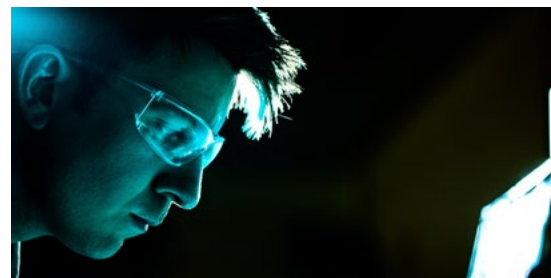


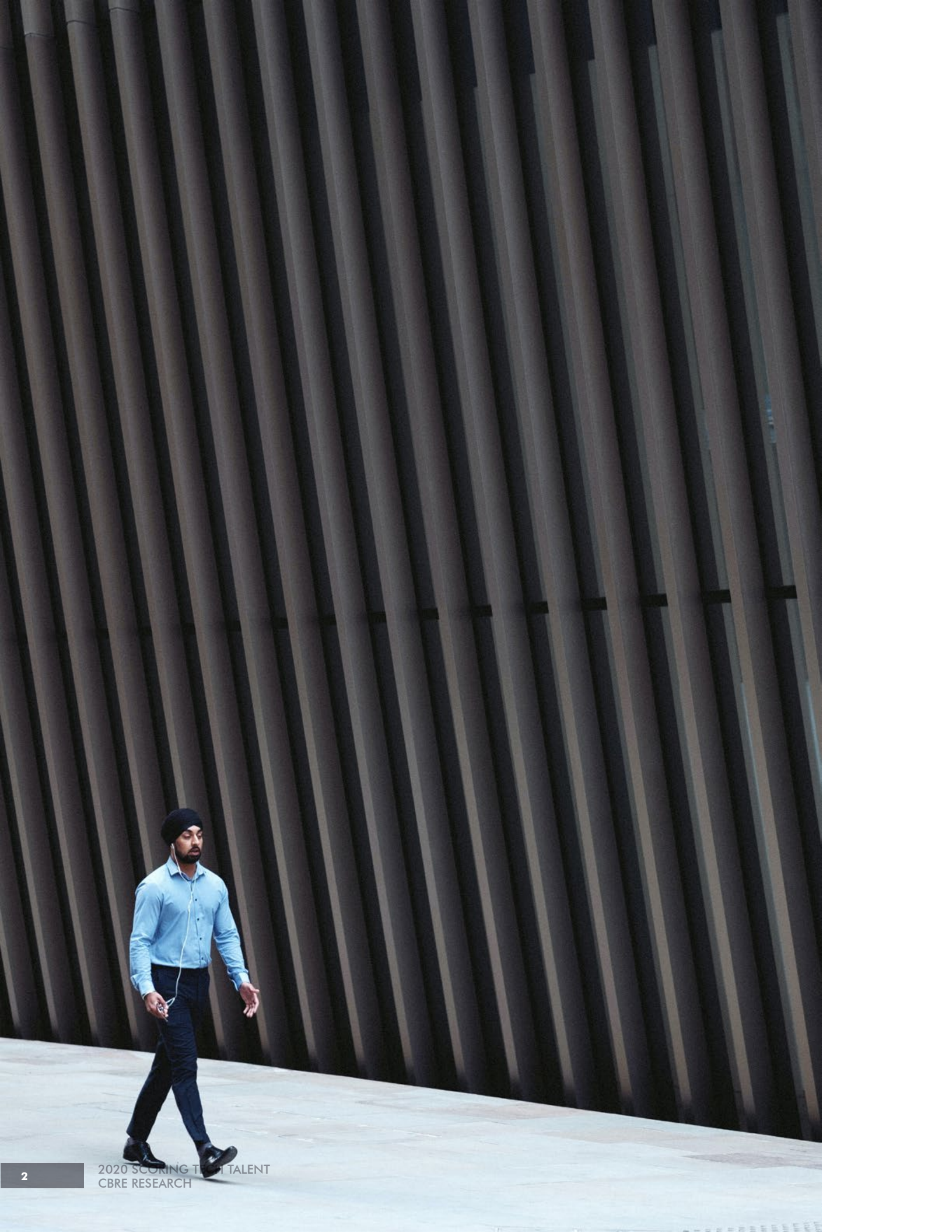
CBRE RESEARCH

2020 Scoring Tech Talent

How Tech Labor Trends Inform Decisions and
Influence Economic Growth & Real Estate
in 50 U.S. & Canadian Markets

CBRE





Tech Talent poised for post-pandemic growth

Tech talent is one of the most resilient professions in any economic downturn, and this has been particularly so during the COVID-19 crisis by facilitating business productivity and supporting critical infrastructure.

While the year-end 2019 employment data used in this report does not reflect the impact of COVID-19, data from past economic downturns demonstrates tech talent's resilience. During the Great Recession (2008-2010), tech talent employment across all industries declined by 0.5% compared with -5.5% for total U.S. employment and -1.7% for employment in the technology software and services industry. During the dot-com bust (2000-2002), tech talent employment declined by 6.3% across all industries compared with -13.9% for employment in the technology software and services industry.

Economic and labor market conditions changed substantially in early 2020 due to the impacts of COVID-19. This has disrupted established norms of how the economy functions and exposed new challenges that technology will have a key role in solving. Some of the sectors that rose in importance during the crisis include e-commerce and logistics, streaming and cloud services, search and social media, devices and communications, sensors and artificial intelligence, and cybersecurity. Other areas that have growth potential include 5G services, autonomous vehicles and advanced robotics.

The tech talent and companies leading North America's innovation have a unique opportunity to accelerate economic transformation and lead the next growth cycle by leveraging technology to empower businesses and individuals. Tech talent and labor strategies clearly will play an important role in fulfilling business and innovation objectives in the years ahead.

Contents

Scoring Tech Talent is a comprehensive analysis of labor market conditions, cost and quality in North America for highly skilled tech workers. The top 50 markets in the U.S. and Canada were ranked according to their competitive advantages and appeal to both employers and tech talent. The analysis also provides insight into the quality of tech workers, their demographics and how tech talent growth patterns are impacting cities and real estate markets.

What is Tech Talent?

Tech talent is a group of highly skilled workers in more than 20 technology-oriented occupations driving innovation across all industry sectors.

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Which are the top-ranked Tech Talent markets?

A scorecard measuring 13 metrics to gauge the competitive advantages of markets and their ability to attract and grow tech talent pools determined the top-ranked tech talent markets.

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What defines a Tech Talent market?

Tech talent markets are characterized by high concentrations of college-educated workers, major universities producing tech graduates and large millennial populations.

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Which are the highest- and lowest-cost markets to operate in?

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Plotting a quality assessment against average software developer salary by market reveals the distribution of quality and cost across the top 50 tech talent markets.

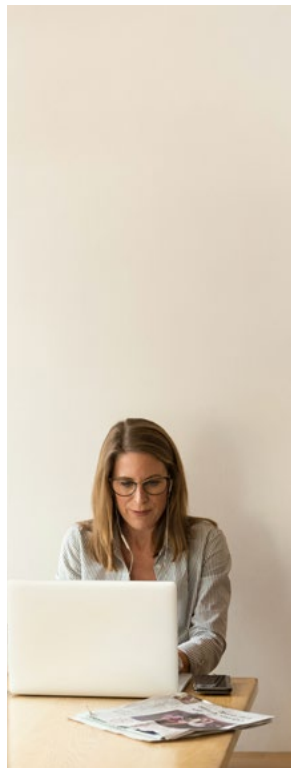
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Markets with high concentrations or clusters of growing tech talent employers have created economic growth and changed office market dynamics.

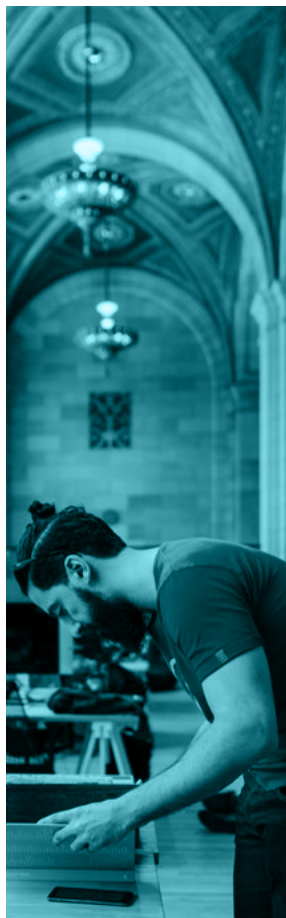
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Where else is tech headed?

Lesser-known and underdeveloped markets could offer high-potential talent pools to employers seeking to expand their geographical reach, uncover opportunities and increase cost efficiency.

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Appendix

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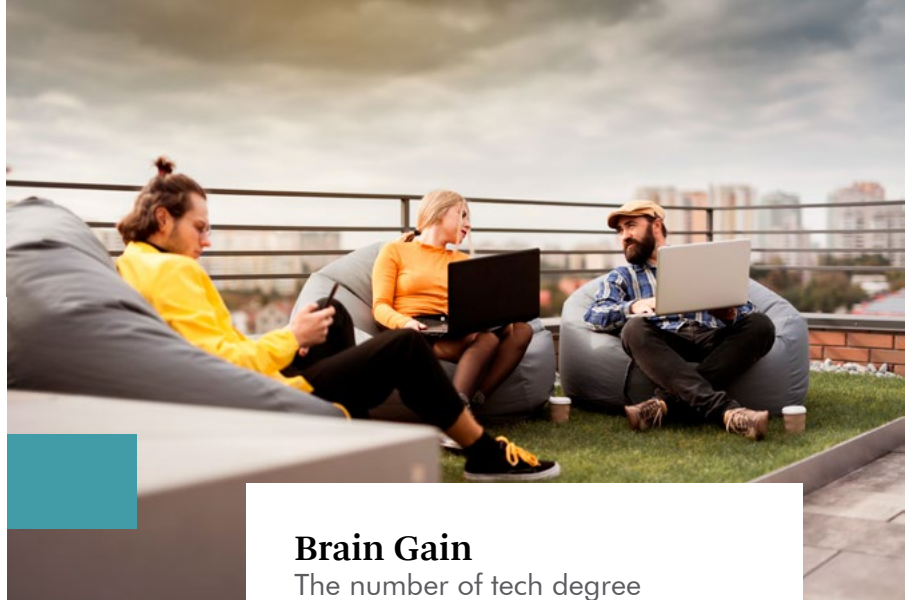
Key takeaways

Nearly 6.3 million highly skilled workers across the U.S. and Canada comprise the **TECH TALENT** that is leading global innovation by developing the software and devices we depend on and managing the data and systems that ensure functionality of our tech ecosystems.

A decade of growing demand for tech talent reduced available supply and resulted in significantly higher labor costs. While more tech-degree completions should begin to alleviate tight talent supply as short-term demand slows, the rising importance of technological innovation should reward tech talent professionals over the long term.

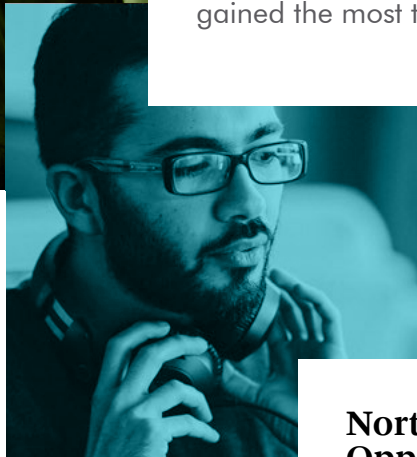
#Score

Thirteen metrics measure each market's depth, vitality and attractiveness. The top-ranked markets are the San Francisco Bay Area, Washington, D.C. and Seattle. Markets registering the greatest rise in the rankings are Ottawa, Orange County, Baltimore, Columbus and Newark.



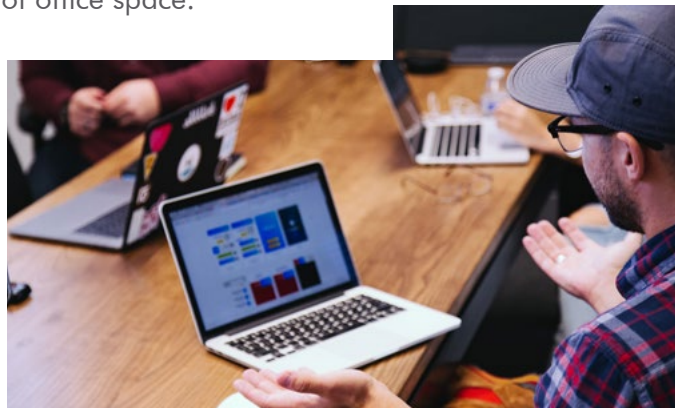
Brain Gain

The number of tech degree graduates was compared with tech talent job creation in each market to determine brain gains or brain drains. Boston, Washington, D.C., Chicago and Los Angeles produced more graduates than jobs and were the most drained markets, while the San Francisco Bay Area, Toronto, Vancouver, Seattle and Charlotte gained the most tech talent.



Cost (US\$)*

The total annual labor and real estate cost ranged from \$30 million in Montreal to \$62 million in the San Francisco Bay Area for the typical 500-person tech company needing 75,000 sq. ft. of office space.



North America Opportunity Markets

Fostering talent development in lesser-known and underdeveloped markets could offer additional talent pools to employers seeking to expand their geographical reach, uncover opportunities and increase cost efficiency. These markets show potential and are spread across Canada, the U.S. Midwest and South, and Latin America.

*comparative costs throughout the report are shown in US\$.

What is Tech Talent?

More than 6.3 million highly skilled tech talent workers are leading global innovation that will shape our daily lives and economy for decades to come.



These tech talent workers comprise 20 different occupations—from software developers who enable the devices we depend on, to systems and data managers who ensure the functionality of our tech ecosystems.¹ Although these positions are highly concentrated within the high-tech services industry, they are spread across all industry sectors (Figure 1). Through this occupational lens, a software developer who works for a logistics or health-care company is included in our data.

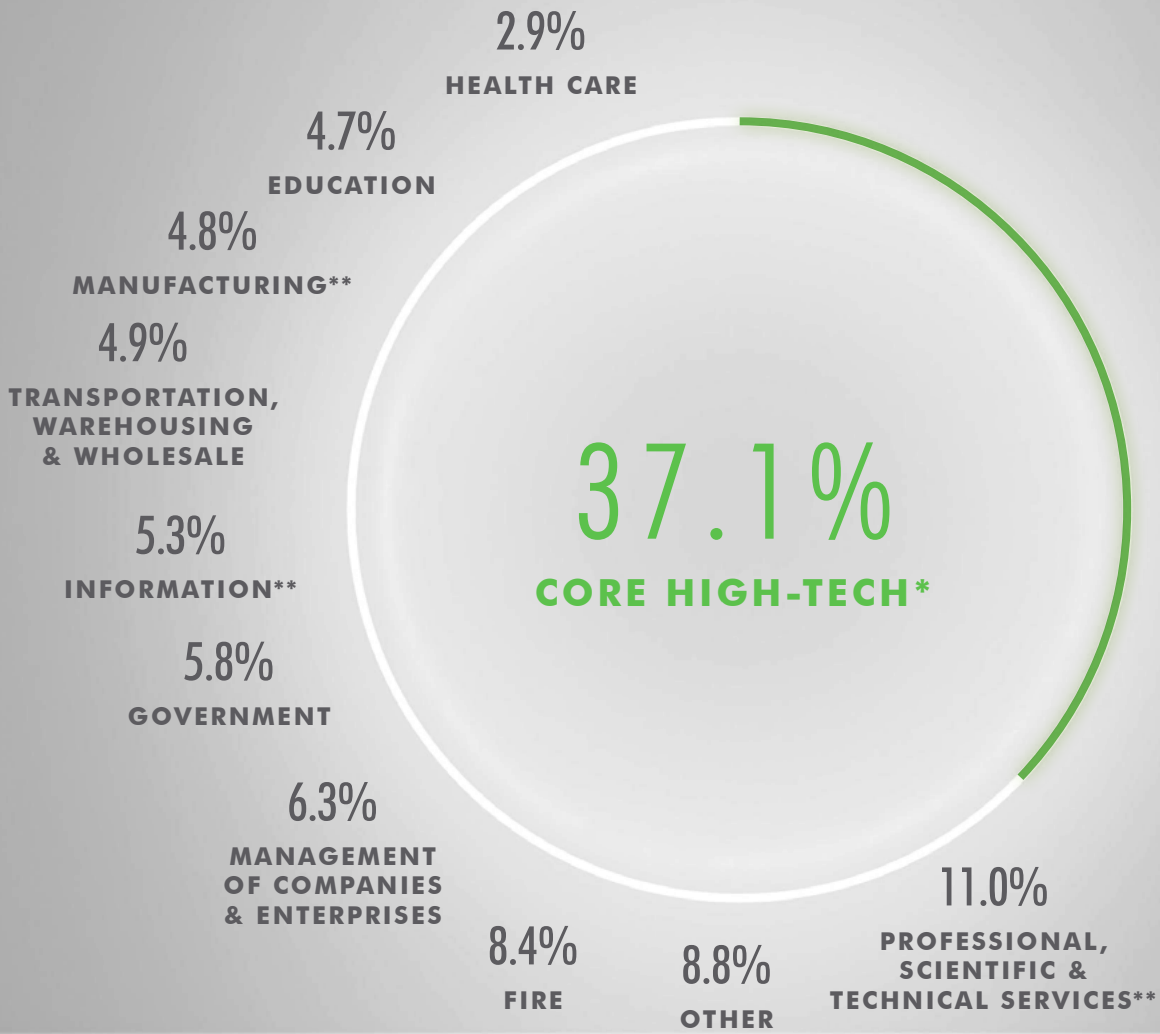
The 5.4 million tech talent workers in the U.S. and 900,000 in Canada account for 3.7% and 5.6% of total workers in each country, respectively. This relatively small labor force has an outsized impact on real estate markets and the economy. The number of U.S. tech talent workers has increased by 17% in the past five years, adding 777,000 jobs at a pace more than twice the national average. They are fueling innovation and adapting technology within nontraditional tech sectors to increase productivity and strengthen the national economy.

¹ Tech talent includes the following occupation categories: software developers and programmers; computer support, database and systems; technology- and engineering-related; and computer and information system managers.

FIGURE 1

Tech Talent by Industry

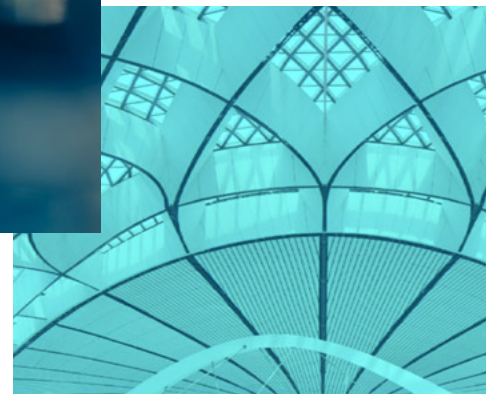
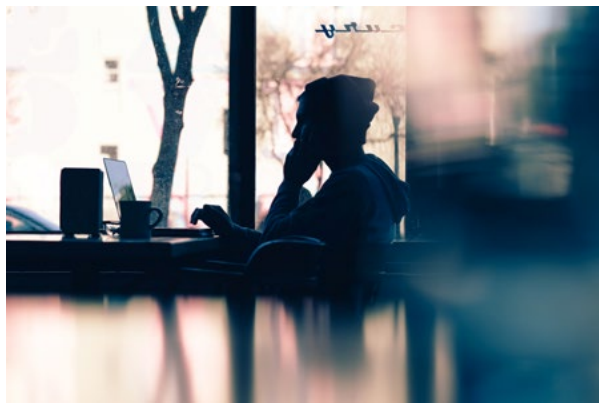
**TECH TALENT OCCUPATIONS
IN EACH INDUSTRY
AS A % OF U.S. TECH TALENT**



Source: U.S. Bureau of Labor Statistics (National), April 2020.
 *Includes computer software and services and computer product manufacturing
 ** Excluding High-Tech

Which are the top-ranked Tech Talent markets?

The rapid pace of business innovation kept tech talent highly competitive and supply-constrained through 2019 as these occupations expanded in labor pools beyond those of major tech hubs. Smaller markets gained demand for tech talent from start-ups and established companies. The importance of these workers and their ability to remain productive and collaborate across work locations should provide added resilience in the long-term.



Fifty of the largest markets by number of tech talent professionals in the U.S. and Canada were analyzed to create a scorecard ranking them comparatively (Figure 2). The scorecard uses 13 metrics to measure each market's depth, vitality and attractiveness to companies seeking tech talent and to tech workers seeking employment. Each metric is weighted by the relative importance to job creation and innovation. Tech talent concentration metrics have the highest weights because they signify clustering of tech workers. Labor costs for tech talent are weighted more heavily than office rents because companies allocate more capital to labor than to real estate.

The top three markets are the San Francisco Bay Area, Washington, D. C. and Seattle.

A few markets shifted positions within the top 10 from 2019. Washington, D.C. moved up two spots, lowering Seattle and Toronto each by one. Boston and Denver switched positions at 7 and 8, respectively. The biggest movers were Ottawa and Orange County, both rising by five spots.

As companies across all industries expand their technology usage and services, demand for tech talent is high in both large and small markets. Major gateway markets such as New York, Toronto and the San Francisco Bay Area dominate overall tech talent growth because of their size. These markets, along with others that have a tech talent labor pool of more than 50,000 workers, are categorized as "large," while those below this threshold are categorized as "small." Both large and small markets have their advantages: While large markets generally have a deeper pool of talent, small markets typically offer business and cost-of-living savings.

Tech talent concentration—the percentage of total employment—is an influential factor in how "tech" the market is and its growth potential. Tech talent comprises 11.3% of total employment in Ottawa and 10.5% in the San Francisco Bay Area—the highest concentrations of the top 50 markets and more than three times the national average of tech talent density. Toronto, Washington, D.C. and Seattle round out the top five most concentrated tech markets, ranging from 7.7% to 8.8% of their total employment. This sizeable concentration of highly skilled workers offers an environment conducive to innovation.

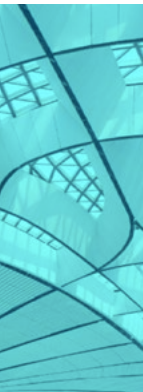


FIGURE 2

Tech Talent Scorecard Ranking







FIGURE 3

Tech Talent Labor Pools (2019)

Large Tech Talent Markets (> 50,000 Labor Pool)

Market	Tech Talent Total	Percent Change ¹	by Volume ²	Concentration ³
SF Bay Area, CA	379,670	30.5%	88,840	10.5%
New York, NY	268,530	18.2%	41,291	3.9%
Washington, D.C.	263,670	9.9%	23,730	8.3%
Toronto, ON	250,000	36.5%	66,900	8.8%
Dallas/Ft. Worth, TX	179,570	14.3%	22,530	4.9%
Chicago, IL	170,500	8.2%	12,930	3.6%
Boston, MA	167,110	6.4%	10,020	6.0%
Seattle, WA	155,330	22.7%	28,750	7.7%
Atlanta, GA	146,720	27.8%	31,960	5.3%
Montreal, QC	141,600	19.3%	22,900	7.4%
Los Angeles, CA	141,580	18.5%	22,090	3.1%
Denver, CO	113,270	33.2%	28,230	6.7%
Philadelphia, PA	112,340	12.8%	12,730	3.9%
Houston, TX	98,670	-1.3%	-1,250	3.2%
Minneapolis, MN	97,350	10.1%	8,950	4.9%
Phoenix, AZ	94,650	18.1%	14,500	4.5%
Vancouver, BC	84,900	47.9%	27,500	7.0%
Detroit, MI	84,670	12.3%	9,250	4.3%
Baltimore, MD	79,880	16.9%	11,560	5.8%
San Diego, CA	76,770	15.8%	10,470	5.1%
Austin, TX	76,270	16.7%	10,920	7.1%
Ottawa, ON	76,200	1.5%	1,100	11.3%
Orange County, CA	73,524	20.5%	12,504	4.4%
Raleigh-Durham, NC	67,660	21.3%	11,900	7.0%
South Florida	66,990	28.1%	14,700	2.5%
Portland, OR	60,550	31.7%	14,580	5.0%
Charlotte, NC	57,340	38.0%	15,780	4.6%
St. Louis, MO	55,000	10.1%	5,050	4.0%
Newark, NJ	53,901	12.0%	5,790	4.5%
Kansas City, MO	52,750	22.8%	9,790	4.9%
Tampa, FL	52,150	26.6%	10,950	3.9%
Salt Lake City, UT	51,220	42.7%	15,320	5.2%

Source: U.S. Bureau of Labor Statistics (Metro) April 2020, Statistics Canada (Metro), 2020.
 (1) 2015-2019; (2) 2015-2019; (3) 2019.

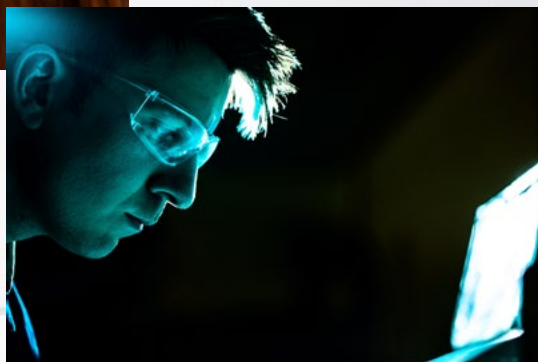


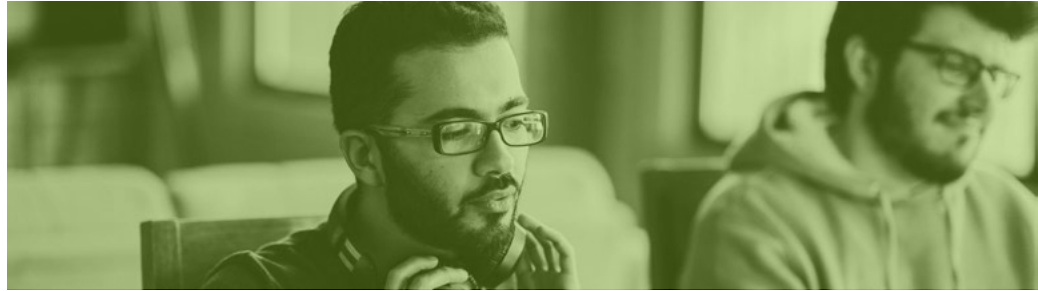
Small Tech Talent Markets (<50,000 Labor Pool)

Market	Tech Talent Total	Percent Change ¹	by Volume ²	Concentration ³
Columbus, OH	48,930	14.2%	6,080	4.6%
Pittsburgh, PA	44,430	18.2%	6,850	3.9%
Orlando, FL	43,280	25.7%	8,860	3.4%
Calgary, AB	42,500	17.1%	6,200	5.7%
Sacramento, CA	40,350	13.4%	4,770	4.0%
Indianapolis, IN	38,880	21.8%	6,960	3.7%
Cincinnati, OH	37,730	11.1%	3,760	3.5%
Cleveland, OH	36,740	18.1%	5,620	3.5%
Long Island, NY	33,616	17.4%	4,986	2.5%
Milwaukee, WI	31,280	4.0%	1,210	3.7%
Nashville, TN	31,190	29.9%	7,180	3.1%
San Antonio, TX	31,180	14.8%	4,010	3.0%
Virginia Beach, VA	27,150	-1.1%	-310	3.6%
Hartford, CT	27,080	11.8%	2,860	4.6%
Richmond, VA	24,830	6.2%	1,460	3.8%
Madison, WI	24,580	37.0%	6,640	6.2%
Rochester, NY	21,550	7.3%	1,460	4.2%
Jacksonville, FL	21,300	25.2%	4,290	3.0%

What defines a Tech Talent market?

Two key aspects that top tech talent markets share are high educational attainment and a preference by tech workers to live in the city.





Two-thirds of the top 50 tech talent markets have a city-level educational attainment rate above the U.S. average (32.6%). The top 10 cities have 51% or more of residents over 25 years old with a bachelor's degree or higher (Figure 4). Seattle, Washington, D.C. and Madison have rates of 57% or more.

Education, particularly with a focus on technology,² is best analyzed through degrees issued by higher educational institutions.

Metro areas that produced the largest number of tech graduates using the latest data available were New York, Washington, D.C., Los Angeles, Boston and the San Francisco Bay Area.

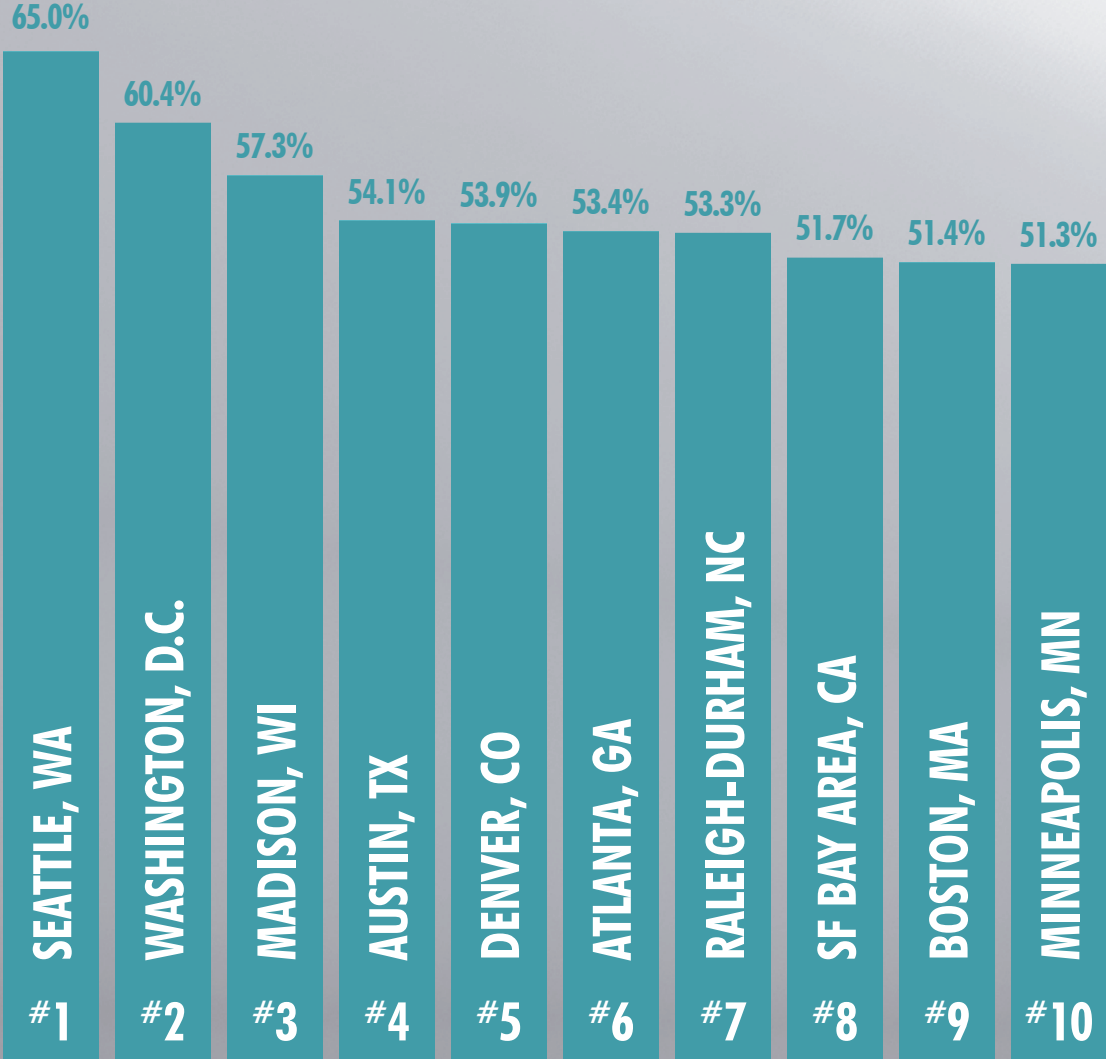
Large tech talent markets dominate the top 10 degree-granting regions. Demand is high for tech-related classes and degrees, and tech-related degree completions have grown by 32% since 2014. Although these figures do not account for tech bootcamps or shorter certifications, they provide insight into which markets will produce the highest amount of tech talent entering the labor pool each year.

