



Pedigo Capital Group

"Growing Together"

Internal Memorandum

DATE: November 17, 2019

TO: Board of Investors, Pedigo Capital Group, Miami, FL

FROM: Regional Research Team- Boston, MA

SUBJECT: Footwear eCommerce Headquarters Site Selection- Boston, MA

Summary

Headline

Boston provides many features that make it a compelling candidate for the establishment of an eCommerce footwear headquarters.

Overview

This memorandum assesses Boston as a site for Pedigo Capital Group's (PCG) eCommerce footwear headquarters. First, the memorandum outlines three criteria for assessing Boston: its cluster ecosystem, infrastructure, and quality of place. Next, it considers Boston based on these criteria, providing relevant data points. Finally, the report explores incentives available to firms in Boston.

Benchmarks

The study uses data from two benchmark regions as comparisons: Baltimore, MD and Portland, OR. Though these regions are smaller than Boston, each hosts a thriving footwear industry making them logical alternative sites.¹

Criteria

Cluster Ecosystem

PCG emphasizes cluster analysis for identifying locations of advantage. The firm in question will rely on a cluster ecosystem consisting of venture capital, a healthy professional services industry, and human capital pipelines in fashion design and web development.

Venture capital is vitally important for a startup, and headquarters establishment must consider proximity to established venture capital streams. This report presents both venture capital deals and investment dollars as measure of potential access.

Startups benefit from locating near similar businesses allowing them to tap into established resource networks and take advantage of opportunities to collaborate and compete. The proposed firm best fits in the professional services industry, therefore the assessment

¹ This assessment initial focused on Boulder, Colorado. Upon completion, Boston proved the most viable candidate region and became the new focus of the assessment. Boulder data was subsequently removed for concision and because it does not serve as a meaningful comparison region for assessing Boston.

considers the number and location quotient² (LQ) of firms in this sector to assess the presence of a relevant cluster.

Access to talent is essential to the proposed company. In order to assess access to the talent requirements for a footwear eCommerce firm, this report assesses levels of existing fashion designer and web developer talent in both absolute employment and LQ. Additionally, the number of top universities with relevant programs of study serves as a measure of access to human capital development streams.

Infrastructure

Quality broadband internet is vital for an eCommerce company to ensure continuous service across its dispersed network of producers, distributors, and customers. As a proxy for internet quality, this assessment considers two metrics: percentage of the population with access to three or more broadband internet service providers (ISP) and mapping data displaying the number of ISP that can provide 250/25 Mbps.

An eCommerce company must also have access to air travel to manage its extensive network. This assessment considers the size (number of passengers) and reach (number of direct destinations) when evaluating a region's air mobility.

Quality of Place

PCG stresses the importance of a location's quality of place because it knows that a sense of place is vital to Creative Class professionals as they make their location decisions. This report uses two metrics to gauge Boston's quality of place: its mobility score (an average of its WalkScore.com walk, bike, and transit scores) and its median housing value. The first measure helps to assess resident's access to downtown for both business and recreation. The latter measure allows PCG to consider the cost of living.

Site Assessment

Cluster Ecosystem

Venture Capital

Boston has much higher access to venture capital than Portland and Baltimore as evidenced by both the number of deals and the dollars invested from 2005-2017 (Figures 1 and 2).ⁱ Even scaling the data to deals and dollars invested per one million population does not significantly reduce the gap between Boston and its peers (Tables 1 and 2).

Professional Services Industry

Data collected demonstrate Boston's advantage in this measure as well.ⁱⁱ Boston has nearly double the number of professional services firms as Portland and over 40% more than Baltimore (Table 3 and Figure 3). Boston trails Baltimore in terms of its professional service's location quotient (LQ), but the significant difference between the total number of professional service firms in the two cities mitigates the impact of this fact (Table 4 and Figure 4).

² This report employs location quotient as a measure of concentration of a particular metric in a region compared to a larger population (typically compared to the US). A value of 1 is equally concentrated as the US average. A value of less than 1 is less concentrated than the US average. A value greater than 1 is more concentrated than the US average.

