University of Connecticut
Student Managed Fund
2019 Analyst Report

Harrison Newman & August Densby

Table of Content

Executive Summary

Business Description: Boston Properties owns and operates class A office buildings in five major cities across the United States. These cities include:

- New York (26.6%)
- Boston (31.9%)
- Washington D.C. (25%)
- San Francisco/Los Angeles (16.5%)

These are five of the safest cities in the United States based on cap rate and building restrictions. This is significant to mitigate the risk of recession and property value (addressed below). Additionally, Boston Properties has an active deal pipeline to ensure consistent turnover through buying and selling properties, preventing stagnation and ensuring growth.
Finally, BXP has issued significantly (percentage compared to other REITs) less stock to ensure minimal value dilution per share, making them consistent regarding our long-term investment strategy.

Investment Thesis: Boston Properties will continue to provide sustainable growth to investors through three factors.

1) Diverse geographical footprint (Boston, New York, Washington D.C., San Francisco, and Los Angeles). These cities are extremely safe for class A office space investments.
2) Reliable tenant base that includes companies such as Google, Bank of America, WeWork, and the U.S. Government.
3) A very active deal pipeline, so Boston Properties is constantly seeking and engaging new properties and divesting from completed projects.

These three factors serve as the biggest influences for taking the position. Countless other aspects played in such as a strong commitment to green initiatives and a growing client base.

The basis to the overall investment thesis, and the eventual decision to pitch BPX came from Professor Enrico Moretti's book *The New Geography of Jobs*. In the book, the University of California, Berkeley economist suggests the reasoning for why companies move to various cities, and why some will draw more than others. Specifically, he focuses on Silicon Valley and the draw for many tech firms to go their, despite the higher costs in property and wages. More companies are drawn to these locations because of the talent pool they provide. Then, as more companies go to a single location, more college graduates are drawn to those places.

Moretti also discusses the clustering effect found in major cities, and identifies this as the main reason they are succeeding over others. Clustering is the idea that multiple companies in the same sector are drawn to the same area. This increases the labor pool because people understand that they have more opportunities to find employment in their field. This initially may seem counterintuitive because it creates more competition between employers. However, each company also benefits from knowledge spillover, which means that people are constantly interacting and sharing ideas. Clustering also only works in industries that require very high human capital through R&D. This is why the auto industry did not benefit long term from clustering, but the software industry has. Specifically, he gives the example of Walmart. Their main headquarters is in Bentonville, Arkansas. However, they could not draw in high quality engineers and software developers to build out their online platform. To properly develop their online site, they had to move their operation to Silicon Valley. This allowed Walmart to attract better employees and develop an efficient online platform.

City Analysis and Cap Rate

This ideology found in *The New Geography of Jobs* is present in the exact cities that Boston Properties invests in.

Manhattan CBD	
Class A:	3.50% - 4.50%
Class B:	4.00% - 5.00%

New York: New York is the global capital of finance with both the NASDAQ and NYSE present there. It also has the majority of the major financial institutions and investment banks. It also has the lowest cap rate, not only in the U.S., but in the entire world. There are also many building restrictions that help BPX for the risk of new office buildings being available for lease.

Boston CBD	
Class A:	3.75% - 4.25%
Class B:	4.25% - 5.00%
Boston SUB	
Class A:	6.00% - 6.75%
Class B:	7.75% - 8.50%

Boston: Boston has a clustering in engineering and medical technology. This is seen with companies like Medtronic, which is one of the largest producers of medical supplies, and Massachusetts General Hospital, one of the largest teaching hospitals in the United States. Boston also has a lot of building restrictions to prevent new developments

Washington DC CBD	
Class A:	4.50% - 6.00%
Class B:	5.25% - 6.50%
Washington DC SUB	
Class A:	5.75% - 7.50%
Class B:	7.00% - 11.00%

Washington D.C.: Washington D.C. in the capital of the United Sates, and thus requires many government buildings. Also, BXP rents space to many lobbying groups that want to have a close proximity to government employees. It also is very landlocked, protecting BXP's investments.