² Tech degree fields include computer engineering and information sciences; mathematics and statistics; electrical and electronics engineering; mechanical and industrial engineering; other engineering.

FIGURE 4

Top 10 Markets for Educational Attainment

25+ YEARS OLD, BACHELOR'S DEGREE OR HIGHER

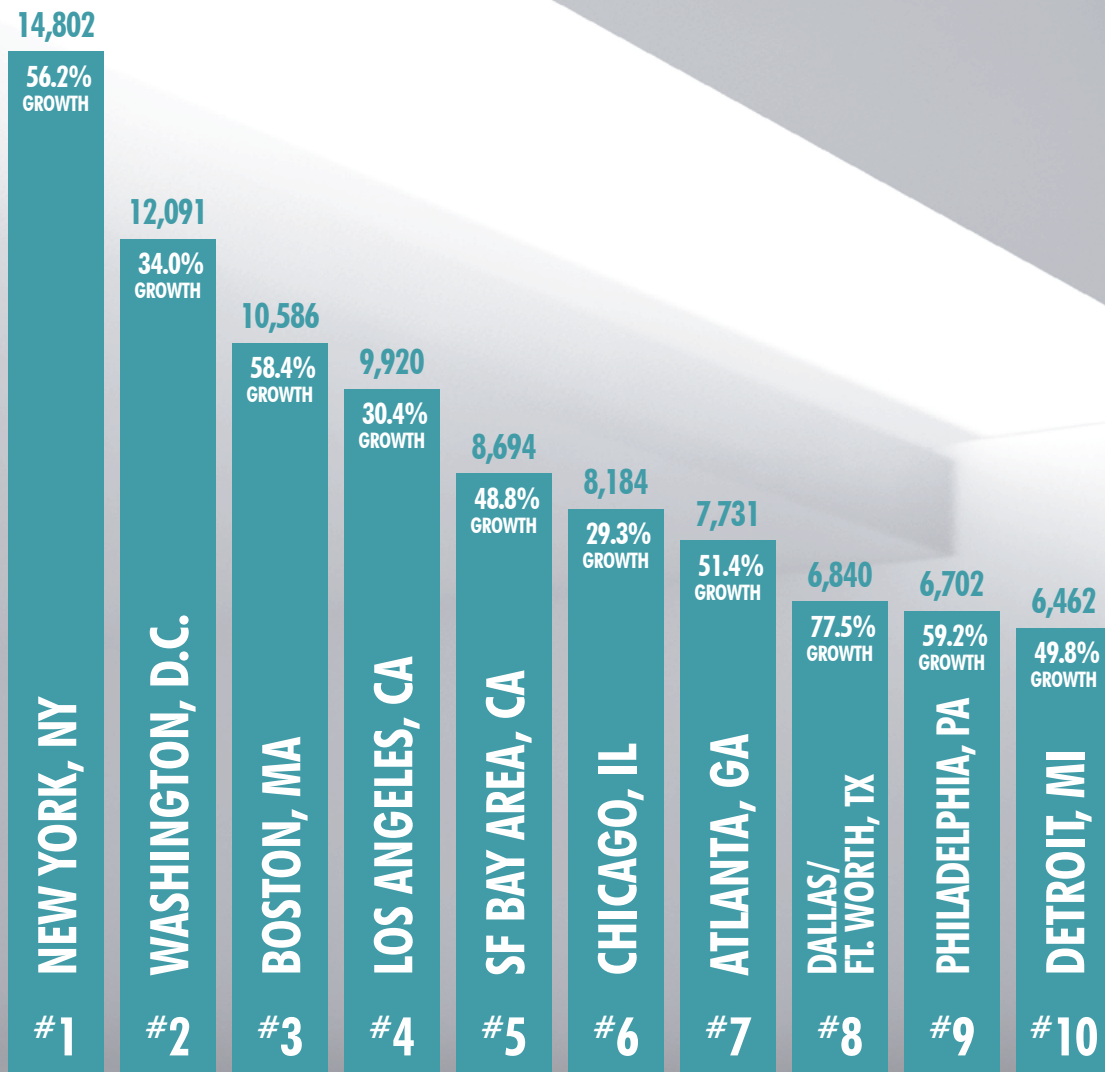


Source: U.S. Census Bureau (City) 2020.

FIGURE 5

Top 10 Markets for Tech Degree Completions

TECH DEGREE COMPLETIONS (2018)



Source: The National Center for Education Statistics (Region), Canadian Universities, July 2020.
Note: Bachelor's Degree or Higher. Growth from 2013 to 2018.



Graduates do not always remain in the labor market where they earn their degrees; they often migrate to locations that offer the best pay or have the most job opportunities.

Analyzing tech-related graduation data and tech-related employment growth, Figure 6 presents the difference between where tech talent workers are employed and where they were educated. Tech degrees cover the most recent five-year period available (2014-2018) and tech talent jobs added cover the period when most graduates would be counted in employment figures (2015-2019).

The San Francisco Bay Area and Toronto stand out as strong tech talent job creators, adding 52,000 and 43,000 more tech talent jobs than graduates, respectively. On the other end of the spectrum, Boston, Washington, D.C., Chicago and Los Angeles posted the deepest deficits in employing their tech graduates locally.

Reflected in the brain gain/drain calculation, the increase in tech-degree graduates is beginning to better supply the labor market for tech talent. This year, 16 markets posted a brain gain compared with 15 last year, suggesting there still is a high level of demand and inadequate supply for the most sought-after tech skills and locations.

***THE SAN FRANCISCO BAY AREA AND
TORONTO STAND OUT AS STRONG
TECH TALENT JOB CREATORS,
ADDING 52,000 AND 43,000
MORE TECH TALENT JOBS THAN
GRADUATES, RESPECTIVELY.***

FIGURE 6

Where are Tech Workers Coming From and Where are They Headed?

Market	Tech Degrees (2014-2018)*	Tech Jobs Added (2015-2019)*	Brain Gain or Drain?	Market	Tech Degrees (2014-2018)*	Tech Jobs Added (2015-2019)*	Brain Gain or Drain?
SF Bay Area, CA	36,882	88,840	51,958	Cincinnati, OH	8,128	3,760	-4,368
Toronto, ON	24,083	66,900	42,817	Columbus, OH	10,875	6,080	-4,795
Vancouver, BC	11,993	27,500	15,507	Cleveland, OH	10,493	5,620	-4,873
Seattle, WA	17,011	28,750	11,739	Raleigh-Durham, NC	16,855	11,900	-4,955
Charlotte, NC	6,639	15,780	9,141	Dallas/Ft. Worth, TX	27,508	22,530	-4,978
Denver, CO	20,307	28,230	7,923	Baltimore, MD	17,689	11,560	-6,129
Portland, OR	9,502	14,580	5,078	Newark, NJ	11,999	5,790	-6,209
Tampa, FL	7,394	10,950	3,556	Ottawa, ON	7,314	1,100	-6,214
Kansas City, MO	6,427	9,790	3,363	San Diego, CA	17,273	10,470	-6,803
Nashville, TN	4,159	7,180	3,021	Salt Lake City, UT	22,361	15,320	-7,041
Indianapolis, IN	4,195	6,960	2,765	Long Island, NY	12,501	4,986	-7,515
South Florida	11,989	14,700	2,711	Virginia Beach, VA	7,669	-310	-7,979
Calgary, AB	3,557	6,200	2,643	Minneapolis, MN	16,972	8,950	-8,022
Jacksonville, FL	1,949	4,290	2,341	Hartford, CT	11,274	2,860	-8,414
Montreal, QC	21,009	22,900	1,891	Rochester, NY	10,755	1,460	-9,295
Atlanta, GA	31,313	31,960	647	Phoenix, AZ	24,314	14,500	-9,814
San Antonio, TX	5,145	4,010	-1,135	Philadelphia, PA	25,574	12,730	-12,844
Austin, TX	12,195	10,920	-1,275	Houston, TX	11,934	-1,250	-13,184
Madison, WI	8,319	6,640	-1,679	Pittsburgh, PA	22,293	6,850	-15,443
Orange County, CA	14,450	12,504	-1,946	Detroit, MI	26,350	9,250	-17,100
Richmond, VA	3,546	1,460	-2,086	New York, NY	60,087	41,291	-18,796
Milwaukee, WI	3,680	1,210	-2,470	Los Angeles, CA	44,386	22,090	-22,296
Orlando, FL	11,645	8,860	-2,785	Chicago, IL	37,817	12,930	-24,887
Sacramento, CA	8,359	4,770	-3,589	Washington, D.C.	52,549	23,730	-28,819
St. Louis, MO	8,843	5,050	-3,793	Boston, MA	42,446	10,020	-32,426

Source: CBRE Research, U.S. Bureau of Labor Statistics, The National Center for Education Statistics (Metro), Canadian universities, 2020.

* Tech degrees cover the most recent five-year period available (2014-2018) and tech jobs added cover the time period when most graduates would be counted in employment figures (2015-2019).

+51,958, SF Bay Area, CA

+42,817 Toronto, ON

Brain Gain or Drain?

+15,507 Vancouver, BC

+11,739 Seattle, WA

+5,078 Portland, OR
+3,556 Tampa, FL
+3,363 Kansas City, MO
+3,021 Nashville, TN
+2,765 Indianapolis, IN
+2,711 South Florida

+9,141 Charlotte, NC
+7,923 Denver, CO

+2,643 Calgary, AB
+2,341 Jacksonville, FL
+1,891 Montreal, QC
+647 Atlanta, GA

-1,135 San Antonio, TX
-1,275 Austin, TX
-1,679 Madison, WI
-1,946 Orange County, CA

-4,368 Cincinnati, OH
-4,795 Columbus, OH
-4,873 Cleveland, OH
-4,955 Raleigh-Durham, NC
-4,978 Dallas/Ft. Worth, TX

-7,041 Salt Lake City, UT
-7,515 Long Island, NY
-7,979 Virginia Beach, VA
-8,022 Minneapolis, MN
-8,414 Hartford, CT
-9,295 Rochester, NY
-9,814 Phoenix, AZ

-18,796 New York, NY

-6,129 Baltimore, MD
-6,209 Newark, NJ
-6,214 Ottawa, ON
-6,803 San Diego, CA

-12,844 Philadelphia, PA
-13,184 Houston, TX
-15,443 Pittsburgh, PA
-17,100 Detroit, MI

-2,086 Richmond, VA
-2,470 Milwaukee, WI
-2,785 Orlando, FL
-3,589 Sacramento, CA
-3,793 St. Louis, MO

-22,296 Los Angeles, CA

-24,887 Chicago, IL

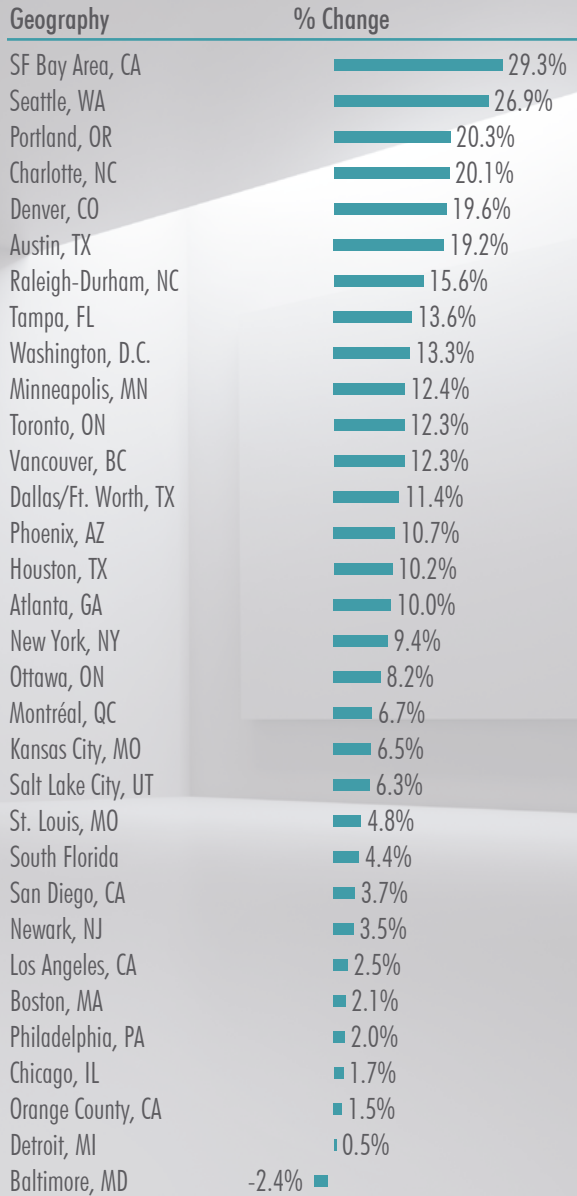
-28,819 Washington, D.C.

-32,426 Boston, MA

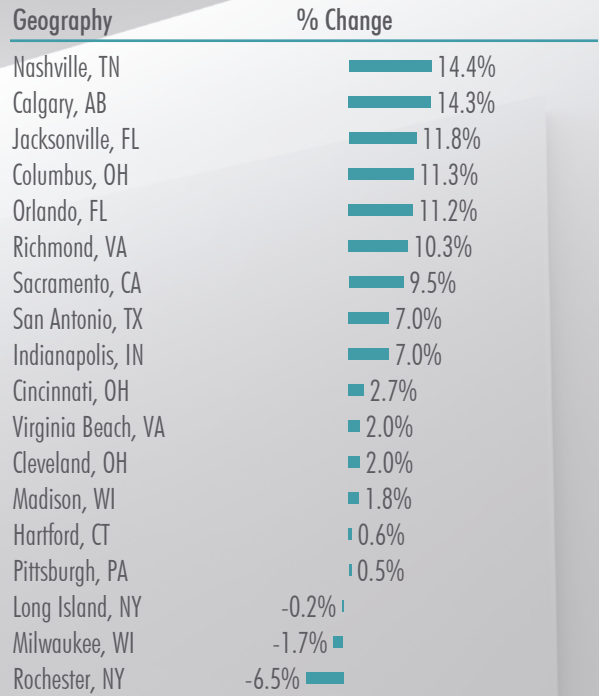
FIGURE 7

Millennial Population Change by Market*

Large Tech Talent Markets (> 50,000 Labor Pool)



Small Tech Talent Markets (< 50,000 Labor Pool)



Source: U.S. Census Bureau (County), Statistics Canada (Metro), 2020.

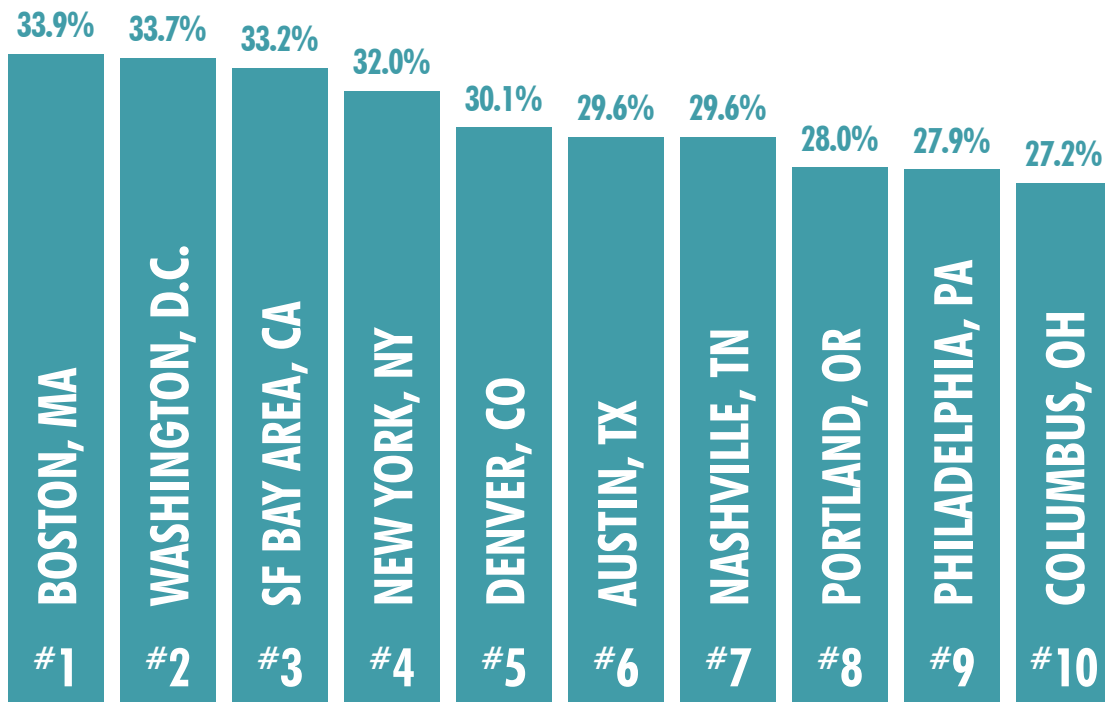
*Millennials aged 22-36 years.

Another notable characteristic of tech talent markets is the number of millennials³ in the workforce. The younger part of this generation has matured with the internet-connected world and continues to advocate for an integrated and efficient working environment. Generally, this well-educated cohort prefers urban living, which has revitalized many downtown neighborhoods.

As the largest demographic cohort, millennials’ robust entry into and maturity within the labor pool contributes greatly to the growth of tech talent across all 50 markets (Figure 7). Sixteen large tech markets have increased their millennial populations by more than 10% since 2013. The San Francisco Bay Area grew the fastest at 29%. During the same period, three of the smaller tech markets increased their millennial populations by more than 10%, with Nashville growing fastest. Aided by the presence of higher education institutions, the large tech talent-producing markets of Boston, Washington, D.C. and New York rank highest for millennials as a proportion of their total urban population, accounting for 32% or more (Figure 8).

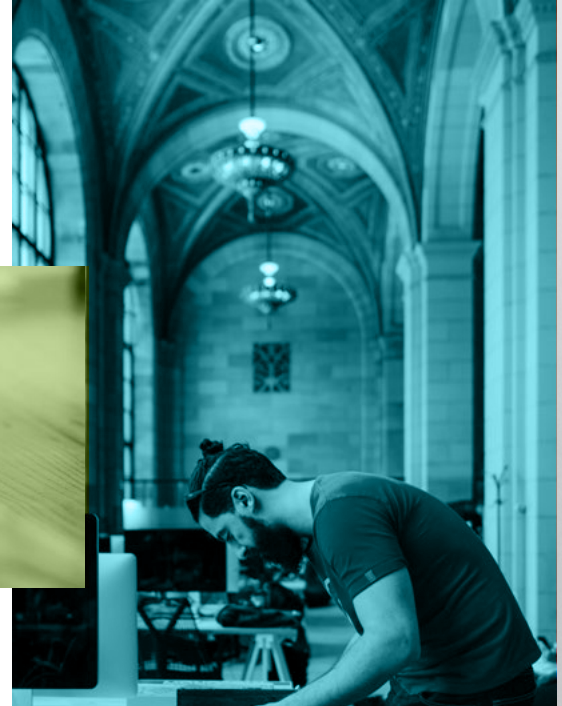
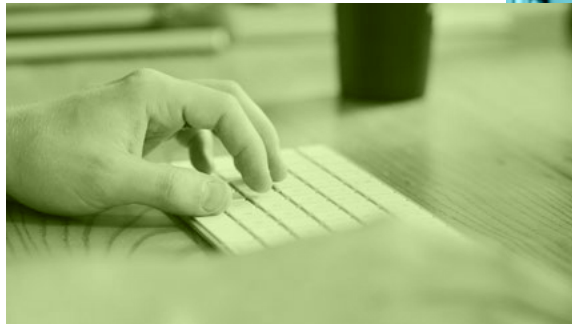
FIGURE 8

Top 10 Most Concentrated Millennial Markets* (2018)



Source: U.S. Census Bureau (County), 2020.
*Millennials aged 22-36 years.

³ Analysis conducted in this report includes millennials aged 22-36 years.



Similar traits among markets cause many of them to appear equivalent, but top tech markets distinguish themselves from the rest with tech clusters and higher concentrations of tech talent. These clusters typically form around preeminent universities that tend to invest the most in innovation and provide a constant flow of new talent for local companies. Stanford University is an essential catalyst for tech clustering in the San Francisco Bay Area, as is Georgia Institute of Technology for Atlanta and the Massachusetts Institute of Technology for Boston.

Tech clusters also form around leading companies that draw other, smaller companies to a region, in turn supporting entrepreneurs as they develop their innovations. Examples include large tech companies in Seattle, financial services companies in Charlotte and Fortune 500 companies in Atlanta.

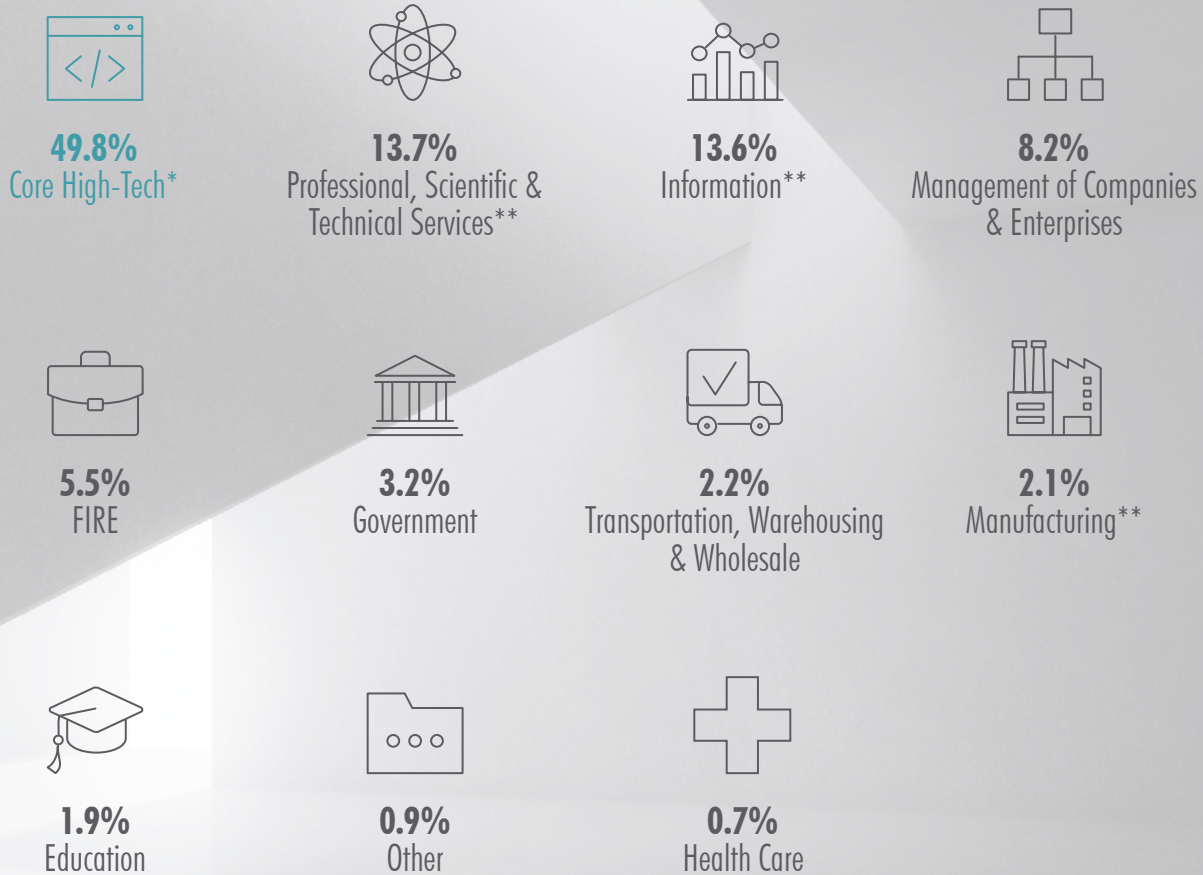
Tech companies use these clusters for synergy and competition, thereby accelerating the innovation process.

These companies in the core high-tech industry are heavily concentrated, with about half of their workers doing tech-related jobs (Figure 9). Consequently, tech talent clusters are likely to form in markets with a strong concentration of high-tech companies.

FIGURE 9

U.S. Tech Talent Labor Concentration by Industry (2019)

TECH TALENT AS % OF TOTAL INDUSTRY OCCUPATIONS
TOTAL U.S. EMPLOYMENT = 3.6%



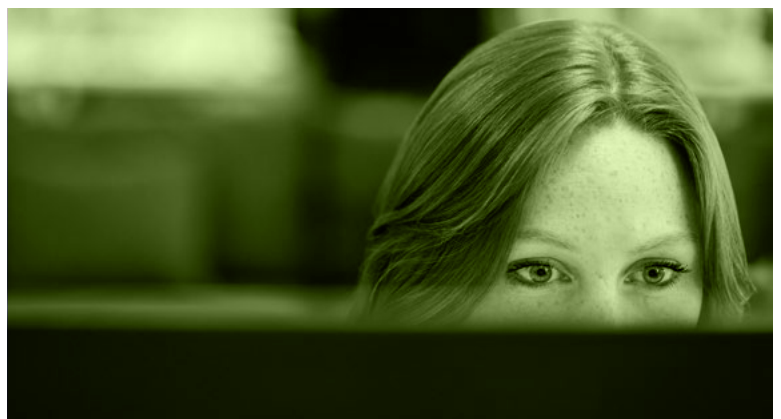
Source: U.S. Bureau of Labor Statistics (National), April 2020.

*Includes computer software and services and computer product manufacturing.

** Excluding High-Tech

Which are the highest- and lowest-cost markets to operate in?

The greatest cost for companies in tech talent markets is employee wages. These highly skilled and educated workers command a premium that can reach more than double the average non-tech salary.





The San Francisco Bay Area has the highest average tech talent worker salary at nearly \$136,000 per year, almost \$17,000 more than the next highest market (Seattle). The average tech worker salary in 12 of the 50 top tech talent markets was above the U.S. tech talent worker average.

The second-highest cost for most companies is office rent. Companies continue to pursue the benefits of tech clustering and often place a higher value on specific submarkets and even specific streets convenient to tech talent.

This has led to some competition for office space and caused rental rates in these areas to increase. Average office rents in 2019 were highest in Manhattan, followed by the San Francisco Bay Area, Los Angeles and Washington, D.C.

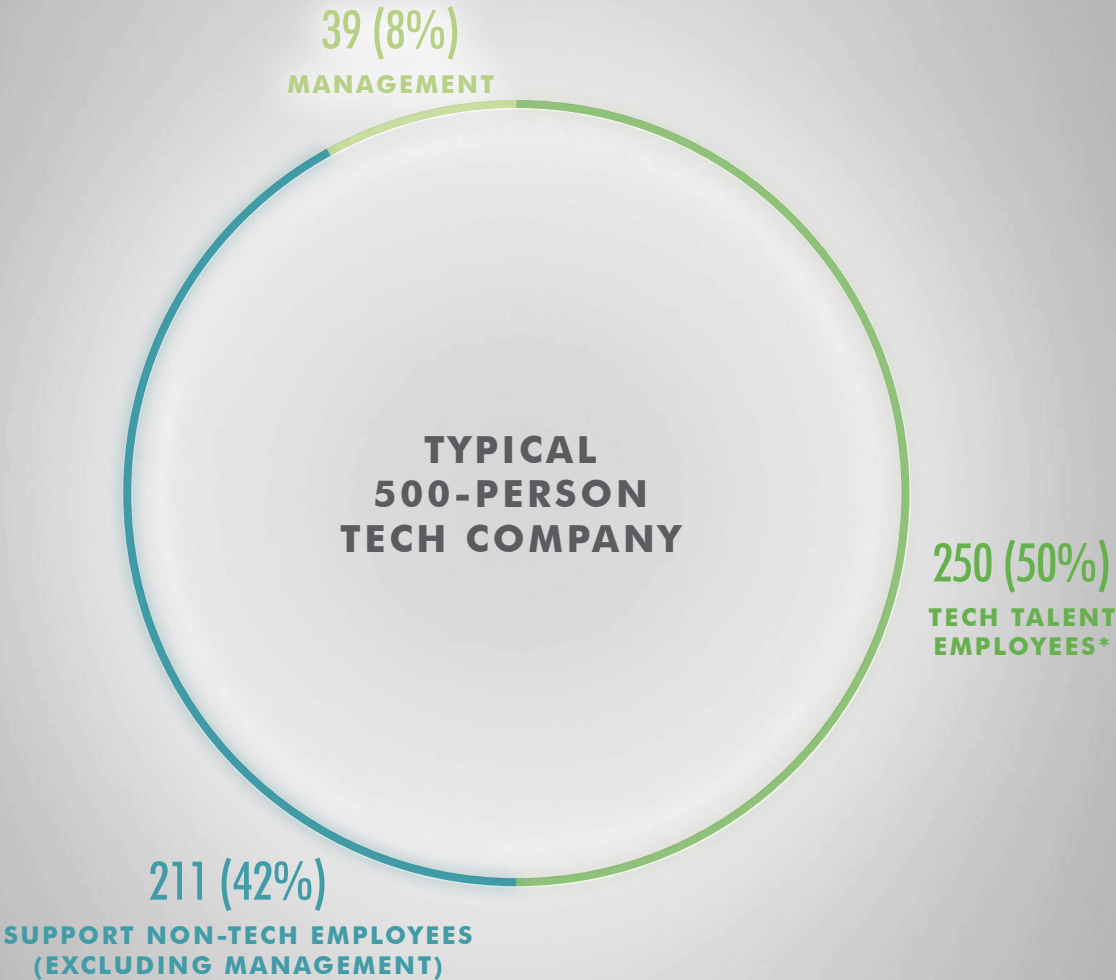
Combining wage and real estate costs provides insight into what a tech company might pay to operate in any of the top 50 tech talent markets. For this comparison, U.S. occupational averages were analyzed to determine the makeup of a typical 500-person tech company needing 75,000 sq. ft. of office space. This breakdown provides interesting insight into each market's relative costs (Figure 11).

Local market wages were applied to the various occupations to determine total annual wage costs by market, and local market rents were used to estimate the annual cost of renting a 75,000-sq.-ft. office to house 500 employees.⁴ The San Francisco Bay Area topped the list with the highest estimated annual cost at more than \$62 million, followed distantly by the other major tech markets of New York, Seattle and Washington, D.C.

⁴ The COVID-19 outbreak may have lasting effects on office use and density.

FIGURE 10

Average U.S. Tech Company Occupation Pools



Source: U.S. Bureau of Labor Statistics (National), April 2020.