Fashion Design Employment

Boston's LQ for fashion designers at 1.14, presenting a slight advantage in terms of employment numbers (Table 5).ⁱⁱⁱ Portland boasts an LQ of 2.95. The data show that Boston only employs fifty fewer fashion designers, suggesting that Boston's relatively smaller LQ should not overly concern PCG. Furthermore, Table 8 presents the number of universities within the nation's top 200 that offer design and applied art as a field of study.^{iv} Boston hosts three schools compared to none in Portland, suggesting the firm can more readily access new talent in Boston.

Web Development Employment

Boston enjoys an advantage in web development with an LQ of 1.51, but Portland's is larger at 1.69 (Table 7).^v Despite this, Boston holds an absolute advantage, employing roughly 48% more web developers than Portland. Furthermore, Table 8 shows that Boston hosts eight top universities who offer computer science degrees compared to Portland and Baltimore, each of whom hosts two.^{vi}

Infrastructure

High-Speed Internet

In the first measure, Boston's internet market is sufficiently competitive, with access to three or more ISPs for 98.5% of the population (Table 9).^{vii} The second measure, access to internet speeds at 250/25 Mbps, supports the conclusion that Boston has sufficient internet infrastructure to support the proposed headquarters (Figure 4).^{viii}

Access to Air Travel

This report assesses air travel access with two measures, number of annual passengers^{ix} (Table 10 and Figure 6) and number of direct destinations^x (Table 11) from the primary airport in the region. Boston outperforms the other candidate airports, embarking 200,000 passengers annually and flying directly to 134 destinations.

Quality of Place

Mobility

Boston's mobility score of 74/100 is superior to those of its peer regions due to the city's walkability and public transit (Table 12).^{xi} Generally, Boston's scores suggest high accessibility for commuters and those seeking to enjoy Boston's various amenities.

Median Home Value

At a median price of \$394,000, Boston's housing market is over 25% more expensive than its benchmark regions (Figure 7 and Table 13).^{xii} This metric suggests a high level of demand to live and work in Boston but also presents one of the greatest challenges that PCG must consider if it selects to locate the headquarters in Boston. This market corresponds with the higher wage data presented in Tables 3 and 4, suggesting higher operating costs in Boston than in the peer regions.

Incentives

Financial Incentives

Boston focuses on improving capital conditions through financial incentives and venture capital interface.^{xiii} The latter feature in Boston presents less benefit to PCG, but the second initiative applies to PCG's endeavor. The Massachusetts Office of Business Development provides financial incentives to business of all sizes to locate and remain in the greater Boston area, primarily through Tax Increment Financing (TIF) and Special Tax Assessments (STA).^{xiv}

Boston approved thirty-six new projects in FY2019 bringing its total to 435. These new projects spanned a large variety of industries including applicable areas such as retail and technology.

Non-Financial Initiatives

Boston employs several non-financial strategies for economic development, including human capital development and startup hub provisions such as workspaces. An example of the former includes Hack.Diversity, which mentors professionals from populations underrepresented in the technology sector.^{xv} An example of the latter strategy is the innovation hub, District Hall, which provides workspaces, mentorship, and resources for small innovative companies.^{xvi} Each of these programs has conditions that a firm must meet in order to participate, and PCG should consider the costs and benefits associated with these programs in its strategy for this investment.

Conclusion

Boston demonstrably meets the characteristics of an innovation hub with advantages in both the technology and fashion industries. It further distinguishes itself from peer regions with similar cluster advantages with its access to critical infrastructure and high quality of place. Supplementing these appealing features, Boston provides both financial and non-financial incentives for businesses to locate and remain in the region. In total, these conditions set Boston apart from other regions as an opportunity for PCG to exceed its goals in the current endeavor.

ⁱ Florida, Richard, and Ian Hathaway. "Rise of the Global Startup City." Center for American Entrepreneurship. Accessed November 13, 2019. <https://startupsusa.org/global-startup-cities/>.

ⁱⁱ Source: U. S. Census Bureau. "2016 County Business Patterns." Accessed November 13, 2019.

https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=BP_2016_00A1&prodType=table.

ⁱⁱⁱ Bureau of Labor Statistics. "Occupational Employment Statistics Home Page." Accessed November 13, 2019. <https://www.bls.gov/oes/#databases>.

^{iv} US News and World Report. "2020 Best National Universities." Accessed November 14, 2019. <https://www.usnews.com/best-colleges/rankings/national-universities>.

^v Bureau of Labor Statistics. "Occupational Employment Statistics Home Page."

^{vi} US News and World Report. "2020 Best National Universities."

