



Boston's Economy 2018

Annual Report Produced by BPDA Research Division



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Contents

- I. Economic Growth
- II. Employment and Wages
- III. Housing Market
- IV. Office Market
- v. New Development
- VI. Spotlight: Job Openings
- VII. Forecasting Boston's Economic Future

I.

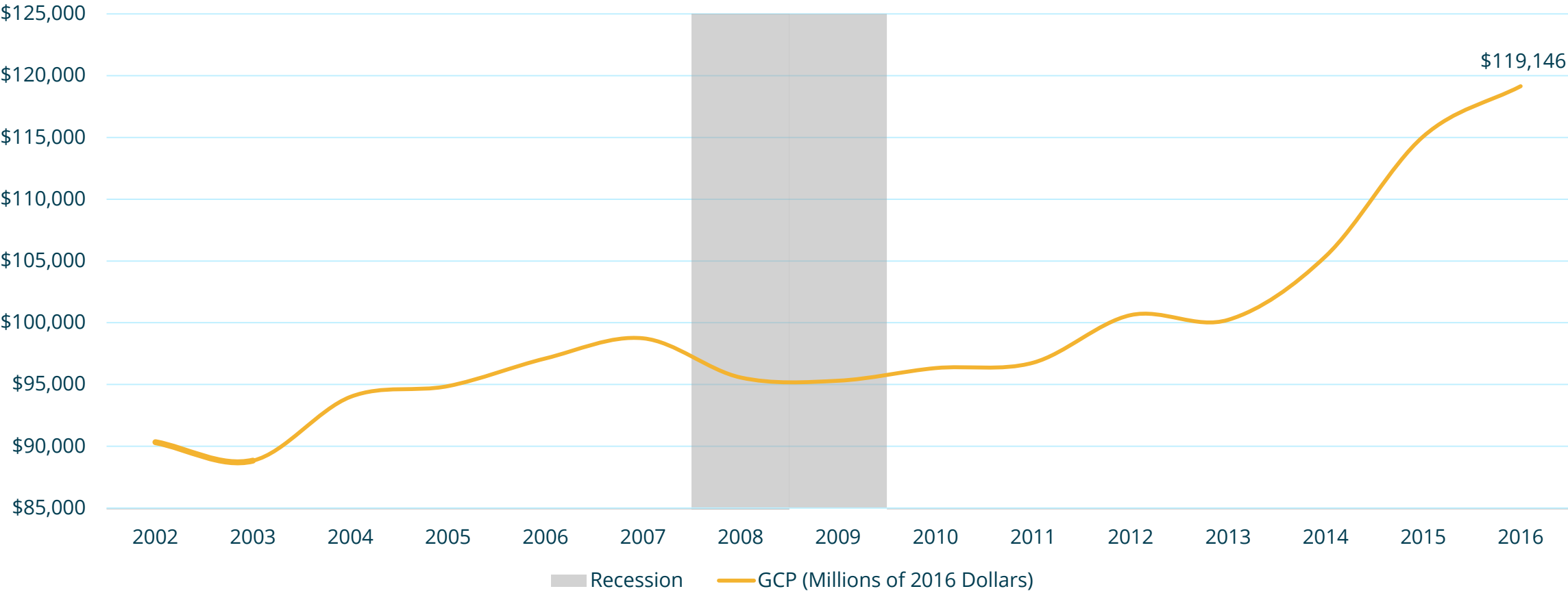
Economic Growth



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Boston generated \$119 billion in GCP in 2016

Real Gross City Product 2002 - 2016

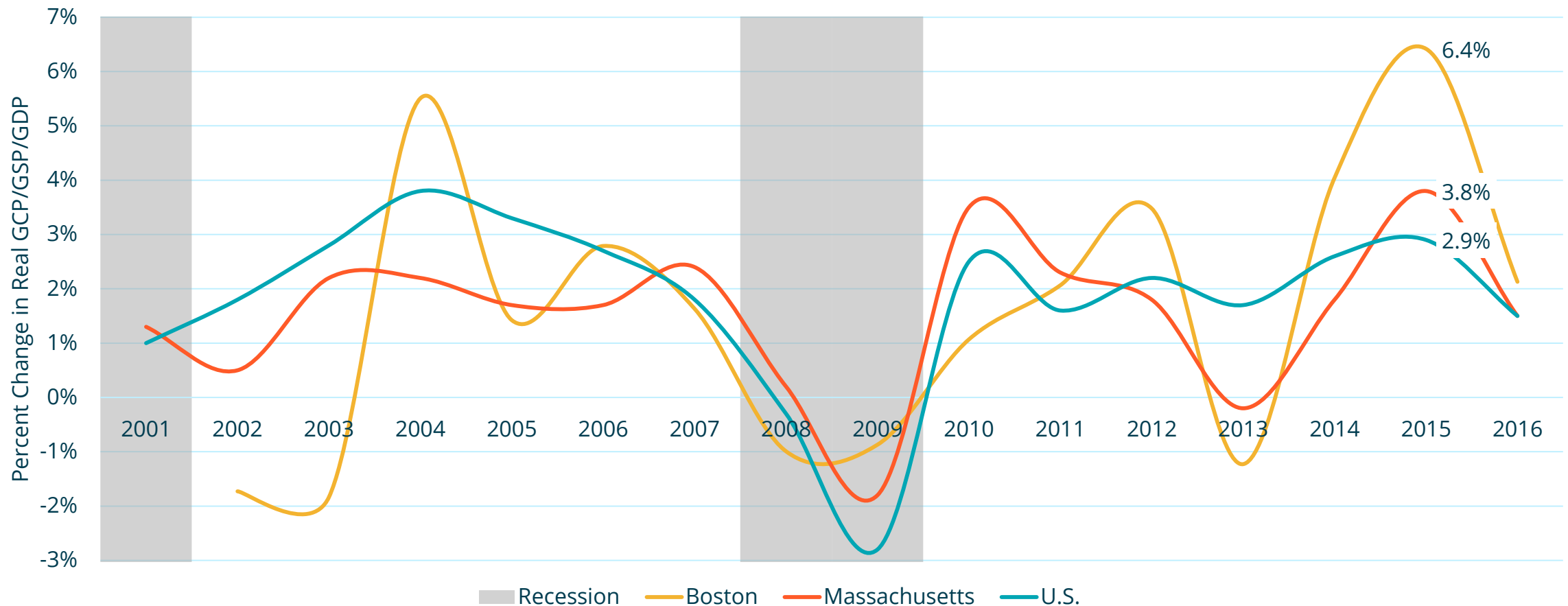


Source: U.S. Bureau of Economic Analysis (BEA), Massachusetts Executive Office of Labor and Workforce Development (EOLWD), BPDA Research Division Analysis. Current Estimate shows historical estimates revised by the BEA for the period 2014 to 2016 to incorporate methodological improvements.

Boston's growth outpaced Massachusetts and U.S.

- Boston's share of statewide economic output increased from 21.7% in 2010 to 23.6% in 2016
- Average annual growth in MA and the U.S. was 2.1% from 2010 to 2016, less than Boston's 2.6%

Real GCP/GSP/GDP Growth Rate 2001-2016



Source: U.S. Bureau of Economic Analysis (BEA), Massachusetts Executive Office of Labor and Workforce Development (EOLWD), BPDA Research Division Analysis.

II.

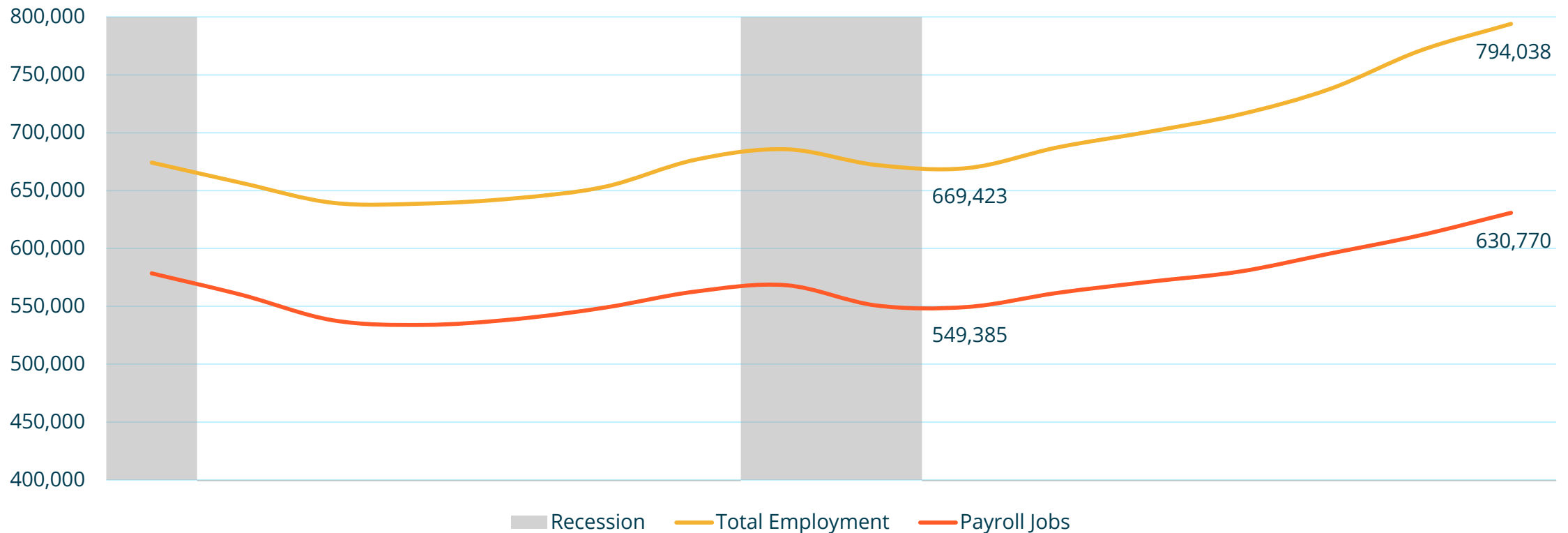
Employment and Wages



Jobs are at an all-time high

- Since 2010, Boston has added almost 125,000 jobs, including 81,000 payroll jobs
- Jobs increased 3.2% since 2015
- Non-payroll jobs have grown on average 5.3% a year since 2010, while payroll jobs have grown 2.3%