* Tech Talent includes the following occupation categories: software developers and programmers; computer support, database and systems; technology and engineering related; and computer information system managers

FIGURE 11

Estimated One-Year Costs by Market

SAMPLE TECH FIRM ESTIMATES: 500 EMPLOYEES; 75,000 SF

Market	Rent Cost (avg rent x 75,000 sf)	Tech Talent Wages (avg wage x 250 people)	Support Non-Tech Wages (avg wage x 211 people)	Management Wages (avg wage x 39 people)	Total
SF Bay Area, CA	\$5,111,075	\$34,015,025	\$14,802,418	\$8,085,948	\$62,014,467
New York, NY	\$6,032,250	\$27,647,634	\$12,340,604	\$7,272,752	\$53,293,240
Seattle, WA	\$2,966,250	\$29,792,430	\$13,112,390	\$6,677,970	\$52,549,040
Washington, D.C.	\$3,067,500	\$28,442,748	\$14,066,722	\$6,809,400	\$52,386,370
Boston, MA	\$2,985,000	\$27,348,822	\$13,139,370	\$6,312,930	\$49,786,122
Denver, CO	\$2,146,500	\$26,266,402	\$13,087,999	\$6,889,726	\$48,390,627
San Diego, CA	\$2,853,000	\$27,263,300	\$11,220,507	\$6,418,230	\$47,755,037
Newark, NJ	\$2,166,000	\$27,150,579	\$11,648,059	\$6,710,008	\$47,674,645
Baltimore, MD	\$1,767,750	\$27,054,548	\$11,193,146	\$6,117,150	\$46,132,594
Los Angeles, CA	\$3,249,000	\$25,919,289	\$10,507,386	\$6,356,676	\$46,032,351
Orange County, CA	\$2,736,000	\$25,217,257	\$11,050,941	\$6,135,995	\$45,140,194
Philadelphia, PA	\$2,267,250	\$24,860,385	\$11,283,742	\$6,158,490	\$44,569,867
Houston, TX	\$2,177,250	\$25,057,347	\$10,790,657	\$6,181,500	\$44,206,754
Minneapolis, MN	\$2,124,750	\$24,655,013	\$11,479,778	\$5,942,430	\$44,201,970
Raleigh-Durham, NC	\$2,180,250	\$24,581,414	\$11,358,493	\$5,606,768	\$43,726,925
Austin, TX	\$2,916,750	\$23,853,951	\$10,647,555	\$6,236,100	\$43,654,355
Dallas/Ft. Worth, TX	\$1,887,750	\$24,824,275	\$10,620,239	\$6,313,320	\$43,645,584
Hartford, CT	\$1,476,000	\$24,808,202	\$11,546,267	\$5,594,940	\$43,425,409
Chicago, IL	\$2,412,000	\$24,147,760	\$10,902,741	\$5,916,690	\$43,379,191
Charlotte, NC	\$2,235,750	\$24,262,847	\$10,959,597	\$5,614,830	\$43,073,024
Atlanta, GA	\$2,113,500	\$24,168,377	\$10,738,624	\$5,949,840	\$42,970,341
Portland, OR	\$2,332,500	\$23,746,704	\$11,092,868	\$5,371,860	\$42,543,932
Richmond, VA	\$1,728,750	\$23,787,334	\$10,564,817	\$6,151,860	\$42,232,761
Long Island, NY	\$2,073,750	\$23,206,569	\$10,389,208	\$6,190,182	\$41,859,709
South Florida	\$2,813,364	\$22,211,192	\$9,711,373	\$5,825,820	\$40,561,749
Phoenix, AZ	\$2,025,000	\$22,806,031	\$10,033,926	\$5,574,660	\$40,439,617
Columbus, OH	\$1,477,500	\$22,702,421	\$10,565,543	\$5,490,810	\$40,236,274
Cincinnati, OH	\$1,470,000	\$22,514,020	\$10,415,647	\$5,409,300	\$39,808,967
Detroit, MI	\$1,444,500	\$22,093,055	\$10,652,459	\$5,359,380	\$39,549,394
St. Louis, MO	\$1,528,500	\$22,349,345	\$10,310,571	\$5,349,630	\$39,538,046
Tampa, FL	\$1,740,750	\$22,257,948	\$9,475,558	\$5,607,030	\$39,081,286
Salt Lake City, UT	\$1,784,250	\$22,243,016	\$9,536,119	\$5,397,689	\$38,961,075
Indianapolis, IN	\$1,570,500	\$21,647,789	\$10,414,295	\$5,295,420	\$38,928,003
San Antonio, TX	\$1,720,500	\$22,432,034	\$8,973,622	\$5,574,660	\$38,700,816
Orlando, FL	\$1,824,000	\$22,189,697	\$9,234,253	\$5,396,040	\$38,643,990
Milwaukee, WI	\$1,457,250	\$21,605,931	\$10,360,392	\$5,213,520	\$38,637,093
Madison, WI	\$1,499,250	\$21,803,759	\$10,073,076	\$5,095,350	\$38,471,435
Kansas City, MO	\$1,569,750	\$21,284,145	\$10,364,237	\$5,114,850	\$38,332,982
Virginia Beach, VA	\$1,478,250	\$21,790,813	\$9,383,763	\$5,663,580	\$38,316,406
Cleveland, OH	\$1,419,000	\$20,803,959	\$10,466,153	\$5,270,850	\$37,959,962
Nashville, TN	\$2,073,750	\$20,874,913	\$9,826,296	\$5,039,190	\$37,814,148
Rochester, NY	\$1,462,500	\$20,799,962	\$9,314,851	\$5,709,990	\$37,287,303
Sacramento, CA	\$1,791,000	\$18,805,143	\$10,652,739	\$5,885,490	\$37,134,372
Pittsburgh, PA	\$1,763,250	\$20,104,675	\$9,501,195	\$5,579,340	\$36,948,460
Jacksonville, FL	\$1,522,500	\$20,428,933	\$9,069,898	\$5,049,330	\$36,070,661
Calgary, AB*	\$2,263,420	\$17,944,586	\$11,369,649	\$3,494,623	\$35,072,278
Ottawa, ON*	\$2,523,955	\$17,168,549	\$10,729,488	\$3,299,560	\$33,721,552
Toronto, ON*	\$2,685,750	\$16,016,177	\$9,700,349	\$3,072,088	\$31,474,364
Vancouver, BC*	\$3,321,750	\$15,439,897	\$9,056,454	\$2,843,394	\$30,661,495
Montreal, QC*	\$2,479,500	\$15,185,113	\$9,188,905	\$3,368,657	\$30,222,175

Source: U.S. Bureau of Labor Statistics, April 2020, Canada Statistics April 2020, CBRE Research (Metro), Q4 2020.

*in US\$

How is Tech Talent quality vs cost measured?

Assessing the quality of a labor market is challenging because there are no standard metrics to measure.



Since labor is the largest expense for most companies seeking tech talent, the quality of that tech talent is becoming one of their most important considerations. Figure 12 plots a quality assessment for software developers against their average salary by market to illustrate this trade-off across the top 50 tech talent markets.

Labor quality was measured by the number and concentration of software engineers with three or more years of experience and who graduated from one of the top 25 computer science programs in North

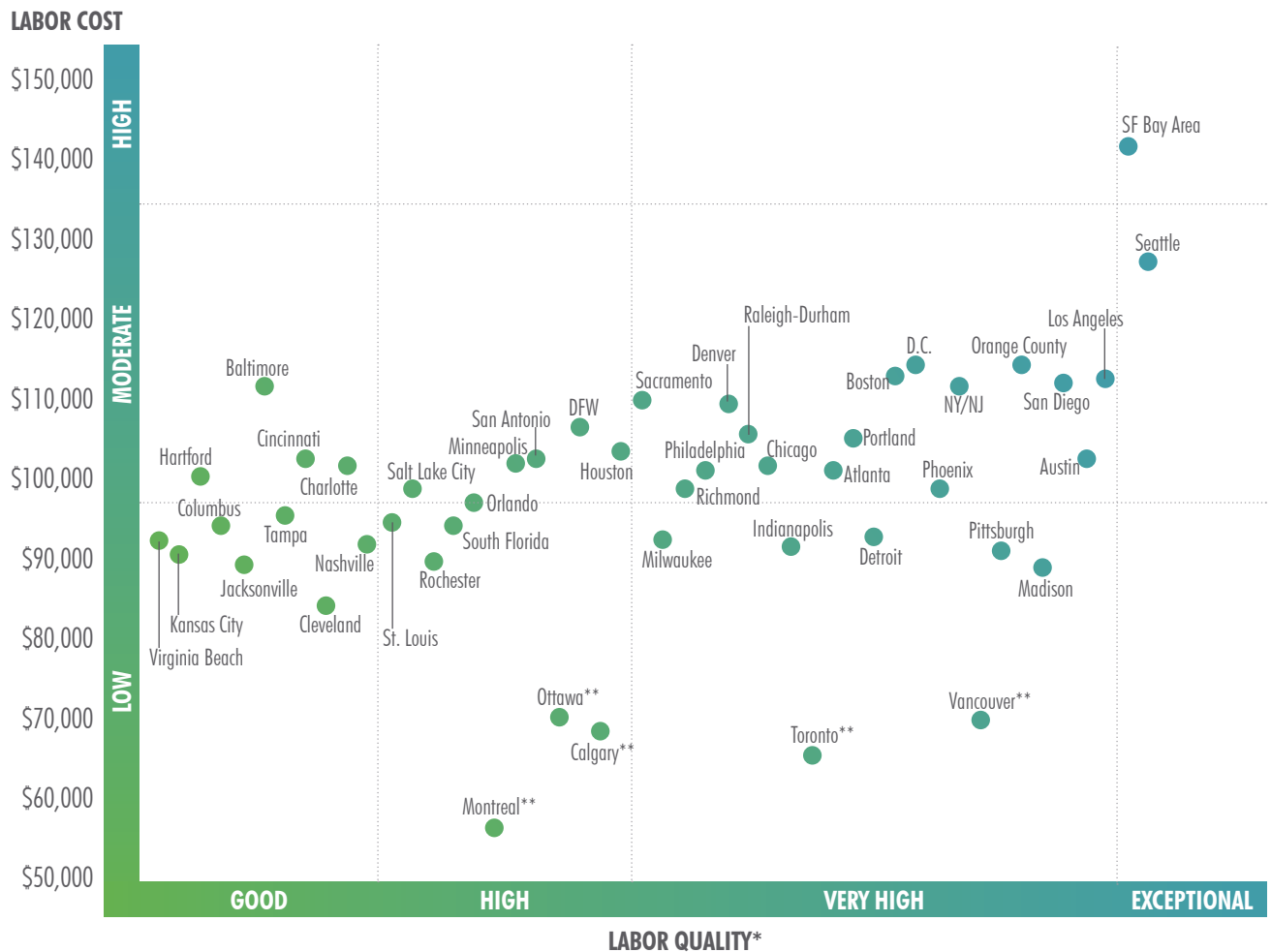
America, including the top three in Canada, as determined by U.S. News & World Report. The highest-cost markets (San Francisco Bay Area and Seattle) also have the highest concentration of quality tech talent. Nevertheless, good, high and very high concentrations of quality tech talent are available in moderate and low-cost markets, providing a range of options. Due in part to the strong U.S. dollar, Toronto, Vancouver, Montreal, Ottawa and Calgary provide the best value when it comes to cost and quality, followed by Indianapolis, Pittsburgh, Madison, Richmond and Detroit.



FIGURE 12

Tech Talent Quality vs. Cost Analysis

AVERAGE ANNUAL SALARY FOR SOFTWARE ENGINEER (US\$)



Source: U.S. Bureau of Labor Statistics, April 2019, Canada Statistics April 2019, U.S. News & World Report, CBRE Labor Analytics, CBRE Research, 2020.

*Concentration of software engineers/developers with 3+ years of experience that have earned degrees from the top 25 computer information science programs in the U.S. and top 5 in Canada as rated by U.S. News & World Report, 2020.

**Data in US\$.

The skills of the available labor pool do not appear to match those of available jobs, causing a structural barrier to growth for companies across North America and slowing job creation. Jobs that require specific skills, such as software development and machine learning, remain in high demand, while the pool of available talent to fill them is limited. Only 37% of all tech talent workers are employed in the high-tech software/services industry (Figure 1), meaning tech companies must compete with other industries that employ the remaining 63% of tech workers.

COVID-19 has altered overall labor market dynamics as the unemployment rate for college-educated workers increased from a steady 2.0% in 2019 to 7.2% in May 2020.

While tech talent employment likely will be more resilient than overall employment of college-educated workers, reductions in labor cost growth and competition for talent should benefit employers. Additionally, remote work could increase the reach of tech employers, further distributing talent across North America. Nevertheless, the most competitive tech labor markets are the San Francisco Bay Area, Seattle, Austin and Portland, while more balanced markets can be found in the U.S. Midwest and East, and in Canada.

FIGURE 13

Tech Labor Market Competitiveness



Source: U.S. Bureau of Labor Statistics, Statistics Canada, IPEDS, CBRE Location Analytics, CBRE EA, CBRE Research, 2020.

How does tech talent impact commercial real estate?

Tech talent growth, primarily within the high-tech industry, has totaled 777,000 U.S. jobs in the past five years and been the top driver of U.S. office leasing activity during that time.

The high-tech industry's share of major leasing activity⁵ nationwide increased to 22% in 2019 from 11% in 2011—the largest single share of any industry. Many tech talent markets, especially those with high concentrations or clusters of tech companies, have seen rising rents and declining vacancies as a result. Significant demand for office space in top markets that have added tens of thousands of workers during the past five years raised rents to their highest levels and pushed down vacancy rates to their lowest levels.

Rent growth is highest in the large tech markets, with office rents in Orange County 50% higher than they were five years ago. But the decrease in vacancy rates has occurred across both large and small tech markets. Vacancy rates in Vancouver, the San Francisco Bay Area, Ottawa and Madison are the lowest of the top 50 tech talent markets, and some larger markets like Toronto and New York are not far behind (Figure 14).

The in-migration of talent to these tech markets also has a sizeable impact on residential real estate. Manhattan remains the most expensive apartment market, and rents have increased in all markets except Calgary and South Florida. Comparing the annual average apartment rent with the annual average tech-worker salary, tech salaries generally can cover the cost of living in even the most expensive markets (Figure 16), based on the affordability standard of 30% of income to housing.

COVID-19 has changed economic and real estate market dynamics across North America and demand for office space and housing likely will finish 2020 at much lower levels than 2019. This means more real estate choices at a lower cost in many markets. The ongoing structural impact of technological innovation on the economic cycle will endure and rise once again at a faster rate than the overall economy. Disruption is part of the innovation process, and tech talent markets across North America will provide both occupiers and investors with real estate opportunities.

⁵ Includes transactions 10,000 sq. ft. or larger each quarter for the 50+ markets tracked by CBRE Research.

FIGURE 14

Office Asking Rent by Market (Q4 2019)

Market	Annual Gross Direct Asking Rent Per SF	Vacancy Rate
New York, NY	\$80.43	7.7%
SF Bay Area, CA	\$68.15	6.1%
Los Angeles, CA	\$43.32	14.1%
Washington, D.C.	\$40.90	16.6%
Boston, MA	\$39.80	11.0%
Seattle, WA	\$39.55	9.4%
Austin, TX	\$38.89	10.7%
San Diego, CA	\$38.04	10.3%
South Florida	\$37.51	11.6%
Orange County, CA	\$36.48	9.4%
Vancouver, BC*	\$33.39	3.7%
Chicago, IL	\$32.16	14.7%
Portland, OR	\$31.10	11.9%
Philadelphia, PA	\$30.23	14.2%
Charlotte, NC	\$29.81	8.4%
Raleigh-Durham, NC	\$29.07	10.8%
Houston, TX	\$29.03	19.3%
Newark, NJ	\$28.88	14.1%
Denver, CO	\$28.62	12.9%
Minneapolis, MN	\$28.33	18.5%
Atlanta, GA	\$28.18	17.1%
Long Island, NY	\$27.65	10.0%
Nashville, TN	\$27.65	9.8%
Phoenix, AZ	\$27.00	14.1%
Toronto, ON*	\$26.99	6.7%
Ottawa, ON*	\$25.37	6.3%
Dallas/Ft. Worth, TX	\$25.17	20.3%
Montreal, QC*	\$24.92	10.7%
Orlando, FL	\$24.32	9.1%
Sacramento, CA	\$23.88	10.0%
Salt Lake City, UT	\$23.79	10.8%
Baltimore, MD	\$23.57	15.0%
Pittsburgh, PA	\$23.51	15.1%
Tampa, FL	\$23.21	11.5%
Richmond, VA	\$23.05	8.7%
San Antonio, TX	\$22.94	13.5%
Calgary, AB*	\$22.75	24.7%
Indianapolis, IN	\$20.94	17.4%
Kansas City, MO	\$20.93	12.9%
St. Louis, MO	\$20.38	11.0%
Jacksonville, FL	\$20.30	16.6%
Madison, WI	\$19.99	6.7%
Virginia Beach, VA	\$19.71	10.2%
Columbus, OH	\$19.70	14.7%
Hartford, CT	\$19.68	18.3%
Cincinnati, OH	\$19.60	18.4%
Rochester, NY	\$19.50	14.9%
Milwaukee, WI	\$19.43	14.5%
Detroit, MI	\$19.26	13.8%
Cleveland, OH	\$18.92	16.1%

Source: CBRE Research (Office Market), Q4 2019.

*in US\$

Note: New York represents Manhattan only.

FIGURE 15

Apartment Asking Rent by Market (Q4 2019)

Market	Average Monthly Apartment Rent	Apt Rent 5 Yr. Growth
New York, NY	\$4,042	6%
SF Bay Area, CA	\$2,874	15%
Long Island, NY	\$2,386	20%
Los Angeles, CA	\$2,310	21%
Boston, MA	\$2,258	18%
Orange County, CA	\$2,150	20%
San Diego, CA	\$2,040	26%
Washington, D.C.	\$1,809	10%
Seattle, WA	\$1,783	27%
Newark, NJ	\$1,756	15%
South Florida	\$1,670	15%
Chicago, IL	\$1,525	10%
Denver, CO	\$1,522	18%
Sacramento, CA	\$1,494	41%
Vancouver, BC*	\$1,469	34%
Toronto, ON*	\$1,459	25%
Portland, OR	\$1,419	24%
Philadelphia, PA	\$1,418	14%
Hartford, CT	\$1,360	9%
Minneapolis, MN	\$1,357	19%
Baltimore, MD	\$1,346	10%
Austin, TX	\$1,310	16%
Nashville, TN	\$1,287	19%
Orlando, FL	\$1,284	26%
Ottawa, ON*	\$1,281	25%
Atlanta, GA	\$1,265	25%
Tampa, FL	\$1,237	23%
Pittsburgh, PA	\$1,195	8%
Phoenix, AZ	\$1,184	36%
Calgary, AB*	\$1,181	-3%
Dallas/Ft. Worth, TX	\$1,178	20%
Madison, WI	\$1,178	12%
Charlotte, NC	\$1,172	20%
Milwaukee, WI	\$1,170	5%
Salt Lake City, UT	\$1,168	24%
Raleigh-Durham, NC	\$1,166	21%
Houston, TX	\$1,118	5%
Richmond, VA	\$1,107	19%
Virginia Beach, VA	\$1,097	10%
Jacksonville, FL	\$1,082	22%
Rochester, NY	\$1,036	17%
Detroit, MI	\$1,021	20%
San Antonio, TX	\$1,009	12%
Cincinnati, OH	\$992	17%
Columbus, OH	\$980	17%
Kansas City, MO	\$979	14%
St. Louis, MO	\$965	11%
Cleveland, OH	\$943	12%
Indianapolis, IN	\$926	15%
Montreal, QC*	\$841	17%

Source: CBRE Econometric Advisors (City), Axiometrics, CMHC, Q4 2019.

*in US\$

Note: New York represents Manhattan only.

FIGURE 16

Apartment Rent to Tech Wage Ratio

Market	Annualized Apartment Rent (2019)	Average Annual Tech Wage (2019)	Rent-to-Tech Wage Ratio
New York, NY	\$48,508	\$110,591	43.9%
Long Island, NY	\$28,630	\$92,826	30.8%
Vancouver, BC*	\$17,628	\$61,760	28.5%
Toronto, ON*	\$17,508	\$64,065	27.3%
Los Angeles, CA	\$27,722	\$103,677	26.7%
Orange County, CA	\$25,799	\$100,869	25.6%
SF Bay Area, CA	\$34,491	\$136,060	25.4%
Boston, MA	\$27,093	\$109,395	24.8%
Sacramento, CA	\$17,933	\$75,221	23.8%
South Florida	\$20,044	\$88,845	22.6%
San Diego, CA	\$24,478	\$109,053	22.4%
Ottawa, ON*	\$15,372	\$68,674	22.4%
Calgary, AB*	\$14,172	\$71,779	19.8%
Newark, NJ	\$21,074	\$108,602	19.4%
Washington, D.C.	\$21,707	\$113,771	19.1%
Chicago, IL	\$18,303	\$96,591	18.9%
Nashville, TN	\$15,447	\$83,500	18.5%
Seattle, WA	\$21,400	\$119,170	18.0%
Portland, OR	\$17,024	\$94,987	17.9%
Pittsburgh, PA	\$14,345	\$80,419	17.8%
Denver, CO	\$18,258	\$105,066	17.4%
Orlando, FL	\$15,407	\$88,759	17.4%
Philadelphia, PA	\$17,012	\$99,442	17.1%
Tampa, FL	\$14,839	\$89,032	16.7%
Montreal, QC*	\$10,092	\$60,741	16.6%
Minneapolis, MN	\$16,285	\$98,620	16.5%
Austin, TX	\$15,715	\$95,416	16.5%
Hartford, CT	\$16,319	\$99,233	16.4%
Milwaukee, WI	\$14,040	\$86,424	16.2%
Madison, WI	\$14,136	\$87,215	16.2%
Jacksonville, FL	\$12,981	\$81,716	15.9%
Salt Lake City, UT	\$14,012	\$88,972	15.7%
Atlanta, GA	\$15,178	\$96,674	15.7%
Phoenix, AZ	\$14,213	\$91,224	15.6%
Virginia Beach, VA	\$13,168	\$87,163	15.1%
Rochester, NY	\$12,432	\$83,200	14.9%
Baltimore, MD	\$16,154	\$108,218	14.9%
Charlotte, NC	\$14,064	\$97,051	14.5%
Dallas/Ft. Worth, TX	\$14,138	\$99,297	14.2%
Raleigh-Durham, NC	\$13,993	\$98,326	14.2%
Richmond, VA	\$13,279	\$95,149	14.0%
Detroit, MI	\$12,246	\$88,372	13.9%
Kansas City, MO	\$11,748	\$85,137	13.8%
Cleveland, OH	\$11,310	\$83,216	13.6%
San Antonio, TX	\$12,104	\$89,728	13.5%
Houston, TX	\$13,421	\$100,229	13.4%
Cincinnati, OH	\$11,901	\$90,056	13.2%
Columbus, OH	\$11,758	\$90,810	12.9%
St. Louis, MO	\$11,574	\$89,397	12.9%
Indianapolis, IN	\$11,110	\$86,591	12.8%

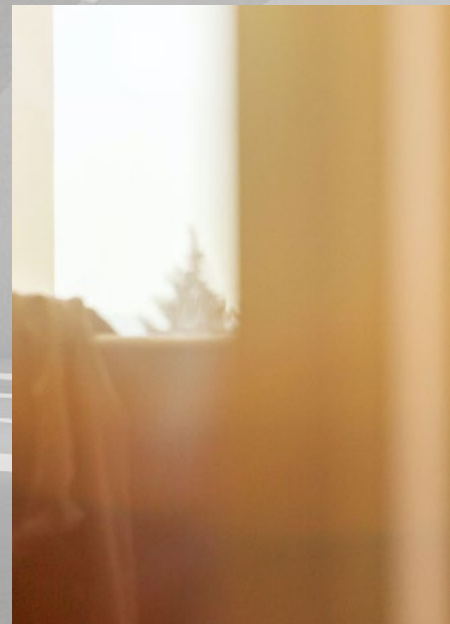
Source: U.S. Bureau of Labor Statistics April 2020, Statistics Canada May 2020, CBRE Econometric Advisors, Axiometrics, CMHC Q4 2019.

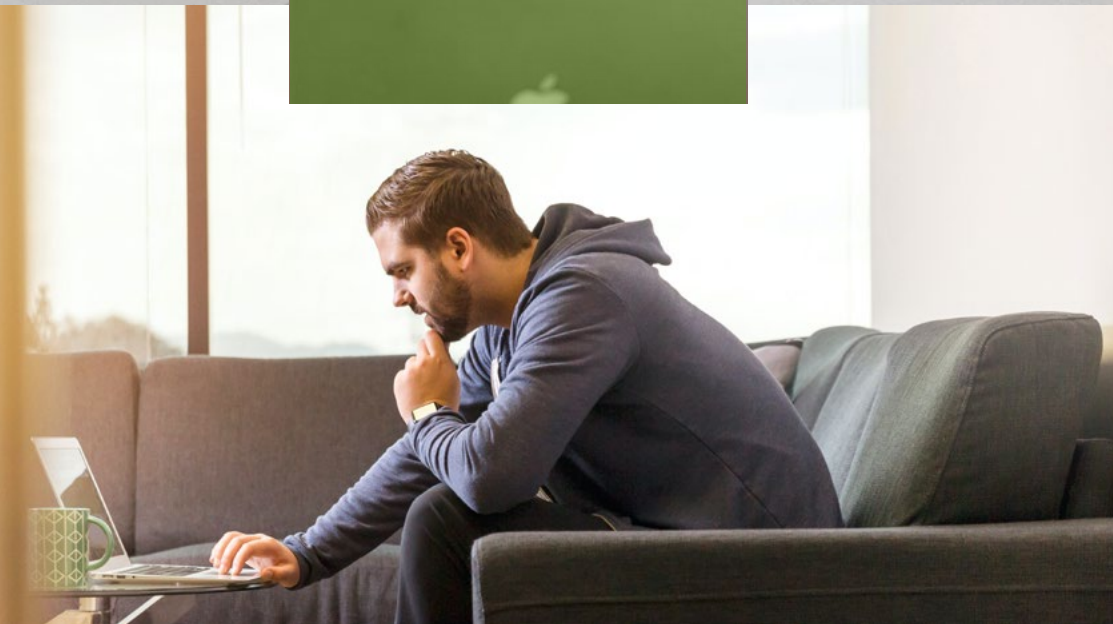
*in US\$

Note: New York represents Manhattan only.

Where else is tech headed?

The rising importance of technology in business and society has caused a global expansion of tech talent labor pools and implementation of more distributed labor strategies by tech talent employers seeking innovation potential and efficiency.







LATIN AMERICA'S TOP 10 MARKETS

Latin America has long been an important source of tech talent in North America, initially focused on manufacturing and business services. During the most recent economic growth cycle, Latin America's tech talent has increasingly focused on software development and innovation. This has attracted many multinational technology companies to the region, as well as further developed Latin America's own technology industry.

Over the past five years, Latin America's tech talent workforce has grown about twice as fast as the U.S. While costs have risen with rapid growth, average wages in Latin America remain about one-third of the U.S. The three largest tech talent markets are Sao Paulo, Mexico City and Santiago, while the fastest growing by far is Bogota.

Real estate costs are also relatively low, making Latin America an even more attractive option for tech talent employers.

FIGURE 17

Latin America's Top 10 Markets

Market	Total Tech Employment (2019) ¹	Total Tech Growth (5 years) ¹	Total Tech Wages (US\$) (2019) ²	Total Tech Wage Growth (local currency) (5 years) ²	Software Developer Wages (US\$) (2019) ²	Software Developer Wage Growth (local currency) (5 years) ²	Total Tech Degree Graduates (2019)	Total Tech Degree Growth (5 years)
São Paulo, Brazil	195,000	8%	\$52,095	52%	\$54,984	51%	11,170	15%
Mexico City, Mexico	163,700	19%	\$27,702	31%	\$33,619	146%	18,625	-5%
Santiago, Chile	107,871	8%	\$38,751	7%	\$43,767	20%	5,075	-30%
Buenos Aires, Argentina	84,756	18%	\$19,394	50%	\$30,411	38%	2,105	-47%
Bogota, Colombia	80,000	159%	\$15,512	2%	\$26,978	62%	6,505	66%
San Jose, Costa Rica	46,971	47%	\$21,152	28%	\$38,107	74%	5,291	164%
Guadalajara, Mexico	30,000	20%	\$22,861	23%	\$40,343	88%	3,500	-19%
Monterrey, Mexico	20,000	43%	\$28,240	20%	\$34,964	51%	2,716	14%
Panama City, Panama	19,750	44%	\$22,235	19%	\$25,919	15%	787	56%
Campinas, Brazil	15,000	20%	\$39,898	42%	\$49,206	64%	2,080	n/a
10-Market Averages	763,048	32%	\$32,816	31%	\$40,144	69%	44,604	22%
U.S. Overall Averages	5,366,410	17%	\$99,010	12%	\$106,875	117%	393,584	32%

Source: CBRE Labor Analytics, 2020.

(1) Jobs related to the development, operation, monitoring and support of the digitized information transmission processes.

(2) Based on 2019 annual average exchange rates.

(3) Submarkets where tech firms are predominantly located.

(4) Submarkets where tech employees predominantly live.



Annual Avg. Office Asking Rent Per SF (US\$) (Q4 2019) ³	Office Rent Growth (5 years) ³	Office Vacancy Rate	Avg. Monthly Apartment Rent (US\$) (Q4 2019) ⁴	Apt Rent Growth (5 years) ⁴
\$32.22	7%	15%	\$308	31%
\$26.17	-15%	16%	\$637	22%
\$24.30	15%	4%	\$410	16%
\$28.07	8%	7%	\$269	381%
\$20.69	8%	17%	\$366	25%
\$23.98	15%	8%	\$520	8%
\$23.34	1%	19%	\$345	22%
\$22.06	-16%	15%	\$388	22%
\$22.15	-15%	27%	\$909	4%
\$16.67	-31%	17%	\$444	31%
\$23.97	1%	14%	\$460	39%
\$35.51	16%	12%	\$1,733	15%

U.S. & CANADA'S NEXT 25

Fostering talent development in lesser-known and underdeveloped U.S. and Canadian markets could offer additional talent pools to employers seeking to expand their geographical reach and uncover opportunities. These 25 smaller markets have growth potential and in the U.S. are concentrated in the Midwest and South. They have been separately ranked from the top 50 markets according to their relative strength.

FIGURE 18

The Next 25 Markets

Market	Total Tech Employment (2019)	Total Tech Growth (5 years)	Total Tech Wages (2019)	Total Tech Wage Growth (5 years)	Software Developer Wages (2019)	Software Developer Wage Growth (5 years)	Tech Talent Degree Graduates (2018)
1. Waterloo Region, ON*	22,400	51%	\$65,946	16%	\$71,716	11.6%	2,707
2. Huntsville, AL	22,800	14%	\$97,778	6%	\$106,046	7.6%	799
3. Omaha, NE	22,500	21%	\$85,765	11%	\$88,263	8.8%	994
4. Colorado Springs, CO	18,020	15%	\$96,423	10%	\$108,332	10.1%	1,218
5. Dayton, OH	18,790	29%	\$87,878	9%	\$92,074	16.8%	1,758
6. Quebec City, QC*	35,800	27%	\$56,899	19%	\$55,645	35.8%	423
7. Providence, RI	19,010	11%	\$97,180	13%	\$102,701	10.1%	1,739
8. Albany, NY	19,340	13%	\$86,488	9%	\$88,322	9.1%	1,895
9. Edmonton, AB*	25,200	17%	\$66,119	6%	\$59,141	1.5%	1,160
10. Louisville, KY	20,420	33%	\$80,483	15%	\$85,766	17.9%	687
11. Stamford, CT	14,470	-13%	\$117,723	18%	\$116,073	20.3%	878
12. Halifax, NS*	13,200	11%	\$55,457	5%	\$56,053	12.6%	1,228
13. Columbia, SC	12,560	18%	\$78,315	12%	\$82,869	17.6%	689
14. Tucson, AZ	14,330	51%	\$85,044	19%	\$96,408	21.5%	1,169
15. Tulsa, OK	13,040	34%	\$77,701	12%	\$83,371	13.8%	319
16. Harrisburg, PA	12,980	14%	\$86,733	16%	\$83,294	8.4%	626
17. Oklahoma City, OK	19,540	7%	\$80,863	13%	\$86,601	14.6%	1,118
18. Des Moines, IA	17,590	25%	\$87,761	10%	\$89,521	7.6%	116
19. Inland Empire, CA	22,220	29%	\$88,611	8%	\$90,078	-1.7%	1,214
20. Buffalo, NY	16,030	10%	\$80,789	14%	\$84,505	10.4%	1,728
21. Las Vegas, NV	19,040	36%	\$82,902	6%	\$90,065	10.5%	378
22. Winnipeg, MB*	15,400	-2%	\$55,457	5%	\$54,375	4.0%	497
23. Palm Bay, FL	13,910	33%	\$93,582	13%	\$104,808	19.6%	576
24. Birmingham, AL	15,570	-2%	\$86,656	11%	\$88,417	7.0%	499
25. Boise, ID	12,520	48%	\$78,062	10%	\$88,846	36.8%	415

Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, 2020.

* Wages in US\$

Note: Markets were separately ranked according to their relative strength based on eight of the 13 metrics used for the top 50.