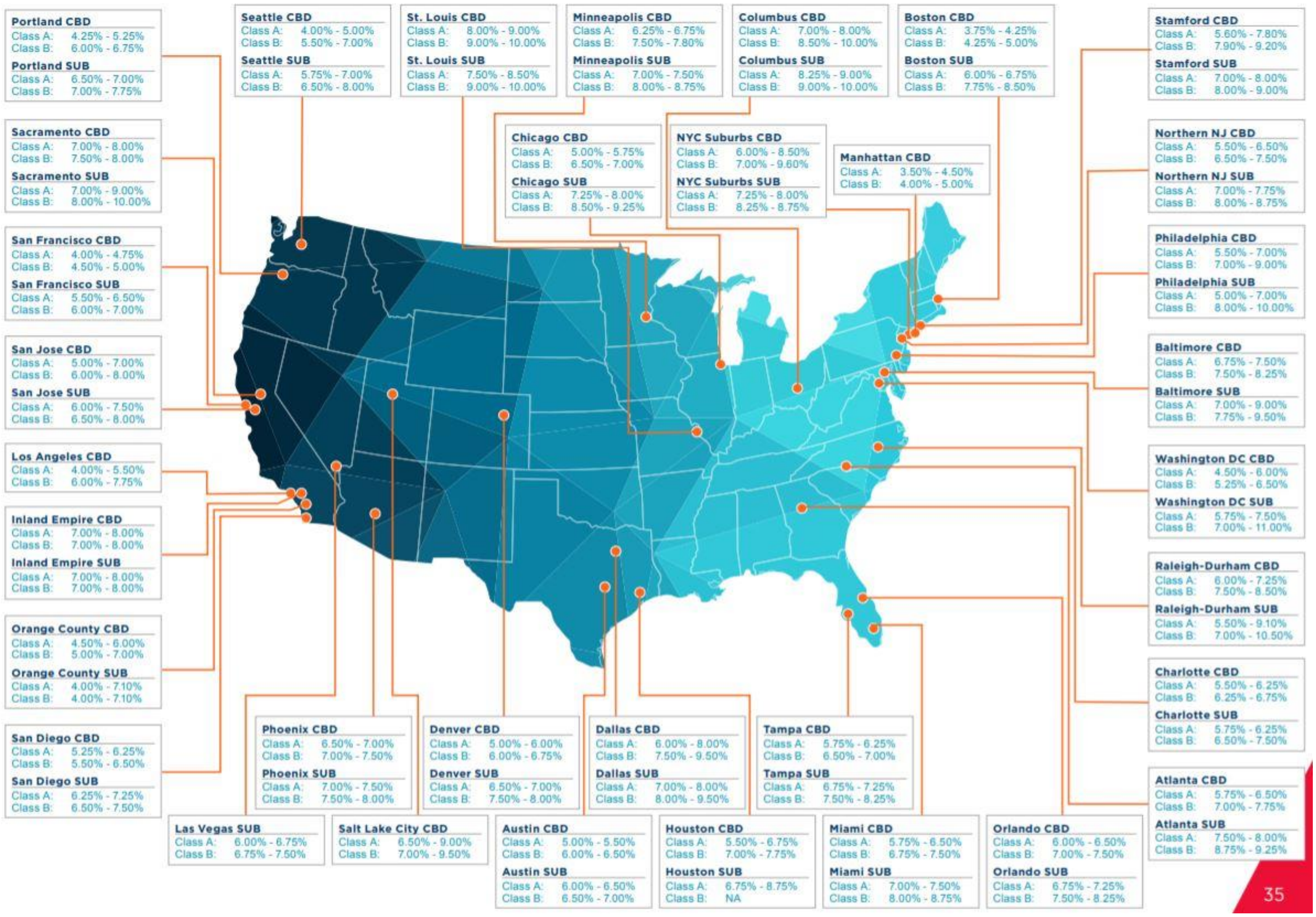
San Francisco CBD	
Class A:	4.00% - 4.75%
Class B:	4.50% - 5.00%
San Francisco SUB	
Class A:	5.50% - 6.50%
Class B:	6.00% - 7.00%

