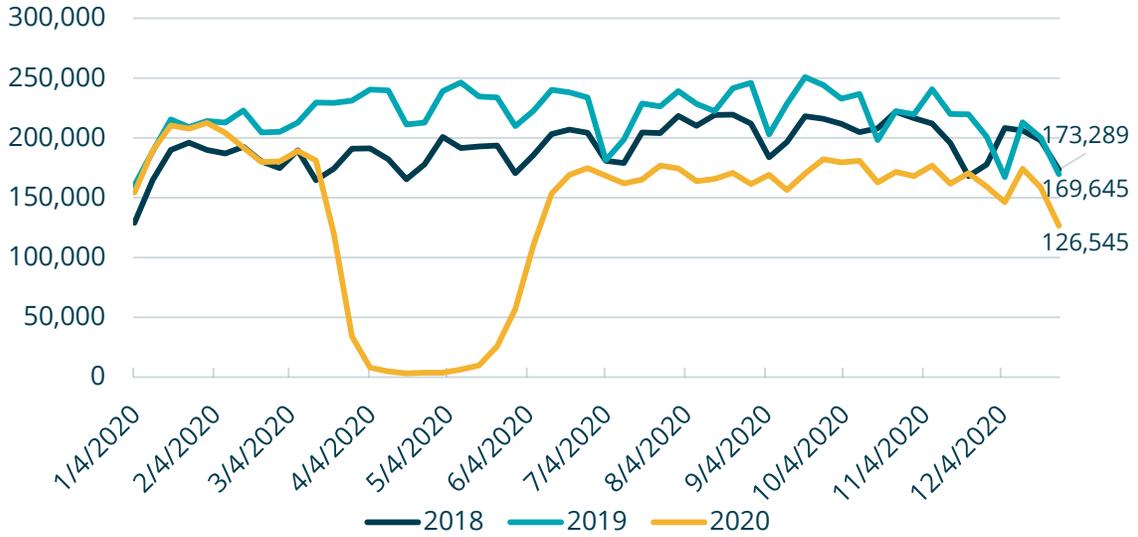
Construction Activity

On March 16th, 2020, Mayor Martin J. Walsh announced a halt to all construction projects in the City of Boston except work essential to the safety and well-being of the Boston residents. As of March 16th, 97 Article 80 projects were under construction, totaling over 21 million square feet of new or renovated space. With the construc-

tion ban, work on these projects mostly shut down. According to Boston Resident Jobs Policy data, construction hours worked in April and May 2020 were approximately two percent of those worked in equivalent weeks of 2019.²⁸ Starting on May 26th, construction resumed as allowed by the State, with the required COVID-19 Safety Affidavits and COVID-19 Safety Plans for permitted construction work. By mid-June, construction hours had increased to about 80 percent of hours worked at the same point in 2019, and construction hours remained at about 75 to 80 percent for the rest of 2020.

FIGURE 20

Construction Hours Worked, 2020



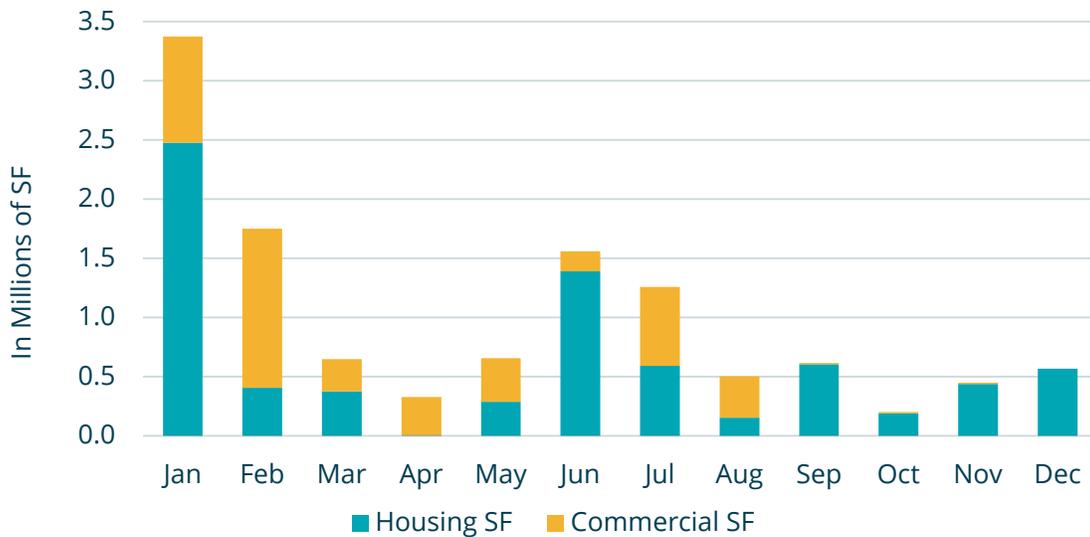
Source: Boston Residents Jobs Policy Office (BRJO), Boston Jobs Policy Compliance Reports.