Boston's Total Payroll and Non-Payroll Jobs 2001-2016



Health care, professional services, and finance employ the most people

- Almost 1 in 5 jobs located in Boston are in health care
- Health care, professional services, finance and insurance, and government make up 50% of all jobs

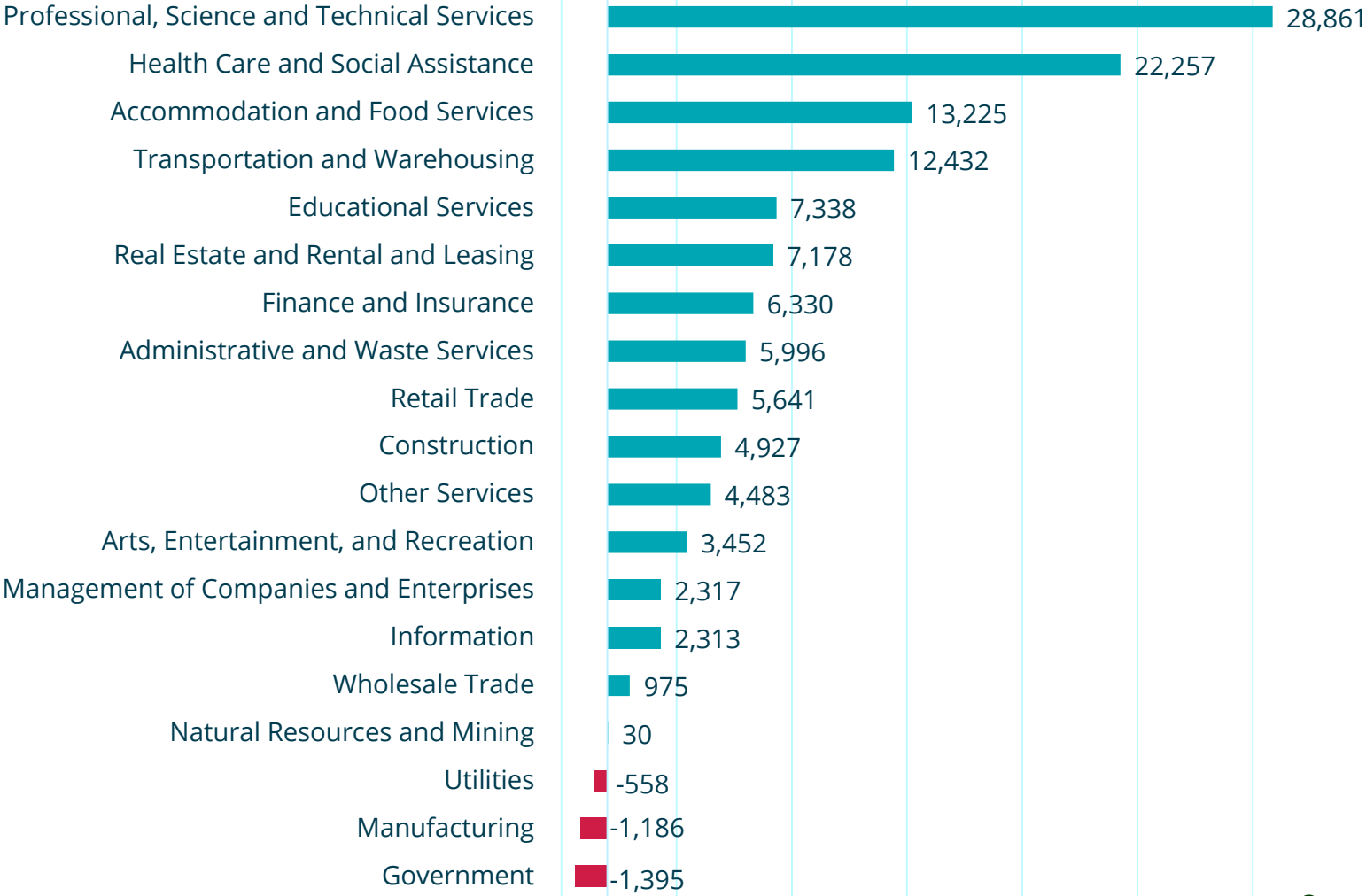
Boston's Total Payroll and Non-Payroll Jobs by Industry in 2016		
INDUSTRY	2016 Jobs	% Total
Health Care and Social Assistance	144,957	18.3%
Professional, Scientific, and Technical Services	98,933	12.5%
Finance and Insurance	91,323	11.5%
Government	76,940	9.7%
Accommodation and Food Services	62,609	7.9%
Educational Services	59,414	7.5%
Administrative and Waste Services	39,183	4.9%
Real Estate and Rental and Leasing	36,235	4.6%
Retail Trade	35,536	4.5%
Other Services	33,853	4.3%
Transportation and Warehousing	30,942	3.9%
Construction	18,776	2.4%
Information	18,320	2.3%
Arts, Entertainment, and Recreation	17,820	2.2%
Wholesale Trade	10,262	1.3%
Management of Companies and Enterprises	8,776	1.1%
Manufacturing	7,916	1.0%
Utilities	1,878	0.2%
Natural Resources and Mining	367	0.1%
Total	794,038	100%

Source: U.S. Bureau of Economic Analysis (BEA), Massachusetts Executive Office of Labor and Workforce Development (EOLWD), BPDA Research Division Analysis.

New jobs found in both high and low wage industries

- Since 2010, professional services, health care, accommodation/food services, and transportation have accounted for 62% of new jobs
- Around 1 in 4 new jobs were in professional, science and technical services
- Manufacturing and government each lost more than 1,000 jobs

Jobs Added by Industry 2010 to 2016

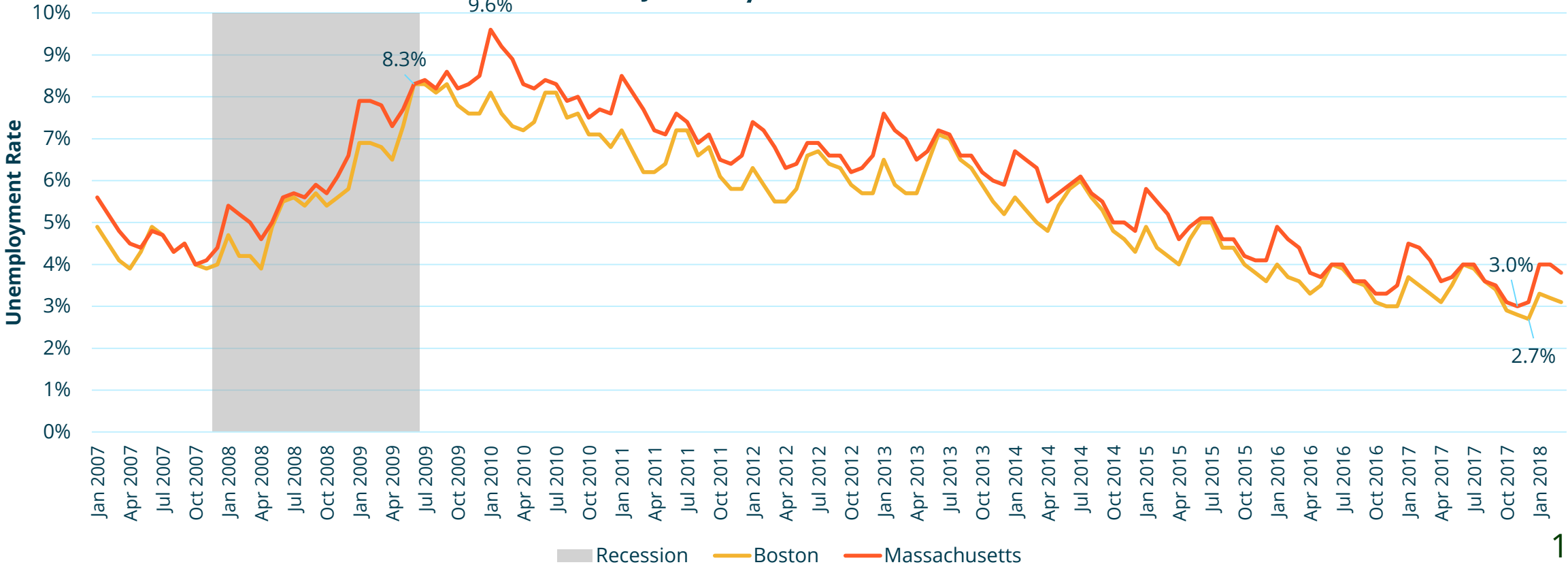


Source: U.S. Bureau of Economic Analysis (BEA), Massachusetts Executive Office of Labor and Workforce Development (EOLWD), BPDA Research Division Analysis.