San Francisco: San Francisco and Silicon Valley are the epicenter for technology companies. This is the industry the benefits from knowledge spillover, and companies from all across the world move there to gain this benefit. Also, private equity continues to grow, and many venture capital firms are moving there to be closer to the companies that they are, or want to be, invested in.

Los Angeles CBD	
Class A:	4.00% - 5.50%
Class B:	6.00% - 7.75%

Los Angeles: While Los Angeles is area BXP hold the least amount of property in, it provides a unique opportunity for the company. LA is home to the two largest ports in the U.S. (LA and Long Beach), and is very diversified among many industries, such as financials and telecommunication.

National Comparison of Cap Rates



After comparisons to similar cities, it becomes clear that New York, Los Angeles and San Francisco, Boston, and Washington DC are the most sustainable.
Even major cities like Chicago and Seattle have less favorable rates than the selected few by Boston Properties.

Tennant Base:

Top 20 Tenants	% of BXP's Share of Annualized Rental Obligations[2]
Arnold & Porter Kaye Scholer	3.10%
US Government	1.99%
salesforce.com	1.90%
Biogen	1.86%
Kirkland & Ellis	1.68%
Shearman & Sterling	1.62%
Google	1.58%
Ropes & Gray	1.47%
O'Melveny & Myers	1.15%
Wellington Management	1.15%
Weil Gotshal & Manges	1.05%
WeWork	1.02%
Bank of America	0.95%
Aramis (Estee Lauder)	0.95%
Apple	0.92%
Mass Financial Services	0.91%
Hunton Andrews Kurth	0.81%
Starr Indemnity & Liability Co	0.80%
Morrison & Foerster	0.78%
Genetech	0.75%
Total	26.45%
BXP's Share of Square Feet[2]	22.01%

Boston properties has a diversified tenant listing with very strong companies such as Apple, Google, and Bank of America. Having strong companies as tenants helps limit the risk of tenant default even in times of recession. The current average lease is 7.5 years. This longer lease duration helps bring in consistent rent revenue and limits vacancy risk. Currently, only 6% of current leases are ending in 2019. Also, holding buildings in the locations they do help with lease renewal rates.

Also, there are growing companies like WeWork, which focuses on renting shared office space, that fit perfectly into the investment thesis and ideology of clustering and knowledge spillover presented in *The New Geography of Jobs*.

Project Pipeline:

Boston Properties is constantly selling and purchasing new buildings or land to develop and lease. For example, in January of 2019 they announced a 1.1 million square foot project to develop a class A campus in San Jose, California. This is a co-development with TMG-Partners, a mixed-use developer. This project is adjacent to Google's eight million square foot transit village and Diridon Station. This plan follows the ideology of clustering, and is likely to draw in many tech companies to fill in the floors, which range from 25,000 to 90,000 square feet. Demolition on the site is expected to begin in the spring of 2019, and the project is scheduled to be completed in early 2021

On the other hand, Boston Properties also frequently sells buildings to free u capital to invest in new ones. An example of this is 2600 Tower Oaks Boulevard in Rockville Maryland. This is a 227,000 square-foot class A office building. Boston Properties received $38 million for the building. This building was only 48% leased, and needed vast improvements and modernizations. Boston Properties avoided all of these renovation costs in an area that was not as lucrative, and allows them to help fund better projects like the San Jose Development.