The construction halt impacted the permitting of new projects in 2020. The year started off strong with 2.5 million SF of housing receiving permits in

January and 1.4 million SF in February. When lock-down began and economic uncertainty took hold in March, the number of permits declined.

FIGURE 21

Square Footage of Construction Start Permits Issued, 2020



Note: Includes Article 80 projects and other projects outside of the Agency's purview.

Source: Department of Neighborhood Development, Housing and Commercial Master, January 31, 2021.

Due to exceptionally high permitting activity in December 2019 and January 2020, Boston's building permit revenues in fiscal year 2020 hit a ten-year high at \$69.6 million, representing an estimated

potential construction activity of \$8,185 million. With the onset of the pandemic, permitting activity slowed, resulting in lower building permit revenues for fiscal year 2021.

TABLE 2

Boston's Building Permit Revenues and Estimated Construction Activity, FY2010-2020
In Fixed 2020 dollars

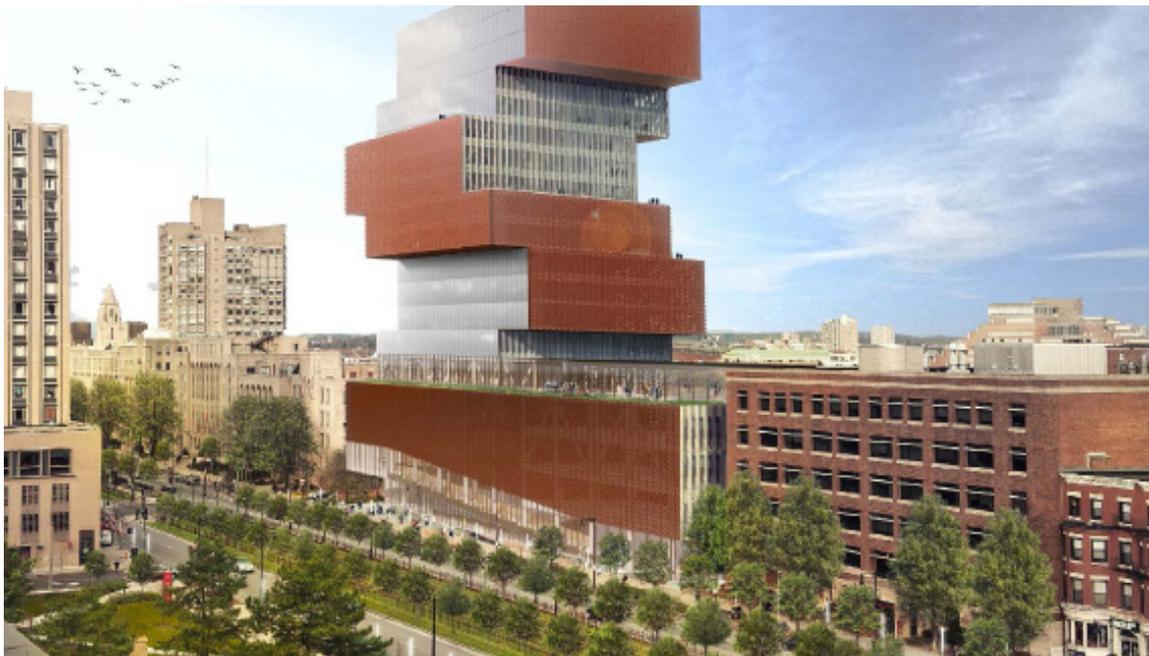
Fiscal Year	Building Permit Revenues, in millions of dollars	Estimated Potential Construction Activity, in millions of dollars
2010	\$17.6	\$2,062
2011	\$27.0	\$3,176
2012	\$36.7	\$4,319
2013	\$32.6	\$3,824
2014	\$43.8	\$5,154
2015	\$56.5	\$6,644
2016	\$56.4	\$6,633
2017	\$65.4	\$7,696
2018	\$54.5	\$5,592
2019	\$62.6	\$7,363
2020	\$69.6	\$8,185
Boston Total	\$522.7	\$60,647
Annual Average	\$47.5	\$5,513

Note: Columns may not add due to rounding. Potential construction activity estimated by dividing permit revenues by 0.85%, which is the midpoint between permit fees calculated at 0.7% of the first \$100,000 estimated value of development cost, and 1% for the remainder of development cost.