New jobs contribute to record low unemployment

- Annual unemployment rate of 3.4 percent in 2017
- Boston consistently below Massachusetts rate
- Highest monthly rate was 8.3% in June/July 2009
- Lowest monthly rate was 2.7% in December 2017

Monthly Unemployment Rate for Boston and Massachusetts
Jan 2007 - Mar 2018

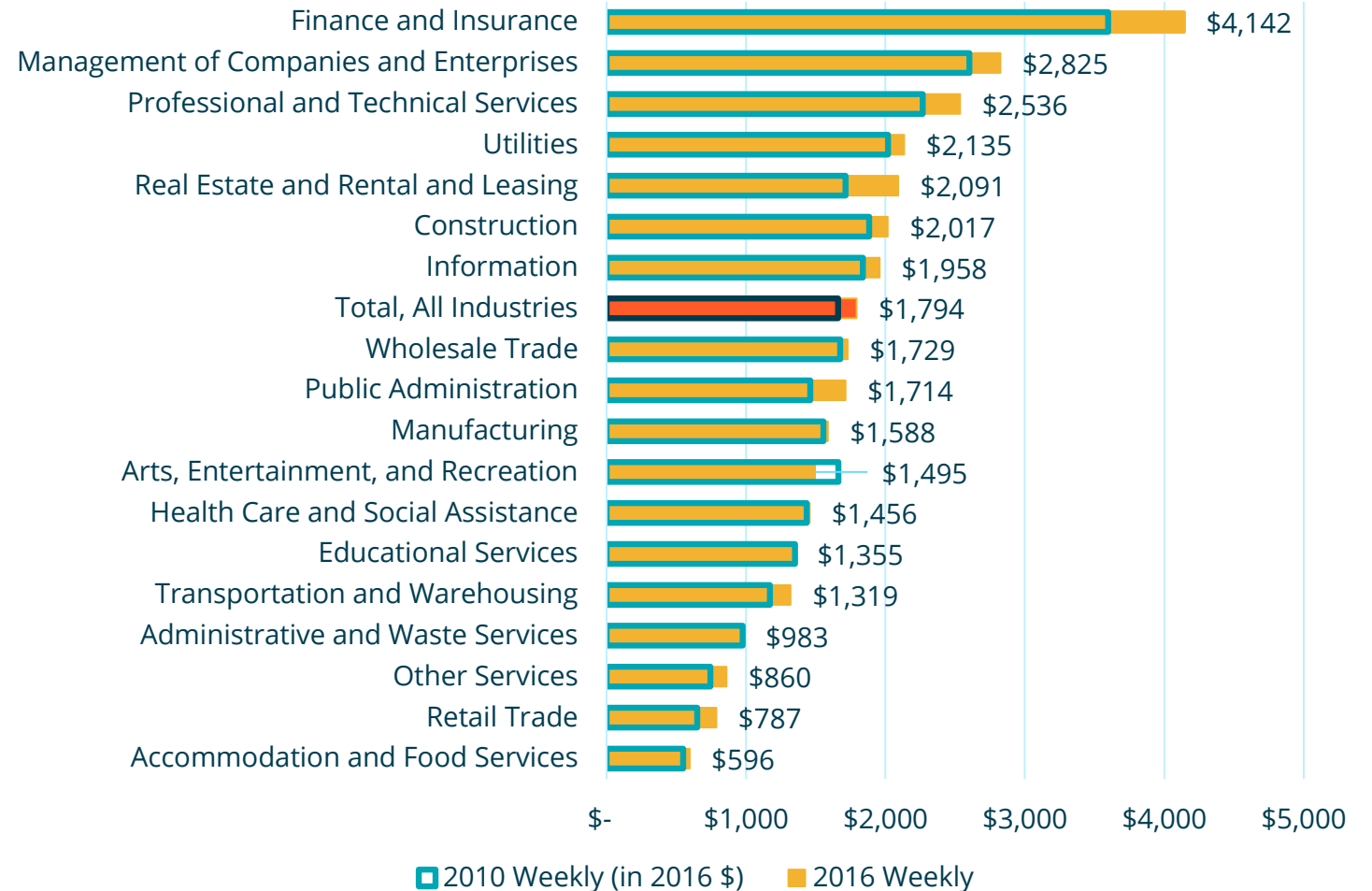


Source: Labor Force and Unemployment Data, Executive Office of Labor and Workforce Development (EOLWD), BPDA Research Division Analysis.

Wage growth has been unequal

- Average real wages rose 1.4% in 2016 to \$1,794 / week
- Finance, real estate, professional services, public administration, and management all gained more than \$200 per week
- Services, healthcare, education, accommodation and food, manufacturing gained less than \$50 a week
- Median annual earnings were \$55,419 for full-time, full-year workers

Average Weekly Wages by Industry from 2010 to 2016
2016 Dollars



Source: Executive Office of Labor and Workforce Development (EOLWD), Employment and Wages Report (ES-202), BPDA Research Division Analysis. Includes bonuses, stock options, severance pay, travel reimbursement, tips and other gratuities, and employer contributions to certain deferred compensation plans, such as 401(k) plans. Median annual earnings from 2016 1-Year American Community Survey.

III.

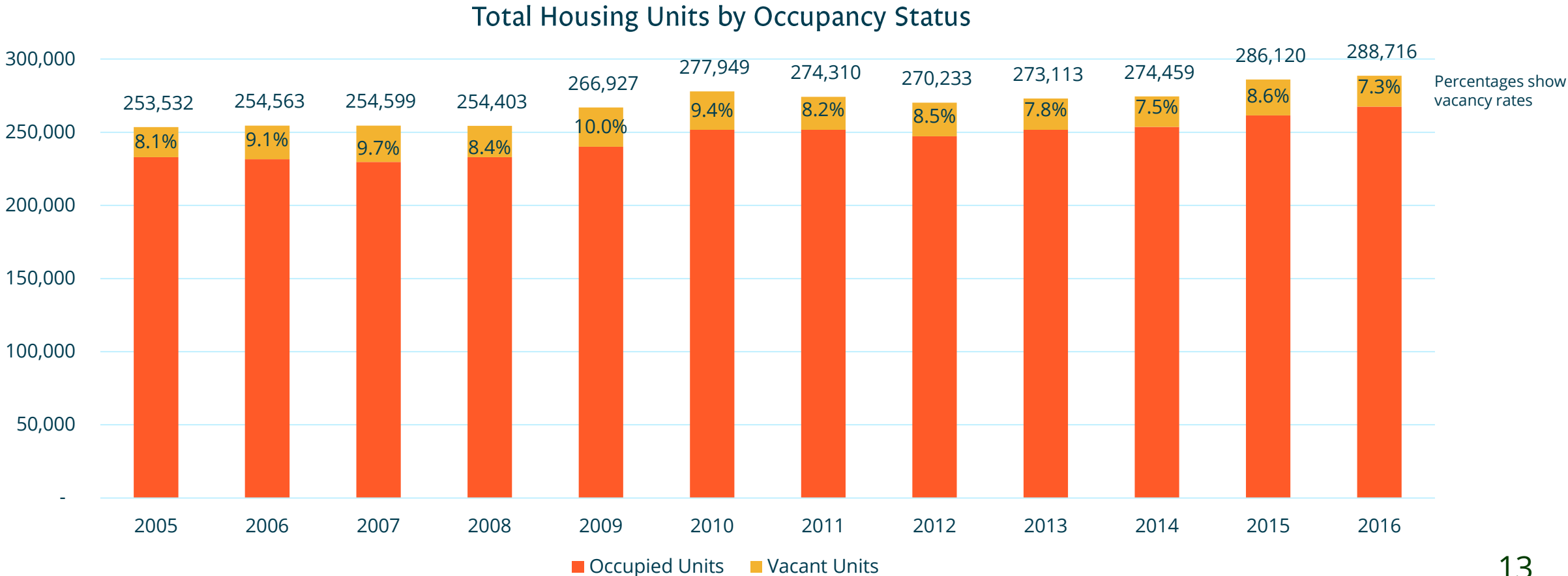
Housing Market



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Housing supply is growing

- Housing units have grown by 6.8% over the past five years to 288,716
- Vacancy rates have fallen from 8.5% in 2012 to 7.3% in 2016