^{vii} Federal Communications Commission. "FCC Fixed Broadband Deployment." Accessed November 13, 2019. <https://broadbandmap.fcc.gov/>.

^{viii} *ibid*.

^{ix} Federal Aviation Administration. "Passenger Boarding (Enplanement) Data for U.S. Airports." Accessed November 13, 2019. https://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/.

^x FlightsFrom.com. "Worldwide Routes and Flights from All Airports." Accessed November 13, 2019. <https://www.flightsfrom.com/>.

^{xi} Walk Score. "Walk Score." Accessed November 13, 2019. <https://www.walkscore.com/>.

^{xii} U. S. Census Bureau. "2013-2017 American Community Survey 5-Year Estimates DP04." Accessed November 13, 2019.

^{xiii} Boston.gov. "Boston Startup Resources." Accessed November 17, 2019.

<https://www.boston.gov/departments/economic-development/startups>.

^{xiv} "Economic Development Incentive Program, FY 2019 Annual Report." Massachusetts Office of Business Development, September 30, 2019. <https://www.mass.gov/service-details/economic-development-incentive-program-edip>.

^{xv} Boston.gov. "Boston Startup Resources."

^{xvi} *ibid*.

Appendices

List of Appendices:

Appendix 1: Venture Capital Assessment

Figure 1: Venture Capital Deals.....	ii
Table 1: Venture Capital Deals.....	ii
Figure 2: Venture Capital Investment.....	iii
Table 2: Venture Capital Investment.....	iii

Appendix 2: Professional Services Firm Assessment

Figure 3: Professional Services Firms.....	iv
Table 3: Professional Services Firms.....	iv
Figure 4: Professional Services Firms (LQ).....	v
Table 4: Professional Services Firms (LQ).....	v

Appendix 3: Fashion Designer Employment Characteristics

Table 5: Leading Fashion Design Regions in US (LQ).....	vi
Table 6: Fashion Designer Employment Characteristics.....	vi

Appendix 4: Web Developer Employment Characteristics

Table 7: Web Developer Employment Characteristics.....	vii
--	-----

Appendix 5: University Assessment

Table 8: Top 200 Universities in Region Offering Relevant Field of Study.....	vii
---	-----

Appendix 6: Broadband Internet Access

Figure 5: Regional Maps of Access to 250/25Mbps Internet.....	viii
Table 9: Population with Access to Three or More Broadband Providers.....	ix

Appendix 7: Airport Assessment

Figure 6: Annual Airline Passenger Embarkations.....	x
Table 10: Annual Airline Passenger Embarkations.....	x
Table 11: Direct Destinations from Region.....	x

Appendix 8: Mobility Assessment

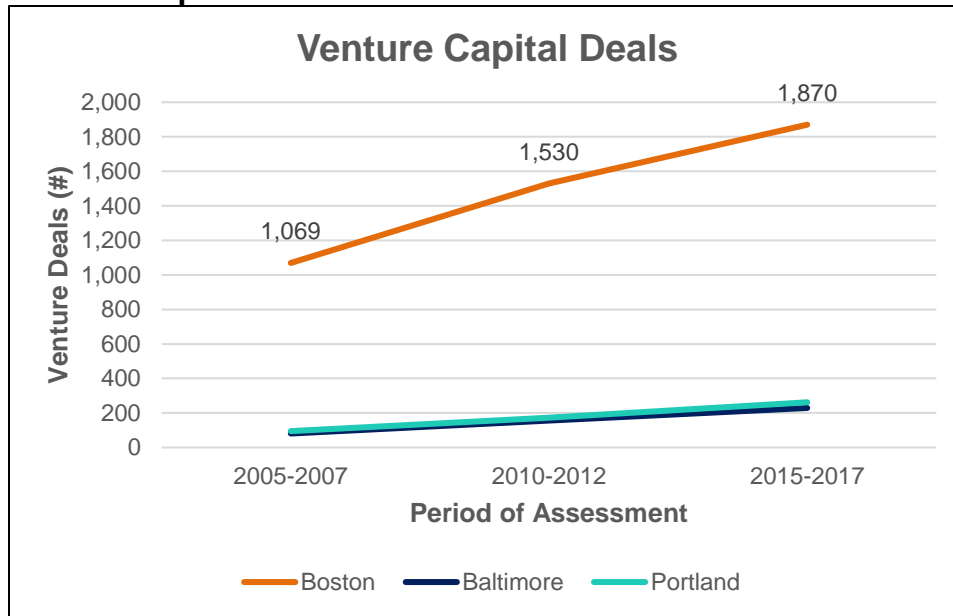
Table 12: Regional Mobility Ratings.....	xi
--	----