Source: City of Boston, Auditing Department and City of Boston Annual Reports, BPDA Research Division Analysis, January 2021.

As of February 2021, there were 108 Article 80 developments under construction throughout Boston. Some noteworthy projects that are currently under construction include:

- The **BIDMC New Inpatient Building** in Longwood will be approximately 325,000 square feet and will include 158 inpatient beds, of which 30 will be intensive/ critical care beds, along with a rooftop helipad.
- The **Boston University Data Sciences Center** in Fenway, a 19-story project, will consolidate the Departments of Computer Science and Mathematics and Statistics and the Rafik B. Hariri Institute for Computing and Computational Science and Engineering into one building.
- **144 Addison Street** in East Boston will redevelop an existing surface parking lot, turning it into two residential buildings with 230 residential units, of which 30 are income-restricted units.
- The **Dot Block** Development Project in Dorchester will consist of four new buildings supplying 488 residential units, of which 66 will be income-restricted, along with 23,000 square feet of neighborhood-oriented retail and restaurant space, and 1.34 acres of open space.
- The redevelopment at **105 West First Street** in South Boston will provide an eight story building with office, lab, and research space along with ground floor space for retail, cafe or restaurant use and 10,000 square feet of innovation space.
- The **Turnpike Air Rights Parcel 12** project in Back Bay on Boylston Street and Massachusetts Avenue will provide retail, hotel, and parking space as well as 450,000 square feet of office space and half an acre of publicly accessible open space consisting of a civic plaza and an elevated landscaped plaza.

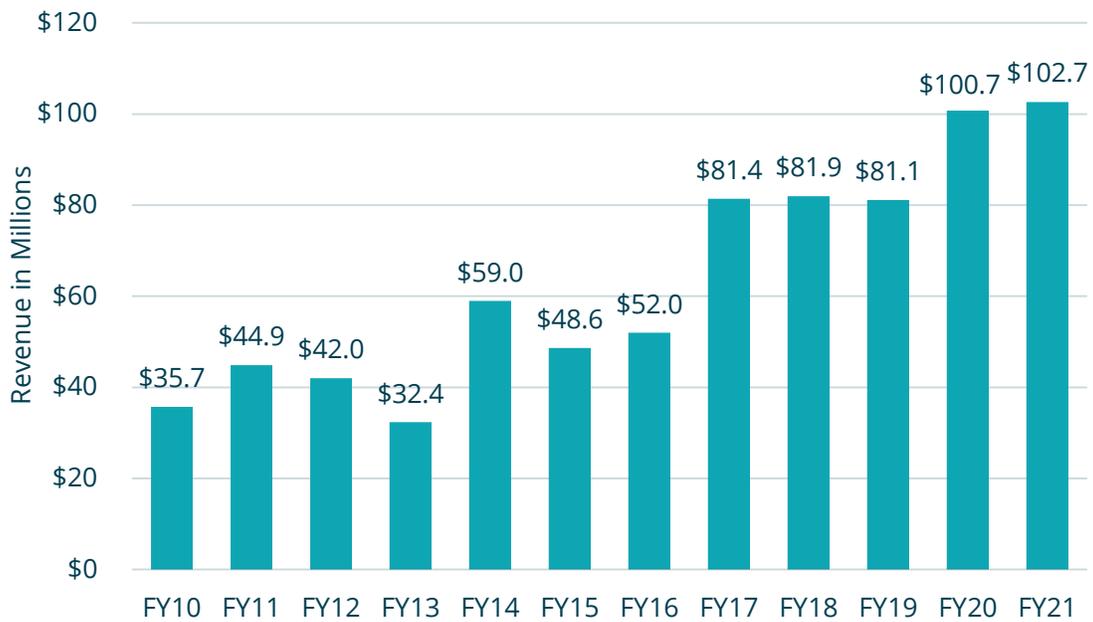


Source: Photo Rendering of Boston University Data Sciences Center, Trustees of Boston University, 2018.

New development adds to the city's tax base. The city's property tax levy has seen strong growth in recent years as Boston continues to build. Figure 22 shows the new growth component of the property tax levy for FY2010 to FY2021. This number measures the expected tax due in each fiscal

year on property newly added to the tax rolls as of January 1st of the prior year. Boston expects to collect \$102.7 million in taxes in FY2021 from new growth, the highest year on record. This number reflects property added to the tax rolls between January 1st, 2019 and January 1st, 2020.

FIGURE 22 **Property Tax Revenue from New Development**
In Millions of Fixed 2020 Dollars



Source: City of Boston Assessing Department, "Property Tax Facts and Figures", BPDA Research Division Analysis.