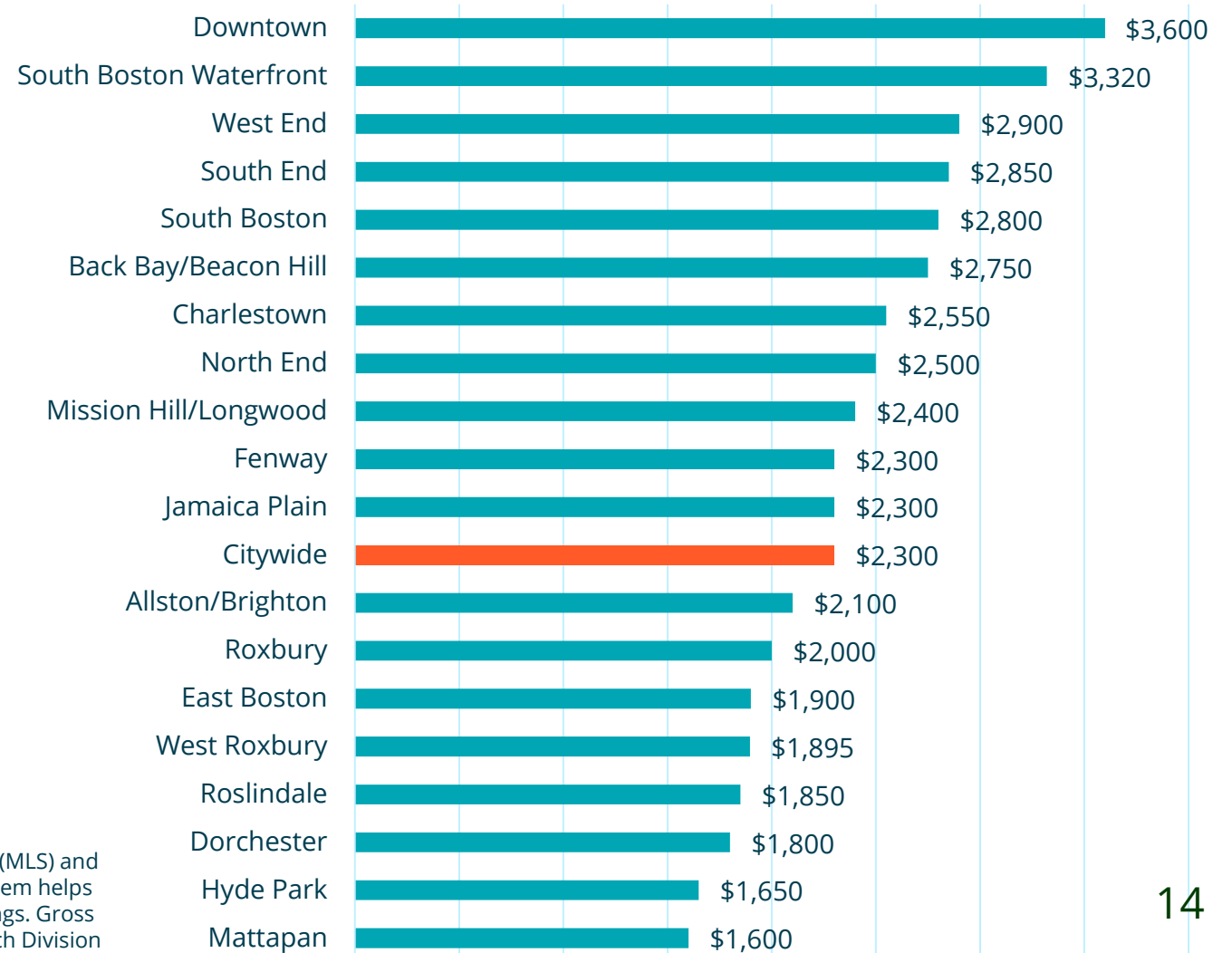


Source: U.S. Census Bureau, 2005-2016 1-year American Community Surveys, BPDA Research Division Analysis

Rent increases have outpaced average wage growth

- Median advertised rent increased 3.1% to \$2,300 from 2015 -16 season (greater than wage growth of 1.4%)
- Median gross rent for all apartments grew 16% from 2012 to 2016

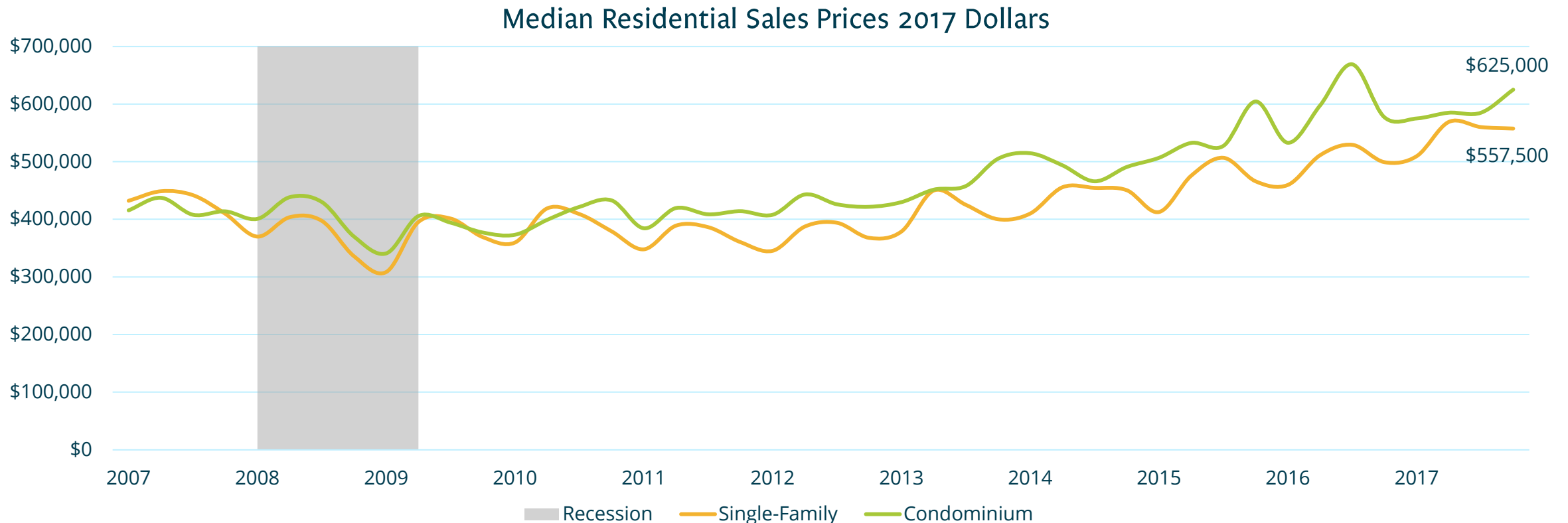
2016 Q4 - 2017 Q3 Median Monthly Advertised Rent



Source: City of Boston, Department of Neighborhood Development using Multiple Listing Service (MLS) and Rental Beast, January 2018. MLS rental listings are created by local real estate agents and the system helps to market and manage property listings. Rental Beast is an online database of current rental listings. Gross rents from U.S. Census Bureau, 2012 & 2016 1-Year American Community Surveys, BPDA Research Division Analysis

Ownership costs have risen even faster

- Single family housing prices increased 5.7% per year from 2010 to 2017
- Condo prices increased 5.4% per year
- Sales volume has decreased 6.4% for single-family and 6.9% for condos from 2016 to 2017



Source: City of Boston, Department of Neighborhood Development Using Banker & Tradesman Data (January 2018).

IV.

Office Market

Office inventory is growing

- Citywide inventory grew 5.2% from 2014 to 2017
- The Financial District is home to 53% of office space
- Seaport has grown the most since 2014 (1.9 million SF)

Inventory of Commercial Real Estate (Millions of SF)				
Neighborhood	2014	2015	2016	2017
Back Bay	12.9	12.9	12.7	12.7
Charlestown	2.8	2.8	1.9	1.9
Fenway	1.8	2.1	2.2	2.2
Financial District	33.8	33.8	34.9	34.9
North Station	1.9	2.1	2.8	2.8
Seaport District	7.6	8.0	9.5	9.5
South Station	1.2	1.2	2.3	2.3
Boston	63.1	63.9	66.4	66.4

Vacancy rates are falling

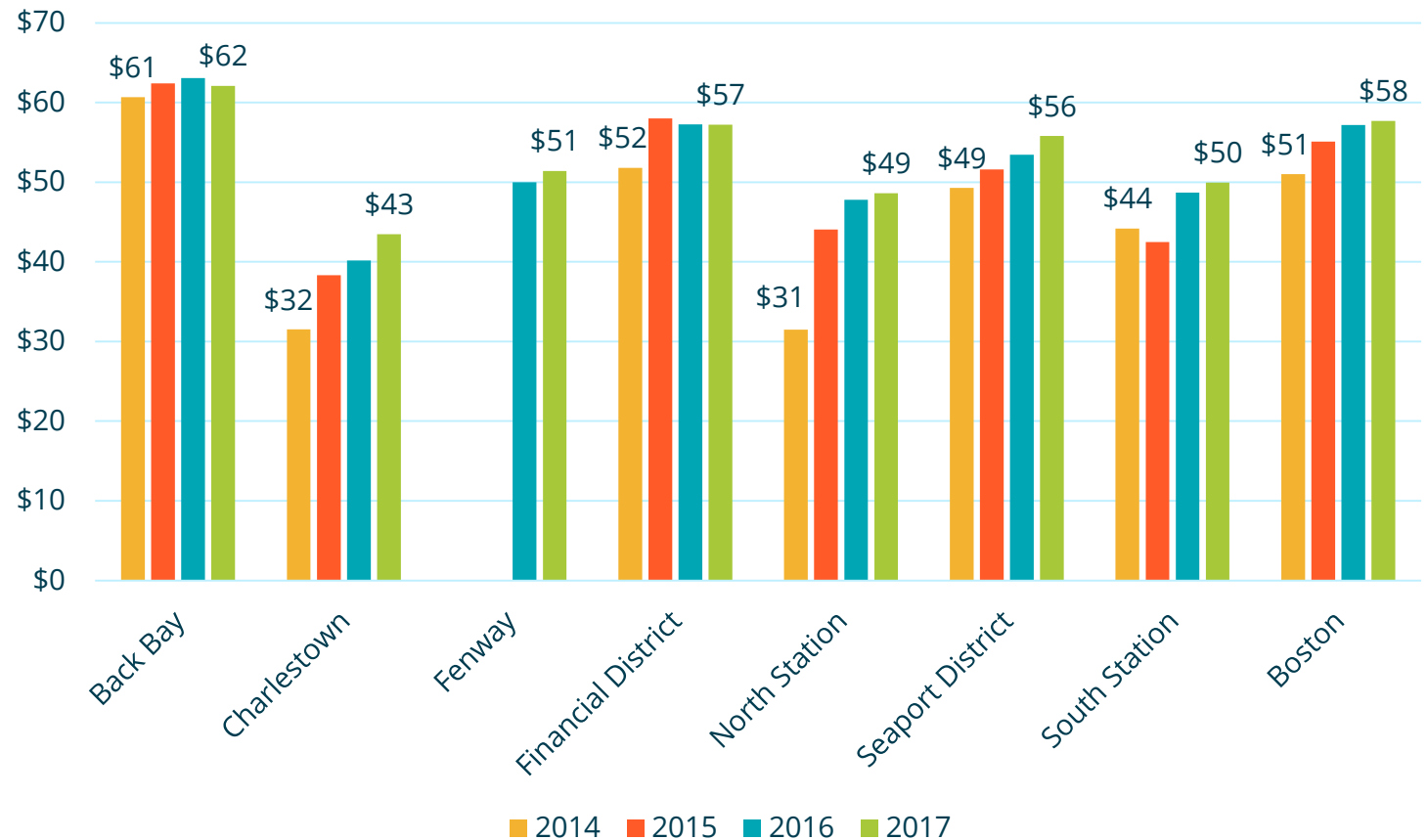
- Vacancy rates have decreased an average of 15% per year since 2014
- Vacancy is currently lowest in the Fenway area and highest in Back Bay
- Major new leases include Amazon, MassMutual, PTC, and Alexion Pharmaceuticals (Seaport) and WeWork (Back Bay and Financial District)