Mechanics and Industry

Industry Trends: The real estate market is heavily dependent on location for profitability and risk. While industry trends have shifted toward employees working from home; this is almost exclusively hurting smaller cities such as Hartford, Detroit, and Cleveland. Larger cities, such as those that Boston Properties manage property in, are poised to continue growing and have demand.

This assumption is justified through a process called clustering and knowledge spillover. Clustering is when multiple companies in the same industry are located in the same market. For example; Finance in New York, Technology in San Francisco, and Engineering in Boston. Knowledge Spillover represents the networking opportunities and word-of-mouth innovation from professionals working in small proximity.
Through a saturated market of viable employers and industry, these locations are more enticing for professionals and their families, driving consistent growth in those areas.

Corporate Social Responsibility: On a long list of sustainability awards within Boston Properties' list of achievements, these are the most significant: the GRESB Green Star for 6 consecutive years in 2017, 2017 Green Lease Leader, and an Energy Star Partner executive member. Boston Properties currently engages several green initiatives regarding water use, waste management, greenhouse gas reduction, and energy use.
Additionally of the 17 UN Sustainable Development Goals, Boston Properties is actively pursuing 7 of them; including sustainable cities and communities, clean water and sanitation, and responsible consumption and production.
Although a sustainability focus is important for our planet, there is a tangible value add in the form of savings on fixed costs associated with less use of resources. BXP is poised to grow and develop these initiatives on a year-to-year basis - further pushing fixed cost savings in the long term.

Competitive Analysis Boston Properties competes with many other companies in the class A office building market. They all compete for the opportunity to purchase office buildings when they come to the market, and also for the limited amount of land that is able to develop. They compete to fill similar properties in their areas, as well as face competition from their own tenants if they decide to sublet their properties. The amount of competition and available property space could affect the amount Boston Properties is able to charge their tenants for rent.

Competitive Advantages Boston Properties' main competitive advantage is the cities that they are in five of the safest cities on the country. The cap rate in these cities range from 4.5% in New York to 6% in Washington D.C. This provides safety for the company because they are in areas that consistently have demand, and will continue to have it in the future. Also, they work with long term leases (average length of 8 years). Also, the work with high quality tenants which limits default risk. Both of these factors help protect them in times of recession because these strong companies will most likely be able to survive recessions, and continue to pay rent though this time.

Risks We recognize three key risk factors with an investment in Boston Properties. First is a downturn in the national real estate economy, similar to what was seen in 2008. The mitigators for this risk is that their properties are located in five of the safest cities in the country for real estate investment, and will hold most of their value during a recession, and continue to grow in other situations. Second, an oversupply in the local markets. The key factor protecting against this risk is building restrictions. All five cities have building restrictions that protect the value of the current real estate in place. Finally, there is a risk of tenants defaulting and no being able to pay their rent. The mitigator for this risk is that most of Boston Properties' tenants are strong and well-established companies in their own right, which limits the default risk

Valuation and Key Assumptions

To Value Boston Properties, we used two different forms of valuation. The first was a net operating income (NOI) valuation. To start, the NOI was taken from their annual report, and divided by a cap rate calculated from Avison Young's quarterly real estate report, and Cushman and Wakefield's cap rate report. A high and low cap rate were also used and then an average was found at the end to get the overall valuation. This gave us the Gross Asset value. After, cash and equivalents were added, and debt was deducted to give us net asset value (NAV). NAV was then discounted over five years at the cost of equity of 6.73%. The cost of equity was used instead of weighted average cost of capital (WACC) because a lot of their buildings are financed through debt. We did not want to give them a benefit for having addition debt at a lower cost than their equity, subsequently lowering their WACC. NOI was also added to each year's NAV, but reduced by 1/5 each year to account for the 1/5 of properties that were theoretically sold off. This total was then divided by the number of shares outstanding to give us the total value per share of $156.81 using the average cap rate for each city.
The second method that was used to value Boston Properties was a dividend discount model. This was used because REITS are required to pay out 90% of their profit to shareholders in the form of dividends. The same assumption for cost of equity was used. For growth rate of the dividend, 10% was used for the first two years, followed by 7% and 8% for three years respectively. Finally, there was 5% growth for seven years, and the long-term growth rate was 3%. These growth rates were calculated based on previous dividend growth rates (lasts years dividend growth rate was 14%). The net present value was then calculated using the cost of equity to get a total value per share of $151.53. A total of 450 periods were used.