Commercial, Office Market, & Lab RnD

Prior to the COVID-19 pandemic, Boston experienced job growth in industries such as professional, scientific, and technical services and finance and insurance that require commercial office space. This employment growth drove an increase in demand for office space in Boston. During the pandemic, many office workers began working from home. It is unclear when and to what extent these workers will return to work in office buildings in Boston.

As of 2020, there are approximately 112 million square feet of office space in Boston. Certain neighborhoods in Boston are particularly dense with office space development. Downtown, which includes the Financial District, remains Boston's largest commercial office market with 48 million square feet of office space, followed by Back Bay with 17 million square feet and the South Boston Waterfront with 14 million square feet.

TABLE 3

Boston's Inventory of Commercial Office Real Estate by Neighborhood, 2020

Neighborhood	Existing Stock SF, 2020	Market Rent per SF, 2020	Vacancy Rate, 2020
Allston & Brighton	3,100,000	\$41.77	4.57%
Back Bay	17,200,000	\$62.90	5.90%
Charlestown & East Boston	4,200,000	\$40.73	11.35%
Downtown	48,100,000	\$58.76	10.61%
Jamaica Plain & Roslindale & Mattapan	990,000	\$31.87	3.73%
Longwood & Fenway	8,400,000	\$56.28	3.40%
North End	2,100,000	\$43.65	5.43%
West End & Beacon Hill	6,100,000	\$55.42	4.10%
Roxbury & Dorchester	4,200,000	\$35.65	5.27%
South Boston Waterfront	14,100,000	\$57.04	13.30%
South Boston	504,000	\$34.07	3.69%
South End	3,400,000	\$44.40	6.89%
Boston Total	112,394,000	\$57.51	8.75%

Note: Neighborhoods were adapted to BPDA standard neighborhoods from CoStar listed neighborhoods. Numbers were rounded to nearest 1,000, therefore columns may not sum to total.

Source: CoStar Analytics, BPDA Research Division Analysis, February 2021.

Major recent commercial completions include:

- **100 Hood Park Drive** in Charlestown was completed over the summer of 2020, providing 50,000 square feet of office space and a 990 vehicle parking garage.
- In the South Boston Waterfront, construction wrapped up on **Two Drydock (Parcel Q1)** in early 2020, which created a 13-story commercial building with over 210,000 square feet of office space.
- A new office building at **1785 Columbus Avenue** was completed over the summer of 2020, bringing Roxbury/ Jamaica Plain 135,500

square feet of office space, ground floor retail space, and 157 parking spaces.

Impact of Uncertainty on the Commercial Real Estate Market

Due to low rates of office space utilization and economic uncertainty, some companies have put office space on the sublease market. However, there have been few tenants looking to sublease space, leading to 3.5 million square feet of available sublease space on the market - a larger inventory than during the Dot Com bust of 2001.

FIGURE 23

Total Sublease Space Available in Boston, 2001 to January 2021



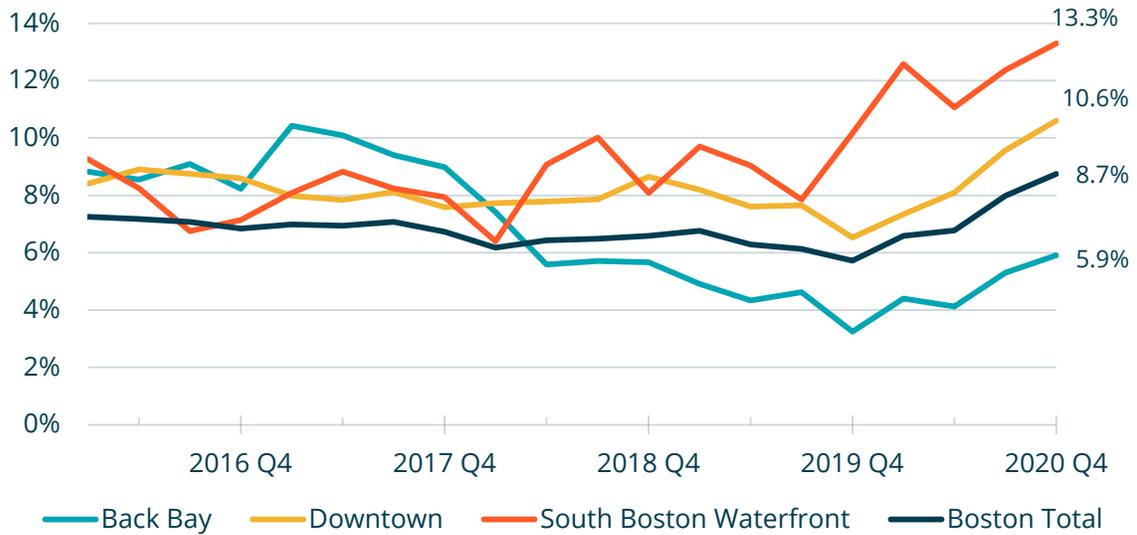
Source: CBRE, Downtown Boston Sublease Space, January 29, 2021.