Office Vacancy Rates by Neighborhood				
Neighborhood	2014	2015	2016	2017
Back Bay	11.2%	11.0%	7.0%	8.7%
Charlestown	11.9%	5.8%	3.7%	3.3%
Fenway	5.5%	14.5%	2.6%	1.4%
Financial District	12.7%	8.8%	8.8%	7.5%
North Station	4.5%	4.3%	4.3%	2.7%
Seaport District	7.3%	7.3%	7.3%	5.5%
South Station	6.9%	7.4%	2.7%	2.7%
Boston	10.9%	8.9%	7.5%	6.7%

Office rents are rising

- Average asking rents have risen \$6.70/SF since 2014 to \$58 citywide
- Back Bay commands the highest asking price at \$62/SF
- Charlestown has the lowest rents at \$43/SF
- North Station saw the largest increase in rent since 2014
- Boston rents are lower than Cambridge, where average is \$64/SF

Office Asking Rents by Neighborhood
2017 Dollars



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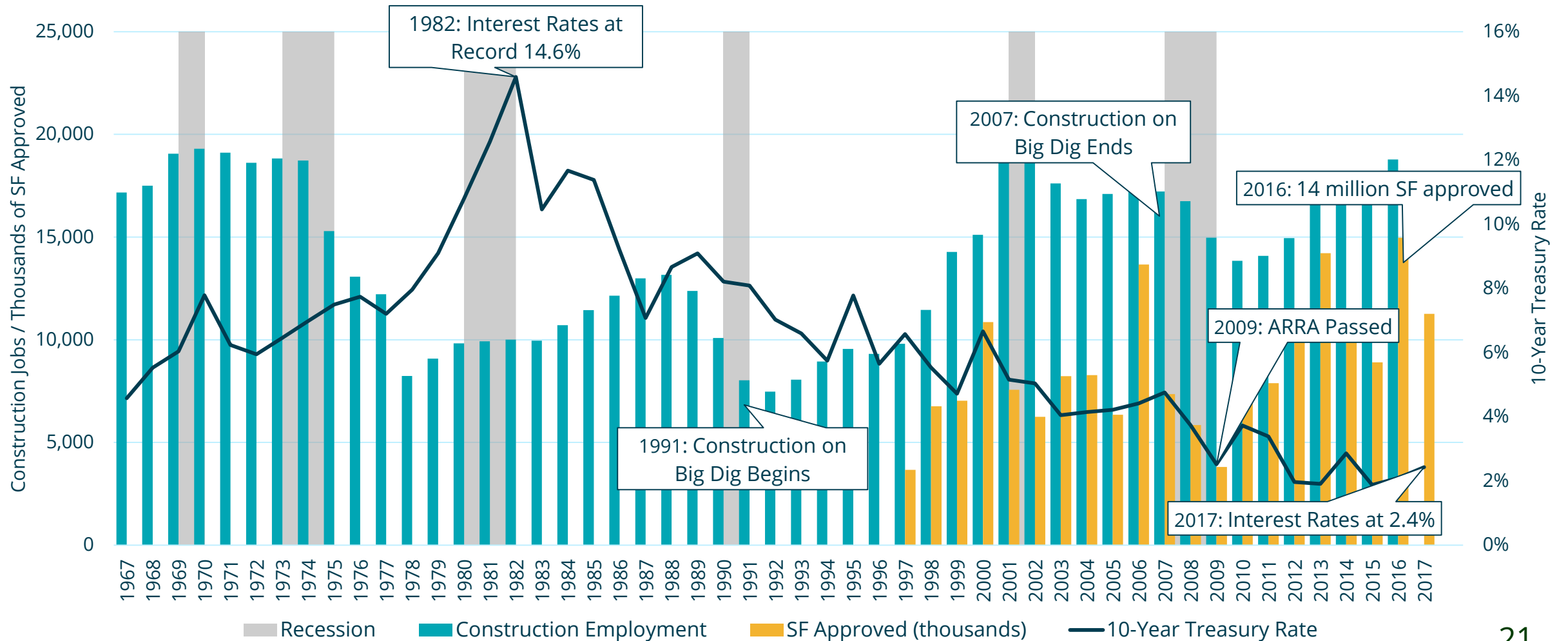
New Development



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Construction boom coincides with historically low interest rates post-recession

Construction Employment, Interest Rates, Square Feet Approved since 1967

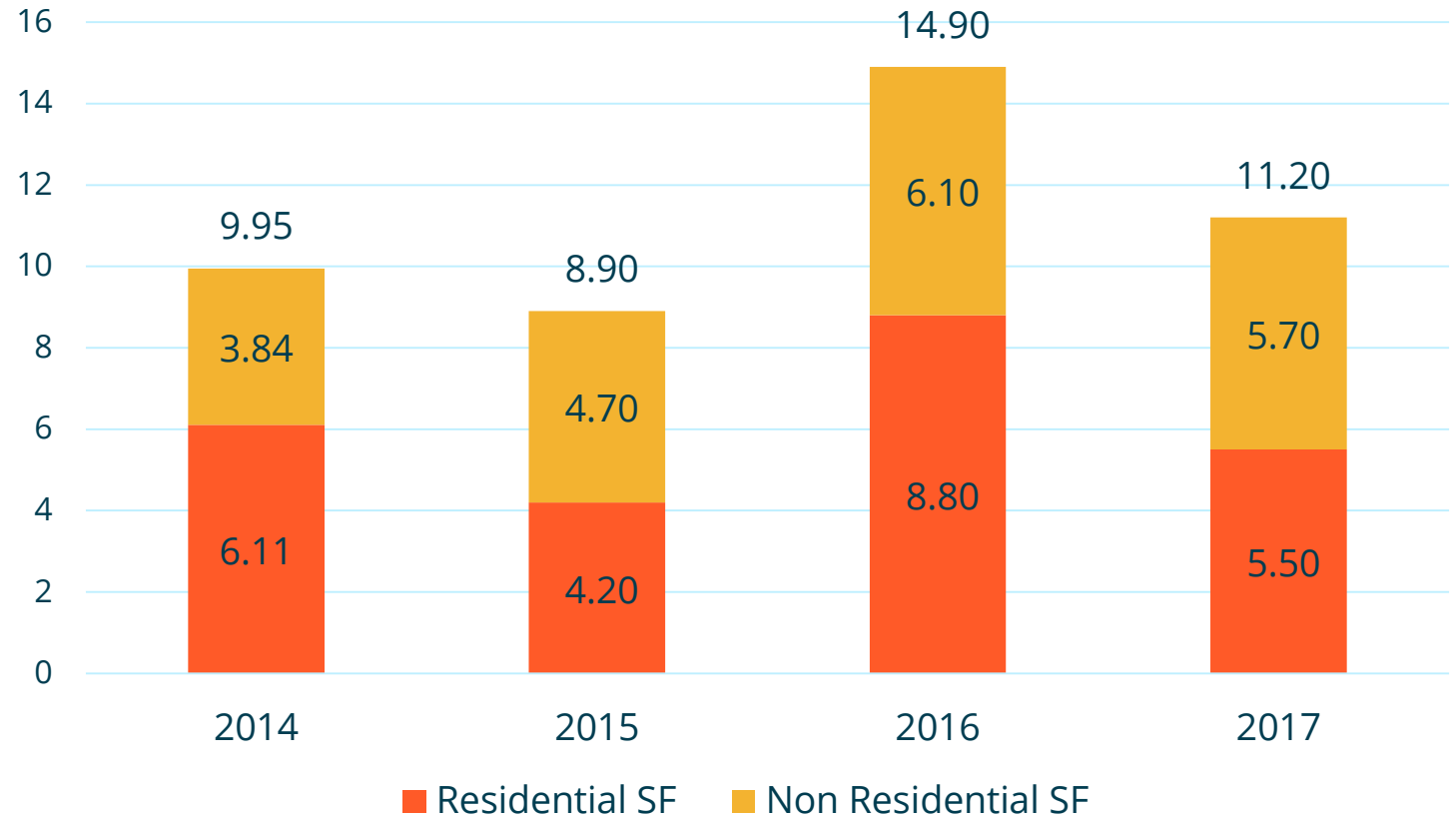


Source: U.S. Department of the Treasury, BPDA Pipeline database, Massachusetts Executive Office of Labor and Workforce Development (EOLWD), Employment and Wage (ES-202), BPDA Research Division Analysis. SF approved before 1997 not recorded.