Edmonton, AB

Winnipeg, MB

Quebec City, QC

Halifax, NS

Boise, ID

Waterloo Region, ON

Albany, NY

Providence, RI

Des Moines, IA

Buffalo, NY

Stamford, CT

Omaha, NE

Dayton, OH

Harrisburg, PA

Colorado Springs, CO

Louisville, KY

Las Vegas, NV

Tulsa, OK

Huntsville, AL

Columbia, SC

Inland Empire, CA

Oklahoma City, OK

Birmingham, AL

Tucson, AZ

Palm Bay, FL

Appendix

APPENDIX A: LOCAL MARKET PROFILES **A1**

APPENDIX B: FULL REPORT DATA SUMMARY **B1**

WHAT IS TECH TALENT AND WHY IS IT IMPORTANT? **B3**

WHICH ARE THE TOP-RANKED TECH-TALENT MARKETS? **B4**

HOW TO FIND TECH-TALENT MOMENTUM MARKETS? **B5**

WHAT DO TECH-TALENT MARKETS LOOK LIKE? **B8**

TECH TALENT HAS UNIQUE CONCENTRATIONS ACROSS MARKETS **B11**

WHICH ARE THE HIGHEST- AND LOWEST-COST MARKETS TO OPERATE IN? **B15**

HOW DOES TECH TALENT IMPACT COMMERCIAL REAL ESTATE? **B17**



1 SF Bay Area, CA

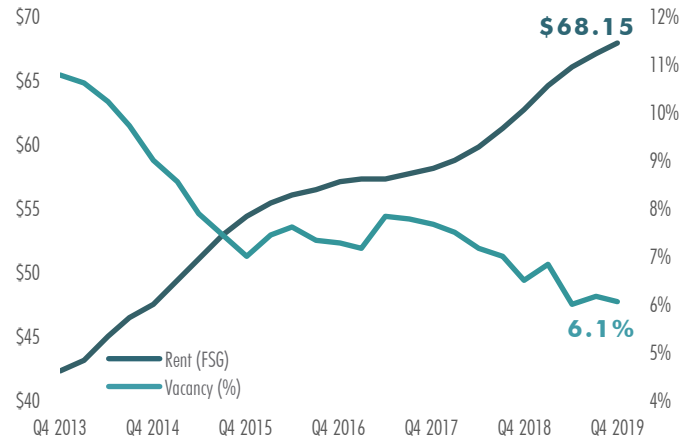
SCORE
82.56

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	379,670	30.5%	\$136,060	13.8%
Software Developers & Programmers	168,200	29.8%	\$141,785	12.9%
Computer Support, Database & Systems	133,480	42.7%	\$113,330	15.1%
Computer & Information Systems Managers	37,200	58.4%	\$207,332	17.0%
Technology Engineering-Related	40,790	-7.8%	\$121,838	5.1%
Total Non-Tech Occupations	432,490	14.5%	\$70,154	7.7%
Sales	62,470	16.7%	\$90,969	-1.9%
Administrative & Office Support	224,560	7.5%	\$48,991	12.5%
Business Operations & Finance	93,100	23.1%	\$96,234	4.1%
Marketing	52,360	32.6%	\$89,709	0.1%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.
Note: Aggregate of San Francisco, Oakland and Silicon Valley metro areas.

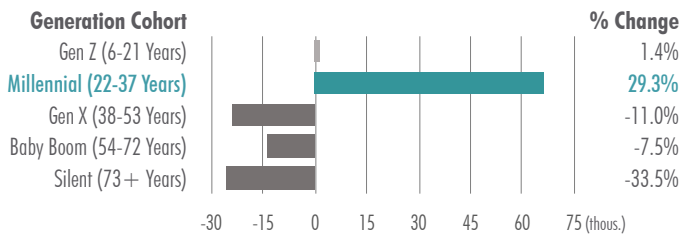
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro Area), Q4 2019.
Note: Weighted average of San Francisco, Oakland and Silicon Valley metro areas.

POPULATION TRENDS

The population of millennials grew by 66,380 (29.3%) since 2013.



Source: U.S. Census Bureau, 2020.
Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#1 RANK | **\$57M** TALENT + **\$5M** RENT = **\$62M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

AVERAGE APARTMENT RENT

\$2,874 PER UNIT/MO. | **15.1%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.
Note: Weighted average of San Francisco, Oakland and Silicon Valley metro areas.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	8,694	48.8%
Computer Engineering	5,494	76.1%
Math/Statistics	1,239	20.3%
Other Tech Engineering	1,961	15.7%
		51.7% BACHELOR'S DEGREE OR HIGHER

Source: The National Center for Education Statistics (Region), 2020.
Note: Aggregate of San Francisco, Oakland and Silicon Valley metro areas.

Source: U.S. Census Bureau (Cities of San Francisco, Oakland, San Mateo and San Jose), 2020.

2 Washington, D.C.

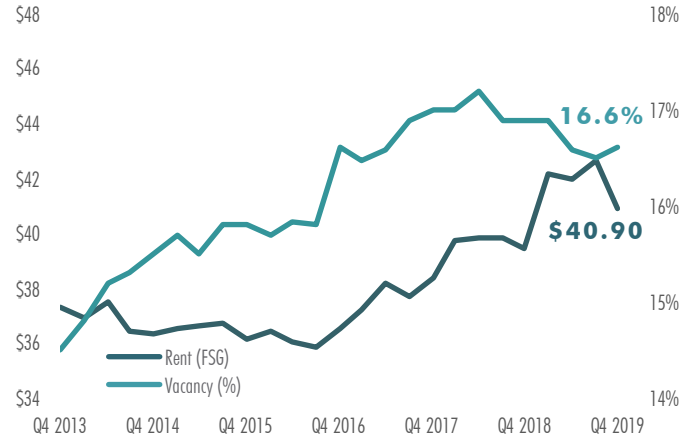
SCORE
67.39

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	263,670	9.9%	\$113,771	10.0%
Software Developers & Programmers	85,010	7.1%	\$114,363	8.4%
Computer Support, Database & Systems	143,320	12.8%	\$105,340	10.0%
Computer & Information Systems Managers	19,080	16.1%	\$174,600	13.3%
Technology Engineering-Related	16,260	-4.7%	\$113,616	11.8%
Total Non-Tech Occupations	411,400	9.8%	\$66,667	12.3%
Sales	42,980	30.4%	\$84,527	0.6%
Administrative & Office Support	213,220	0.7%	\$44,286	12.1%
Business Operations & Finance	103,020	18.3%	\$93,303	7.5%
Marketing	52,180	22.3%	\$90,822	9.8%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

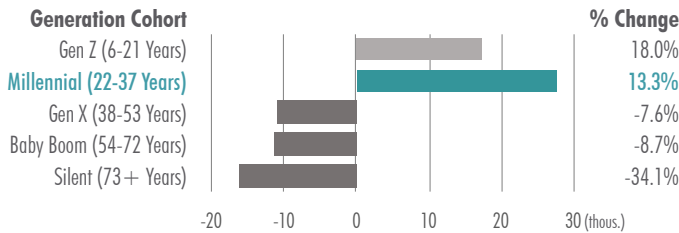
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro Area), Q4 2019.

POPULATION TRENDS

The population of millennials grew by 27,829 (13.3%) since 2013.



Source: U.S. Census Bureau, 2020.
Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS



Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

AVERAGE APARTMENT RENT



Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	12,091	34.0%
Computer Engineering	9,609	42.3%
Math/Statistics	957	33.5%
Other Tech Engineering	1,525	-1.7%

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

60.4%
BACHELOR'S
DEGREE
OR HIGHER

3 Seattle, WA

SCORE
66.36

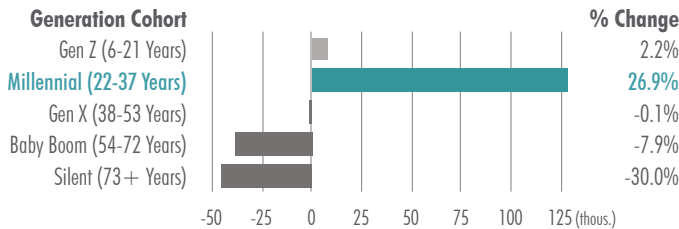
EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	155,330	22.7%	\$119,170	11.7%
Software Developers & Programmers	90,540	26.5%	\$127,067	10.0%
Computer Support, Database & Systems	43,760	7.7%	\$96,189	13.3%
Computer & Information Systems Managers	10,560	35.0%	\$171,230	13.4%
Technology Engineering-Related	10,470	59.6%	\$94,420	2.0%
Total Non-Tech Occupations	238,260	45.0%	\$62,144	17.0%
Sales	22,930	25.9%	\$82,525	27.2%
Administrative & Office Support	139,260	48.5%	\$44,847	17.5%
Business Operations & Finance	48,890	42.8%	\$86,372	14.2%
Marketing	27,180	50.5%	\$89,994	18.3%

Source: U.S. Census Bureau (Metro Area), 2020.

POPULATION TRENDS

The population of millennials grew by 128,593 (26.9%) since 2013.



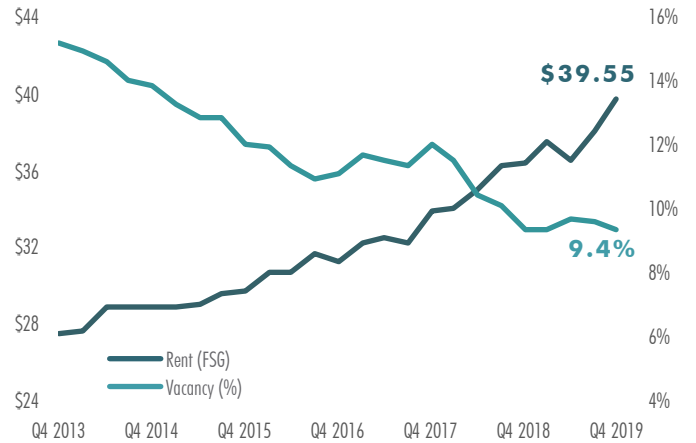
Source: U.S. Census Bureau, 2020.
Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#3 RANK | **\$50M** TALENT + **\$3M** RENT = **\$53M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro Area), Q4 2019.

AVERAGE APARTMENT RENT

\$1,783 PER UNIT/MO. | **27.2%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	4,017	43.0%
Computer Engineering	2,683	61.8%
Math/Statistics	561	7.3%
Other Tech Engineering	773	22.9%

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

65.0% BACHELOR'S DEGREE OR HIGHER

4 Toronto, ON

SCORE
64.34

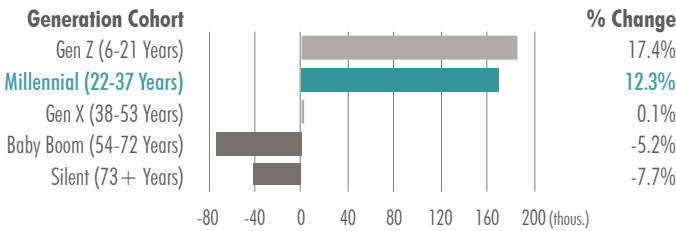
EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage*	Growth 2014-19
Total Tech Occupations	250,000	36.5%	\$84,989	11.2%
Software Developers & Programmers	72,900	54.4%	\$86,715	10.0%
Computer Support, Database & Systems	106,800	58.9%	\$80,392	13.4%
Computer & Information Systems Managers	26,600	60.2%	\$104,499	14.0%
Technology Engineering-Related	43,700	-16.1%	\$81,453	6.6%
Total Non-Tech Occupations	363,000	16.8%	\$60,989	11.4%
Sales	26,400	0.8%	\$54,600	6.1%
Administrative & Office Support	170,800	8.8%	\$47,133	12.3%
Business Operations & Finance	117,400	29.4%	\$80,475	9.4%
Marketing	48,400	30.8%	\$66,102	1.7%

Source: Statistics Canada (Metro Area), April 2020.
*Data in C\$

POPULATION TRENDS

The population of millennials grew by 168,833 (12.3%) since 2013.



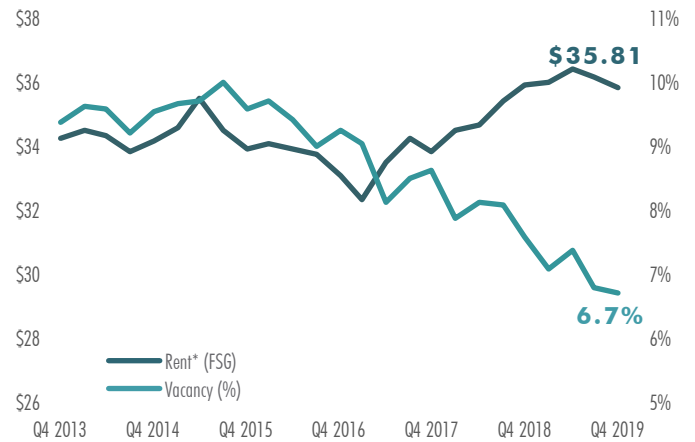
Source: Statistics Canada (Metro Area), 2020.

AVERAGE ANNUAL OPERATING COSTS*

#44 RANK | **\$29M** TALENT + **\$2M** RENT = **\$31M** TOTAL

Source: Statistics Canada, CBRE Research, Q4 2019.
*Data in US\$

OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro Area), Q4 2019.
*Data in C\$

AVERAGE APARTMENT RENT

\$1,459 PER UNIT/MO.* | **25.5%** FIVE-YEAR GROWTH

Source: Apt. rent data from CMHC (Metro Area), Q4 2019.
*Data in C\$

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	5,533	39.7%
Computer Engineering	1,506	45.8%
Math/Statistics	1,115	87.1%
Other Tech Engineering	2,912	24.8%

Source: Various Canadian Ministries of Education (Region), 2020.

Source: Environics Analytics (Metro Area), 2020.

46.1% BACHELOR'S DEGREE OR HIGHER

5 New York, NY

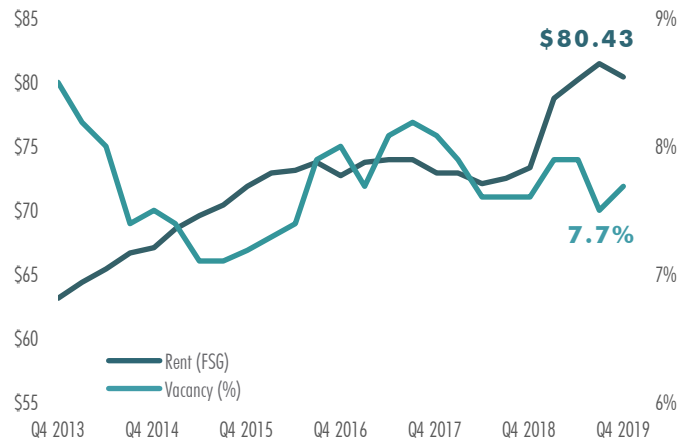
SCORE
64.01

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	268,530	18.2%	\$110,591	9.4%
Software Developers & Programmers	99,724	9.0%	\$111,774	11.6%
Computer Support, Database & Systems	125,750	24.6%	\$95,468	8.8%
Computer & Information Systems Managers	26,934	16.1%	\$186,481	11.6%
Technology Engineering-Related	16,122	39.2%	\$94,440	2.0%
Total Non-Tech Occupations	959,925	7.8%	\$58,486	8.7%
Sales	87,131	11.6%	\$76,391	6.7%
Administrative & Office Support	558,397	-3.0%	\$39,973	6.8%
Business Operations & Finance	213,441	31.7%	\$92,259	-2.6%
Marketing	100,956	35.8%	\$74,029	1.5%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

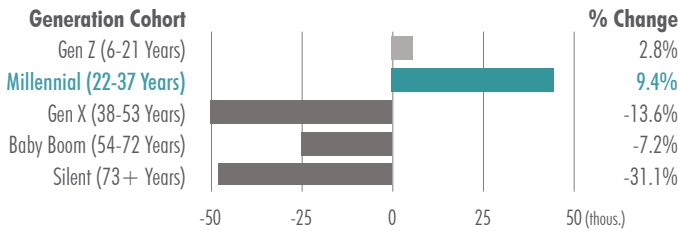
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro Area), Q4 2019.

POPULATION TRENDS

The population of millennials grew by 44,752 (9.4%) since 2013.



Source: U.S. Census Bureau, 2020.
Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#2 RANK | **\$47M** TALENT + **\$6M** RENT = **\$53M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

AVERAGE APARTMENT RENT

\$4,042 PER UNIT/MO. | **5.6%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	14,802	56.2%
Computer Engineering	10,109	79.5%
Math/Statistics	2,782	37.0%
Other Tech Engineering	1,911	5.2%

Source: The National Center for Education Statistics (Region), 2020.

39.0% BACHELOR'S DEGREE OR HIGHER
Source: U.S. Census Bureau (City), 2020.

6 Austin, TX

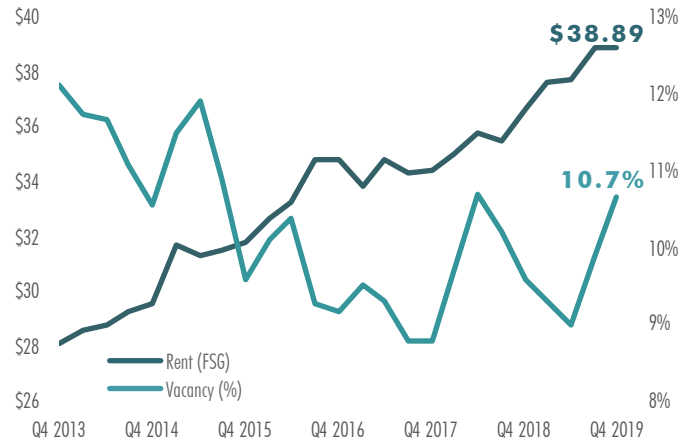
SCORE
60.30

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	76,270	16.7%	\$95,416	11.0%
Software Developers & Programmers	29,230	39.3%	\$102,586	10.4%
Computer Support, Database & Systems	35,650	25.0%	\$81,714	12.2%
Computer & Information Systems Managers	3,330	26.6%	\$159,900	13.0%
Technology Engineering-Related	8,060	-38.9%	\$103,376	12.2%
Total Non-Tech Occupations	156,340	25.7%	\$50,462	12.5%
Sales	20,940	186.5%	\$70,533	-16.4%
Administrative & Office Support	98,070	12.9%	\$37,935	13.5%
Business Operations & Finance	25,350	20.2%	\$74,121	8.7%
Marketing	11,980	31.4%	\$67,871	-0.8%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

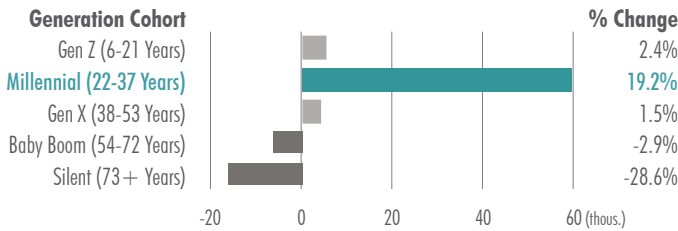
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro Area), Q4 2019.

POPULATION TRENDS

The population of millennials grew by 59,524 (19.2%) since 2013.



Source: U.S. Census Bureau, 2020.
Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#16 RANK | **\$41M** TALENT + **\$3M** RENT = **\$44M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

AVERAGE APARTMENT RENT

\$1,310 PER UNIT/MO. | **15.8%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	2,700	28.8%
Computer Engineering	1,497	45.2%
Math/Statistics	415	4.3%
Other Tech Engineering	788	18.0%

Source: The National Center for Education Statistics (Region), 2020.

54.1% BACHELOR'S DEGREE OR HIGHER
Source: U.S. Census Bureau (City), 2020.

7 Denver, CO

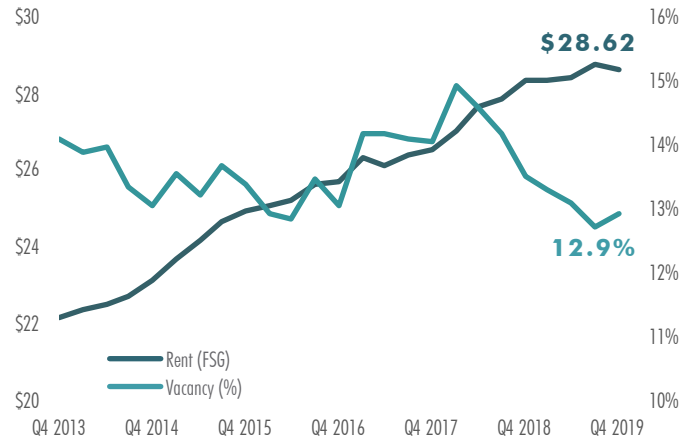
SCORE
59.89

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	113,270	33.2%	\$105,066	11.4%
Software Developers & Programmers	41,040	27.4%	\$109,238	8.9%
Computer Support, Database & Systems	53,170	35.7%	\$92,933	12.3%
Computer & Information Systems Managers	6,610	38.0%	\$176,660	15.5%
Technology Engineering-Related	12,450	40.5%	\$105,114	14.9%
Total Non-Tech Occupations	222,800	10.4%	\$62,028	20.0%
Sales	32,410	32.8%	\$86,608	14.3%
Administrative & Office Support	114,370	-7.2%	\$42,261	14.4%
Business Operations & Finance	52,260	34.9%	\$83,935	10.4%
Marketing	23,760	54.6%	\$75,466	7.6%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

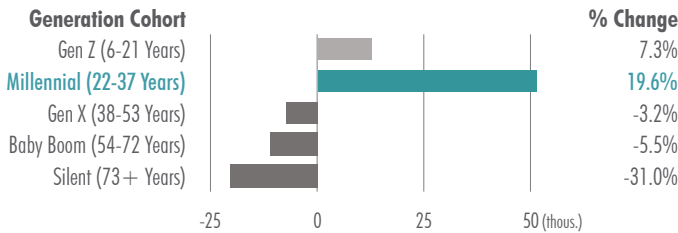
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro Area), Q4 2019.

POPULATION TRENDS

The population of millennials grew by 51,386 (19.6%) since 2013.



Source: U.S. Census Bureau, 2020.
Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS



Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

AVERAGE APARTMENT RENT



Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	4,759	32.6%
Computer Engineering	3,158	57.3%
Math/Statistics	485	12.3%
Other Tech Engineering	1,116	-2.8%

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

53.9%
BACHELOR'S
DEGREE
OR HIGHER

8 Boston, MA

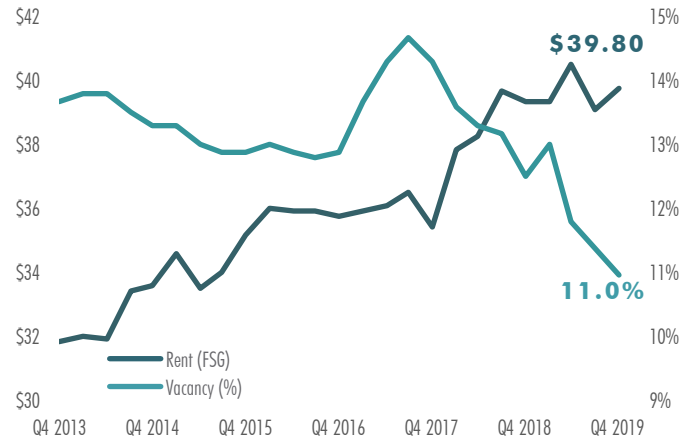
SCORE
59.61

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	167,110	6.4%	\$109,395	8.7%
Software Developers & Programmers	64,200	-0.7%	\$112,959	5.3%
Computer Support, Database & Systems	67,110	19.7%	\$92,133	9.5%
Computer & Information Systems Managers	18,470	31.3%	\$161,870	10.5%
Technology Engineering-Related	17,330	-22.3%	\$107,115	13.9%
Total Non-Tech Occupations	338,040	5.2%	\$62,272	8.7%
Sales	39,550	5.0%	\$90,276	2.3%
Administrative & Office Support	195,510	2.5%	\$45,428	12.2%
Business Operations & Finance	72,780	8.8%	\$87,769	5.3%
Marketing	30,200	16.3%	\$73,199	6.6%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

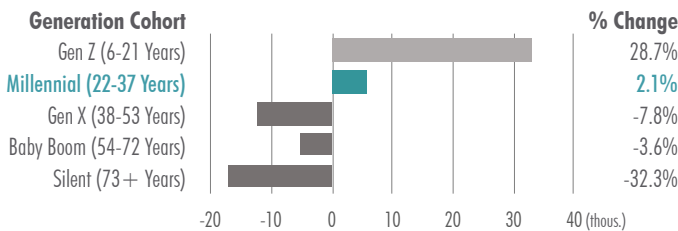
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro Area), Q4 2019.

POPULATION TRENDS

The population of millennials grew by 5,631 (2.1%) since 2013.



Source: U.S. Census Bureau, 2020.
Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS



Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

AVERAGE APARTMENT RENT



Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	10,586	58.4%
Computer Engineering	6,776	63.1%
Math/Statistics	1,808	101.3%
Other Tech Engineering	2,002	22.6%

51.4%
BACHELOR'S
DEGREE
OR HIGHER

Source: The National Center for Education Statistics (Region), 2020.

9 Atlanta, GA

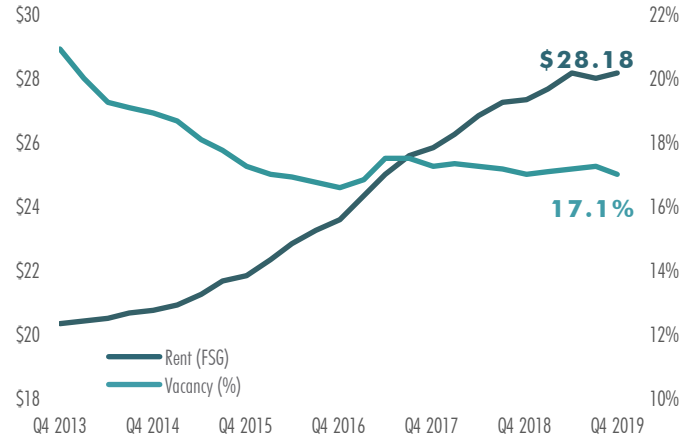
SCORE
58.78

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	146,720	27.8%	\$96,674	10.8%
Software Developers & Programmers	47,640	24.0%	\$101,305	7.5%
Computer Support, Database & Systems	76,440	34.0%	\$85,146	11.8%
Computer & Information Systems Managers	12,790	42.4%	\$152,560	14.2%
Technology Engineering-Related	9,850	-4.4%	\$91,162	11.8%
Total Non-Tech Occupations	351,090	10.8%	\$50,894	9.5%
Sales	43,560	25.2%	\$70,557	-1.9%
Administrative & Office Support	216,850	3.9%	\$37,001	8.2%
Business Operations & Finance	64,400	22.3%	\$77,732	7.0%
Marketing	26,280	26.8%	\$67,175	9.7%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

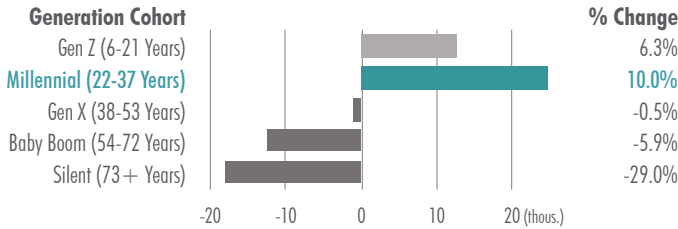
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro Area), Q4 2019.

POPULATION TRENDS

The population of millennials grew by 24,673 (10.0%) since 2013.



Source: U.S. Census Bureau, 2020.
Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#21 RANK | **\$41M** TALENT + **\$2M** RENT = **\$43M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

AVERAGE APARTMENT RENT

\$1,265 PER UNIT/MO. | **24.7%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	7,731	51.4%
Computer Engineering	5,671	69.1%
Math/Statistics	703	25.5%
Other Tech Engineering	1,357	13.8%
		53.4% BACHELOR'S DEGREE OR HIGHER

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

10 Raleigh-Durham, NC

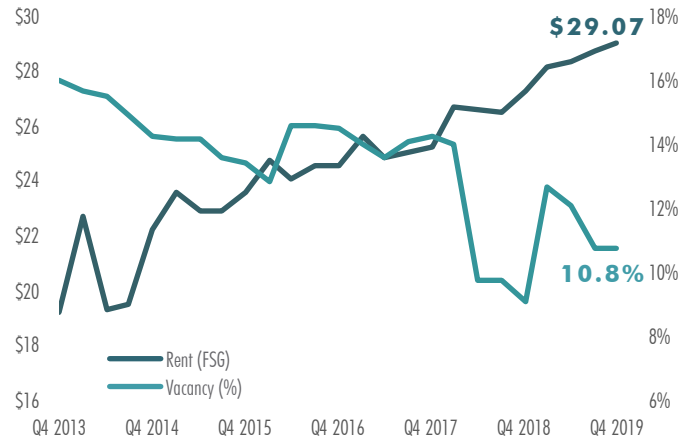
SCORE
56.29

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	67,660	21.3%	\$98,326	10.2%
Software Developers & Programmers	26,640	27.3%	\$105,938	10.2%
Computer Support, Database & Systems	31,370	29.9%	\$84,289	10.2%
Computer & Information Systems Managers	5,540	19.9%	\$143,763	7.8%
Technology Engineering-Related	4,110	-32.3%	\$94,876	15.4%
Total Non-Tech Occupations	130,440	22.4%	\$53,832	17.9%
Sales	18,910	81.0%	\$85,572	9.0%
Administrative & Office Support	77,520	8.4%	\$37,613	11.9%
Business Operations & Finance	23,360	38.1%	\$74,590	10.0%
Marketing	10,650	37.6%	\$69,995	8.9%

Source: U.S. Bureau of Labor Statistics (Metro Area), 2020.

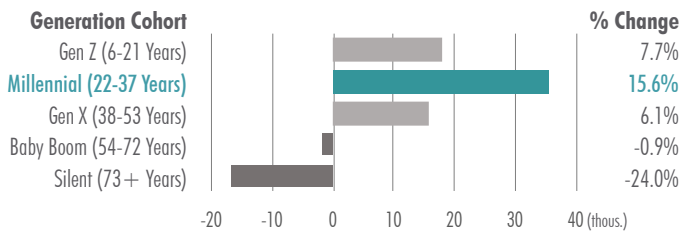
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro Area), Q4 2019.

POPULATION TRENDS

The population of millennials grew by 35,499 (15.6%) since 2013.



Source: U.S. Census Bureau, 2020.
Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#15 RANK | **\$42M** TALENT + **\$2M** RENT = **\$44M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

AVERAGE APARTMENT RENT

\$1,166 PER UNIT/MO. | **20.7%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	3,830	34.3%
Computer Engineering	2,470	42.4%
Math/Statistics	732	41.9%
Other Tech Engineering	628	4.7%

53.3%
BACHELOR'S
DEGREE
OR HIGHER

Source: U.S. Census Bureau (City), 2020.

Source: The National Center for Education Statistics (Region), 2020.

11 Baltimore, MD

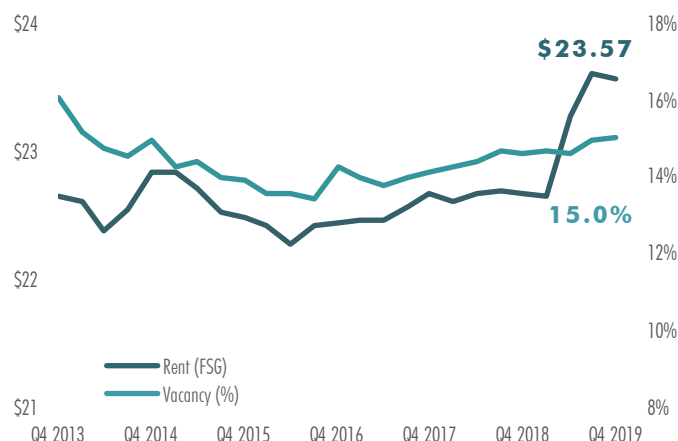
SCORE
56.11

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	79,880	16.9%	\$108,218	10.0%
Software Developers & Programmers	22,620	19.7%	\$111,620	1.5%
Computer Support, Database & Systems	43,290	21.1%	\$99,782	14.5%
Computer & Information Systems Managers	5,960	31.6%	\$156,850	12.3%
Technology Engineering-Related	8,010	-12.5%	\$108,021	10.4%
Total Non-Tech Occupations	169,420	3.8%	\$53,048	11.3%
Sales	19,720	39.0%	\$80,103	5.9%
Administrative & Office Support	108,300	-3.7%	\$39,914	10.1%
Business Operations & Finance	31,870	13.2%	\$77,672	4.3%
Marketing	9,530	14.1%	\$63,975	1.5%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

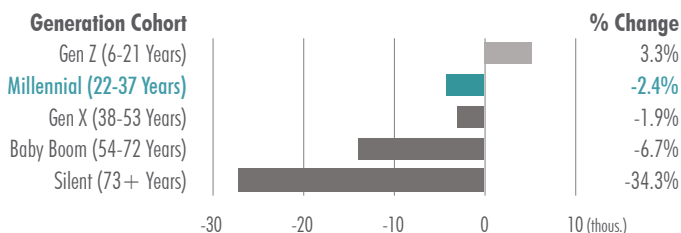
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro Area), Q4 2019.