As existing leases expire and as new office developments come on line, reduced demand has led to increasing vacancy rates in the commercial of-

fice market, reaching 13 percent in the South Boston Waterfront and 10 percent in Downtown.

FIGURE 24

Office Market Vacancy Rate for Boston's Three Largest Submarkets, Quarterly 2016 to 2020

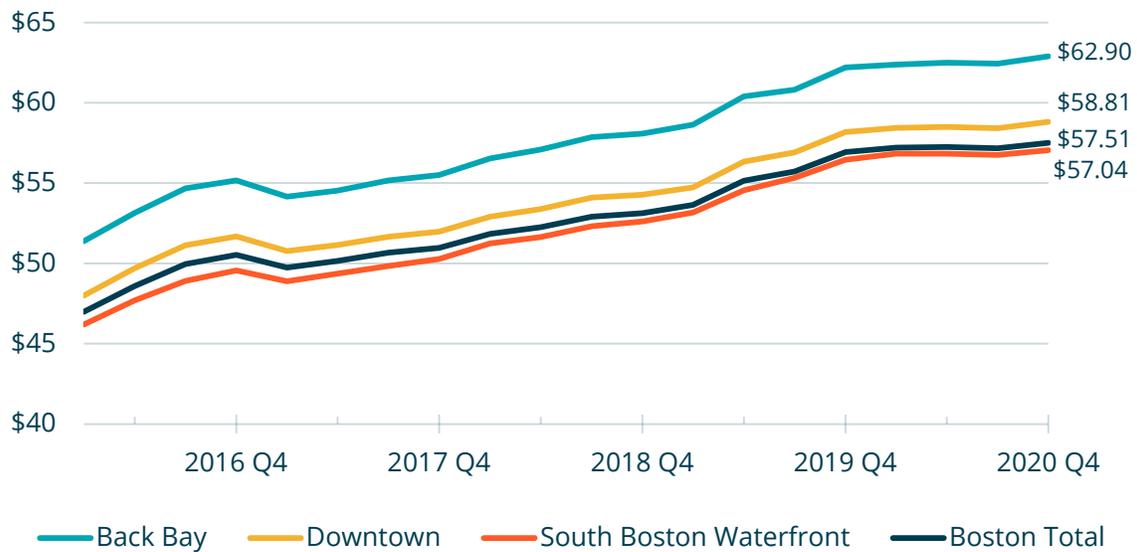


Source: CoStar Analytics, BPDA Research Division Analysis, February 2021.

Despite increasing vacancy rates, office market rents have held steady at \$62.90/sf in Back Bay, \$58.81 in Downtown, and \$57.04 in South Boston Waterfront.

FIGURE 25

Office Space Market Rent per Square Foot for Boston's Three Largest Submarkets, Quarterly 2016 to 2020



Source: CoStar Analytics, BPDA Research Division Analysis, February 2021.