11.2 million square feet approved in 2017

- Approvals Jan 2014 - Dec 2017:
 - 9.2 million office SF
 - 3.1 million institutional SF
 - 25.1 million SF of projects with residential
- 6,552 new housing units (756 affordable) approved in 2017

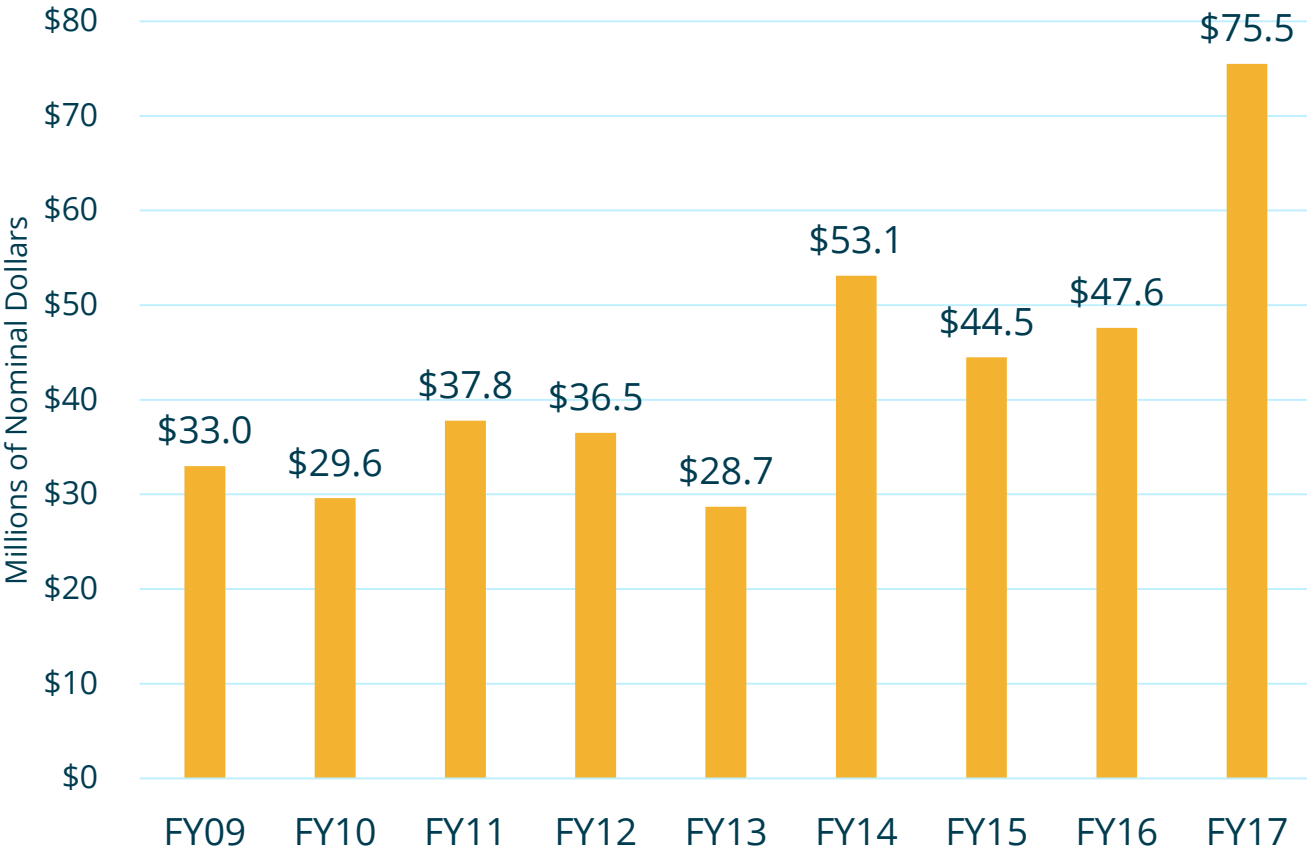
Millions of Article 80 Square Feet Approved, 2014-2017



New development brought in \$75.5 million in new property tax revenue

- 3.6% of total property tax levy in 2017 came from new development, compared to 2.4% in 2016
- In 2016, property taxes accounted for 58% of citywide revenue

Property Tax Revenue from New Development

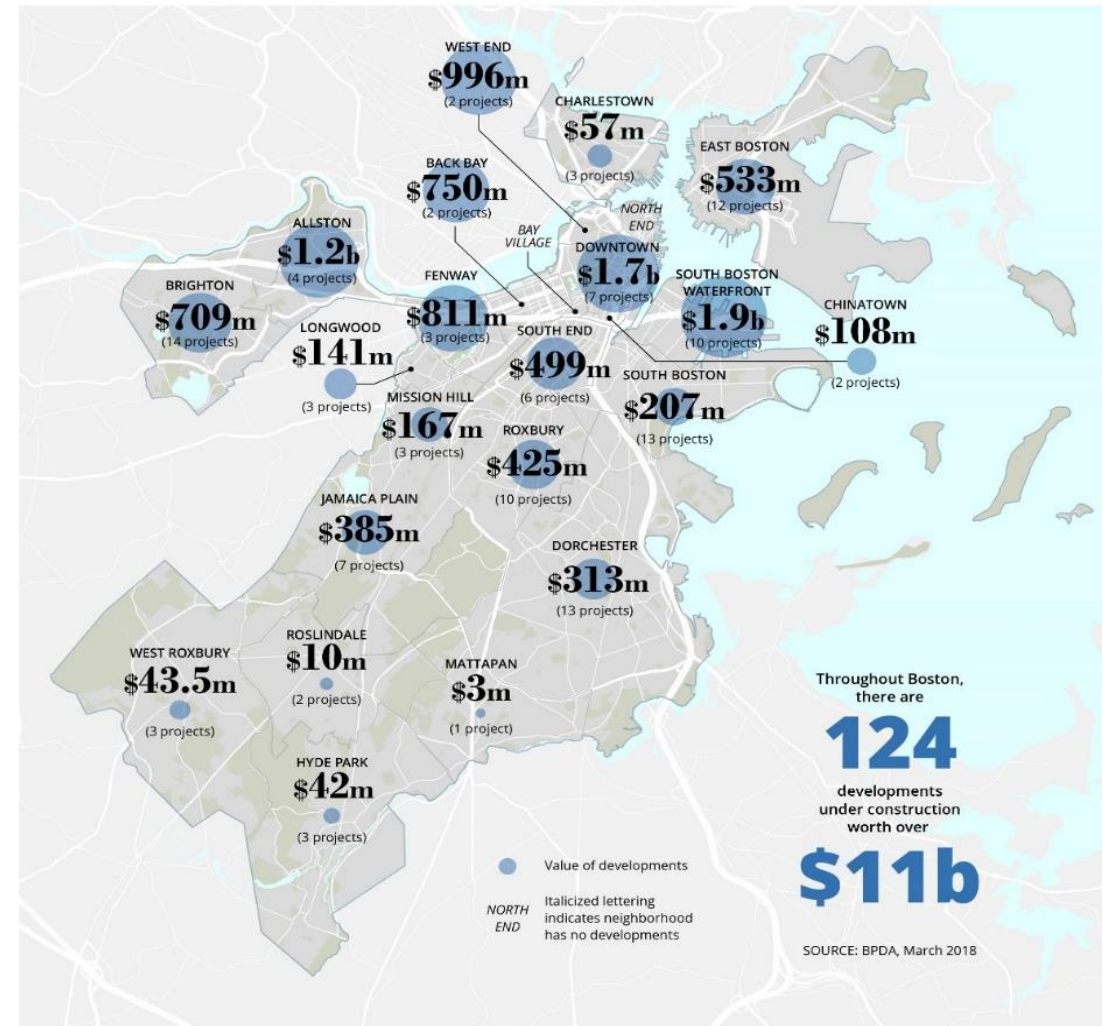


124 projects underway in 2017, totaling \$11 billion

Major Projects Underway or Completed:

- 388,000 SF GE headquarters in Fort Point
- South Bay's five 6-story buildings in Dorchester
- 56,290 SF and 47 affordable units at General Heath Square in JP
- 346,000 SF and 312 residential units in Phase I of Fenway Center
- 1.9 million SF and largest Star Market in Phase I of Hub on Causeway
- 1 million SF of residential and retail in Parcel M in Seaport Square
- 478 residential units in Clippership Wharf
- 16 story East Boston residential with 224 units

Article 80 Projects Under Construction as of March 2018



Source: Map created by BPDA Office of Digital Cartography and GIS using data from BPDA Pipeline Database, BPDA Research Division Analysis.

VI.

Spotlight: Job Openings



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Note on Burning Glass data

- Scrapes millions of online job boards and company websites
- Filters high-tech jobs based on skills requested in listing
- Not ideal for measuring temporary or non-payroll jobs or jobs not advertised online like food, service, and construction

Boston leads the nation in biotech opportunities

- Biotech jobs require skills in biology, chemistry, engineering, clinical research and trials, biostatistics, etc.
- Boston-Cambridge metro area had 133 biotech openings per 10,000 employed
- San Diego and San Francisco are growing at a faster rate