Appendix 9: Cost of Living

Figure 7: Median Home Value.....	xi
Table 13: Median Home Value.....	xi

Appendix 1: Venture Capital Assessment

Figure 1: Venture Capital Deals



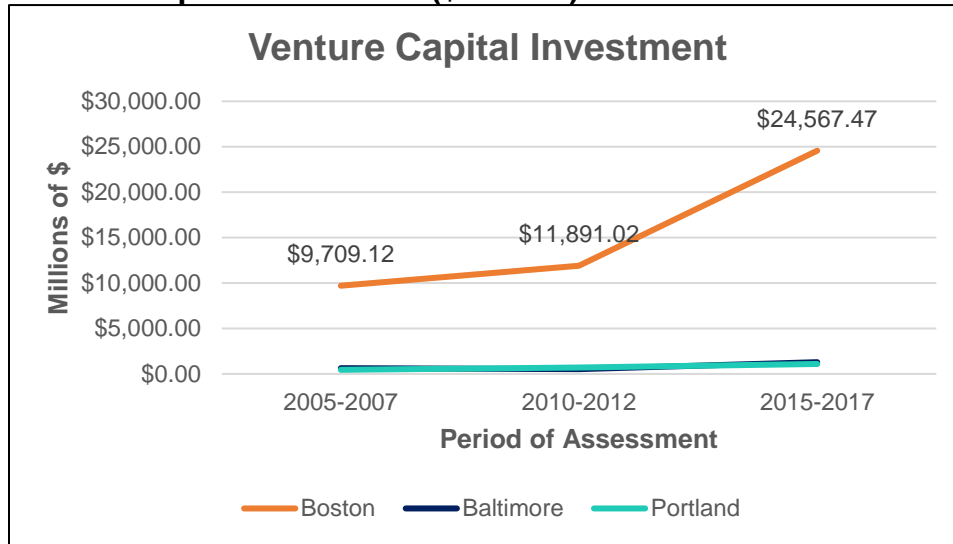
Source: Florida, Richard, and Ian Hathaway. "Rise of the Global Startup City." Center for American Entrepreneurship. Accessed November 13, 2019. <https://startupsusa.org/global-startup-cities/>.

Table 1: Venture Capital Deals

Metro	Stage	2005-2007	2010-2012	2015-2017	Per 1m Population
Boston	Total	1,069	1,530	1,870	389.7
	Pre-VC	122	410	669	139.4
	Early Stage	526	623	682	142.1
	Late Stage	421	497	519	108.2
Baltimore	Total	81	157	229	81.8
	Pre-VC	10	65	120	42.8
	Early Stage	38	54	72	25.7
	Late Stage	33	38	37	13.2
Portland	Total	95	172	262	108.0
	Pre-VC	23	71	136	56.0
	Early Stage	44	57	81	33.4
	Late Stage	28	44	45	18.5

Source: Florida, Richard, and Ian Hathaway. "Rise of the Global Startup City." Center for American Entrepreneurship. Accessed November 13, 2019. <https://startupsusa.org/global-startup-cities/>.

Figure 2: Venture Capital Investment (\$ Million)



Source: Florida, Richard, and Ian Hathaway. "Rise of the Global Startup City." Center for American Entrepreneurship. Accessed November 13, 2019. <https://startupsusa.org/global-startup-cities/>.

Table 2: Venture Capital Investment (\$ Millions)

Metro	Stage	2005-2007	2010-2012	2015-2017	Per 1m Population
Boston	Total	\$9,709.12	\$11,891.02	\$24,567.47	\$5,120.36
	Pre-VC	\$179.16	\$414.31	\$1,158.82	\$241.52
	Early Stage	\$3,862.63	\$4,753.05	\$9,629.28	\$2,006.94
	Late Stage	\$5,667.33	\$6,723.66	\$13,779.36	\$2,871.90
Baltimore	Total	\$642.31	\$525.12	\$1,291.69	\$461.15
	Pre-VC	\$25.94	\$67.57	\$127.85	\$45.64
	Early Stage	\$165.24	\$139.21	\$595.65	\$212.66
	Late Stage	\$451.13	\$318.33	\$568.19	\$202.85
Portland	Total	\$452.54	\$711.09	\$1,094.28	\$450.88
	Pre-VC	\$30.30	\$54.82	\$195.36	\$80.49
	Early Stage	\$248.18	\$243.30	\$364.25	\$150.08
	Late Stage	\$174.06	\$412.98	\$534.67	\$220.30