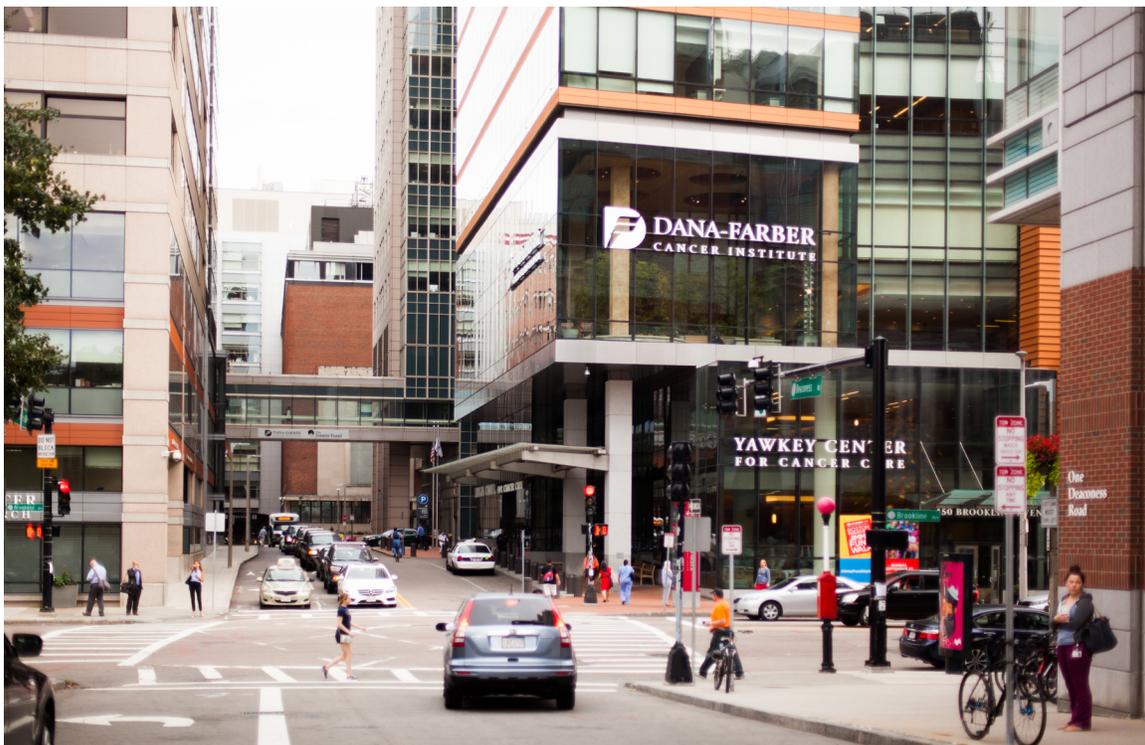
Life Science and Technology Industry

Life science and technology have been a resilient industry during COVID-19. Boston is a leader in biotechnology and laboratory-based research and development, this work includes autonomous vehicles research, cybersecurity, internet of things, robotics, AI/machine learning, and biotechnology and life science research.

Demand for laboratory space remains strong in the COVID-19 era. Life science companies produce and supply critical medical products and work to develop therapies and vaccines for COVID-19 and other diseases.²⁹ Life sciences, including research & development (R&D), manufacturing, distribution, warehousing, and supply chain, were considered essential businesses and remained operational while most office-based companies were fully remote.³⁰ For these reasons, the industry is particularly insulated from COVID-19 impacts.

In recent years Boston developers have begun to include more lab or flexible space in their buildings over office space in order to accommodate the growing life science market. The lab space market in Cambridge is increasingly tight—lab vacancies fell to 2.2 percent in early 2020, so Boston’s life science market is poised to take on spillover from Cambridge as well as independently attract new companies.³¹ The change in development initiatives and increased demand in the metro area helped grow the life science sector in Boston.

Life science and biomedical research companies’ demand has shown to be resilient during the pandemic, unlike traditional office tenants. With a steadily growing inventory, Boston will continue to meet this industry demand.



Residential Market

Residential Completions

The plan Housing A Changing City: Boston 2030 (HB2030), released in 2014, set a target to build 53,000 new units by 2030. With Boston’s growing population, these goals were revised upwards in 2018, with a new target of 69,000 units, 15,820 of which will be income restricted. Between FY 2011

and 2020, the city completed 34,326 housing units.³² At the end of CY 2020, there were 2,276 units permitted/under construction and 2,759 new housing units were completed in Boston, despite challenges the construction industry faced due to COVID-19.³³

TABLE 4

Large Residential Completions of 2020

Development Project	Neighborhood	Total Residential Units	Income-Restricted Units
Hub on Causeway	West End	440 units	45 units
The Echelon	South Boston Waterfront	270 units	28 units
The Residences at Forest Hills	Jamaica Plain	250 units	50 units

Source: BPDA Research Division Pipeline Database, February 2021.