POPULATION TRENDS

The population of millennials declined by -4,276 (-2.4%) since 2013.



Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#9 RANK | **\$44M** TALENT + **\$2M** RENT = **\$46M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

AVERAGE APARTMENT RENT

\$1,346
PER UNIT/MO.

9.9%
FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	3,828	12.9%
Computer Engineering	2,495	19.5%
Math/Statistics	553	31.7%
Other Tech Engineering	780	-11.7%
		33.1% BACHELOR'S DEGREE OR HIGHER

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

12 Vancouver, BC

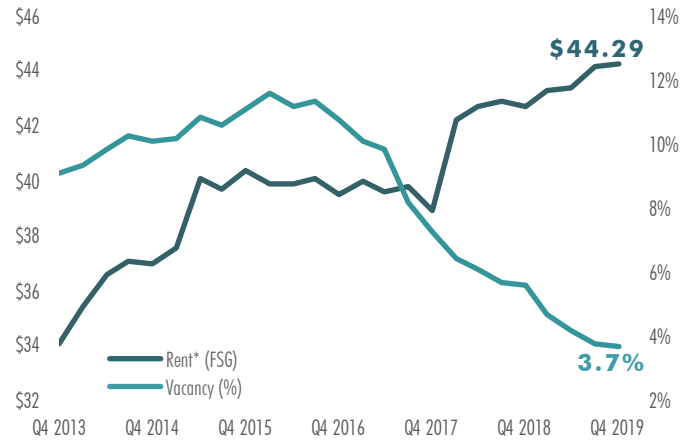
SCORE
55.76

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage*	Growth 2014-19
Total Tech Occupations	84,900	47.9%	\$81,931	13.8%
Software Developers & Programmers	29,500	57.8%	\$92,726	26.4%
Computer Support, Database & Systems	29,100	86.5%	\$70,949	12.1%
Computer & Information Systems Managers	5,800	13.7%	\$96,720	5.9%
Technology Engineering-Related	20,500	13.9%	\$77,792	7.1%
Total Non-Tech Occupations	147,200	18.4%	\$56,940	11.6%
Sales	11,400	-1.7%	\$49,670	-4.6%
Administrative & Office Support	75,800	12.1%	\$48,568	15.1%
Business Operations & Finance	32,100	5.2%	\$69,846	6.8%
Marketing	27,900	91.1%	\$67,808	11.0%

Source: Statistics Canada (Metro Area), April 2020.
*Data in US\$

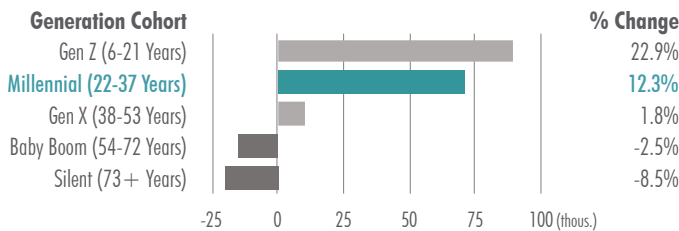
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro Area), Q4 2019.
*Data in US\$

POPULATION TRENDS

The population of millennials grew by 71,085 (12.3%) since 2013.



Source: Statistics Canada (Metro Area), 2020.

AVERAGE ANNUAL OPERATING COSTS*

#49 RANK | **\$27M** TALENT + **\$3M** RENT = **\$30M** TOTAL

Source: Statistics Canada, CBRE Research, Q4 2019.
*Data in US\$

AVERAGE APARTMENT RENT

\$1,469
PER UNIT/MO.*

33.7%
FIVE-YEAR GROWTH

Source: Apt. rent data from CMHC (Metro Area), Q4 2019.
*Data in US\$

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	2,807	37.6%
Computer Engineering	1,178	52.2%
Math/Statistics	333	16.0%
Other Tech Engineering	1,296	32.4%

49.6%
BACHELOR'S
DEGREE
OR HIGHER

Source: Various Canadian Ministries of Education (Region), 2020.

Source: Environics Analytics (Metro Area), 2020.

13 Dallas/Ft. Worth, TX

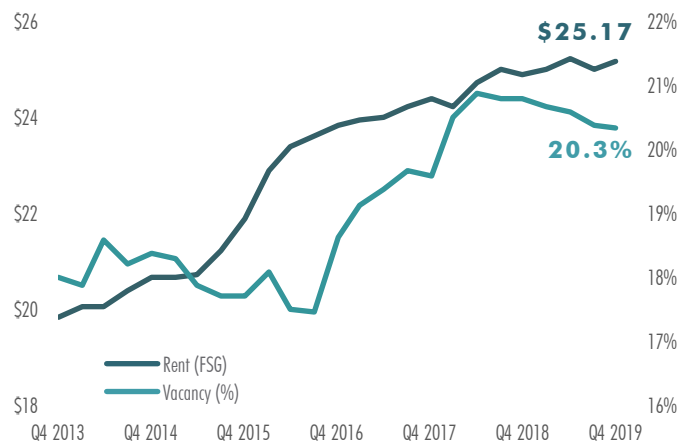
SCORE
55.70

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	179,570	14.3%	\$99,297	14.7%
Software Developers & Programmers	65,250	29.3%	\$106,445	13.0%
Computer Support, Database & Systems	87,920	11.3%	\$85,766	12.4%
Computer & Information Systems Managers	11,050	42.0%	\$161,880	15.5%
Technology Engineering-Related	15,350	-22.6%	\$101,362	16.8%
Total Non-Tech Occupations	500,600	14.8%	\$50,333	10.5%
Sales	47,790	3.7%	\$73,240	8.2%
Administrative & Office Support	336,080	11.4%	\$38,040	11.3%
Business Operations & Finance	88,120	29.3%	\$79,163	6.1%
Marketing	28,610	41.9%	\$67,670	1.3%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

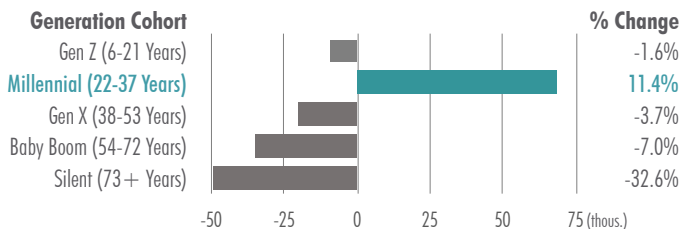
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro Area), Q4 2019.

POPULATION TRENDS

The population of millennials grew by 68,824 (11.4%) since 2013.



Source: U.S. Census Bureau, 2020.
Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#17 RANK | **\$42M** TALENT + **\$2M** RENT = **\$44M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

AVERAGE APARTMENT RENT

\$1,178 PER UNIT/MO. | **19.7%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	6,840	77.5%
Computer Engineering	5,100	104.7%
Math/Statistics	632	58.8%
Other Tech Engineering	1,108	14.8%

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

32.0% BACHELOR'S DEGREE OR HIGHER

14 Ottawa, ON

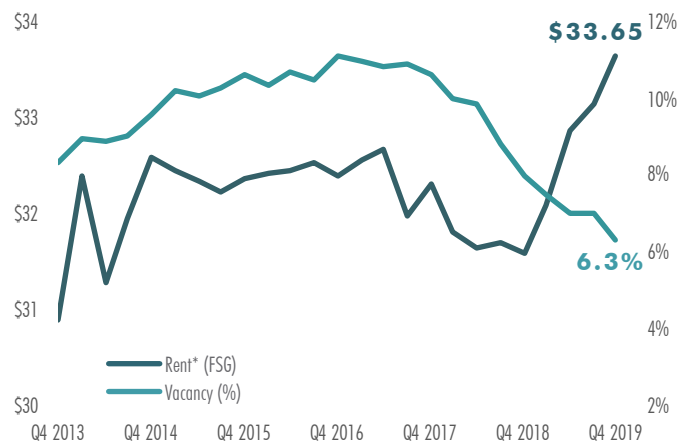
SCORE
55.15

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage*	Growth 2014-19
Total Tech Occupations	76,200	1.5%	\$91,104	10.9%
Software Developers & Programmers	21,200	-17.5%	\$93,205	11.6%
Computer Support, Database & Systems	28,400	8.8%	\$81,557	8.0%
Computer & Information Systems Managers	8,900	23.6%	\$112,237	6.9%
Technology Engineering-Related	17,700	9.9%	\$93,288	15.7%
Total Non-Tech Occupations	91,100	15.9%	\$67,459	14.5%
Sales	4,400	-39.7%	\$50,170	-13.6%
Administrative & Office Support	44,300	18.4%	\$52,790	15.7%
Business Operations & Finance	29,100	30.5%	\$87,006	15.2%
Marketing	13,300	14.7%	\$79,269	12.5%

Source: Statistics Canada (Metro Area), April 2020.
*Data in C\$

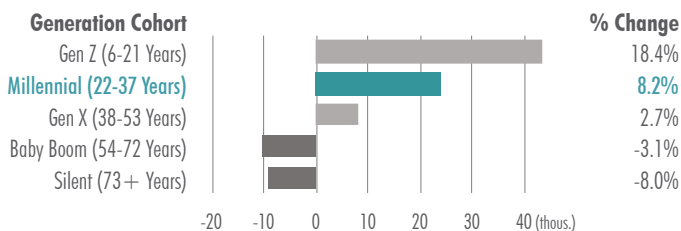
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro Area), Q4 2019.
*Data in C\$

POPULATION TRENDS

The population of millennials grew by 24,217 (8.2%) since 2013.



Source: Statistics Canada (Metro Area), 2020.

AVERAGE ANNUAL OPERATING COSTS*

#47 RANK | **\$31M** TALENT + **\$2M** RENT = **\$33M** TOTAL

Source: Statistics Canada, CBRE Research, Q4 2019.
*Data in US\$

AVERAGE APARTMENT RENT

\$1,281 PER UNIT/MO.* | **25.5%** FIVE-YEAR GROWTH

Source: Apt. rent data from CMHC (Metro Area), Q4 2019.
*Data in C\$

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	1,619	33.9%
Computer Engineering	414	46.8%
Math/Statistics	78	-27.1%
Other Tech Engineering	1,122	36.8%

46.4% BACHELOR'S DEGREE OR HIGHER

Source: Various Canadian Ministries of Education (Region), 2020.

Source: Environics Analytics (Metro Area), 2020.

15 Salt Lake City, UT

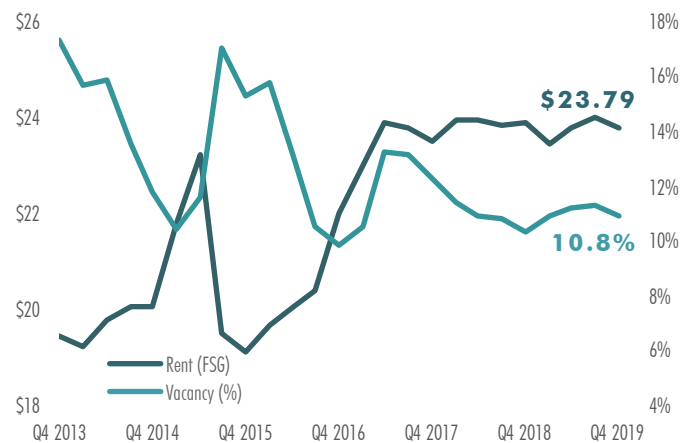
SCORE
53.54

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	51,220	42.7%	\$88,972	16.9%
Software Developers & Programmers	19,450	35.1%	\$98,768	15.4%
Computer Support, Database & Systems	24,610	54.7%	\$73,124	20.2%
Computer & Information Systems Managers	4,360	79.4%	\$138,402	16.9%
Technology Engineering-Related	2,800	-11.4%	\$83,251	7.6%
Total Non-Tech Occupations	141,970	12.5%	\$45,195	11.1%
Sales	13,170	0.4%	\$72,201	8.2%
Administrative & Office Support	96,410	6.4%	\$36,026	14.9%
Business Operations & Finance	21,520	43.9%	\$63,000	-4.1%
Marketing	10,870	45.7%	\$58,551	1.1%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

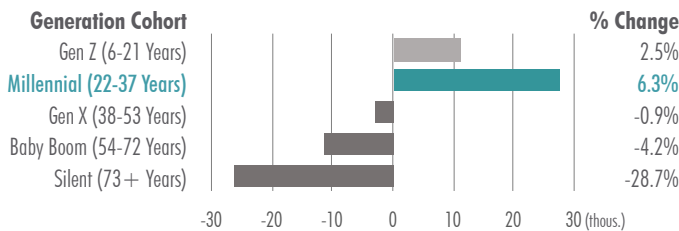
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro Area), Q4 2019.

POPULATION TRENDS

The population of millennials grew by 27,425 (6.3%) since 2013.



Source: U.S. Census Bureau, 2020.
Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#33 RANK | **\$37M** TALENT + **\$2M** RENT = **\$39M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

AVERAGE APARTMENT RENT

\$1,168 PER UNIT/MO. | **23.6%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	5,331	47.5%
Computer Engineering	4,575	53.4%
Math/Statistics	432	27.4%
Other Tech Engineering	324	10.6%

Source: The National Center for Education Statistics (Region), 2020.

48.1% BACHELOR'S DEGREE OR HIGHER
Source: U.S. Census Bureau (City), 2020.

16 Montreal, QC

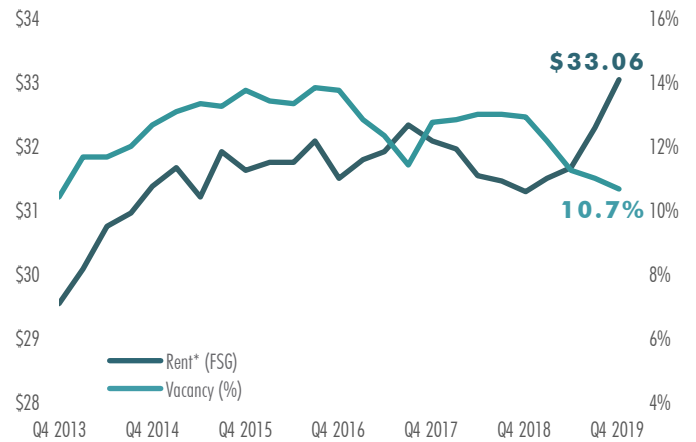
SCORE
53.02

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage*	Growth 2014-19
Total Tech Occupations	141,600	19.3%	\$80,579	13.6%
Software Developers & Programmers	40,000	30.7%	\$74,797	7.3%
Computer Support, Database & Systems	43,200	1.6%	\$77,480	13.6%
Computer & Information Systems Managers	10,000	72.4%	\$114,587	30.1%
Technology Engineering-Related	48,400	21.6%	\$81,058	12.0%
Total Non-Tech Occupations	221,600	7.2%	\$57,773	14.3%
Sales	20,600	46.1%	\$48,235	7.5%
Administrative & Office Support	114,400	-2.4%	\$46,030	13.5%
Business Operations & Finance	51,700	0.8%	\$81,120	14.5%
Marketing	34,900	44.8%	\$67,309	13.7%

Source: Statistics Canada (Metro Area), April 2020.
*Data in US\$

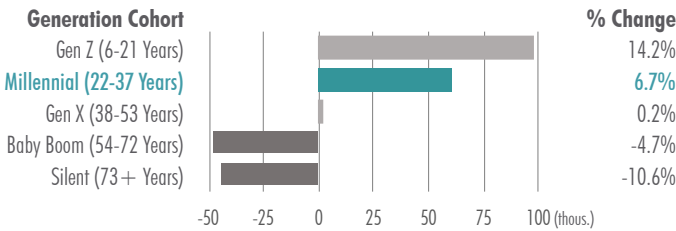
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro Area), Q4 2019.
*Data in US\$

POPULATION TRENDS

The population of millennials grew by 60,035 (6.7%) since 2013.



Source: Statistics Canada (Metro Area), 2020.

AVERAGE ANNUAL OPERATING COSTS*

#50 RANK | **\$28M** TALENT + **\$2M** RENT = **\$30M** TOTAL

Source: Statistics Canada, CBRE Research, Q4 2019.
*Data in US\$

AVERAGE APARTMENT RENT

\$841 PER UNIT/MO.* | **17.0%** FIVE-YEAR GROWTH

Source: Apt. rent data from CMHC (Metro Area), Q4 2019.
*Data in US\$

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	4,863	33.7%
Computer Engineering	1,245	47.9%
Math/Statistics	339	13.8%
Other Tech Engineering	3,279	31.3%

40.9% BACHELOR'S DEGREE OR HIGHER

Source: Various Canadian Ministries of Education (Region), 2020.

Source: Environics Analytics (Metro Area), 2020.

17 Minneapolis, MN

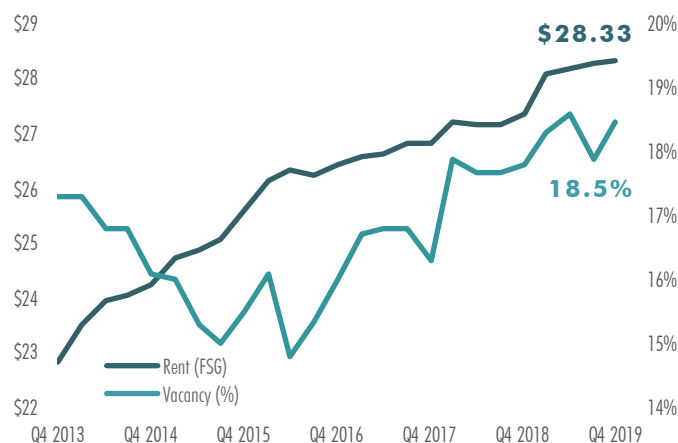
SCORE
51.72

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	97,350	10.1%	\$98,620	14.7%
Software Developers & Programmers	33,300	31.3%	\$101,801	14.9%
Computer Support, Database & Systems	48,600	2.1%	\$86,955	11.8%
Computer & Information Systems Managers	9,180	11.3%	\$152,370	17.5%
Technology Engineering-Related	6,270	-12.8%	\$93,454	15.6%
Total Non-Tech Occupations	239,610	2.2%	\$54,407	13.8%
Sales	25,150	7.6%	\$72,116	-1.2%
Administrative & Office Support	148,620	-3.0%	\$42,268	15.2%
Business Operations & Finance	43,540	7.2%	\$77,051	12.8%
Marketing	22,300	29.2%	\$71,116	11.1%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

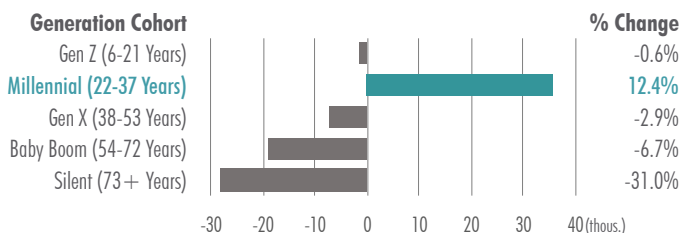
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro Area), Q4 2019.

POPULATION TRENDS

The population of millennials grew by 35,815 (12.4%) since 2013.



Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#14 RANK | **\$42M** TALENT + **\$2M** RENT = **\$44M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

AVERAGE APARTMENT RENT

\$1,357 PER UNIT/MO. | **18.7%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	3,745	27.3%
Computer Engineering	2,574	29.0%
Math/Statistics	615	24.0%
Other Tech Engineering	556	23.3%

Source: The National Center for Education Statistics (Region), 2020.

51.3% BACHELOR'S DEGREE OR HIGHER

Source: U.S. Census Bureau (City), 2020.

18 Phoenix, AZ

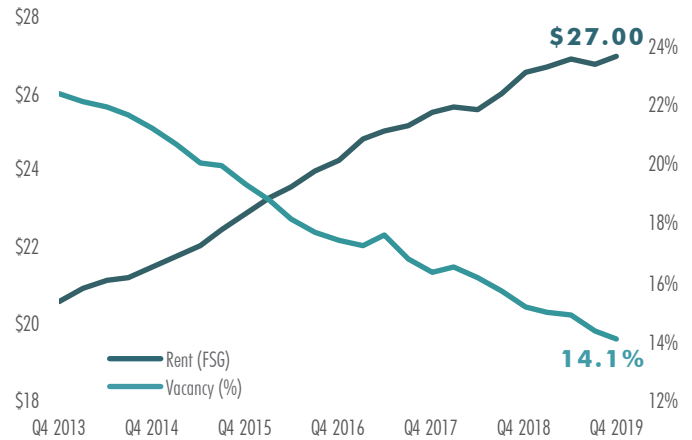
SCORE
51.69

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	94,650	18.1%	\$91,224	8.3%
Software Developers & Programmers	29,490	33.4%	\$98,960	11.9%
Computer Support, Database & Systems	47,270	16.3%	\$78,269	4.5%
Computer & Information Systems Managers	7,510	45.5%	\$142,940	4.7%
Technology Engineering-Related	10,380	-15.1%	\$90,826	6.4%
Total Non-Tech Occupations	300,640	23.2%	\$47,554	13.5%
Sales	29,580	14.9%	\$71,543	10.2%
Administrative & Office Support	208,890	18.6%	\$37,992	12.3%
Business Operations & Finance	44,580	52.7%	\$70,260	11.6%
Marketing	17,590	35.8%	\$63,229	8.2%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

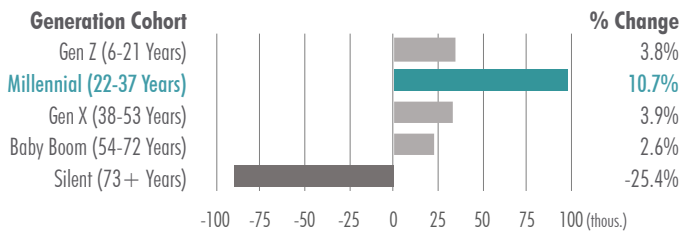
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro Area), Q4 2019.

POPULATION TRENDS

The population of millennials grew by 97,362 (10.7%) since 2013.



Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#26 RANK | **\$38M** TALENT + **\$2M** RENT = **\$40M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

AVERAGE APARTMENT RENT

\$1,184
PER UNIT/MO.

36.2%
FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	5,056	2.2%
Computer Engineering	3,820	-5.9%
Math/Statistics	205	1.5%
Other Tech Engineering	1,031	50.5%
		28.9% BACHELOR'S DEGREE OR HIGHER

Source: U.S. Census Bureau (City), 2020.

Source: The National Center for Education Statistics (Region), 2020.

19 San Diego, CA

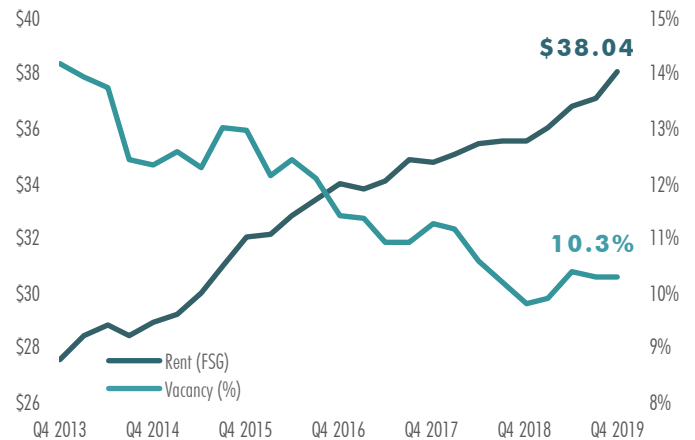
SCORE
51.08

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	76,770	15.8%	\$109,053	12.7%
Software Developers & Programmers	26,150	21.1%	\$112,088	7.5%
Computer Support, Database & Systems	29,290	19.9%	\$93,677	17.0%
Computer & Information Systems Managers	6,490	60.6%	\$164,570	4.6%
Technology Engineering-Related	14,840	-8.6%	\$109,774	13.4%
Total Non-Tech Occupations	160,320	7.7%	\$53,178	9.5%
Sales	18,010	4.0%	\$70,983	-1.3%
Administrative & Office Support	102,060	3.8%	\$41,335	13.1%
Business Operations & Finance	27,710	24.3%	\$79,095	4.9%
Marketing	12,540	14.5%	\$66,721	2.6%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

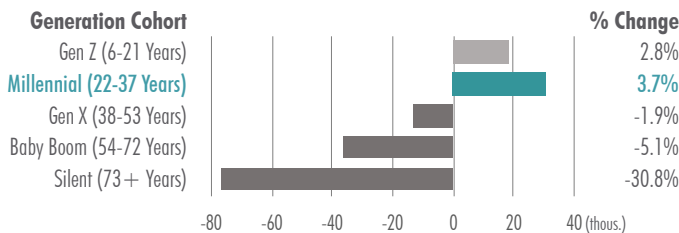
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro Area), Q4 2019.

POPULATION TRENDS

The population of millennials grew by 30,232 (3.7%) since 2013.



Source: U.S. Census Bureau, 2020.
Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS



Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

AVERAGE APARTMENT RENT



Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	4,563	76.0%
Computer Engineering	2,559	64.4%
Math/Statistics	1,054	165.5%
Other Tech Engineering	950	48.7%

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

46.0%
BACHELOR'S
DEGREE
OR HIGHER

20 Portland, OR

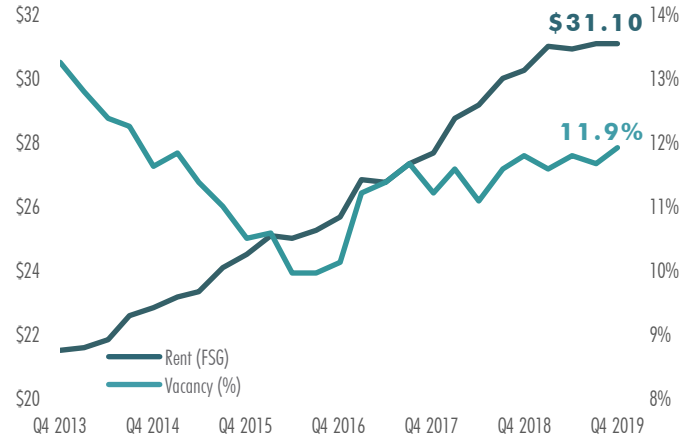
SCORE
50.48

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	60,550	31.7%	\$94,987	13.1%
Software Developers & Programmers	19,470	20.9%	\$105,113	18.6%
Computer Support, Database & Systems	23,740	18.3%	\$82,702	9.2%
Computer & Information Systems Managers	4,690	32.9%	\$137,740	16.7%
Technology Engineering-Related	12,650	101.4%	\$86,604	9.1%
Total Non-Tech Occupations	137,610	17.8%	\$52,573	14.0%
Sales	12,050	8.9%	\$77,980	7.9%
Administrative & Office Support	90,770	12.4%	\$41,249	13.9%
Business Operations & Finance	23,040	33.3%	\$73,862	7.3%
Marketing	11,750	53.8%	\$72,254	17.3%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

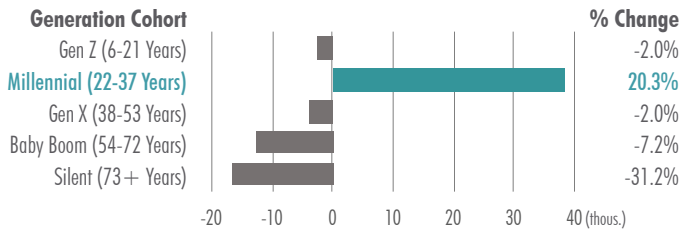
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro Area), Q4 2019.

POPULATION TRENDS

The population of millennials grew by 38,444 (20.3%) since 2013.



Source: U.S. Census Bureau, 2020.
Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#22 RANK | **\$40M** TALENT + **\$2M** RENT = **\$42M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

AVERAGE APARTMENT RENT

\$1,419 PER UNIT/MO. | **24.2%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	2,392	60.2%
Computer Engineering	1,526	81.0%
Math/Statistics	335	36.7%
Other Tech Engineering	531	31.1%

50.7% BACHELOR'S DEGREE OR HIGHER

Source: U.S. Census Bureau (City), 2020.

Source: The National Center for Education Statistics (Region), 2020.

21 Orange County, CA

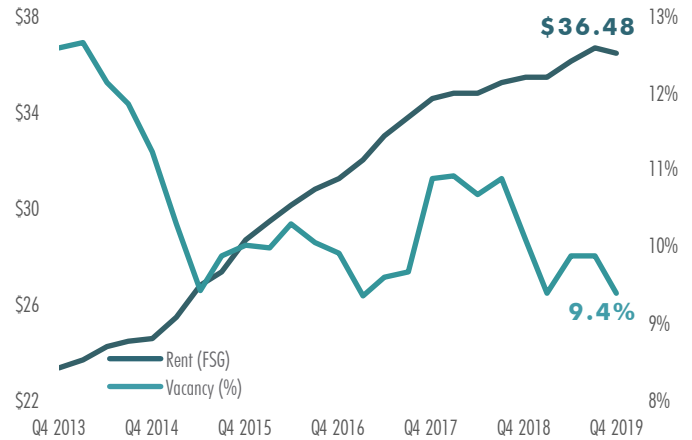
SCORE
48.42

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	73,524	20.5%	\$100,869	5.9%
Software Developers & Programmers	24,597	11.6%	\$114,160	13.4%
Computer Support, Database & Systems	30,999	30.7%	\$81,754	2.9%
Computer & Information Systems Managers	7,051	49.4%	\$157,333	10.9%
Technology Engineering-Related	10,877	3.2%	\$88,688	-10.1%
Total Non-Tech Occupations	194,228	0.6%	\$52,374	4.6%
Sales	24,763	2.0%	\$65,522	-11.3%
Administrative & Office Support	118,794	-6.2%	\$41,906	11.2%
Business Operations & Finance	35,322	22.1%	\$72,558	-5.1%
Marketing	15,348	16.0%	\$65,731	-2.5%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

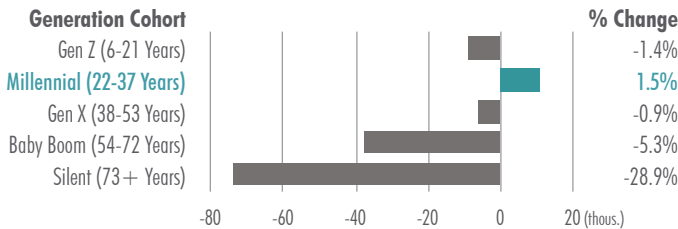
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro Area), Q4 2019.

POPULATION TRENDS

The population of millennials grew by 10,519 (1.5%) since 2013.



Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#12 RANK | **\$42M** TALENT + **\$2M** RENT = **\$44M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

AVERAGE APARTMENT RENT

\$2,150
PER UNIT/MO.

19.9%
FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	3,493	62.1%
Computer Engineering	2,623	64.9%
Math/Statistics	381	66.4%
Other Tech Engineering	489	46.0%

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

26.2%
BACHELOR'S
DEGREE
OR HIGHER

22 Philadelphia, PA

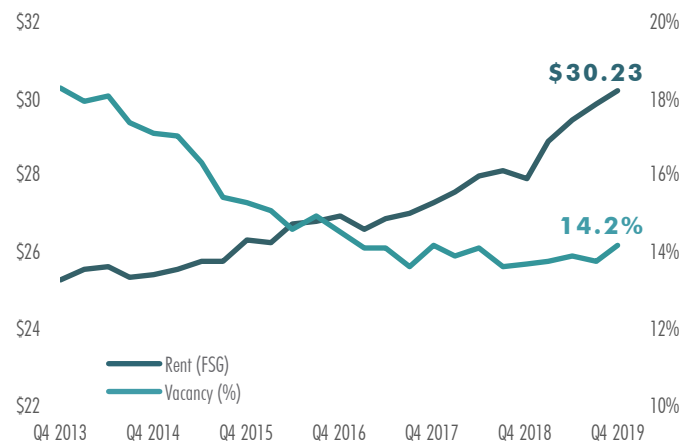
SCORE
48.09

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	112,340	12.8%	\$99,442	12.2%
Software Developers & Programmers	36,750	6.3%	\$101,331	12.1%
Computer Support, Database & Systems	57,090	15.8%	\$88,898	12.6%
Computer & Information Systems Managers	9,380	36.9%	\$157,910	5.6%
Technology Engineering-Related	9,120	2.4%	\$97,691	10.2%
Total Non-Tech Occupations	378,840	6.4%	\$53,477	9.7%
Sales	33,320	11.7%	\$78,966	-3.2%
Administrative & Office Support	254,520	4.3%	\$40,363	11.2%
Business Operations & Finance	66,740	14.5%	\$83,673	9.9%
Marketing	24,260	1.8%	\$72,987	7.4%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

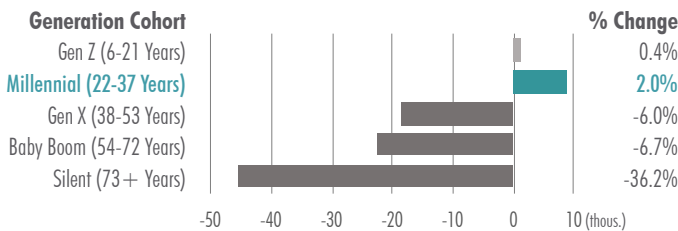
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro Area), Q4 2019.