	Boston		New York		San Francisco		Washington D.C.	
	Low	High	Low	High	Low	High	Low	High
Net operating income	$ 541,005.00	$ 541,005.00	$ 581,058.00	$ 581,058.00	$ 267,164.00	$ 267,164.00	$ 260,087.00	$ 260,087.00
Cap rate	4.75%	5.25%	4.50%	5%	5.25%	5.75%	5.5%	6%
Gross Asset Value	$ 11,389,578.95	$ 10,304,857.14	$ 12,912,400.00	$ 11,621,160.00	$ 5,088,838.10	$ 4,646,330.43	$ 4,728,854.55	$ 4,334,783.33

	low	high
SUM Gross Asset Value	$ 34,119,671.59	$ 30,907,130.91
Debt	$ 7,544,697.00	$ 7,544,697.00
Cas & Equivalents	$ 543,359.00	$ 543,359.00
Other Assets	$ 80,943.00	$ 80,943.00
NAV	$ 27,199,276.59	$ 23,986,735.91
Shares outstanding	154,427	154,427
NAV/Share	$ 176.13	$ 155.33
Current Price	$ 133.88	$ 133.88
Margin of Safety	31.56%	16.02%

Average NAV/Share	$ 165.73	
Average Margin of Safety	23.79%	
discounted		
1	$ 6,798,890.05	$ 6,156,381.92
2	$ 6,489,709.65	$ 5,847,201.52
3	$ 6,160,755.29	$ 5,518,247.16
4	$ 5,811,118.81	$ 5,168,610.67
5	$ 5,439,855.32	$ 4,797,347.18
NAV Discounted	$25,542,337.26	$22,888,593.58
Shares outstanding	154,427.00	154,427.00
nav/share	$ 165.40	$ 148.22
current price	$ 135.00	$ 135.00
margin of safety	22.52%	9.79%
average NAV/Share	$ 156.81	
average margin of safety	16.15%	

NOI Total				
1	2	3	4	5
$ 1,698,793.42	$ 1,749,757.22	$ 1,802,249.94	$ 1,856,317.44	$ 1,912,006.96
$ 1,359,034.74	$ 1,049,854.33	$ 720,899.98	$ 371,263.49	$ -

period	Year	Dividend	Growth		Cost of Equity	
0	2018	3.5			Beta	0.85
1	2019	3.85	10%		Rf	2.35%
2	2020	4.235	10%		Mrp	7.50%
3	2021	4.5738	8%			
4	2022	4.939704	8%		k	6.728%
5	2023	5.33488	8%			
6	2024	5.708322	7%		pv	$151.53
7	2025	6.107904	7%		current price	$ 131.42
8	2026	6.535458	7%			
9	2027	6.862231	5%		Margin of safety	15.30%
10	2028	7.205342	5%			
11	2029	7.565609	5%			
12	2030	7.94389	5%			
13	2031	8.341084	5%			
14	2032	8.758138	5%			
15	2033	9.196045	5%			
16	2034	9.471927	3%			
17	2035	9.756085	3%			
18	2036	10.04877	3%			
19	2037	10.35023	3%			
20	2038	10.66074	3%			
21	2039	10.98056	3%			
22	2040	11.30998	3%			
23	2041	11.64928	3%			
24	2042	11.99875	3%			
25	2043	12.35872	3%			