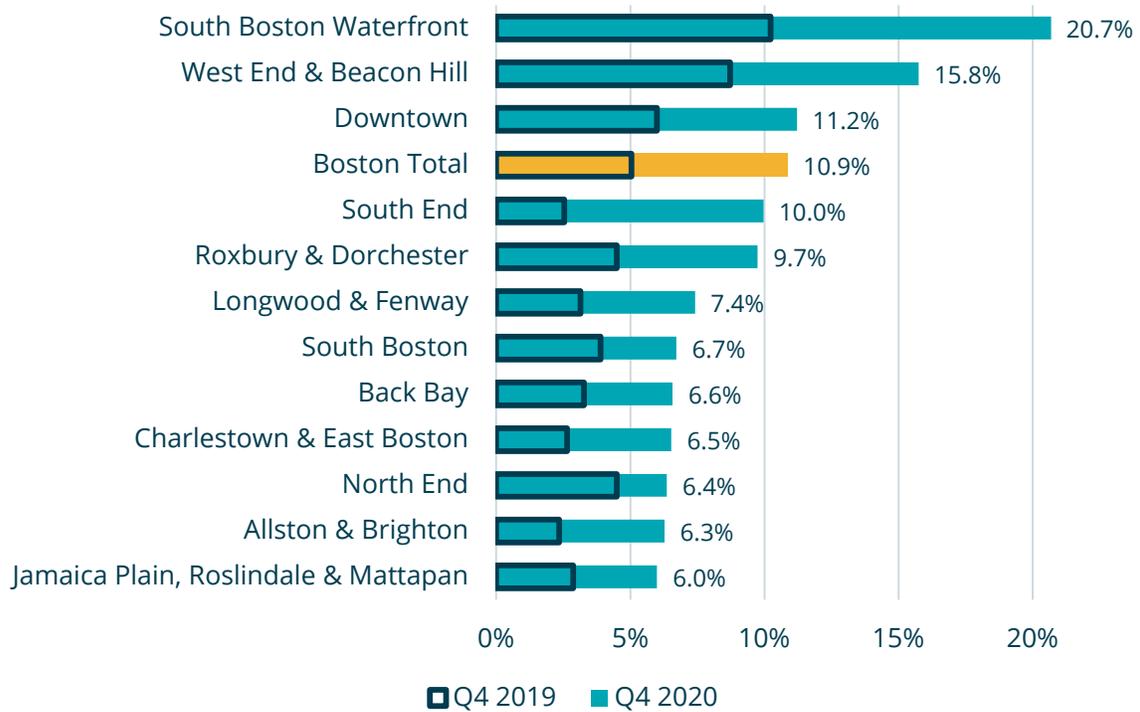


Vacancy rates in residential buildings with five or more units have increased during the pandemic. For the city as a whole, multifamily residen-

tial vacancy rates increased from 5.0 percent in the fourth quarter of 2019 to 10.9 percent in the fourth quarter of 2020.

FIGURE 26

Multifamily Residential Vacancy Rates by Neighborhood



Note: Multifamily Residential properties are defined by CoStar as residential dwellings with 5 or more units. Source: CoStar Quarterly Analytics, BPDA Research Division Analysis.

Conclusion

The COVID-19 pandemic hit Boston early in the spring of 2020. A shutdown of non-essential businesses was ordered by Governor Baker in mid-March. New daily coronavirus cases peaked in late April and the economy began a cautious reopening in May. However, cases began to rise again in the fall, and the governor announced new restrictions in early November.

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 over the 2.5 percent unemployment in February 2020.³⁴ Boston's unemployment rate fell to 7.6 percent in December. Approximately 29,000 Boston residents remained unemployed as of December 2020.

The unemployment rate reflects only a portion of the employment impact of the pandemic. The city's resident labor force fell by approximately 9 percent in April as people stayed at home and did not seek work. The city's resident labor force recovered somewhat, with some workers finding employment and others beginning to seek work. However, the resident labor force was 7,000 (approximately 1.8 percent) smaller in December than in February 2020.

The industries with the largest share of Boston residents continuing to claim unemployment benefits 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.³⁵ 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 government restrictions and customer health concerns.

Additionally, in-person and support service jobs in Boston rely on commuters and visitors who have not been coming to Boston in large numbers. Cell phone data suggest that the number of commuters in Boston fell by about half in the spring before increasing to about 75 percent of January 2020 levels in the fall.³⁶ Utilization of office space in Boston has been low -- approximately 8-12 percent in Downtown office towers as of the third quarter of 2020.³⁷ Low office occupancy and longer term office vacancies have hurt support businesses such as restaurants, coffee shops, convenience stores, and pharmacies. Boston's office vacancy rate rose from 7.3 percent in 2019 to 8.8 percent at the end of 2020. The COVID-19 pandemic has created business and health concerns that have led many companies to put up space on the sublease market. As of December 2020, there is approximately 3.5 million square feet of available sublease space in Boston.³⁸

The COVID-19 pandemic has taken a toll on the travel and tourism industry. The number of passengers at Logan International Airport plummeted in the spring and remained at about 20 percent of 2019 levels in the fall.. Seated restaurant dining, which was prohibited from March 17th to June 8th, is still less than half of 2019 levels, with winter weather threatening outdoor dining.

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 25 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 a number of the city's neighborhoods. The region's strong response to the pandemic that helped bring surging case counts under control in the spring is a source of confidence that cooperation and clear communication at the state and local levels can again rise to meet the challenges of the current surge. 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.