POPULATION TRENDS

The population of millennials grew by 8,520 (2.0%) since 2013.



Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#11 RANK | **\$42M** TALENT + **\$2M** RENT = **\$44M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

AVERAGE APARTMENT RENT

\$1,418
PER UNIT/MO.

14.3%
FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	6,702	59.2%
Computer Engineering	4,919	82.1%
Math/Statistics	883	21.8%
Other Tech Engineering	900	14.9%

30.9%
BACHELOR'S
DEGREE
OR HIGHER

Source: U.S. Census Bureau (City), 2020.

Source: The National Center for Education Statistics (Region), 2020.

23 Chicago, IL

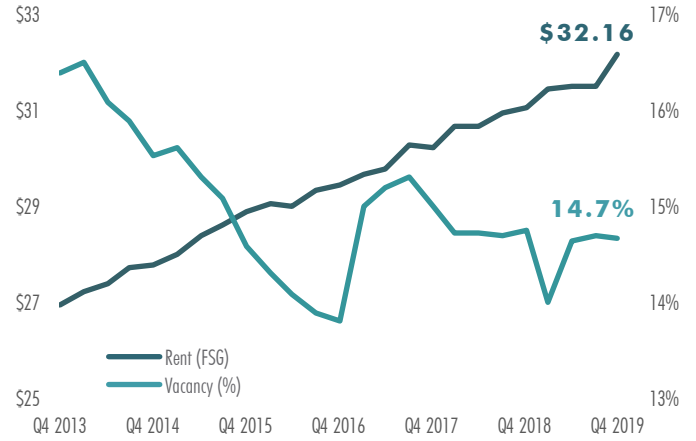
SCORE
47.65

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	170,500	8.2%	\$96,591	15.5%
Software Developers & Programmers	61,090	9.2%	\$101,591	21.0%
Computer Support, Database & Systems	82,720	5.4%	\$82,574	6.8%
Computer & Information Systems Managers	16,790	41.9%	\$151,710	20.0%
Technology Engineering-Related	9,900	-12.7%	\$89,382	10.0%
Total Non-Tech Occupations	580,110	12.5%	\$51,672	11.7%
Sales	66,950	20.2%	\$68,978	-1.5%
Administrative & Office Support	368,690	2.9%	\$40,129	11.8%
Business Operations & Finance	97,750	33.1%	\$77,192	5.9%
Marketing	46,720	66.0%	\$64,565	4.8%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

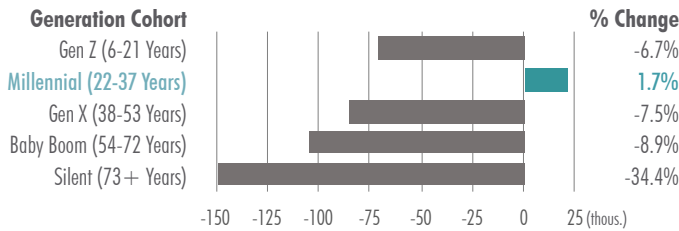
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro Area), Q4 2019.

POPULATION TRENDS

The population of millennials grew by 21,671 (1.7%) since 2013.



Source: U.S. Census Bureau, 2020.
Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#19 RANK | **\$41M** TALENT + **\$2M** RENT = **\$43M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

AVERAGE APARTMENT RENT

\$1,525
PER UNIT/MO.

9.6%
FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	8,184	29.3%
Computer Engineering	5,937	36.0%
Math/Statistics	1,348	15.7%
Other Tech Engineering	899	12.4%

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

39.4%
BACHELOR'S
DEGREE
OR HIGHER

24 Columbus, OH

SCORE
46.13

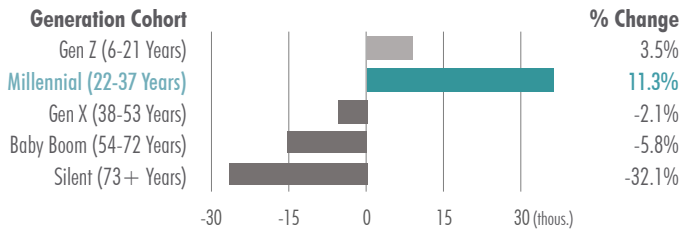
EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	48,930	14.2%	\$90,810	9.9%
Software Developers & Programmers	16,660	25.4%	\$94,216	7.4%
Computer Support, Database & Systems	25,560	7.6%	\$82,823	12.4%
Computer & Information Systems Managers	3,570	4.1%	\$140,790	7.3%
Technology Engineering-Related	3,140	31.9%	\$80,925	9.4%
Total Non-Tech Occupations	136,910	8.4%	\$50,074	13.2%
Sales	12,060	8.1%	\$65,239	-1.9%
Administrative & Office Support	86,720	0.0%	\$38,056	11.0%
Business Operations & Finance	27,150	39.1%	\$73,616	9.4%
Marketing	10,980	24.1%	\$70,119	11.7%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

POPULATION TRENDS

The population of millennials grew by 36,137 (11.3%) since 2013.



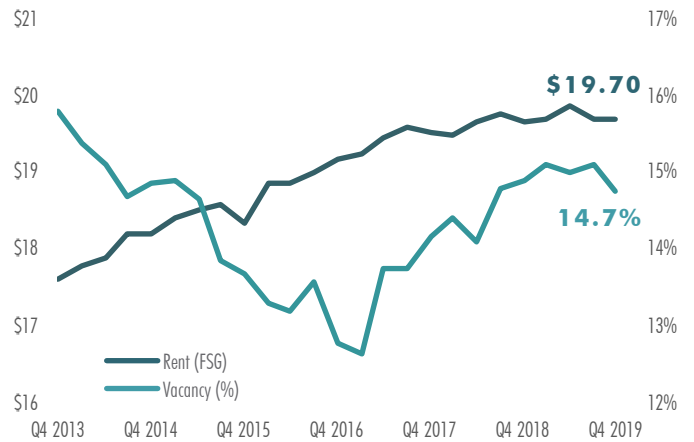
Source: U.S. Census Bureau, 2020.
Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#27 RANK | **\$39M** TALENT + **\$1M** RENT = **\$40M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro Area), Q4 2019.

AVERAGE APARTMENT RENT

\$980 PER UNIT/MO. | **16.5%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	2,239	9.0%
Computer Engineering	1,107	-4.9%
Math/Statistics	452	68.0%
Other Tech Engineering	680	9.3%
		37.1% BACHELOR'S DEGREE OR HIGHER

Source: U.S. Census Bureau (City), 2020.

Source: The National Center for Education Statistics (Region), 2020.

25 Newark, NJ

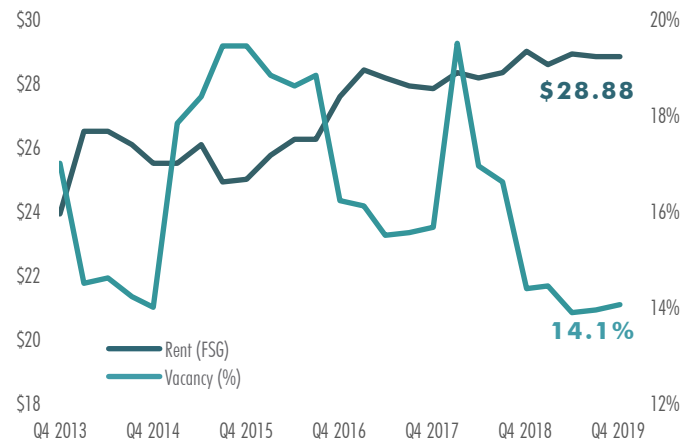
SCORE
45.81

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	53,901	12.0%	\$108,602	9.3%
Software Developers & Programmers	18,395	7.1%	\$109,923	15.7%
Computer Support, Database & Systems	24,803	15.8%	\$96,495	9.6%
Computer & Information Systems Managers	5,571	4.2%	\$172,051	9.1%
Technology Engineering-Related	5,132	23.1%	\$93,509	2.6%
Total Non-Tech Occupations	142,800	1.7%	\$55,204	7.6%
Sales	15,209	7.0%	\$77,047	-12.0%
Administrative & Office Support	92,667	-5.4%	\$40,497	7.4%
Business Operations & Finance	23,880	12.6%	\$86,027	3.7%
Marketing	11,043	58.1%	\$81,881	13.0%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

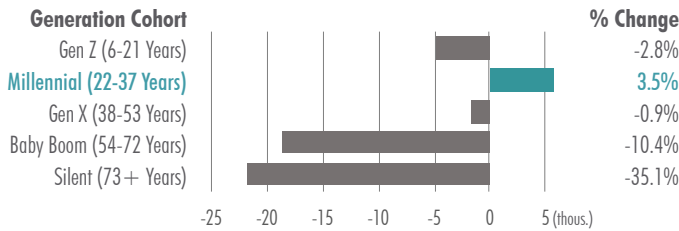
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro Area), Q4 2019.

POPULATION TRENDS

The population of millennials grew by 5,881 (3.5%) since 2013.



Source: U.S. Census Bureau, 2020.
Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS



Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

AVERAGE APARTMENT RENT



Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	2,901	58.4%
Computer Engineering	2,106	82.8%
Math/Statistics	443	34.2%
Other Tech Engineering	352	0.9%

15.3% BACHELOR'S DEGREE OR HIGHER

Source: The National Center for Education Statistics (Region), 2020.

26 Los Angeles, CA

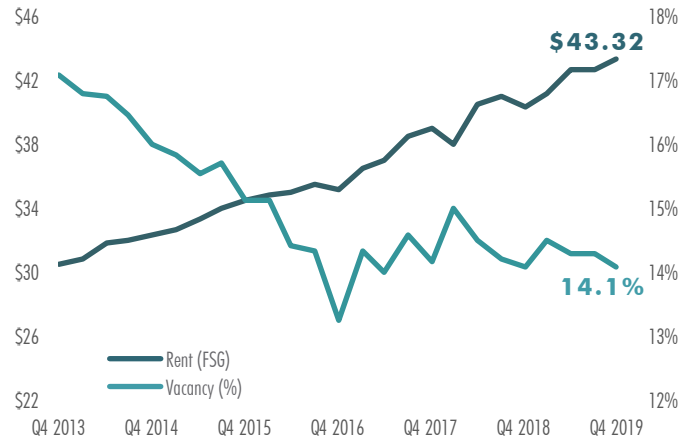
SCORE
45.54

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	141,580	18.5%	\$103,677	9.7%
Software Developers & Programmers	45,702	14.5%	\$112,661	10.7%
Computer Support, Database & Systems	64,852	24.4%	\$82,321	4.7%
Computer & Information Systems Managers	14,212	53.0%	\$162,992	9.3%
Technology Engineering-Related	16,813	-7.4%	\$111,495	16.2%
Total Non-Tech Occupations	514,508	0.4%	\$49,798	3.8%
Sales	47,938	-11.0%	\$62,373	-11.8%
Administrative & Office Support	333,950	-3.5%	\$39,895	10.4%
Business Operations & Finance	88,528	15.4%	\$74,098	-2.3%
Marketing	44,092	22.9%	\$62,344	-8.9%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

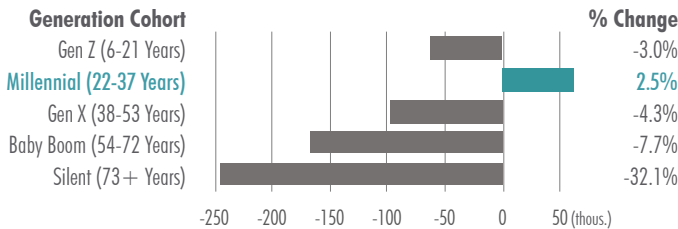
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro Area), Q4 2019.

POPULATION TRENDS

The population of millennials grew by 61,505 (2.5%) since 2013.



Source: U.S. Census Bureau, 2020.
Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#10 RANK | **\$43M** TALENT + **\$3M** RENT = **\$46M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

AVERAGE APARTMENT RENT

\$2,310 PER UNIT/MO. | **20.9%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	9,920	30.4%
Computer Engineering	5,575	45.7%
Math/Statistics	1,671	33.1%
Other Tech Engineering	2,674	5.9%
		34.5% BACHELOR'S DEGREE OR HIGHER

Source: U.S. Census Bureau (City), 2020.

Source: The National Center for Education Statistics (Region), 2020.

27 Madison, WI

SCORE
44.91

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	24,580	37.0%	\$87,215	20.8%
Software Developers & Programmers	11,870	172.9%	\$89,028	14.1%
Computer Support, Database & Systems	10,690	0.4%	\$80,673	22.4%
Computer & Information Systems Managers	1,170	-10.7%	\$130,650	20.7%
Technology Engineering-Related	850	-47.9%	\$84,397	22.5%
Total Non-Tech Occupations	52,330	14.7%	\$47,740	6.6%
Sales	4,160	25.7%	\$66,440	-2.8%
Administrative & Office Support	36,460	19.3%	\$39,187	11.5%
Business Operations & Finance	9,590	25.9%	\$68,680	5.5%
Marketing	2,120	-48.5%	\$63,413	6.1%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

POPULATION TRENDS

The population of millennials grew by 2,474 (1.8%) since 2013.

Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#37 RANK | **\$37M** TALENT + **\$1M** RENT = **\$38M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

OFFICE RENT & VACANCY TRENDS

\$19.99 PSF (+17.2%) ASKING RENT | **6.7% (-380bps)** VACANCY

(Q4 2019 data with change since Q4 2014)
Source: CBRE Research (Metro Area), Q4 2019.

AVERAGE APARTMENT RENT

\$1,178 PER UNIT/MO. | **12.5%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	1,869	30.4%
Computer Engineering	1,077	25.2%
Math/Statistics	381	47.1%
Other Tech Engineering	411	30.9%

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

57.3%
BACHELOR'S
DEGREE
OR HIGHER

28 Charlotte, NC

SCORE
44.54

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	57,340	38.0%	\$97,051	7.7%
Software Developers & Programmers	16,690	24.0%	\$101,695	9.2%
Computer Support, Database & Systems	31,440	56.6%	\$86,924	10.1%
Computer & Information Systems Managers	5,700	30.1%	\$143,970	5.2%
Technology Engineering-Related	3,510	-3.6%	\$89,494	5.7%
Total Non-Tech Occupations	154,200	29.8%	\$51,941	11.3%
Sales	17,870	52.1%	\$72,495	-0.7%
Administrative & Office Support	97,310	22.4%	\$37,469	11.0%
Business Operations & Finance	28,850	38.3%	\$81,845	7.7%
Marketing	10,170	52.9%	\$69,473	10.2%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

POPULATION TRENDS

The population of millennials grew by 47,495 (20.1%) since 2013.

Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#20 RANK | **\$41M** TALENT + **\$2M** RENT = **\$43M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

OFFICE RENT & VACANCY TRENDS

\$29.81 PSF (+44.8%) ASKING RENT | **8.4% (-290bps)** VACANCY

(Q4 2019 data with change since Q4 2014)
Source: CBRE Research (Metro Area), Q4 2019.

AVERAGE APARTMENT RENT

\$1,172 PER UNIT/MO. | **20.3%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	1,599	45.4%
Computer Engineering	1,143	62.1%
Math/Statistics	266	13.2%
Other Tech Engineering	190	18.8%

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

44.2%
BACHELOR'S
DEGREE
OR HIGHER

29 Tampa, FL

SCORE
43.70

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	52,150	26.6%	\$89,032	13.5%
Software Developers & Programmers	17,420	34.3%	\$95,462	14.7%
Computer Support, Database & Systems	28,340	27.4%	\$77,713	12.1%
Computer & Information Systems Managers	4,050	82.4%	\$143,770	-1.7%
Technology Engineering-Related	2,340	-37.8%	\$83,506	10.3%
Total Non-Tech Occupations	201,590	14.9%	\$44,908	13.7%
Sales	19,530	-0.3%	\$67,152	13.3%
Administrative & Office Support	141,280	12.8%	\$35,932	16.7%
Business Operations & Finance	28,570	23.5%	\$68,030	5.2%
Marketing	12,210	61.9%	\$59,084	5.7%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

POPULATION TRENDS

The population of millennials grew by 40,609 (13.6%) since 2013.

Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#31 RANK | **\$37M** TALENT + **\$2M** RENT = **\$39M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

OFFICE RENT & VACANCY TRENDS

\$23.21 PSF (+12.7%) ASKING RENT | **11.5% (-470bps)** VACANCY

(Q4 2019 data with change since Q4 2014)
Source: CBRE Research (Metro Area), Q4 2019.

AVERAGE APARTMENT RENT

\$1,237 PER UNIT/MO. | **23.4%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	1,808	56.3%
Computer Engineering	1,414	54.9%
Math/Statistics	110	0.0%
Other Tech Engineering	284	111.9%

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

30 Pittsburgh, PA

SCORE
41.77

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	44,430	18.2%	\$80,419	7.3%
Software Developers & Programmers	12,960	13.5%	\$91,003	15.7%
Computer Support, Database & Systems	23,160	19.2%	\$64,296	-3.4%
Computer & Information Systems Managers	3,580	37.7%	\$143,060	15.5%
Technology Engineering-Related	4,730	14.5%	\$82,949	13.4%
Total Non-Tech Occupations	143,940	-2.6%	\$45,029	7.9%
Sales	10,170	-10.0%	\$67,769	-1.1%
Administrative & Office Support	104,990	-1.3%	\$36,437	12.2%
Business Operations & Finance	20,800	-6.1%	\$70,848	7.0%
Marketing	7,980	-0.9%	\$61,799	4.6%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

POPULATION TRENDS

The population of millennials grew by 1,514 (0.5%) since 2013.

Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#44 RANK | **\$35M** TALENT + **\$2M** RENT = **\$37M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

OFFICE RENT & VACANCY TRENDS

\$23.51 PSF (+12.2%) ASKING RENT | **15.1% (+520bps)** VACANCY

(Q4 2019 data with change since Q4 2014)
Source: CBRE Research (Metro Area), Q4 2019.

AVERAGE APARTMENT RENT

\$1,195 PER UNIT/MO. | **7.8%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	5,258	28.9%
Computer Engineering	3,310	17.5%
Math/Statistics	634	55.0%
Other Tech Engineering	1,314	54.0%

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

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31 Detroit, MI

SCORE
41.69

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	84,670	12.3%	\$88,372	10.2%
Software Developers & Programmers	31,800	46.8%	\$92,956	9.8%
Computer Support, Database & Systems	35,830	-4.0%	\$77,473	6.7%
Computer & Information Systems Managers	5,770	22.2%	\$137,420	11.3%
Technology Engineering-Related	11,270	-3.7%	\$84,979	8.2%
Total Non-Tech Occupations	224,130	2.8%	\$50,486	17.0%
Sales	22,840	14.3%	\$72,744	3.7%
Administrative & Office Support	146,500	-7.3%	\$38,397	14.8%
Business Operations & Finance	38,620	34.5%	\$76,112	9.0%
Marketing	16,170	42.3%	\$67,360	7.0%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

POPULATION TRENDS

The population of millennials grew by 2,078 (0.5%) since 2013.

Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#29 RANK | **\$38M** TALENT + **\$1M** RENT = **\$39M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

OFFICE RENT & VACANCY TRENDS

\$19.26 PSF (+11.6%) ASKING RENT | **13.8% (-700bps)** VACANCY

(Q4 2019 data with change since Q4 2014)
Source: CBRE Research (Metro Area), Q4 2019.

AVERAGE APARTMENT RENT

\$1,021 PER UNIT/MO. | **19.5%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	6,462	49.8%
Computer Engineering	4,178	63.8%
Math/Statistics	574	3.2%
Other Tech Engineering	1,710	41.8%

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

32 Kansas City, MO

SCORE
41.60

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	52,750	22.8%	\$85,137	6.8%
Software Developers & Programmers	17,320	35.5%	\$90,482	6.3%
Computer Support, Database & Systems	27,480	19.2%	\$75,895	6.7%
Computer & Information Systems Managers	3,380	23.4%	\$131,150	7.7%
Technology Engineering-Related	4,570	4.1%	\$86,415	4.1%
Total Non-Tech Occupations	133,750	-1.8%	\$49,120	13.7%
Sales	13,830	25.8%	\$72,157	1.6%
Administrative & Office Support	85,970	-12.1%	\$37,474	10.0%
Business Operations & Finance	24,340	23.4%	\$70,895	6.6%
Marketing	9,610	25.0%	\$64,997	8.0%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

POPULATION TRENDS

The population of millennials grew by 2,351 (6.5%) since 2013.

Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#38 RANK | **\$37M** TALENT + **\$2M** RENT = **\$39M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

OFFICE RENT & VACANCY TRENDS

\$20.93 PSF (+22.9%) ASKING RENT | **12.9% (-250bps)** VACANCY

(Q4 2019 data with change since Q4 2014)
Source: CBRE Research (Metro Area), Q4 2019.

AVERAGE APARTMENT RENT

\$979 PER UNIT/MO. | **14.4%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	1,335	38.8%
Computer Engineering	945	50.5%
Math/Statistics	152	2.7%
Other Tech Engineering	238	28.0%

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

33 Orlando, FL

SCORE
39.61

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	43,280	25.7%	\$88,759	14.5%
Software Developers & Programmers	14,570	41.5%	\$97,048	13.8%
Computer Support, Database & Systems	21,110	14.1%	\$75,365	10.7%
Computer & Information Systems Managers	3,530	108.9%	\$138,360	3.2%
Technology Engineering-Related	4,070	3.6%	\$85,535	10.6%
Total Non-Tech Occupations	164,830	18.1%	\$43,764	14.7%
Sales	19,520	38.7%	\$58,834	-1.5%
Administrative & Office Support	109,970	7.7%	\$34,741	14.9%
Business Operations & Finance	24,260	39.7%	\$66,043	5.9%
Marketing	11,080	85.0%	\$57,992	10.7%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

POPULATION TRENDS

The population of millennials grew by 36,278 (11.2%) since 2013.

Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#35 RANK | **\$37M** TALENT + **\$2M** RENT = **\$39M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

OFFICE RENT & VACANCY TRENDS

\$24.32PSF (+21.0%) ASKING RENT | **9.1% (-990bps)** VACANCY

(Q4 2019 data with change since Q4 2014)
Source: CBRE Research (Metro Area), Q4 2019.

AVERAGE APARTMENT RENT

\$1,284 PER UNIT/MO. | **25.7%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	2,619	41.2%
Computer Engineering	1,651	16.8%
Math/Statistics	126	40.0%
Other Tech Engineering	842	139.9%

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

34 Calgary, AB

SCORE
39.24

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage*	Growth 2014-19
Total Tech Occupations	42,500	17.1%	\$95,222	11.3%
Software Developers & Programmers	10,300	-4.6%	\$90,334	1.3%
Computer Support, Database & Systems	17,200	49.6%	\$95,722	29.6%
Computer & Information Systems Managers	1,100	-47.6%	\$118,872	15.9%
Technology Engineering-Related	13,900	16.8%	\$95,264	5.9%
Total Non-Tech Occupations	84,900	18.7%	\$71,484	18.2%
Sales	6,300	12.5%	\$57,138	-5.6%
Administrative & Office Support	41,700	12.7%	\$55,682	19.6%
Business Operations & Finance	26,700	21.4%	\$94,557	20.4%
Marketing	10,200	47.8%	\$84,552	8.9%

Source: Statistics Canada (Metro Area), April 2020.

*Data in C\$

POPULATION TRENDS

The population of millennials grew by 47,354 (14.3%) since 2013.

Source: Statistics Canada (Metro Area), 2020.

AVERAGE ANNUAL OPERATING COSTS*

#46 RANK | **\$33M** TALENT + **\$2M** RENT = **\$35M** TOTAL

Source: Statistics Canada, CBRE Research, Q4 2019.

*Data in US\$

OFFICE RENT & VACANCY TRENDS

\$30.18 PSF (-26.5%) ASKING RENT* | **24.7% (+1,370bps)** VACANCY

(Q4 2019 data with change since Q4 2014)
Source: CBRE Research (Metro Area), Q4 2019.
*Data in C\$

AVERAGE APARTMENT RENT

\$1,181 PER UNIT/MO.* | **-2.6%** FIVE-YEAR GROWTH

Source: Apt. rent data from CMHC (Metro Area), Q4 2019.

*Data in C\$

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	775	15.3%
Computer Engineering	283	54.6%
Math/Statistics	67	-6.9%
Other Tech Engineering	425	1.9%

Source: Various Canadian Ministries of Education (Region), 2020.

Source: Environics Analytics (Metro Area), 2020.

35 St. Louis, MO

SCORE
36.11

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	55,000	10.1%	\$89,397	7.7%
Software Developers & Programmers	17,780	26.8%	\$94,379	7.0%
Computer Support, Database & Systems	28,870	4.6%	\$79,031	5.8%
Computer & Information Systems Managers	3,610	11.1%	\$137,170	11.1%
Technology Engineering-Related	4,740	-6.7%	\$97,464	10.8%
Total Non-Tech Occupations	164,250	0.7%	\$48,865	13.4%
Sales	14,100	-0.8%	\$69,282	11.3%
Administrative & Office Support	111,120	-4.9%	\$37,893	12.2%
Business Operations & Finance	29,080	25.6%	\$75,507	5.5%
Marketing	9,950	11.9%	\$64,608	5.9%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

POPULATION TRENDS

The population of millennials grew by 2,097 (4.8%) since 2013.

Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#30 RANK | **\$38M** TALENT + **\$2M** RENT = **\$40M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

OFFICE RENT & VACANCY TRENDS

\$20.38 PSF (+10.2%) ASKING RENT | **11.0% (-190bps)** VACANCY

(Q4 2019 data with change since Q4 2014)
Source: CBRE Research (Metro Area), Q4 2019.

AVERAGE APARTMENT RENT

\$965 PER UNIT/MO. | **11.1%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	2,032	47.2%
Computer Engineering	1,329	71.3%
Math/Statistics	305	19.1%
Other Tech Engineering	398	14.4%

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

36 Houston, TX

SCORE
35.77

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	98,670	-1.3%	\$100,229	9.2%
Software Developers & Programmers	26,900	-3.3%	\$103,653	8.4%
Computer Support, Database & Systems	54,290	3.3%	\$93,202	10.3%
Computer & Information Systems Managers	6,110	1.8%	\$158,500	8.5%
Technology Engineering-Related	11,370	-16.0%	\$94,372	6.8%
Total Non-Tech Occupations	367,480	1.0%	\$51,141	6.9%
Sales	39,090	-7.0%	\$71,815	-5.8%
Administrative & Office Support	248,510	0.0%	\$38,833	12.2%
Business Operations & Finance	63,220	7.8%	\$81,887	2.4%
Marketing	16,660	12.5%	\$69,542	12.8%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

POPULATION TRENDS

The population of millennials grew by 108,403 (10.2%) since 2013.

Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#13 RANK | **\$42M** TALENT + **\$2M** RENT = **\$44M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

OFFICE RENT & VACANCY TRENDS

\$29.03 PSF (+12.6%) ASKING RENT | **19.3% (+770bps)** VACANCY

(Q4 2019 data with change since Q4 2014)
Source: CBRE Research (Metro Area), Q4 2019.

AVERAGE APARTMENT RENT

\$1,118 PER UNIT/MO. | **4.5%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	2,750	55.5%
Computer Engineering	1,932	78.7%
Math/Statistics	413	8.7%
Other Tech Engineering	405	31.9%

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

37 South Florida

SCORE
34.59

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	66,990	28.1%	\$88,845	15.5%
Software Developers & Programmers	20,050	17.3%	\$94,072	17.8%
Computer Support, Database & Systems	36,210	30.7%	\$76,207	10.9%
Computer & Information Systems Managers	6,090	102.3%	\$149,380	8.7%
Technology Engineering-Related	4,640	3.6%	\$85,428	12.3%
Total Non-Tech Occupations	371,140	10.0%	\$46,025	14.3%
Sales	37,430	0.0%	\$66,242	4.3%
Administrative & Office Support	258,110	5.8%	\$36,466	16.8%
Business Operations & Finance	52,250	24.8%	\$71,257	6.2%
Marketing	23,350	67.1%	\$62,834	13.5%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

POPULATION TRENDS

The population of millennials grew by 25,802 (4.4%) since 2013.

Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#25 RANK | **\$38M** TALENT + **\$3M** RENT = **\$41M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

OFFICE RENT & VACANCY TRENDS

\$37.51 PSF (+27.2%) ASKING RENT | **11.6% (-370bps)** VACANCY

(Q4 2019 data with change since Q4 2014)
Source: CBRE Research (Metro Area), Q4 2019.

AVERAGE APARTMENT RENT

\$1,670 PER UNIT/MO. | **15.1%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	2,587	20.9%
Computer Engineering	2,124	24.9%
Math/Statistics	167	28.5%
Other Tech Engineering	296	-4.5%

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

38 Indianapolis, IN

SCORE
34.41

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	38,880	21.8%	\$86,591	12.0%
Software Developers & Programmers	14,180	32.8%	\$91,520	13.9%
Computer Support, Database & Systems	19,620	21.6%	\$76,161	8.8%
Computer & Information Systems Managers	2,840	7.2%	\$135,780	24.1%
Technology Engineering-Related	2,240	-8.9%	\$84,384	9.5%
Total Non-Tech Occupations	122,720	12.3%	\$49,357	10.7%
Sales	13,500	8.6%	\$79,034	12.4%
Administrative & Office Support	78,950	9.2%	\$37,690	10.8%
Business Operations & Finance	21,180	18.4%	\$70,449	7.8%
Marketing	9,090	36.7%	\$57,466	3.4%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

POPULATION TRENDS

The population of millennials grew by 15,891 (7.0%) since 2013.

Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#32 RANK | **\$37M** TALENT + **\$2M** RENT = **\$39M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

OFFICE RENT & VACANCY TRENDS

\$20.94 PSF (+20.1%) ASKING RENT | **17.4% (-80bps)** VACANCY

(Q4 2019 data with change since Q4 2014)
Source: CBRE Research (Metro Area), Q4 2019.

AVERAGE APARTMENT RENT

\$926 PER UNIT/MO. | **14.8%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	992	41.5%
Computer Engineering	698	36.1%
Math/Statistics	111	14.4%
Other Tech Engineering	183	101.1%

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

< BACK TO SCORECARD RANKINGS

39 Hartford, CT

SCORE
33.35

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	27,080	11.8%	\$99,233	9.2%
Software Developers & Programmers	9,430	38.9%	\$100,251	12.3%
Computer Support, Database & Systems	12,040	-4.1%	\$83,188	0.9%
Computer & Information Systems Managers	4,360	32.5%	\$143,460	9.0%
Technology Engineering-Related	1,250	-21.4%	\$91,827	15.3%
Total Non-Tech Occupations	65,510	-7.5%	\$54,722	12.0%
Sales	4,460	-13.1%	\$77,132	4.5%
Administrative & Office Support	42,870	-15.6%	\$43,137	9.1%
Business Operations & Finance	14,270	21.3%	\$78,112	5.6%
Marketing	3,910	25.3%	\$70,813	8.2%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

POPULATION TRENDS

The population of millennials grew by 1,212 (0.6%) since 2013.

Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#18 RANK | **\$42M** TALENT + **\$1M** RENT = **\$43M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

OFFICE RENT & VACANCY TRENDS

\$19.68 PSF (-1.2%) ASKING RENT | **18.3% (+110bps)** VACANCY

(Q4 2019 data with change since Q4 2014)
Source: CBRE Research (Metro Area), Q4 2019.

AVERAGE APARTMENT RENT

\$1,360 PER UNIT/MO. | **8.8%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	2,575	15.8%
Computer Engineering	1,359	BACHELOR'S DEGREE OR HIGHER
Math/Statistics	784	
Other Tech Engineering	432	

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

40 Cleveland, OH

SCORE
29.97

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	36,740	18.1%	\$83,216	11.0%
Software Developers & Programmers	11,440	32.3%	\$84,015	12.5%
Computer Support, Database & Systems	20,070	11.9%	\$76,219	8.7%
Computer & Information Systems Managers	2,720	16.2%	\$135,150	15.5%
Technology Engineering-Related	2,510	14.1%	\$79,242	12.2%
Total Non-Tech Occupations	128,550	15.4%	\$49,603	9.5%
Sales	10,850	-22.0%	\$77,151	2.8%
Administrative & Office Support	85,530	15.1%	\$38,339	13.5%
Business Operations & Finance	23,900	46.1%	\$72,545	8.9%
Marketing	8,270	21.1%	\$63,651	8.6%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

POPULATION TRENDS

The population of millennials grew by 5,360 (2.0%) since 2013.

Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#40 RANK | **\$37M** TALENT + **\$1M** RENT = **\$38M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

OFFICE RENT & VACANCY TRENDS

\$18.92 PSF (+7.1%) ASKING RENT | **16.1% (-360bps)** VACANCY

(Q4 2019 data with change since Q4 2014)
Source: CBRE Research (Metro Area), Q4 2019.

AVERAGE APARTMENT RENT

\$943 PER UNIT/MO. | **12.0%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	2,361	17.0%
Computer Engineering	1,596	BACHELOR'S DEGREE OR HIGHER
Math/Statistics	360	
Other Tech Engineering	405	

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

41 Cincinnati, OH

SCORE
29.94

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	37,730	11.1%	\$90,056	13.5%
Software Developers & Programmers	11,410	13.6%	\$102,732	29.1%
Computer Support, Database & Systems	20,170	10.8%	\$77,120	4.8%
Computer & Information Systems Managers	2,920	2.1%	\$138,700	17.8%
Technology Engineering-Related	3,230	12.9%	\$82,084	7.0%
Total Non-Tech Occupations	127,760	15.6%	\$49,363	12.8%
Sales	13,190	-6.9%	\$75,197	8.9%
Administrative & Office Support	82,360	12.1%	\$37,746	13.8%
Business Operations & Finance	22,440	52.9%	\$70,587	8.7%
Marketing	9,770	19.6%	\$63,671	12.1%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

POPULATION TRENDS

The population of millennials grew by 4,979 (2.7%) since 2013.

Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#28 RANK | **\$38M** TALENT + **\$1M** RENT = **\$39M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

OFFICE RENT & VACANCY TRENDS

\$19.60 PSF (+4.7%) ASKING RENT | **18.4% (-380bps)** VACANCY

(Q4 2019 data with change since Q4 2014)
Source: CBRE Research (Metro Area), Q4 2019.

AVERAGE APARTMENT RENT

\$992 PER UNIT/MO. | **16.8%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	2,108	58.4%
Computer Engineering	1,482	70.7%
Math/Statistics	246	23.0%
Other Tech Engineering	380	44.5%

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

42 Nashville, TN

SCORE
28.01

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	31,190	29.9%	\$83,500	10.3%
Software Developers & Programmers	8,370	40.0%	\$91,952	14.5%
Computer Support, Database & Systems	17,770	33.5%	\$71,737	7.3%
Computer & Information Systems Managers	3,210	16.7%	\$129,210	16.7%
Technology Engineering-Related	1,840	-6.6%	\$78,904	8.7%
Total Non-Tech Occupations	116,250	10.6%	\$46,570	10.1%
Sales	13,920	41.9%	\$74,538	19.6%
Administrative & Office Support	83,470	12.4%	\$38,031	13.3%
Business Operations & Finance	12,050	-25.8%	\$64,354	-3.0%
Marketing	6,810	42.5%	\$62,599	14.2%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

POPULATION TRENDS

The population of millennials grew by 25,829 (14.4%) since 2013.

Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#41 RANK | **\$36M** TALENT + **\$2M** RENT = **\$38M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

OFFICE RENT & VACANCY TRENDS

\$27.65 PSF (+40.1%) ASKING RENT | **9.8% (+100bps)** VACANCY

(Q4 2019 data with change since Q4 2014)
Source: CBRE Research (Metro Area), Q4 2019.

AVERAGE APARTMENT RENT

\$1,287 PER UNIT/MO. | **19.1%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	982	36.2%
Computer Engineering	582	35.7%
Math/Statistics	237	37.0%
Other Tech Engineering	163	37.0%

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

< BACK TO SCORECARD RANKINGS

43 Long Island, NY

SCORE
27.72

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	33,616	17.4%	\$92,826	5.0%
Software Developers & Programmers	9,407	8.9%	\$101,757	11.1%
Computer Support, Database & Systems	16,849	29.5%	\$77,918	0.8%
Computer & Information Systems Managers	2,769	22.5%	\$158,723	7.5%
Technology Engineering-Related	4,591	-2.7%	\$89,501	5.1%
Total Non-Tech Occupations	173,318	-1.1%	\$49,238	7.9%
Sales	15,189	41.6%	\$68,763	-11.6%
Administrative & Office Support	125,513	-9.2%	\$40,523	8.5%
Business Operations & Finance	24,220	28.7%	\$78,261	-4.0%
Marketing	8,396	12.8%	\$60,471	-3.3%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

POPULATION TRENDS

The population of millennials declined by -610 (-0.2%) since 2013.

Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#24 RANK | **\$40M** TALENT + **\$2M** RENT = **\$42M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

OFFICE RENT & VACANCY TRENDS

\$27.65 PSF (+4.9%) ASKING RENT | **10.0% (-450bps)** VACANCY

(Q4 2019 data with change since Q4 2014)
Source: CBRE Research (Metro Area), Q4 2019.

AVERAGE APARTMENT RENT

\$2,386 PER UNIT/MO. | **19.8%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	2,788	47.0%
Computer Engineering	1,615	77.3%
Math/Statistics	632	37.7%
Other Tech Engineering	541	2.7%

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

44 Sacramento, CA

SCORE
26.97

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	40,350	13.4%	\$75,221	-12.7%
Software Developers & Programmers	10,400	-6.8%	\$109,941	20.3%
Computer Support, Database & Systems	22,750	28.7%	\$47,335	-37.1%
Computer & Information Systems Managers	3,450	32.7%	\$150,910	24.6%
Technology Engineering-Related	3,750	-9.6%	\$78,466	-18.7%
Total Non-Tech Occupations	116,440	19.5%	\$50,487	8.2%
Sales	8,770	7.9%	\$72,996	10.1%
Administrative & Office Support	79,200	18.4%	\$40,253	9.6%
Business Operations & Finance	21,460	24.3%	\$79,134	14.7%
Marketing	7,010	35.3%	\$50,248	-27.7%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

POPULATION TRENDS

The population of millennials grew by 32,136 (9.5%) since 2013.

Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#43 RANK | **\$35M** TALENT + **\$2M** RENT = **\$37M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

OFFICE RENT & VACANCY TRENDS

\$23.88 PSF (+17.8%) ASKING RENT | **10.0% (-860bps)** VACANCY

(Q4 2019 data with change since Q4 2014)
Source: CBRE Research (Metro Area), Q4 2019.

AVERAGE APARTMENT RENT

\$1,494 PER UNIT/MO. | **41.1%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	2,026	54.5%
Computer Engineering	1,184	48.2%
Math/Statistics	457	110.6%
Other Tech Engineering	385	30.5%

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

45 Jacksonville, FL

SCORE
25.45

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	21,300	25.2%	\$81,716	5.5%
Software Developers & Programmers	6,500	28.0%	\$89,242	6.3%
Computer Support, Database & Systems	11,600	24.6%	\$70,666	1.1%
Computer & Information Systems Managers	1,590	80.7%	\$129,470	-2.9%
Technology Engineering-Related	1,610	-7.5%	\$83,781	17.7%
Total Non-Tech Occupations	97,100	16.6%	\$42,985	12.8%
Sales	8,010	7.2%	\$67,045	26.8%
Administrative & Office Support	71,160	14.7%	\$35,790	16.0%
Business Operations & Finance	13,330	22.3%	\$62,630	-2.4%
Marketing	4,600	61.4%	\$55,463	-2.6%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

POPULATION TRENDS

The population of millennials grew by 25,184 (11.8%) since 2013.

Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#45 RANK | **\$35M** TALENT + **\$2M** RENT = **\$37M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

OFFICE RENT & VACANCY TRENDS

\$20.30 PSF (+16.8%) ASKING RENT | **16.6% (-330bps)** VACANCY

(Q4 2019 data with change since Q4 2014)
Source: CBRE Research (Metro Area), Q4 2019.

AVERAGE APARTMENT RENT

\$1,082 PER UNIT/MO. | **21.9%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	430	13.5%
Computer Engineering	349	19.1%
Math/Statistics	51	6.3%
Other Tech Engineering	30	-21.1%
		28.9% BACHELOR'S DEGREE OR HIGHER

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

46 Rochester, NY

SCORE
22.96

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	21,550	7.3%	\$83,200	9.8%
Software Developers & Programmers	6,960	17.0%	\$89,549	13.0%
Computer Support, Database & Systems	10,590	13.4%	\$70,602	7.2%
Computer & Information Systems Managers	1,360	-6.8%	\$146,410	24.1%
Technology Engineering-Related	2,640	-21.0%	\$84,432	7.2%
Total Non-Tech Occupations	62,540	-7.0%	\$44,146	4.3%
Sales	5,290	10.0%	\$54,169	-23.6%
Administrative & Office Support	44,720	-9.8%	\$37,118	11.5%
Business Operations & Finance	8,500	-9.9%	\$68,196	-0.2%
Marketing	4,030	17.5%	\$58,253	-5.6%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

POPULATION TRENDS

The population of millennials declined by -11,333 (-6.5%) since 2013.

Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#42 RANK | **\$36M** TALENT + **\$1M** RENT = **\$37M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

OFFICE RENT & VACANCY TRENDS

\$19.50 PSF (0.0%) ASKING RENT | **14.9% (-190bps)** VACANCY

(Q4 2019 data with change since Q4 2014)
Source: CBRE Research (Metro Area), Q4 2019.

AVERAGE APARTMENT RENT

\$1,036 PER UNIT/MO. | **17.3%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	2,281	13.7%
Computer Engineering	1,577	21.7%
Math/Statistics	352	-13.9%
Other Tech Engineering	352	16.6%
		25.8% BACHELOR'S DEGREE OR HIGHER

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

47 San Antonio, TX

SCORE
22.90

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	31,180	14.8%	\$89,728	14.5%
Software Developers & Programmers	7,450	8.0%	\$102,722	11.2%
Computer Support, Database & Systems	19,180	12.0%	\$79,904	15.3%
Computer & Information Systems Managers	1,860	50.0%	\$142,940	14.5%
Technology Engineering-Related	2,690	40.8%	\$86,996	11.0%
Total Non-Tech Occupations	129,680	6.7%	\$42,529	8.9%
Sales	10,200	20.7%	\$56,343	2.2%
Administrative & Office Support	96,270	3.6%	\$34,780	10.0%
Business Operations & Finance	17,560	9.1%	\$70,825	2.9%
Marketing	5,650	39.9%	\$61,691	7.5%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

POPULATION TRENDS

The population of millennials grew by 673 (7.0%) since 2013.

Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#34 RANK | **\$37M** TALENT + **\$2M** RENT = **\$39M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

OFFICE RENT & VACANCY TRENDS

\$22.94 PSF (+12.8%) ASKING RENT | **13.5% (-240bps)** VACANCY

(Q4 2019 data with change since Q4 2014)
Source: CBRE Research (Metro Area), Q4 2019.

AVERAGE APARTMENT RENT

\$1,009 PER UNIT/MO. | **12.3%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	1,178	40.1%
Computer Engineering	833	65.3%
Math/Statistics	154	8.5%
Other Tech Engineering	191	-2.1%

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

25.8%
BACHELOR'S
DEGREE
OR HIGHER

48 Virginia Beach, VA

SCORE
21.16

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	27,150	-1.1%	\$87,163	9.0%
Software Developers & Programmers	6,390	-8.1%	\$92,362	5.6%
Computer Support, Database & Systems	14,480	3.6%	\$80,234	11.5%
Computer & Information Systems Managers	1,500	-6.3%	\$145,220	13.0%
Technology Engineering-Related	4,780	-3.0%	\$82,986	8.6%
Total Non-Tech Occupations	84,100	0.3%	\$44,473	10.5%
Sales	5,720	6.5%	\$61,972	-0.8%
Administrative & Office Support	59,040	-4.2%	\$34,612	9.7%
Business Operations & Finance	15,160	15.3%	\$71,363	5.5%
Marketing	4,180	12.1%	\$62,279	13.5%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

POPULATION TRENDS

The population of millennials grew by 2,304 (2.0%) since 2013.

Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#39 RANK | **\$37M** TALENT + **\$1M** RENT = **\$38M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

OFFICE RENT & VACANCY TRENDS

\$19.71 PSF (+10.8%) ASKING RENT | **10.2% (-580bps)** VACANCY

(Q4 2019 data with change since Q4 2014)
Source: CBRE Research (Metro Area), Q4 2019.

AVERAGE APARTMENT RENT

\$1,097 PER UNIT/MO. | **10.2%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	1,581	5.0%
Computer Engineering	1,071	4.9%
Math/Statistics	114	-8.1%
Other Tech Engineering	396	9.7%

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

29.4%
BACHELOR'S
DEGREE
OR HIGHER

49 Milwaukee, WI

SCORE
21.06

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	31,280	4.0%	\$86,424	10.7%
Software Developers & Programmers	10,230	19.0%	\$92,296	17.6%
Computer Support, Database & Systems	15,760	4.4%	\$75,900	4.2%
Computer & Information Systems Managers	2,520	4.1%	\$133,680	12.7%
Technology Engineering-Related	2,770	-30.1%	\$81,624	12.9%
Total Non-Tech Occupations	106,730	6.4%	\$49,101	11.7%
Sales	10,260	15.0%	\$71,696	8.3%
Administrative & Office Support	70,840	1.0%	\$39,124	11.3%
Business Operations & Finance	18,280	27.8%	\$70,510	5.6%
Marketing	7,350	5.8%	\$60,474	5.1%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

POPULATION TRENDS

The population of millennials declined by -4,034 (-1.7%) since 2013.

Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#36 RANK | **\$37M** TALENT + **\$1M** RENT = **\$38M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

OFFICE RENT & VACANCY TRENDS

\$19.43 PSF (+11.1%) ASKING RENT | **14.5% (-80bps)** VACANCY

(Q4 2019 data with change since Q4 2014)
Source: CBRE Research (Metro Area), Q4 2019.

AVERAGE APARTMENT RENT

\$1,170 PER UNIT/MO. | **4.5%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	765	10.2%
Computer Engineering	589	17.8%
Math/Statistics	33	-38.9%
Other Tech Engineering	143	2.1%

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

50 Richmond, VA

SCORE
19.73

EMPLOYMENT BREAKDOWN

	Employed 2019	Growth 2014-19	Average Wage	Growth 2014-19
Total Tech Occupations	24,830	6.2%	\$95,149	11.2%
Software Developers & Programmers	8,460	21.0%	\$98,650	13.1%
Computer Support, Database & Systems	13,450	5.3%	\$86,580	11.7%
Computer & Information Systems Managers	1,490	-18.6%	\$157,740	12.2%
Technology Engineering-Related	1,430	-19.7%	\$89,815	12.3%
Total Non-Tech Occupations	81,800	2.1%	\$50,070	9.7%
Sales	6,920	-10.8%	\$76,701	1.2%
Administrative & Office Support	54,160	-0.1%	\$37,624	12.7%
Business Operations & Finance	14,660	7.0%	\$76,062	8.1%
Marketing	6,060	35.0%	\$68,014	3.6%

Source: U.S. Bureau of Labor Statistics (Metro Area), April 2020.

POPULATION TRENDS

The population of millennials grew by 6,855 (10.3%) since 2013.

Source: U.S. Census Bureau, 2020.

Note: Population total is of the county in which the market resides.

AVERAGE ANNUAL OPERATING COSTS

#23 RANK | **\$41M** TALENT + **\$2M** RENT = **\$43M** TOTAL

Source: U.S. Bureau of Labor Statistics, CBRE Research, Q4 2019.

OFFICE RENT & VACANCY TRENDS

\$23.05 PSF (+20.0%) ASKING RENT | **8.7% (-440bps)** VACANCY

(Q4 2019 data with change since Q4 2014)
Source: CBRE Research (Metro Area), Q4 2019.

AVERAGE APARTMENT RENT

\$1,107 PER UNIT/MO. | **18.5%** FIVE-YEAR GROWTH

Source: Apt. rent data from CBRE EA (City), Q4 2019.

LABOR FORCE PIPELINE & EDUCATION

Tech Degree Completions 2018	Growth 2014-18	Educational Attainment
Total Tech Degrees	730	13.4%
Computer Engineering	500	3.7%
Math/Statistics	138	56.8%
Other Tech Engineering	92	24.3%

Source: The National Center for Education Statistics (Region), 2020.

Source: U.S. Census Bureau (City), 2020.

< BACK TO SCORECARD RANKINGS

The background of the page is a grayscale photograph of a modern architectural interior. It features sharp, angular concrete structures and beams of light streaming through openings, creating a sense of depth and geometric complexity. The lighting is dramatic, with strong highlights and deep shadows.

Full report data summary

What is Tech Talent and why is it important?

TABLE 1: TECH TALENT LABOR BY INDUSTRY (2019)

Tech Talent Occupations in each industry as a % of U.S. Tech Talent

<u>Industry</u>	<u>% of Total Tech Talent Labor</u>
Core High-Tech*	37.1%
Professional, Scientific & Technical Services (Excluding High-Tech)	11.0%
Other	8.8%
FIRE	8.4%
Management of Companies & Enterprises	6.3%
Government	5.8%
Information (Excluding High-Tech)	5.3%
Transportation, Warehousing & Wholesale	4.9%
Manufacturing (Excluding High-Tech)	4.8%
Education	4.7%
Health Care	2.9%

Source: U.S. Bureau of Labor Statistics (National), April 2020.

*Includes computer software and services and computer product manufacturing

Which are the top-ranked Tech Talent markets?

TABLE 2: TECH TALENT SCORECARD RANKING

Rank	Market	Score	Rank	Market	Score
1	SF Bay Area, CA	82.56	26	Los Angeles, CA	45.54
2	Washington, D.C.	67.39	27	Madison, WI	44.91
3	Seattle, WA	66.36	28	Charlotte, NC	44.54
4	Toronto, ON	64.34	29	Tampa, FL	43.70
5	New York, NY	64.01	30	Pittsburgh, PA	41.77
6	Austin, TX	60.30	31	Detroit, MI	41.69
7	Denver, CO	59.89	32	Kansas City, MO	41.60
8	Boston, MA	59.61	33	Orlando, FL	39.61
9	Atlanta, GA	58.78	34	Calgary, AB	39.24
10	Raleigh-Durham, NC	56.29	35	St. Louis, MO	36.11
11	Baltimore, MD	56.11	36	Houston, TX	35.77
12	Vancouver, BC	55.76	37	South Florida	34.59
13	Dallas/Ft. Worth, TX	55.70	38	Indianapolis, IN	34.41
14	Ottawa, ON	55.15	39	Hartford, CT	33.35
15	Salt Lake City, UT	53.54	40	Cleveland, OH	29.97
16	Montreal, QC	53.02	41	Cincinnati, OH	29.94
17	Minneapolis, MN	51.72	42	Nashville, TN	28.01
18	Phoenix, AZ	51.69	43	Long Island, NY	27.72
19	San Diego, CA	51.08	44	Sacramento, CA	26.97
20	Portland, OR	50.48	45	Jacksonville, FL	25.45
21	Orange County, CA	48.42	46	Rochester, NY	22.96
22	Philadelphia, PA	48.09	47	San Antonio, TX	22.90
23	Chicago, IL	47.65	48	Virginia Beach, VA	21.16
24	Columbus, OH	46.13	49	Milwaukee, WI	21.06
25	Newark, NJ	45.81	50	Richmond, VA	19.73

Source: CBRE Research, CBRE Econometric Advisors, U.S. Bureau of Labor Statistics, Statistics Canada, Moody's Analytics, The National Center of Education Statistics, National Science Foundation, Axiometrics, 2020.

How to find Tech Talent momentum markets?

TABLE 3: TECH TALENT LABOR CONCENTRATION

<u>Market</u>	<u>Tech Talent Jobs as a % of Total Jobs</u>	<u>Market</u>	<u>Tech Talent Jobs as a % of Total Jobs</u>
Ottawa, ON	11.3%	Newark, NJ	4.5%
SF Bay Area, CA	10.5%	Orange County, CA	4.4%
Toronto, ON	8.8%	Detroit, MI	4.3%
Washington, D.C.	8.3%	Rochester, NY	4.2%
Seattle, WA	7.7%	St. Louis, MO	4.0%
Montréal, QC	7.4%	Sacramento, CA	4.0%
Austin, TX	7.1%	Philadelphia, PA	3.9%
Raleigh-Durham, NC	7.0%	Tampa, FL	3.9%
Vancouver, BC	7.0%	New York, NY	3.9%
Denver, CO	6.7%	Pittsburgh, PA	3.9%
Madison, WI	6.2%	Richmond, VA	3.8%
Boston, MA	6.0%	Indianapolis, IN	3.7%
Baltimore, MD	5.8%	Milwaukee, WI	3.7%
Calgary, AB	5.7%	Chicago, IL	3.6%
Atlanta, GA	5.3%	Virginia Beach, VA	3.6%
Salt Lake City, UT	5.2%	Cleveland, OH	3.5%
San Diego, CA	5.1%	Cincinnati, OH	3.5%
Portland, OR	5.0%	Orlando, FL	3.4%
Minneapolis, MN	4.9%	Houston, TX	3.2%
Dallas/Ft. Worth, TX	4.9%	Nashville, TN	3.1%
Kansas City, MO	4.9%	Los Angeles, CA	3.1%
Hartford, CT	4.6%	Jacksonville, FL	3.0%
Columbus, OH	4.6%	San Antonio, TX	3.0%
Charlotte, NC	4.6%	South Florida	2.5%
Phoenix, AZ	4.5%	Long Island, NY	2.5%

Source: U.S. Bureau of Labor Statistics (Metro) April 2020, Statistics Canada (Metro), 2020.

TABLE 4: TECH TALENT LABOR POOLS BY MARKET (2019)

Large Tech Talent Markets (>50,000 Labor Pool)		Small Tech Talent Markets (<50,000 Labor Pool)	
Market	Tech Talent Total	Market	Tech Talent Total
SF Bay Area, CA	379,670	Columbus, OH	48,930
New York, NY	268,530	Pittsburgh, PA	44,430
Washington, D.C.	263,670	Orlando, FL	43,280
Toronto, ON	250,000	Calgary, AB	42,500
Dallas/Ft. Worth, TX	179,570	Sacramento, CA	40,350
Chicago, IL	170,500	Indianapolis, IN	38,880
Boston, MA	167,110	Cincinnati, OH	37,730
Seattle, WA	155,330	Cleveland, OH	36,740
Atlanta, GA	146,720	Long Island, NY	33,616
Montréal, QC	141,600	Milwaukee, WI	31,280
Los Angeles, CA	141,580	Nashville, TN	31,190
Denver, CO	113,270	San Antonio, TX	31,180
Philadelphia, PA	112,340	Virginia Beach, VA	27,150
Houston, TX	98,670	Hartford, CT	27,080
Minneapolis, MN	97,350	Richmond, VA	24,830
Phoenix, AZ	94,650	Madison, WI	24,580
Vancouver, BC	84,900	Rochester, NY	21,550
Detroit, MI	84,670	Jacksonville, FL	21,300
Baltimore, MD	79,880		
San Diego, CA	76,770		
Austin, TX	76,270		
Ottawa, ON	76,200		
Orange County, CA	73,524		
Raleigh-Durham, NC	67,660		
South Florida	66,990		
Portland, OR	60,550		
Charlotte, NC	57,340		
St. Louis, MO	55,000		
Newark, NJ	53,901		
Kansas City, MO	52,750		
Tampa, FL	52,150		
Salt Lake City, UT	51,220		

Source: U.S. Bureau of Labor Statistics (Metro) April 2020, Statistics Canada (Metro), 2020.

TABLE 5: TECH LABOR POOL GROWTH RATES (2015-2019)

Large Tech Talent Markets (>50,000 Labor Pool)			Small Tech Talent Markets (<50,000 Labor Pool)		
Market	% Change	by Volume	Market	% Change	by Volume
Vancouver, BC	47.9%	27,500	Madison, WI	37.0%	6,640
Salt Lake City, UT	42.7%	15,320	Nashville, TN	29.9%	7,180
Charlotte, NC	38.0%	15,780	Orlando, FL	25.7%	8,860
Toronto, ON	36.5%	66,900	Jacksonville, FL	25.2%	4,290
Denver, CO	33.2%	28,230	Indianapolis, IN	21.8%	6,960
Portland, OR	31.7%	14,580	Pittsburgh, PA	18.2%	6,850
SF Bay Area, CA	30.5%	88,840	Cleveland, OH	18.1%	5,620
South Florida	28.1%	14,700	Long Island, NY	17.4%	4,986
Atlanta, GA	27.8%	31,960	Calgary, AB	17.1%	6,200
Tampa, FL	26.6%	10,950	San Antonio, TX	14.8%	4,010
Kansas City, MO	22.8%	9,790	Columbus, OH	14.2%	6,080
Seattle, WA	22.7%	28,750	Sacramento, CA	13.4%	4,770
Raleigh-Durham, NC	21.3%	11,900	Hartford, CT	11.8%	2,860
Orange County, CA	20.5%	12,504	Cincinnati, OH	11.1%	3,760
Montréal, QC	19.3%	22,900	Rochester, NY	7.3%	1,460
Los Angeles, CA	18.5%	22,090	Richmond, VA	6.2%	1,460
New York, NY	18.2%	41,291	Milwaukee, WI	4.0%	1,210
Phoenix, AZ	18.1%	14,500	Virginia Beach, VA	-1.1%	-310
Baltimore, MD	16.9%	11,560			
Austin, TX	16.7%	10,920			
San Diego, CA	15.8%	10,470			
Dallas/Ft. Worth, TX	14.3%	22,530			
Philadelphia, PA	12.8%	12,730			
Detroit, MI	12.3%	9,250			
Newark, NJ	12.0%	5,790			
Minneapolis, MN	10.1%	8,950			
St. Louis, MO	10.1%	5,050			
Washington, D.C.	9.9%	23,730			
Chicago, IL	8.2%	12,930			
Boston, MA	6.4%	10,020			
Ottawa, ON	1.5%	1,100			
Houston, TX	-1.3%	-1,250			

Source: U.S. Bureau of Labor Statistics (Metro) April 2020, Statistics Canada (Metro), 2020.

What do Tech Talent markets look like?

TABLE 6: TOP 10 MARKETS FOR EDUCATIONAL ATTAINMENT

25+ Years Old, Bachelor's Degree or Higher

Market	Educational Attainment Rate
Seattle, WA	65.0%
Washington, D.C.	60.4%
Madison, WI	57.3%
Austin, TX	54.1%
Denver, CO	53.9%
Atlanta, GA	53.4%
Raleigh-Durham, NC	53.3%
SF Bay Area, CA	51.7%
Boston, MA	51.4%
Minneapolis, MN	51.3%
U.S.	32.6%

Source: U.S. Census Bureau (City) 2020.

TABLE 7: TOP 10 MARKETS FOR TECH DEGREE COMPLETIONS

Market	Tech Degree Completions (2018)	Growth (2014-2018)
New York, NY	14,802	56.2%
Washington, D.C.	12,091	34.0%
Boston, MA	10,586	58.4%
Los Angeles, CA	9,920	30.4%
SF Bay Area, CA	8,694	48.8%
Chicago, IL	8,184	29.3%
Atlanta, GA	7,731	51.4%
Dallas/Ft. Worth, TX	6,840	77.5%
Philadelphia, PA	6,702	59.2%
Detroit, MI	6,462	49.8%

Source: The National Center for Education Statistics (Region), Canadian Universities, July 2020.

Note: Bachelor's Degree or Higher.

TABLE 8: WHERE ARE TECH TALENT WORKERS COMING FROM AND WHERE ARE THEY HEADED?

Market	Tech Degrees (2014-2018)*	Tech Jobs Added (2015-2019)*	Brain Gain or Drain?	Market	Tech Degrees (2014-2018)*	Tech Jobs Added (2015-2019)*	Brain Gain or Drain?
SF Bay Area, CA	36,882	88,840	51,958	Cincinnati, OH	8,128	3,760	-4,368
Toronto, ON	24,083	66,900	42,817	Columbus, OH	10,875	6,080	-4,795
Vancouver, BC	11,993	27,500	15,507	Cleveland, OH	10,493	5,620	-4,873
Seattle, WA	17,011	28,750	11,739	Raleigh-Durham, NC	16,855	11,900	-4,955
Charlotte, NC	6,639	15,780	9,141	Dallas/Ft. Worth, TX	27,508	22,530	-4,978
Denver, CO	20,307	28,230	7,923	Baltimore, MD	17,689	11,560	-6,129
Portland, OR	9,502	14,580	5,078	Newark, NJ	11,999	5,790	-6,209
Tampa, FL	7,394	10,950	3,556	Ottawa, ON	7,314	1,100	-6,214
Kansas City, MO	6,427	9,790	3,363	San Diego, CA	17,273	10,470	-6,803
Nashville, TN	4,159	7,180	3,021	Salt Lake City, UT	22,361	15,320	-7,041
Indianapolis, IN	4,195	6,960	2,765	Long Island, NY	12,501	4,986	-7,515
South Florida	11,989	14,700	2,711	Virginia Beach, VA	7,669	-310	-7,979
Calgary, AB	3,557	6,200	2,643	Minneapolis, MN	16,972	8,950	-8,022
Jacksonville, FL	1,949	4,290	2,341	Hartford, CT	11,274	2,860	-8,414
Montreal, QC	21,009	22,900	1,891	Rochester, NY	10,755	1,460	-9,295
Atlanta, GA	31,313	31,960	647	Phoenix, AZ	24,314	14,500	-9,814
San Antonio, TX	5,145	4,010	-1,135	Philadelphia, PA	25,574	12,730	-12,844
Austin, TX	12,195	10,920	-1,275	Houston, TX	11,934	-1,250	-13,184
Madison, WI	8,319	6,640	-1,679	Pittsburgh, PA	22,293	6,850	-15,443
Orange County, CA	14,450	12,504	-1,946	Detroit, MI	26,350	9,250	-17,100
Richmond, VA	3,546	1,460	-2,086	New York, NY	60,087	41,291	-18,796
Milwaukee, WI	3,680	1,210	-2,470	Los Angeles, CA	44,386	22,090	-22,296
Orlando, FL	11,645	8,860	-2,785	Chicago, IL	37,817	12,930	-24,887
Sacramento, CA	8,359	4,770	-3,589	Washington, D.C.	52,549	23,730	-28,819
St. Louis, MO	8,843	5,050	-3,793	Boston, MA	42,446	10,020	-32,426

Source: CBRE Research, U.S. Bureau of Labor Statistics, The National Center for Education Statistics (Metro), Canadian Universities, 2020.

* Tech degrees cover the most recent five-year period available (2013-2018) and tech jobs added cover the time period reflecting when most graduates would be counted in employment figures (2014-2019).

TABLE 9: TOP 10 MOST CONCENTRATED MILLENNIAL MARKETS* (2018)

Market	Population Concentration of Millennials
Boston, MA	33.9%
Washington, D.C.	33.7%
SF Bay Area, CA	33.2%
New York, NY	32.0%
Denver, CO	30.1%
Austin, TX	29.6%
Nashville, TN	29.6%
Portland, OR	28.0%
Philadelphia, PA	27.9%
Columbus, OH	27.2%
United States	13.8%

Source: U.S. Census Bureau (County), 2020.