Source: Florida, Richard, and Ian Hathaway. "Rise of the Global Startup City." Center for American Entrepreneurship. Accessed November 13, 2019. <https://startupsusa.org/global-startup-cities/>.

Appendix 2: Professional Services Firm Assessment

Figure 3: Professional Services Firms



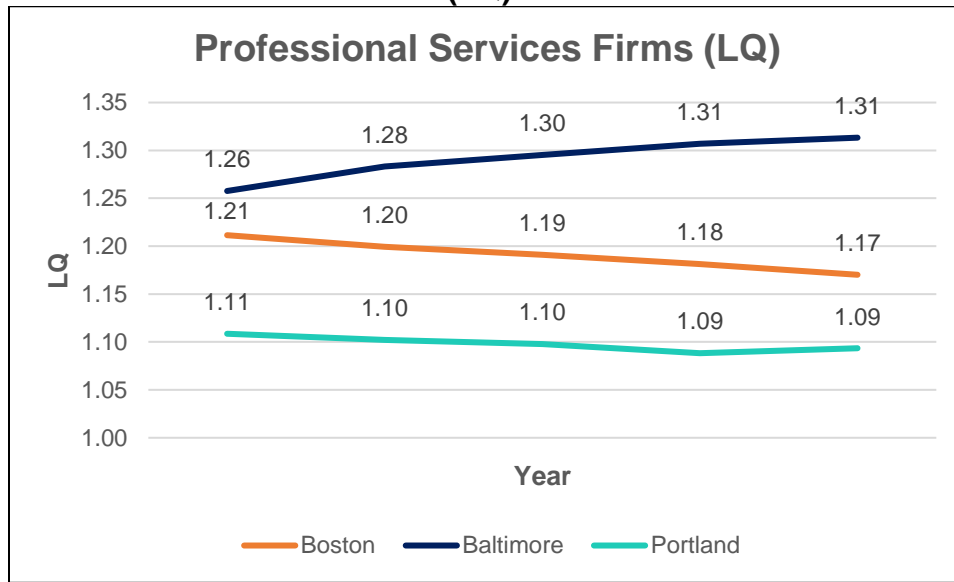
Source: U. S. Census Bureau. "2016 County Business Patterns." Accessed November 13, 2019.
https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=BP_2016_00A1&prodType=table.

Table 3: Professional Services Firms

Metro	2012	2013	2014	2015	2016
Boston	17,308	17,292	17,304	17,366	17,443
Baltimore	9,456	9,743	9,914	10,046	10,189
Portland	8,106	8,154	8,267	8,423	8,665

Source: U. S. Census Bureau. "2016 County Business Patterns." Accessed November 13, 2019.
https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=BP_2016_00A1&prodType=table.

Figure 4: Professional Services Firms (LQ)



Source: U. S. Census Bureau. "2016 County Business Patterns." Accessed November 13, 2019.
https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=BP_2016_00A1&prodType=table.

Table 4: Professional Services Firms (LQ)

Metro	2012	2013	2014	2015	2016
Boston	1.21	1.20	1.19	1.18	1.17
Baltimore	1.26	1.28	1.30	1.31	1.31
Portland	1.11	1.10	1.10	1.09	1.09

Source: U. S. Census Bureau. "2016 County Business Patterns." Accessed November 13, 2019.
https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=BP_2016_00A1&prodType=table.