Appendix 1: Methodology for Estimating Payroll Employment in Boston by Industry for 2020

BPDA Research first estimates 2020 employment by industry in the Boston-Cambridge-Newton MA NECTA Division. In CES, the latest available month is November 2020. We extrapolate employment to December 2020 by taking December 2019 employment trends. This allows us to get the full-year employment of 2020. Then, we calculate the employment growth rate by industry between 2019 and 2020 in Boston-Cambridge-Newton MA NECTA, and apply these growth rates to the 2019 Boston City employment (ES-202) by industry to get Boston City payroll employment in 2020.

Specifically, we use CES to calculate the employment growth rate by industry between 2019 and 2020 in Boston-Cambridge-Newton MA NECTA, and then apply these growth rates to the 2019 Boston City employment (ES-202) by industry to get Boston City payroll employment in 2020.

The underlying assumption is that from 2019 to 2020, Boston City employment by industry in ES-202 grows or shrinks at the same rate as Boston-Cambridge-Newton MA NECTA Division employment by industry in CES. This is a strong assumption. ES-202 and CES are two separate employment estimate programs using different

methodologies, which results in some irreconcilable systematic employment estimate differences even for the same geographic area.³⁹ 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, then this methodology would miss 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.⁴⁰ Additionally, Boston City employment makes up nearly one-third of Boston NECTA Division employment in ES-202. Therefore we believe that the monthly employment trend in the Boston-Cambridge-Newton MA NECTA Division in CES should give informative early estimates of 2020 Boston City payroll employment.

Endnotes

- 1 Boston Public Health Commission, https://bphc.org/whatwedo/infectious-diseases/Documents/COVID19%20Boston%20Report_2020_Week53.pdf
- 2 Massachusetts Executive Office of Labor and Workforce Development (EOLWD), revised March 16th, 2021.
- 3 Ibid.
- 4 Ibid.
- 5 U.S. Census Bureau, 2019 American Community Survey Estimates.
- 6 Greater Boston Food Bank Data.
- 7 Massachusetts Department of Transitional Assistance.
- 8 U.S. Census Bureau, 2015-2019 American Community Survey Estimates.
- 9 Department of Neighborhood Development. "Applications for Rental Relief Fund Reopened." October, 20, 2020.
- 10 An in-depth comparison of Dot Com recession, the Great Recession, and the 2020 recession could be found in the briefing note: Historical Perspective on COVID-19 Recession by the BPDA Research Division, November 12, 2020.
- 11 Commuters are identified in the cell phone mobility data as people who do not live in Boston but spend at least 6 daytime hours in Boston at least twice in a week during weekdays. In addition to people who regularly commute into Boston to work, commuters could also include students who live outside Boston and commute to Boston for school.
- 12 Google Community Mobility Reports.
- 13 MBTA Datablog, COVID-19 and MBTA Ridership: Part 4.
- 14 U.S. Census Bureau, 2012-2016 American Community Survey Estimates, CTPP special tabulation.
- 15 Affinity Solutions consumer credit and debit card spending data; city level data are not available.
- 16 MasterCard Geographic Insights.
- 17 Ibid.
- 18 Change in net business revenue for small businesses (below SBA annual revenue thresholds) indexed to January 4-31, 2020 and seasonally adjusted. Data from Womply presented at <https://tracktherecovery.org/>
- 19 Opentable Industry Data.
- 20 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.
- 21 Of visitors with a known home location. Visitors are people who spend time in Boston who are not Boston residents or commuters. Cuebiq Mobility Data.
- 22 Massachusetts Convention Center Authority, January 2020.

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- 23 Greater Boston Convention and Visitors Bureau, "Statistics and Reports."
- 24 The Pinnacle Perspective Boston/Cambridge Monthly Report, 2013-2019.
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- 27 Ibid.
- 28 Boston Jobs Policy Compliance Reports, <https://data.boston.gov/dataset/boston-jobs-policy-compliance-reports/resource/5ab4b4de-c970-4619-ab55-ce4338535b24>
- 29 McKinsey and Company. "COVID-19 implications for life sciences R&D: Recovery and the next normal." May 13, 2020.
- 30 MassBio, "COVID-19 Resources."
- 31 Colliers International, "2020 Q1 Market Viewpoint Boston." March 31, 2020.
- 32 McColl, Kevin. "HB2030 Performance." Department of Neighborhood Development, June 30, 2020.
- 33 Department of Neighborhood Development, "Housing Master Database". January 4, 2021.
- 34 Massachusetts Executive Office of Labor and Workforce Development (EOLWD), Labor Force and Unemployment Data, revised March 16th, 2021.
- 35 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.
- 36 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.
- 37 CBRE, Boston Office Lab Market View, Q3 2020.
- 38 CBRE, Downtown Boston Market Sublease Space, November 6, 2020.
- 39 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>
- 40 Nick Dobbins (2018), Variations in Employment in the CES and QCEW Programs.

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