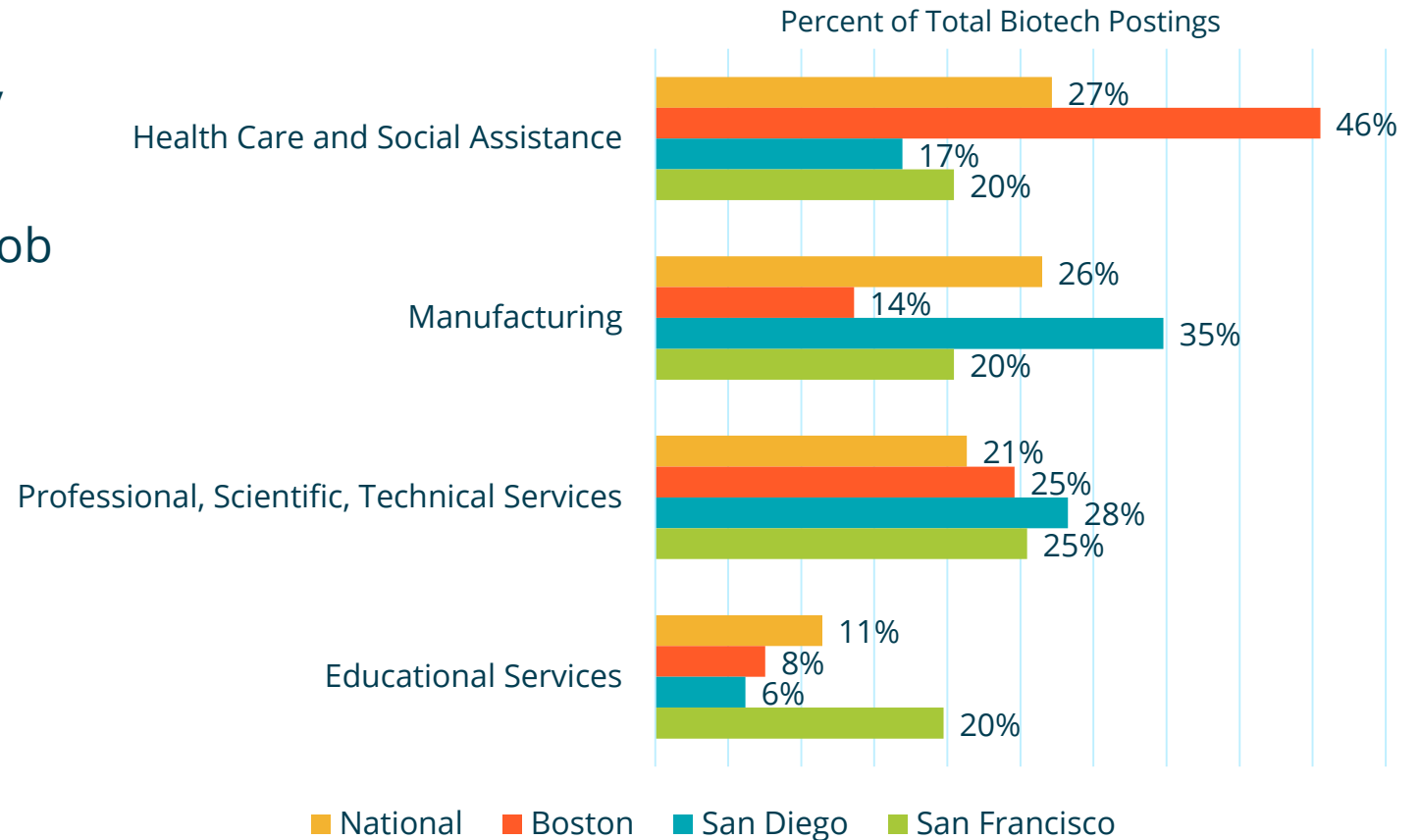
Biotech Job Listings in 2017					
Geography		Nationwide	Boston	San Diego	San Francisco
Metro Area	Rank by Listing Density	-	1st	3rd	2nd
	Listing Density (Postings per 10,000 Employed)	-	133	86	114
City	Jobs Listed in City in 2017	442,440	9,333	9,855	8,389
	Rank by Volume (Among All Cities)	-	4th	3rd	5th
	Percent Change since 2012	28.1%	28.7%	78.7%	38.1%
	Percent All Listings that are Biotech	2.0%	5.5%	5.9%	3.6%

Among Metros with >5,000 Listings. Metro Listings are measured over the past 12 months. Boston-Cambridge-Nashua, MA-NH (Metropolitan NECTA), San Diego-Carlsbad, CA (Metropolitan Statistical Area), San Francisco-Oakland-Hayward, CA (Metropolitan Statistical Area).
 Source: Burning Glass Technologies Labor Insight Jobs, Top Locations, 2012 and 2017. Downloaded April 23-27, 2018, BPDA Research Division Analysis.

Boston's biotech jobs are concentrated in hospitals

- Half of Boston's biotech openings are in healthcare, with 80% of these posted by hospitals
- University of California was the largest job poster in San Diego and San Francisco
- Biotech jobs in San Francisco require more programming skills
- Biotech jobs in San Diego are concentrated in pharmaceuticals

Share of Biotech Job Postings by Industry
Boston, San Diego, and San Francisco



Boston is not as dominant in green job postings

- Green jobs require skills in energy efficient construction and manufacturing, LEED-building design and operation, environmental regulation, resource conservation, etc.
- Detroit's postings grew 96%, Denver has the most green job openings overall at 3,280

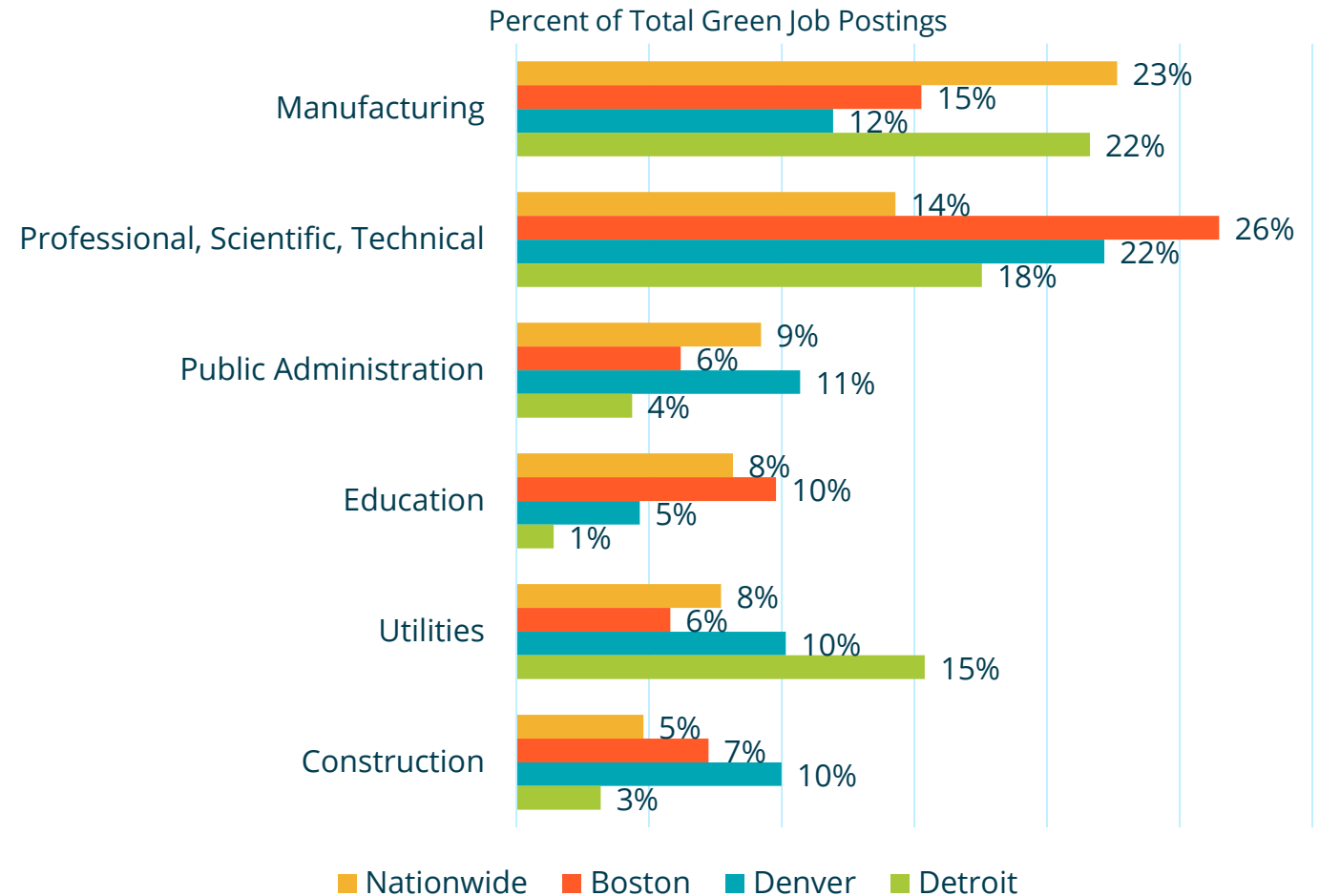
Green Job Listings in 2017					
Geography		Nationwide	Boston	Denver	Detroit
Metro Area	Rank by Listing Density	-	5th	1st	3rd
	Listing Density (Postings per 10,000 Employed)	-	33	46	43
City	Jobs Listed in City in 2017	339,023	2,325	3,276	1,779
	Rank by Volume (Among All Cities)	-	15th	6th	21st
	Percent Change since 2012	26.1%	-7.3%	1.1%	95.7%
	Percent All Listings that are Green Jobs	1.5%	1.4%	2.3%	1.9%

Among Metros with >5,000 Listings. Metro Listings are measured over the past 12 months. Boston-Cambridge-Nashua, MA-NH NECTA, Denver-Aurora-Lakewood, CO MSA, Detroit-Warren-Dearborn, MI MSA.
 Source: Burning Glass Technologies Labor Insight Jobs, Top Locations, 2012 and 2017. Downloaded April 23, 2018, BPDA Research Division Analysis.

Green jobs span many industries

- General Electric and Boston University posted the most openings in Boston. Electrical engineers were especially in demand
- Denver posted more green jobs than Boston in engineering and architecture, construction and public administration
- Detroit's green jobs were concentrated in auto manufacturing/sales and natural gas production

Share of Green Job Postings by Industry
Boston Denver and Detroit



Cybersecurity is a growing field

- Cybersecurity require skills in software development, cryptography, systems security, etc.
- Postings grew 81% in Boston since 2012
- Washington DC metro area surpassed Atlanta in past five years and continues to grow rapidly

Cybersecurity Job Listings in 2017					
Geography		Nationwide	Boston	Washington DC	Atlanta
Metro Area	Rank by Listing Density	-	9th	1st	7th
	Listing Density (Postings per 10,000 Employed)	-	41	174	49
City	Jobs Listed in City in 2017	375,728	3,761	11,182	7,072
	Rank by Volume (Among All Cities)	-	15th	2nd	5th
	Percent Change since 2012	60.5%	80.8%	115.0%	17.2%
	Percent All Listings that are Cybersecurity	1.7%	2.2%	7.0%	3.2%