Appendix 3: Fashion Designer Employment Characteristics

Table 5: Leading Fashion Design Regions in US (LQ)

Metropolitan area	Employment	Employment per 1k jobs	Location Quotient	Mean Hourly Wage	Mean Annual Salary
Los Angeles, CA	5,350	0.87	6.41	\$46.11	\$95,900
New York, NY	7,590	0.8	5.86	\$45.41	\$94,460
Santa Maria, CA	130	0.67	4.92	\$52.40	\$109,000
Portland, OR	480	0.4	2.95	\$36.93	\$76,800
Boulder, CO	50	0.25	1.85	\$31.67	\$65,860
Seattle, WA	480	0.24	1.76	\$32.20	\$66,980
San Francisco, CA	500	0.21	1.51	\$43.64	\$90,780
Boston, MA	430	0.16	1.14	\$38.47	\$80,020

Source: "Fashion Designers." Accessed November 7, 2019. <https://www.bls.gov/oes/current/oes271022.htm>.

Table 6: Fashion Designer Employment Characteristics

Metropolitan Area	Total Employment	Jobs per 1k pop.	LQ	Median Hourly Wage	Median Annual Wage
Boston	430	0.16	1.14	\$34.77	\$72,320.00
Baltimore	-	-	-	-	-
Portland	480	0.40	2.95	\$33.39	\$69,450.00

Source: Bureau of Labor Statistics. "Occupational Employment Statistics Home Page." Accessed November 13, 2019. <https://www.bls.gov/oes/#databases>.

Appendix 4: Web Developer Employment Characteristics

Table 7: Web Developer Employment Characteristics

Metropolitan Area	Total Employment	Jobs per 1k pop.	LQ	Median Hourly Wage	Median Annual Wage
Boston	3,650	1.33	1.51	\$40.78	\$84,830.00
Baltimore	1,690	1.23	1.40	\$34.89	\$72,560.00
Portland	1,770	1.48	1.69	\$32.64	\$67,890.00

Source: Bureau of Labor Statistics. "Occupational Employment Statistics Home Page." Accessed November 13, 2019.
<https://www.bls.gov/oes/#databases>.

Appendix 5: University Assessment

Table 8: Top 200 Universities in Region Offering Relevant Field of Study

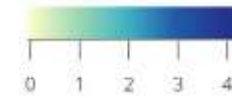
Metropolitan Area	Design and Applied Arts	Computer Science
Boston	3	8
Baltimore	1	2
Portland	0	2

Source: US News and World Report. "2020 Best National Universities." Accessed November 14, 2019.
<https://www.usnews.com/best-colleges/rankings/national-universities>.

Appendix 6: Broadband Internet Access

Figure 5: Regional Maps of Access to 250/25 Mbps Internet

Legend: Number of Providers



Boston, MA



Baltimore, MD



Portland, OR



Source: Federal Communications Commission. "FCC Fixed Broadband Deployment." Accessed November 13, 2019. <https://broadbandmap.fcc.gov/>.

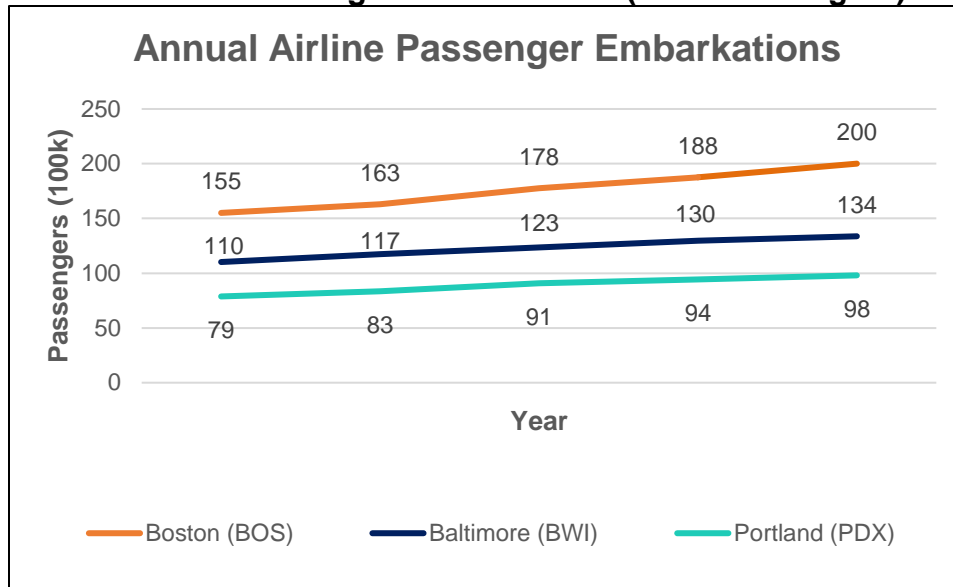
Table 9: Population with access to Three or More Broadband Providers

Region	All	Urban	Rural
National	93.4%	97.7%	75.2%
Boston	98.5%	98.5%	98.6%
Baltimore	98.0%	98.2%	96.3%
Portland	96.4%	98.7%	77.5%

Source: Federal Communications Commission. "FCC Fixed Broadband Deployment." Accessed November 13, 2019.
<https://broadbandmap.fcc.gov/>.