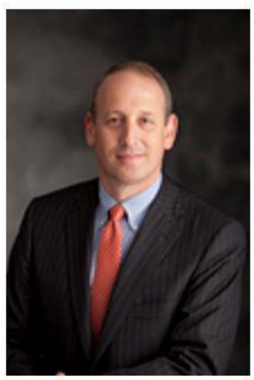
bxp Boston Properties

Appendix:

Company Management:

Owen D. Thomas (CEO)

- Chairman of the Board of Directors of Lehman Brothers Holdings Inc.
- Extensive Leadership history at Morgan Stanley



Douglas T. Linde (President)

- Internal promotions for 20+ years
- Extensively involved Boston real estate municipal and state organizations

Michael E. LaBelle (CFO)

- Internal promotions for 20+ years
- Extensively involved in New York real estate municipal and state organizations

Cap Rate Analysis and CBD Office Space (Cushman and Wakefield Annual Cap Rate Survey)

EXHIBIT 1: CBD OFFICE CAP RATES BY CLASS AND TIER

EXHIBIT 2: MARKET CAP RATES BY CLASS AND TIER

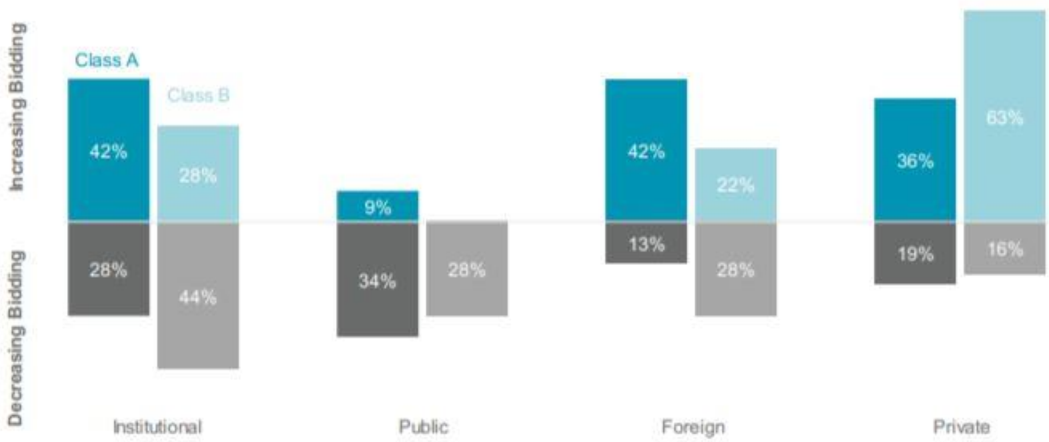


EXHIBIT 3: PERCENT OF MARKETS WHERE INVESTORS ARE EXPECTED TO IN(DE)CREASE BIDDING BY TYPE

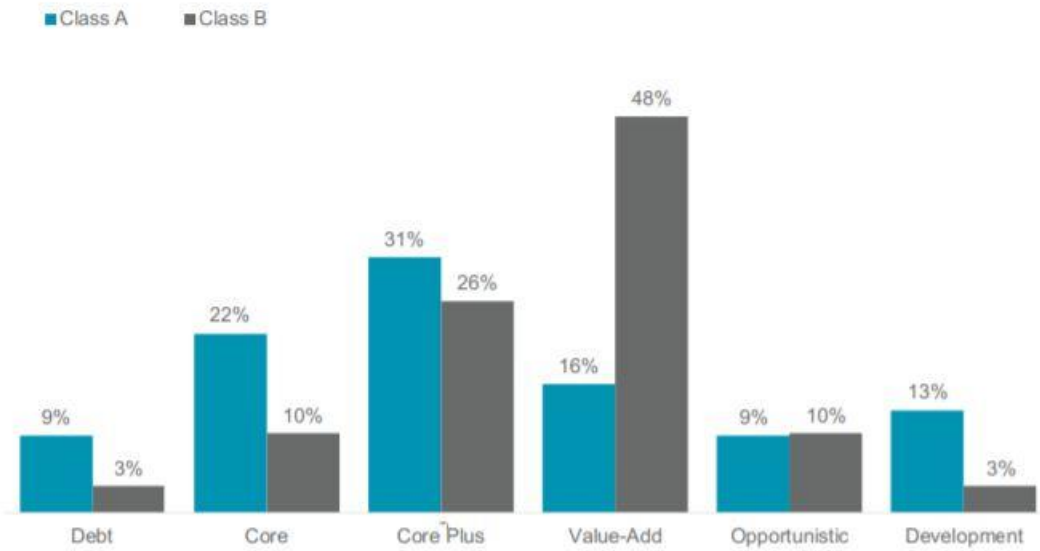


EXHIBIT 4: INVESTMENT STRATEGY MOST EXPECTED TO INCREASE ACQUISITION ACTIVITY (% OF MARKETS)

Market	Tier	CBD Class A Low	High	Mid	Spread to B (BP)	Forecast	Increasing Strategy
Boston	1	3.75%	4.25%	4.00%	63	Flat	Debt
Chicago	1	5.00%	5.75%	5.38%	138	Flat	Debt
Inland Empire	1	7.00%	8.00%	7.50%	0	Flat	Core-Plus
Los Angeles	1	4.00%	5.50%	4.75%	213	Flat	Core-Plus
Manhattan	1	3.50%	4.50%	4.00%	50	Flat	Debt
Northern NJ	1	5.50%	6.50%	6.00%	100	Flat	Development