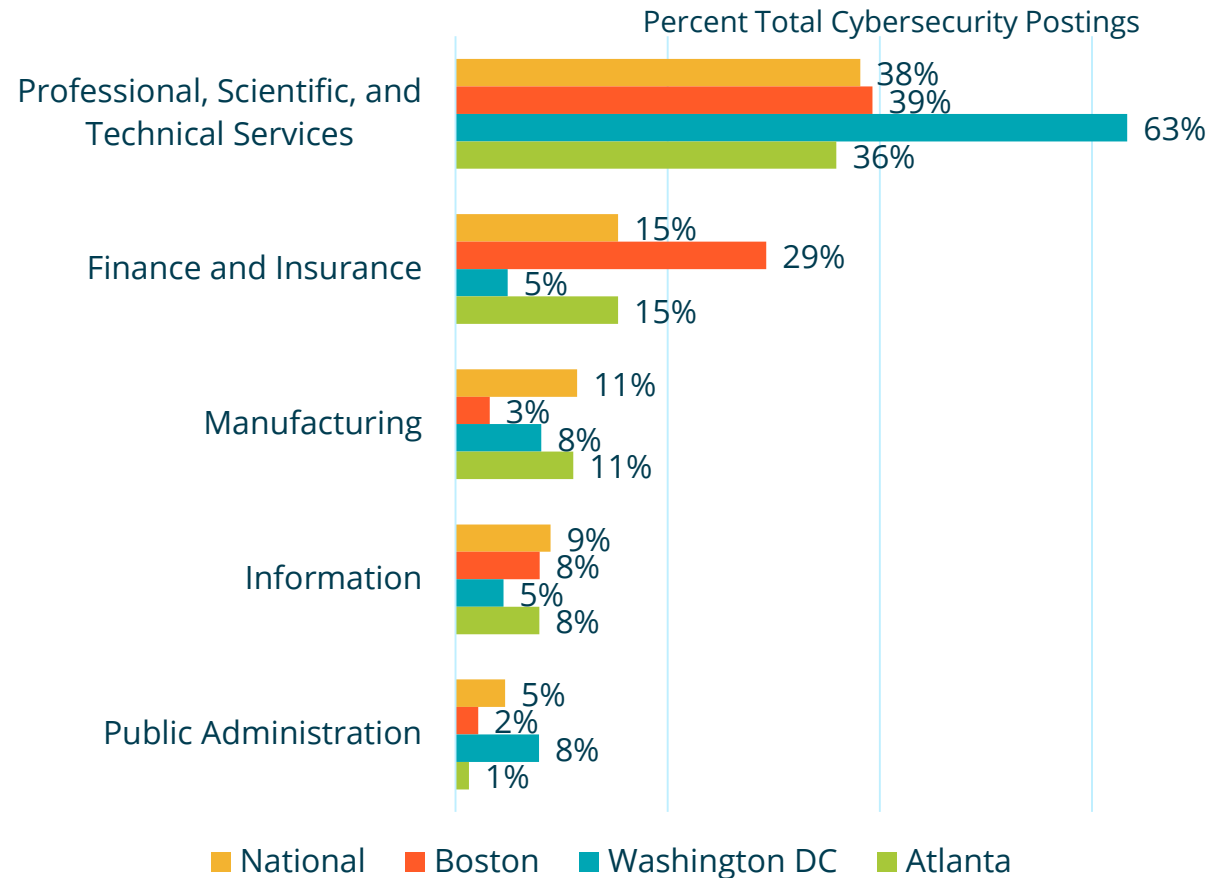
Among Metros with >5,000 Listings. Metro Listings are measured over the past 12 months. Boston-Cambridge-Nashua, MA-NH NECTA, Washington-Arlington-Alexandria, DC-VA-MD-WV MSA, Atlanta-Sandy Springs-Roswell, GA MSA.

Source: Burning Glass Technologies Labor Insight Jobs, Top Locations, 2012 and 2017. Downloaded April 30, 2018, BPDA Research Division Analysis.

Boston's cybersecurity jobs are found in finance

- State Street posting the most cybersecurity openings in Boston
- Washington DC benefits from federal defense contracting and manufacturing
- Computer manufacturing and telecommunications offer opportunities in Atlanta

Share of Cybersecurity Postings by Industry
Boston, Washington DC, and Atlanta



Middle skill jobs make up one third of postings

- Middle skill jobs, at the national level, require less than a bachelor’s degree and pay an average of \$15/hour (the same occupations in Boston may pay more or require more education)
- 33% of Boston’s jobs considered middle skill, compared to 46% nationally
- San Diego, NYC, San Francisco, and Washington DC have the lowest shares of middle skill openings

	% Middle Skill 2017	Rank out of Top 25
Nationwide	46%	-
Baltimore, MD	46%	1
Phoenix, AZ	45%	2
Houston, TX	44%	3
Detroit, MI	44%	4
Portland, OR	43%	5
<i>Boston, MA</i>	33%	21

Middle skill openings are increasing

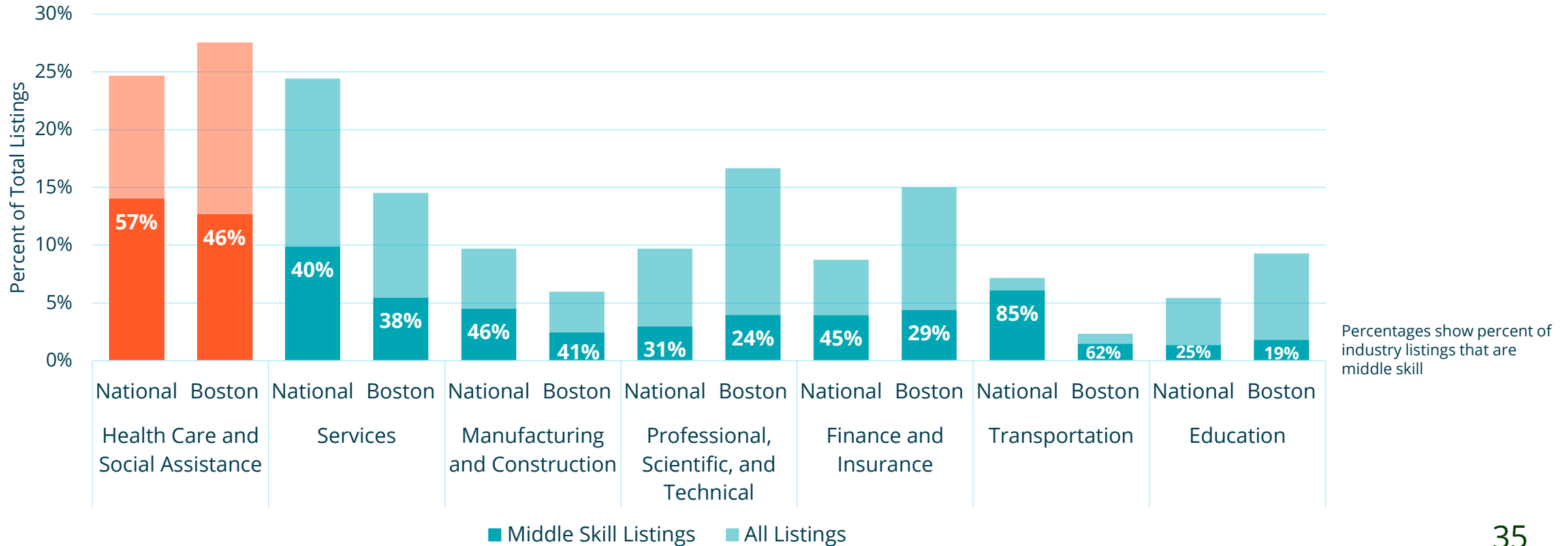
- Boston employers posted 57% more middle skill jobs in 2017 than in 2012
- Middle skill postings compose 8% more of Boston's total listings than in 2012

	% Change in Middle Skill Listings, 2012-2017	Rank out of Top 25
Nationwide	76%	-
Saint Louis, MO	274%	1
San Diego, CA	130%	2
San Jose, CA	116%	3
Philadelphia, PA	109%	4
Portland, OR	99%	5
<i>Boston, MA</i>	57%	14

Boston's middle skill openings primarily in health care

- A lesser percentage of Boston's listings in all industries are middle skill than at the national level
- Boston has fewer openings in primarily middle-skill industries: transportation, construction, and services

Listings by Industry Share and by Percent Middle Skill



Registered nurses are the top middle skill opportunity

- Registered nurses accounted for 16% of all middle skill listings (7% of listings overall) in Boston
- Sales representatives in wholesale and manufacturing account for 7% of middle skill listings in Boston
- Secretaries and administrative assistants, customer service representatives, human resources specialists, and operations managers offer other opportunities
- Boston offers more listings by volume than Baltimore, Detroit, Miami, San Jose, Washington DC, among others

VII.

Forecasting Boston's Economic Future

Continued growth expected in short run

- Boston's strong health care and technology sectors will continue to be a boon as these fields grow nationally
- Short-term national forecasts reflect 2017 tax deal stimulus: 2.8-3% GDP growth for 2018, around 2% for 2020 ⁽¹⁾
- National unemployment rates projected to be below 4% for 2018-2020 ⁽²⁾
- MA labor force growth predicted to decelerate to 0.4% by 2019 ⁽³⁾
- MA wage growth to accelerate to 2.9% in 2018 and 3.3% in 2019 ⁽³⁾
- Construction, education, healthcare, and professional/business services expected to see largest employment growth ⁽³⁾

1) Federal Reserve Bank of Philadelphia, "Survey of Professional Forecasters, First Quarter 2018". Released February 9, 2018.. Congressional Budget Office, "The Budget and Economic Outlook, 2018-2028". Released April 2018.

2) Congressional Budget Office, "The Budget and Economic Outlook, 2018-2028". Released April 2018.

3) New England Economic Partnership, "Charting Economic Policy: The New Normal in Non-normal Times", November 2017 Economic Outlook Conference, November 28, 2017.

Federal policies pose some risks

- Immigration restrictions may harm a citywide workforce that is 28% foreign-born ⁽¹⁾
- Near-full employment means Boston will need to attract workers from elsewhere to fill jobs, especially as Baby Boomers retire
- Tariffs on construction materials may slow building boom, potentially lowering expected increase of 1.7% in construction jobs

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Questions



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