Appendix 7: Airport Assessment

Figure 8: Annual Airline Passenger Embarkations (100k Passengers)



Source: Federal Aviation Administration. "Passenger Boarding (Enplanement) Data for U.S. Airports." Accessed November 13, 2019. https://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/.

Table 10: Annual Airline Passenger Embarkations (100k)

Region	2014	2015	2016	2017	2018
Boston (BOS)	155	163	178	188	200
Baltimore (BWI)	110	117	123	130	134
Portland (PDX)	79	83	91	94	98

Source: Federal Aviation Administration. "Passenger Boarding (Enplanement) Data for U.S. Airports." Accessed November 13, 2019. https://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/.

Table 11: Direct Destinations from Region

Region	Routes
Boston (BOS)	134
Baltimore (BWI)	87
Portland (PDX)	73

Source: FlightsFrom.com. "Worldwide Routes and Flights from All Airports." Accessed November 13, 2019. <https://www.flightsfrom.com/>.

Appendix 8: Mobility Assessment

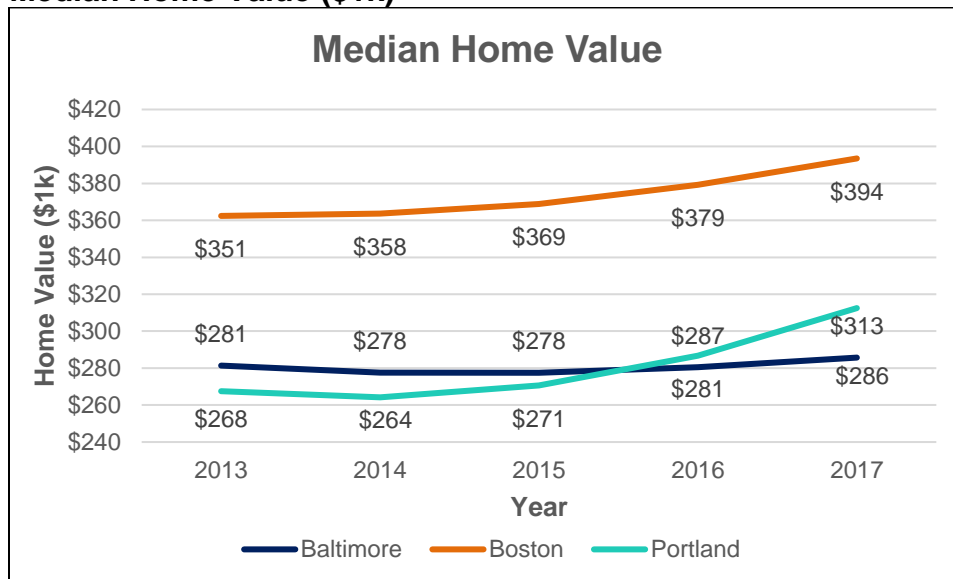
Table 12: Regional Mobility Ratings

Region	Walk	Transit	Bike	Mean
Boston	81	72	69	74
Baltimore	69	57	52	59
Portland	65	52	81	66

Source: Walk Score. "Walk Score." Accessed November 13, 2019.
<https://www.walkscore.com/>.

Appendix 9: Cost of Living

Figure 9: Median Home Value (\$1k)



Source: U. S. Census Bureau. "2013-2017 American Community Survey 5-Year Estimates DP04." Accessed November 13, 2019.
https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_DP04&prodType=table.

Table 13: Median Home Value (\$1k)

Region	2013	2014	2015	2016	2017
Boston	\$362	\$364	\$369	\$379	\$394
Baltimore	\$281	\$278	\$278	\$281	\$286
Portland	\$268	\$264	\$271	\$287	\$313

Source: U. S. Census Bureau. "2013-2017 American Community Survey 5-Year Estimates DP04." Accessed November 13, 2019.
https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_DP04&prodType=table.