*Millennials aged 22-36 years.

TABLE 10: U.S. TECH TALENT LABOR CONCENTRATION BY INDUSTRY (2019)
Tech Talent Occupations as a % of All Occupations in Each Industry

Industry	Tech Talent as % of Total Industry Occupations
Core High-Tech*	49.8%
Professional, Scientific & Technical Services (Excluding High-Tech)	13.7%
Information (Excluding High-Tech)	13.6%
Management of Companies and Enterprises	8.2%
FIRE	5.5%
Total U.S. Employment	3.6%
Government	3.2%
Transportation, Warehousing & Wholesale	2.2%
Manufacturing (Excluding High-Tech)	2.1%
Education	1.9%
Other	0.9%
Health Care	0.7%

Source: U.S. Bureau of Labor Statistics (National), April 2020.

*Includes computer software and services and computer product manufacturing.

TABLE 11: MILLENNIAL POPULATION CHANGE BY MARKET* (2014-2018)

Large Tech Talent Markets (>50,000 Labor Pool)		Small Tech Talent Markets (<50,000 Labor Pool)	
Market	% Change	Market	% Change
SF Bay Area, CA	29.3%	Nashville, TN	14.4%
Seattle, WA	26.9%	Calgary, AB	14.3%
Portland, OR	20.3%	Jacksonville, FL	11.8%
Charlotte, NC	20.1%	Columbus, OH	11.3%
Denver, CO	19.6%	Orlando, FL	11.2%
Austin, TX	19.2%	Richmond, VA	10.3%
Raleigh-Durham, NC	15.6%	Sacramento, CA	9.5%
Tampa, FL	13.6%	San Antonio, TX	7.0%
Washington, D.C.	13.3%	Indianapolis, IN	7.0%
Minneapolis, MN	12.4%	Cincinnati, OH	2.7%
Toronto, ON	12.3%	Virginia Beach, VA	2.0%
Vancouver, BC	12.3%	Cleveland, OH	2.0%
Dallas/Ft. Worth, TX	11.4%	Madison, WI	1.8%
Phoenix, AZ	10.7%	Hartford, CT	0.6%
Houston, TX	10.2%	Pittsburgh, PA	0.5%
Atlanta, GA	10.0%	Long Island, NY	-0.2%
New York, NY	9.4%	Milwaukee, WI	-1.7%
Ottawa, ON	8.2%	Rochester, NY	-6.5%
Montréal, QC	6.7%		
Kansas City, MO	6.5%		
Salt Lake City, UT	6.3%		
St. Louis, MO	4.8%		
South Florida	4.4%		
San Diego, CA	3.7%		
Newark, NJ	3.5%		
Los Angeles, CA	2.5%		
Boston, MA	2.1%		
Philadelphia, PA	2.0%		
Chicago, IL	1.7%		
Orange County, CA	1.5%		
Detroit, MI	0.5%		
Baltimore, MD	-2.4%		

Source: U.S. Census Bureau (County), Statistics Canada (Metro), 2020.

*Millennials aged 22-36 years.

Tech Talent has unique concentrations across markets

**TABLE 12: TECH TALENT BY TYPE:
SOFTWARE DEVELOPERS & PROGRAMMERS**

Ranked by % of Tech Talent

Market	Software Developers & Programmers	% of Tech Talent	Market	Software Developers & Programmers	% of Tech Talent
Seattle, WA	90,540	58.3%	Milwaukee, WI	10,230	32.7%
Madison, WI	11,870	48.3%	Atlanta, GA	47,640	32.5%
SF Bay Area, CA	168,200	44.3%	St. Louis, MO	17,780	32.3%
Raleigh-Durham, NC	26,640	39.4%	Rochester, NY	6,960	32.3%
Boston, MA	64,200	38.4%	Los Angeles, CA	45,702	32.3%
Austin, TX	29,230	38.3%	Washington, D.C.	85,010	32.2%
Salt Lake City, UT	19,450	38.0%	Portland, OR	19,470	32.2%
Detroit, MI	31,800	37.6%	Phoenix, AZ	29,490	31.2%
New York, NY	99,724	37.1%	Cleveland, OH	11,440	31.1%
Indianapolis, IN	14,180	36.5%	Jacksonville, FL	6,500	30.5%
Dallas/Ft. Worth, TX	65,250	36.3%	Cincinnati, OH	11,410	30.2%
Denver, CO	41,040	36.2%	South Florida	20,050	29.9%
Chicago, IL	61,090	35.8%	Pittsburgh, PA	12,960	29.2%
Hartford, CT	9,430	34.8%	Toronto, ON	72,900	29.2%
Vancouver, BC	29,500	34.7%	Charlotte, NC	16,690	29.1%
Minneapolis, MN	33,300	34.2%	Baltimore, MD	22,620	28.3%
Newark, NJ	18,395	34.1%	Montréal, QC	40,000	28.2%
Richmond, VA	8,460	34.1%	Long Island, NY	9,407	28.0%
San Diego, CA	26,150	34.1%	Ottawa, ON	21,200	27.8%
Columbus, OH	16,660	34.0%	Houston, TX	26,900	27.3%
Orlando, FL	14,570	33.7%	Nashville, TN	8,370	26.8%
Orange County, CA	24,597	33.5%	Sacramento, CA	10,400	25.8%
Tampa, FL	17,420	33.4%	Calgary, AB	10,300	24.2%
Kansas City, MO	17,320	32.8%	San Antonio, TX	7,450	23.9%
Philadelphia, PA	36,750	32.7%	Virginia Beach, VA	6,390	23.5%

Source: U.S. Bureau of Labor Statistics, Statistics Canada, April 2020.

Note: Software Developers & Programmers include: computer programmers; software application developers, software systems software developers and web developers.

**TABLE 13: TECH TALENT BY TYPE:
COMPUTER, SUPPORT DATABASE & SYSTEMS**

Ranked by % of Tech Talent

Market	Computer, Support Database & Systems	% of Tech Talent	Market	Computer, Support Database & Systems	% of Tech Talent
San Antonio, TX	19,180	61.5%	Rochester, NY	10,590	49.1%
Nashville, TN	17,770	57.0%	Dallas/Ft. Worth, TX	87,920	49.0%
Sacramento, CA	22,750	56.4%	Orlando, FL	21,110	48.8%
Houston, TX	54,290	55.0%	Chicago, IL	82,720	48.5%
Charlotte, NC	31,440	54.8%	Salt Lake City, UT	24,610	48.0%
Cleveland, OH	20,070	54.6%	Denver, CO	53,170	46.9%
Jacksonville, FL	11,600	54.5%	New York, NY	125,750	46.8%
Washington, D.C.	143,320	54.4%	Austin, TX	35,650	46.7%
Tampa, FL	28,340	54.3%	Raleigh-Durham, NC	31,370	46.4%
Baltimore, MD	43,290	54.2%	Newark, NJ	24,803	46.0%
Richmond, VA	13,450	54.2%	Los Angeles, CA	64,852	45.8%
South Florida	36,210	54.1%	Hartford, CT	12,040	44.5%
Cincinnati, OH	20,170	53.5%	Madison, WI	10,690	43.5%
Virginia Beach, VA	14,480	53.3%	Toronto, ON	106,800	42.7%
St. Louis, MO	28,870	52.5%	Detroit, MI	35,830	42.3%
Columbus, OH	25,560	52.2%	Orange County, CA	30,999	42.2%
Pittsburgh, PA	23,160	52.1%	Calgary, AB	17,200	40.5%
Atlanta, GA	76,440	52.1%	Boston, MA	67,110	40.2%
Kansas City, MO	27,480	52.1%	Portland, OR	23,740	39.2%
Philadelphia, PA	57,090	50.8%	San Diego, CA	29,290	38.2%
Indianapolis, IN	19,620	50.5%	Ottawa, ON	28,400	37.3%
Milwaukee, WI	15,760	50.4%	SF Bay Area, CA	133,480	35.2%
Long Island, NY	16,849	50.1%	Vancouver, BC	29,100	34.3%
Phoenix, AZ	47,270	49.9%	Montréal, QC	43,200	30.5%
Minneapolis, MN	48,600	49.9%	Seattle, WA	43,760	28.2%

Source: U.S. Bureau of Labor Statistics, Statistics Canada, April 2020.

Note: Computer Support, Database & Systems include: computer and information research scientists, computer systems analysts, information security analysts, database administrators, network and computer systems administrators, computer network architects, computer user support specialists, computer network support specialists and all other computer occupations.

**TABLE 14: TECH TALENT BY TYPE:
COMPUTER & INFORMATION SYSTEMS MANAGERS**

Ranked by % of Tech Talent

Market	Computer & Information Systems Managers	% of Tech Talent	Market	Computer & Information Systems Managers	% of Tech Talent
Hartford, CT	4,360	16.1%	Tampa, FL	4,050	7.8%
Ottawa, ON	8,900	11.7%	Portland, OR	4,690	7.7%
Boston, MA	18,470	11.1%	Cincinnati, OH	2,920	7.7%
Toronto, ON	26,600	10.6%	Jacksonville, FL	1,590	7.5%
Newark, NJ	5,571	10.3%	Baltimore, MD	5,960	7.5%
Nashville, TN	3,210	10.3%	Cleveland, OH	2,720	7.4%
Los Angeles, CA	14,212	10.0%	Indianapolis, IN	2,840	7.3%
New York, NY	26,934	10.0%	Columbus, OH	3,570	7.3%
Charlotte, NC	5,700	9.9%	Washington, D.C.	19,080	7.2%
Chicago, IL	16,790	9.8%	Montréal, QC	10,000	7.1%
SF Bay Area, CA	37,200	9.8%	Vancouver, BC	5,800	6.8%
Orange County, CA	7,051	9.6%	Detroit, MI	5,770	6.8%
Minneapolis, MN	9,180	9.4%	Seattle, WA	10,560	6.8%
South Florida	6,090	9.1%	St. Louis, MO	3,610	6.6%
Atlanta, GA	12,790	8.7%	Kansas City, MO	3,380	6.4%
Sacramento, CA	3,450	8.6%	Rochester, NY	1,360	6.3%
Salt Lake City, UT	4,360	8.5%	Houston, TX	6,110	6.2%
San Diego, CA	6,490	8.5%	Dallas/Ft. Worth, TX	11,050	6.2%
Philadelphia, PA	9,380	8.3%	Richmond, VA	1,490	6.0%
Long Island, NY	2,769	8.2%	San Antonio, TX	1,860	6.0%
Raleigh-Durham, NC	5,540	8.2%	Denver, CO	6,610	5.8%
Orlando, FL	3,530	8.2%	Virginia Beach, VA	1,500	5.5%
Pittsburgh, PA	3,580	8.1%	Madison, WI	1,170	4.8%
Milwaukee, WI	2,520	8.1%	Austin, TX	3,330	4.4%
Phoenix, AZ	7,510	7.9%	Calgary, AB	1,100	2.6%

Source: U.S. Bureau of Labor Statistics, Statistics Canada, April 2020.

**TABLE 15: TECH TALENT BY TYPE:
TECHNOLOGY ENGINEERING-RELATED**

Ranked by % of Tech Talent

Market	Technology Engineering-Related	% of Tech Talent	Market	Technology Engineering-Related	% of Tech Talent
Montréal, QC	48,400	34%	Kansas City, MO	4,570	9%
Calgary, AB	13,900	33%	San Antonio, TX	2,690	9%
Vancouver, BC	20,500	24%	St. Louis, MO	4,740	9%
Ottawa, ON	17,700	23%	Cincinnati, OH	3,230	9%
Portland, OR	12,650	21%	Dallas/Ft. Worth, TX	15,350	9%
San Diego, CA	14,840	19%	Philadelphia, PA	9,120	8%
Virginia Beach, VA	4,780	18%	Jacksonville, FL	1,610	8%
Toronto, ON	43,700	17%	South Florida	4,640	7%
Orange County, CA	10,877	15%	Cleveland, OH	2,510	7%
Long Island, NY	4,591	14%	Seattle, WA	10,470	7%
Detroit, MI	11,270	13%	Atlanta, GA	9,850	7%
Rochester, NY	2,640	12%	Minneapolis, MN	6,270	6%
Los Angeles, CA	16,813	12%	Columbus, OH	3,140	6%
Houston, TX	11,370	12%	Washington, D.C.	16,260	6%
Denver, CO	12,450	11%	Charlotte, NC	3,510	6%
Phoenix, AZ	10,380	11%	Raleigh-Durham, NC	4,110	6%
SF Bay Area, CA	40,790	11%	New York, NY	16,122	6%
Pittsburgh, PA	4,730	11%	Nashville, TN	1,840	6%
Austin, TX	8,060	11%	Chicago, IL	9,900	6%
Boston, MA	17,330	10%	Indianapolis, IN	2,240	6%
Baltimore, MD	8,010	10%	Richmond, VA	1,430	6%
Newark, NJ	5,132	10%	Salt Lake City, UT	2,800	5%
Orlando, FL	4,070	9%	Hartford, CT	1,250	5%
Sacramento, CA	3,750	9%	Tampa, FL	2,340	4%
Milwaukee, WI	2,770	9%	Madison, WI	850	3%

Source: U.S. Bureau of Labor Statistics, Statistics Canada, April 2020.

Note: Technology Engineering-Related includes: computer programmers; computer hardware engineers, electrical engineers, electronics engineers except computer, electrical and electronics drafters, electrical and electronics engineering technicians and electro-mechanical technicians.

Which are the highest- and lowest-cost markets to operate in?

TABLE 16: TECH TALENT WAGES BY MARKET (2019)

U.S. Average = 100%

Market	Average Tech Talent Wage	Wage Relative to U.S. Average	Talent Wage 5 Yr. Growth	Market	Average Tech Talent Wage	Wage Relative to U.S. Average	Talent Wage 5 Yr. Growth
SF Bay Area, CA	\$136,060	137%	14%	Columbus, OH	\$90,810	92%	10%
Seattle, WA	\$119,170	120%	12%	Cincinnati, OH	\$90,056	91%	14%
Washington, D.C.	\$113,771	115%	10%	San Antonio, TX	\$89,728	91%	15%
New York, NY	\$110,591	112%	9%	St. Louis, MO	\$89,397	90%	8%
Boston, MA	\$109,395	110%	9%	Tampa, FL	\$89,032	90%	14%
San Diego, CA	\$109,053	110%	13%	Salt Lake City, UT	\$88,972	90%	17%
Newark, NJ	\$108,602	110%	9%	South Florida	\$88,845	90%	15%
Baltimore, MD	\$108,218	109%	10%	Orlando, FL	\$88,759	90%	14%
Denver, CO	\$105,066	106%	11%	Detroit, MI	\$88,372	89%	10%
Los Angeles, CA	\$103,677	105%	10%	Madison, WI	\$87,215	88%	21%
Orange County, CA	\$100,869	102%	6%	Virginia Beach, VA	\$87,163	88%	9%
Houston, TX	\$100,229	101%	9%	Indianapolis, IN	\$86,591	87%	12%
Philadelphia, PA	\$99,442	100%	12%	Milwaukee, WI	\$86,424	87%	11%
Dallas/Ft. Worth, TX	\$99,297	100%	15%	Kansas City, MO	\$85,137	86%	7%
Hartford, CT	\$99,233	100%	9%	Nashville, TN	\$83,500	84%	10%
Minneapolis, MN	\$98,620	100%	15%	Cleveland, OH	\$83,216	84%	11%
Raleigh-Durham, NC	\$98,326	99%	10%	Rochester, NY	\$83,200	84%	10%
Charlotte, NC	\$97,051	98%	8%	Jacksonville, FL	\$81,716	83%	5%
Atlanta, GA	\$96,674	98%	11%	Pittsburgh, PA	\$80,419	81%	7%
Chicago, IL	\$96,591	98%	15%	Sacramento, CA	\$75,221	76%	-13%
Austin, TX	\$95,416	96%	11%	Calgary, AB*	\$71,779	74%	11%
Richmond, VA	\$95,149	96%	11%	Ottawa, ON*	\$68,674	71%	11%
Portland, OR	\$94,987	96%	13%	Toronto, ON*	\$64,065	66%	11%
Long Island, NY	\$92,826	94%	5%	Vancouver, BC*	\$61,760	64%	14%
Phoenix, AZ	\$91,224	92%	8%	Montreal, QC*	\$60,741	63%	14%

Source: U.S. Bureau of Labor Statistics (Metro), Statistics Canada (Metro), April 2020.

*data in US\$

TABLE 17: AVERAGE U.S. TECH COMPANY OCCUPATION POOLS

500 Employees

Occupation Pools	Employees	% of Tech Talent Labor
Tech Talent Employees*	250	50%
Support Non-Tech Employees (excluding Management)	211	42%
Management	39	8%

Source: U.S. Bureau of Labor Statistics (National), April 2020.

* Tech Talent includes the following occupation categories: software developers and programmers; computer support, database and systems; technology and engineering related; and computer information system managers.

**TABLE 18: ESTIMATED ONE-YEAR COSTS BY MARKET:
WAGE AND RENT OBLIGATION FOR TYPICAL TECH FIRM**

Sample Tech Firm Estimates: 500 Employees, 75,000 Sq. Ft.

Market	Rent Cost (avg rent x 75,000 sf)	Tech Talent Wages (avg wage x 250 people)	Support		Total
			Non-Tech Wages (avg wage x 211 people)	Management Wages (avg wage x 39 people)	
SF Bay Area, CA	\$5,111,075	\$34,015,025	\$14,802,418	\$8,085,948	\$62,014,467
New York, NY	\$6,032,250	\$27,647,634	\$12,340,604	\$7,272,752	\$53,293,240
Seattle, WA	\$2,966,250	\$29,792,430	\$13,112,390	\$6,677,970	\$52,549,040
Washington, D.C.	\$3,067,500	\$28,442,748	\$14,066,722	\$6,809,400	\$52,386,370
Boston, MA	\$2,985,000	\$27,348,822	\$13,139,370	\$6,312,930	\$49,786,122
Denver, CO	\$2,146,500	\$26,266,402	\$13,087,999	\$6,889,726	\$48,390,627
San Diego, CA	\$2,853,000	\$27,263,300	\$11,220,507	\$6,418,230	\$47,755,037
Newark, NJ	\$2,166,000	\$27,150,579	\$11,648,059	\$6,710,008	\$47,674,645
Baltimore, MD	\$1,767,750	\$27,054,548	\$11,193,146	\$6,117,150	\$46,132,594
Los Angeles, CA	\$3,249,000	\$25,919,289	\$10,507,386	\$6,356,676	\$46,032,351
Orange County, CA	\$2,736,000	\$25,217,257	\$11,050,941	\$6,135,995	\$45,140,194
Philadelphia, PA	\$2,267,250	\$24,860,385	\$11,283,742	\$6,158,490	\$44,569,867
Houston, TX	\$2,177,250	\$25,057,347	\$10,790,657	\$6,181,500	\$44,206,754
Minneapolis, MN	\$2,124,750	\$24,655,013	\$11,479,778	\$5,942,430	\$44,201,970
Raleigh-Durham, NC	\$2,180,250	\$24,581,414	\$11,358,493	\$5,606,768	\$43,726,925
Austin, TX	\$2,916,750	\$23,853,951	\$10,647,555	\$6,236,100	\$43,654,355
Dallas/Ft. Worth, TX	\$1,887,750	\$24,824,275	\$10,620,239	\$6,313,320	\$43,645,584
Hartford, CT	\$1,476,000	\$24,808,202	\$11,546,267	\$5,594,940	\$43,425,409
Chicago, IL	\$2,412,000	\$24,147,760	\$10,902,741	\$5,916,690	\$43,379,191
Charlotte, NC	\$2,235,750	\$24,262,847	\$10,959,597	\$5,614,830	\$43,073,024
Atlanta, GA	\$2,113,500	\$24,168,377	\$10,738,624	\$5,949,840	\$42,970,341
Portland, OR	\$2,332,500	\$23,746,704	\$11,092,868	\$5,371,860	\$42,543,932
Richmond, VA	\$1,728,750	\$23,787,334	\$10,564,817	\$6,151,860	\$42,232,761
Long Island, NY	\$2,073,750	\$23,206,569	\$10,389,208	\$6,190,182	\$41,859,709
South Florida	\$2,813,364	\$22,211,192	\$9,711,373	\$5,825,820	\$40,561,749
Phoenix, AZ	\$2,025,000	\$22,806,031	\$10,033,926	\$5,574,660	\$40,439,617
Columbus, OH	\$1,477,500	\$22,702,421	\$10,565,543	\$5,490,810	\$40,236,274
Cincinnati, OH	\$1,470,000	\$22,514,020	\$10,415,647	\$5,409,300	\$39,808,967
Detroit, MI	\$1,444,500	\$22,093,055	\$10,652,459	\$5,359,380	\$39,549,394
St. Louis, MO	\$1,528,500	\$22,349,345	\$10,310,571	\$5,349,630	\$39,538,046
Tampa, FL	\$1,740,750	\$22,257,948	\$9,475,558	\$5,607,030	\$39,081,286
Salt Lake City, UT	\$1,784,250	\$22,243,016	\$9,536,119	\$5,397,689	\$38,961,075
Indianapolis, IN	\$1,570,500	\$21,647,789	\$10,414,295	\$5,295,420	\$38,928,003
San Antonio, TX	\$1,720,500	\$22,432,034	\$8,973,622	\$5,574,660	\$38,700,816
Orlando, FL	\$1,824,000	\$22,189,697	\$9,234,253	\$5,396,040	\$38,643,990
Milwaukee, WI	\$1,457,250	\$21,605,931	\$10,360,392	\$5,213,520	\$38,637,093
Madison, WI	\$1,499,250	\$21,803,759	\$10,073,076	\$5,095,350	\$38,471,435
Kansas City, MO	\$1,569,750	\$21,284,145	\$10,364,237	\$5,114,850	\$38,332,982
Virginia Beach, VA	\$1,478,250	\$21,790,813	\$9,383,763	\$5,663,580	\$38,316,406
Cleveland, OH	\$1,419,000	\$20,803,959	\$10,466,153	\$5,270,850	\$37,959,962
Nashville, TN	\$2,073,750	\$20,874,913	\$9,826,296	\$5,039,190	\$37,814,148
Rochester, NY	\$1,462,500	\$20,799,962	\$9,314,851	\$5,709,990	\$37,287,303
Sacramento, CA	\$1,791,000	\$18,805,143	\$10,652,739	\$5,885,490	\$37,134,372
Pittsburgh, PA	\$1,763,250	\$20,104,675	\$9,501,195	\$5,579,340	\$36,948,460
Jacksonville, FL	\$1,522,500	\$20,428,933	\$9,069,898	\$5,049,330	\$36,070,661
Calgary, AB*	\$2,263,420	\$17,944,586	\$11,369,649	\$3,494,623	\$35,072,278
Ottawa, ON*	\$2,523,955	\$17,168,549	\$10,729,488	\$3,299,560	\$33,721,552
Toronto, ON*	\$2,685,750	\$16,016,177	\$9,700,349	\$3,072,088	\$31,474,364
Vancouver, BC*	\$3,321,750	\$15,439,897	\$9,056,454	\$2,843,394	\$30,661,495
Montreal, QC*	\$2,479,500	\$15,185,113	\$9,188,905	\$3,368,657	\$30,222,175

Source: U.S. Bureau of Labor Statistics, April 2020, Canada Statistics April 2020, CBRE Research (Metro), Q4 2020.

*in US\$

How does Tech Talent impact commercial real estate?

TABLE 20: OFFICE ASKING RENT BY MARKET (Q4 2019)

Market	Annual Gross Direct Asking Rent	Office Rent 5 Yr. Growth	Market	Annual Gross Direct Asking Rent	Office Rent 5 Yr. Growth
New York, NY	\$80.43	20%	Ottawa, ON*	\$25.37	3%
SF Bay Area, CA	\$68.15	43%	Dallas/Ft. Worth, TX	\$25.17	22%
Los Angeles, CA	\$43.32	34%	Montreal, QC*	\$24.92	5%
Washington, D.C.	\$40.90	12%	Orlando, FL	\$24.32	21%
Boston, MA	\$39.80	18%	Sacramento, CA	\$23.88	18%
Seattle, WA	\$39.55	37%	Salt Lake City, UT	\$23.79	19%
Austin, TX	\$38.89	32%	Baltimore, MD	\$23.57	3%
San Diego, CA	\$38.04	31%	Pittsburgh, PA	\$23.51	12%
South Florida	\$37.51	27%	Tampa, FL	\$23.21	13%
Orange County, CA	\$36.48	48%	Richmond, VA	\$23.05	20%
Vancouver, BC*	\$33.39	20%	San Antonio, TX	\$22.94	13%
Chicago, IL	\$32.16	16%	Calgary, AB*	\$22.75	-26%
Portland, OR	\$31.10	36%	Indianapolis, IN	\$20.94	20%
Philadelphia, PA	\$30.23	19%	Kansas City, MO	\$20.93	23%
Charlotte, NC	\$29.81	45%	St. Louis, MO	\$20.38	10%
Raleigh-Durham, NC	\$29.07	31%	Jacksonville, FL	\$20.30	17%
Houston, TX	\$29.03	13%	Madison, WI	\$19.99	17%
Newark, NJ	\$28.88	13%	Virginia Beach, VA	\$19.71	11%
Denver, CO	\$28.62	24%	Columbus, OH	\$19.70	8%
Minneapolis, MN	\$28.33	17%	Hartford, CT	\$19.68	0%
Atlanta, GA	\$28.18	36%	Cincinnati, OH	\$19.60	5%
Nashville, TN	\$27.65	40%	Rochester, NY	\$19.50	0%
Long Island, NY	\$27.65	5%	Milwaukee, WI	\$19.43	11%
Phoenix, AZ	\$27.00	26%	Detroit, MI	\$19.26	12%
Toronto, ON*	\$26.99	5%	Cleveland, OH	\$18.92	7%

Source: CBRE Research (Office Market), Q4 2019.

Note: New York represents Manhattan only.

*data in US\$

TABLE 21: OFFICE VACANCY RATE BY MARKET (Q4 2019)

Market	Vacancy Rate	5 Yrs. Ago (Q1 2014)	Market	Vacancy Rate	5 Yrs. Ago (Q1 2014)
Vancouver, BC	3.7%	10.1%	Denver, CO	12.9%	13.1%
Ottawa, ON	6.3%	9.6%	San Antonio, TX	13.5%	15.9%
Madison, WI	6.7%	10.5%	Detroit, MI	13.8%	20.8%
Toronto, ON	6.7%	9.5%	Los Angeles, CA	14.1%	16.0%
SF Bay Area, CA	6.9%	8.4%	Phoenix, AZ	14.1%	21.3%
New York, NY	7.7%	7.5%	Philadelphia, PA	14.2%	17.1%
Charlotte, NC	8.4%	11.3%	Milwaukee, WI	14.5%	15.3%
Richmond, VA	8.7%	13.1%	Columbus, OH	14.7%	14.9%
Orlando, FL	9.1%	19.0%	Rochester, NY	14.9%	16.8%
Seattle, WA	9.4%	13.9%	Baltimore, MD	15.0%	15.0%
Nashville, TN	9.8%	8.8%	Pittsburgh, PA	15.1%	9.9%
Sacramento, CA	10.0%	18.6%	Newark, NJ	16.0%	20.5%
Long Island, NY	10.0%	14.5%	Cleveland, OH	16.1%	19.7%
Virginia Beach, VA	10.2%	16.0%	Chicago, IL	16.3%	15.5%
San Diego, CA	10.3%	12.4%	Washington, D.C.	16.6%	15.5%
Austin, TX	10.7%	10.6%	Jacksonville, FL	16.6%	19.9%
Montreal, QC	10.7%	12.7%	Atlanta, GA	17.1%	18.9%
Raleigh-Durham, NC	10.8%	14.3%	Indianapolis, IN	17.4%	18.2%
Salt Lake City, UT	10.9%	11.8%	Orange County, CA	18.3%	11.2%
Boston, MA	11.0%	13.3%	Hartford, CT	18.3%	18.2%
St. Louis, MO	11.0%	13.0%	Cincinnati, OH	18.4%	22.2%
Tampa, FL	11.5%	16.2%	Minneapolis, MN	18.5%	16.1%
South Florida	11.6%	16.5%	Houston, TX	19.3%	11.6%
Portland, OR	11.9%	11.7%	Dallas/Ft. Worth, TX	20.3%	18.4%
Kansas City, MO	12.9%	15.4%	Calgary, AB	24.7%	11.0%

Source: CBRE Research (Office Market), Q4 2019.

Note: New York represents Manhattan only.

TABLE 22: APARTMENT RENT TO TECH WAGE RATIO

Market	Annualized Apartment Rent (2019)	Average Annual Tech Wage (2019)	Rent-to-Tech Wage Ratio	Market	Annualized Apartment Rent (2019)	Average Annual Tech Wage (2019)	Rent-to-Tech Wage Ratio
New York, NY	\$48,508	\$110,591	43.9%	Minneapolis, MN	\$16,285	\$98,620	16.5%
Long Island, NY	\$28,630	\$92,826	30.8%	Austin, TX	\$15,715	\$95,416	16.5%
Vancouver, BC*	\$17,628	\$61,760	28.5%	Hartford, CT	\$16,319	\$99,233	16.4%
Toronto, ON*	\$17,508	\$64,065	27.3%	Milwaukee, WI	\$14,040	\$86,424	16.2%
Los Angeles, CA	\$27,722	\$103,677	26.7%	Madison, WI	\$14,136	\$87,215	16.2%
Orange County, CA	\$25,799	\$100,869	25.6%	Jacksonville, FL	\$12,981	\$81,716	15.9%
SF Bay Area, CA	\$34,491	\$136,060	25.4%	Salt Lake City, UT	\$14,012	\$88,972	15.7%
Boston, MA	\$27,093	\$109,395	24.8%	Atlanta, GA	\$15,178	\$96,674	15.7%
Sacramento, CA	\$17,933	\$75,221	23.8%	Phoenix, AZ	\$14,213	\$91,224	15.6%
South Florida	\$20,044	\$88,845	22.6%	Virginia Beach, VA	\$13,168	\$87,163	15.1%
San Diego, CA	\$24,478	\$109,053	22.4%	Rochester, NY	\$12,432	\$83,200	14.9%
Ottawa, ON*	\$15,372	\$68,674	22.4%	Baltimore, MD	\$16,154	\$108,218	14.9%
Calgary, AB*	\$14,172	\$71,779	19.8%	Charlotte, NC	\$14,064	\$97,051	14.5%
Newark, NJ	\$21,074	\$108,602	19.4%	Dallas/Ft. Worth, TX	\$14,138	\$99,297	14.2%
Washington, D.C.	\$21,707	\$113,771	19.1%	Raleigh-Durham, NC	\$13,993	\$98,326	14.2%
Chicago, IL	\$18,303	\$96,591	18.9%	Richmond, VA	\$13,279	\$95,149	14.0%
Nashville, TN	\$15,447	\$83,500	18.5%	Detroit, MI	\$12,246	\$88,372	13.9%
Seattle, WA	\$21,400	\$119,170	18.0%	Kansas City, MO	\$11,748	\$85,137	13.8%
Portland, OR	\$17,024	\$94,987	17.9%	Cleveland, OH	\$11,310	\$83,216	13.6%
Pittsburgh, PA	\$14,345	\$80,419	17.8%	San Antonio, TX	\$12,104	\$89,728	13.5%
Denver, CO	\$18,258	\$105,066	17.4%	Houston, TX	\$13,421	\$100,229	13.4%
Orlando, FL	\$15,407	\$88,759	17.4%	Cincinnati, OH	\$11,901	\$90,056	13.2%
Philadelphia, PA	\$17,012	\$99,442	17.1%	Columbus, OH	\$11,758	\$90,810	12.9%
Tampa, FL	\$14,839	\$89,032	16.7%	St. Louis, MO	\$11,574	\$89,397	12.9%
Montreal, QC*	\$10,092	\$60,741	16.6%	Indianapolis, IN	\$11,110	\$86,591	12.8%

Source: U.S. Bureau of Labor Statistics April 2020, Statistics Canada May 2020, CBRE Econometric Advisors, Axiometrics, CMHC Q4 2019.

Note: New York represents Manhattan only.

*in US\$

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