NYC Suburbs	1	6.00%	8.50%	7.25%	105	Flat	Core-Plus
Orange County	1	4.50%	6.00%	5.25%	75	Flat	Value-Add
San Francisco	1	4.00%	4.75%	4.38%	38	Flat	Core-Plus
San Jose	1	5.00%	7.00%	6.00%	100	Flat	Core-Plus
Stamford	1	5.60%	7.80%	6.70%	185	Flat	Value-Add
Washington DC	1	4.50%	6.00%	5.25%	63	Flat	Value-Add
Atlanta	2	5.75%	6.50%	6.13%	125	Flat	Core-Plus
Austin	2	5.00%	5.50%	5.25%	100	Flat	Core
Baltimore	2	6.75%	7.50%	7.13%	75	Flat	Core-Plus
Charlotte	2	5.50%	6.25%	5.88%	63	Flat	Core
Columbus	2	7.00%	8.00%	7.50%	175	Flat	Development
Dallas	2	6.00%	8.00%	7.00%	150	Flat	Opportunistic
Denver	2	5.00%	6.00%	5.50%	88	Flat	Core
Houston	2	5.50%	6.75%	6.13%	125	Flat	Opportunistic
Las Vegas	2						
Miami	2	5.75%	6.50%	6.13%	100	Flat	
Minneapolis	2	6.25%	6.75%	6.50%	115	Flat	Core-Plus
Orlando	2	6.00%	6.50%	6.25%	100	Flat	Development
Philadelphia	2	5.50%	7.00%	6.25%	175	Flat	Core
Phoenix	2	6.50%	7.00%	6.75%	50	Flat	Core-Plus
Portland	2	4.25%	5.25%	4.75%	163	Flat	Value-Add
Raleigh-Durham	2	6.00%	7.25%	6.63%	138	Flat	Development
Sacramento	2	7.00%	8.00%	7.50%	25	Down	Value-Add
Salt Lake City	2	6.50%	9.00%	7.75%	50	Flat	Core
San Diego	2	5.25%	6.25%	5.75%	25	Flat	Core
Seattle	2	4.00%	5.00%	4.50%	175	Flat	Core
St. Louis	2	8.00%	9.00%	8.50%	100	Flat	Opportunistic
Tampa	2	5.75%	6.25%	6.00%	75	Flat	Core-Plus