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**To**: Larson, Douglas [douglas.larson@ngkf.com]
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**Attachments**: Market Report - Manhattan.pdf; Office Market Overview.pdf; Office Sales-Downtown.pdf; Office Sales-Midtown.pdf; Hudson Yards Leasing.pdf; Large Blocks Analysis.pdf; Tenants in the Market.pdf; Tech & Media Trends.pdf; Global Cities Report.pdf

Attached, please find the current market information which I thought you would find interesting.

Thanks, Doug


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Newmark Knight Frank

Knight Frank

# GLOBAL CITIES

THE 2018 REPORT

## THE FUTURE OF REAL ESTATE

THE TRENDS SHAPING 40 LEADING CITIES

## ELON MUSK

TRAINS, ROCKETS & SOLAR ENERGY

KNIGHTFRANK.COM/GLOBALCITIES

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GLOBAL CITIES

4th Edition

GLOBAL CITIES

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# BEST IN CLASS

Delivering quality and matching the trends is a proven strategy in real estate. We look at how to achieve this.

The real estate business is all about planning for the future. An occupier must judge their organisation's business space requirements for years ahead. Property investors must balance the desire to get in on the next big trend, against the risk of being wrong-footed by a future downturn.

Yet, preparing for the future is difficult in a world where the surprising routinely occurs. Office occupiers are happy to trail blaze new districts – thus expanding what constitutes 'the core' – while coworking is a rising tide. Flexibility is a popular word, used in many different contexts. Vehicles are starting to drive themselves, while e-commerce is flourishing, placing logistics and retail property in the midst of a revolution. Investors are looking at new markets and different property sectors in the search for higher returns.

In such a disrupted world, what continuous trends can we identify to inform decision making?

A recurring message is that best in class continues to out perform, both in the occupier and investment markets. The challenge is to keep abreast of what constitutes the best, which morphs according to the needs of occupiers and where we are in the investment cycle.

This year's Global Cities report is a comprehensive study of the current definition of best in class in real estate. Throughout the report you will hear directly from our experts in the 40 Global Cities how this applies in their markets. We hope it provides you with the necessary facts and insights to inform your future real estate decisions.

**ANDREW SIM**
Head of Global Capital Markets, Knight Frank

**WILLIAM BEARDMORE-GRAY**
Head of Global Occupiers & Consultancy, Knight Frank

**JAMES D KUHN**
President, Newmark Knight Frank

**ROBERT E GRIFFIN**
Head of Capital Markets, Newmark Knight Frank

# SUPER CITIES



# THE OCCUPIER



# LIVING IN THE CITY

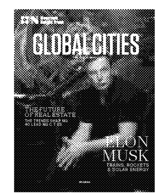


# FUTURE TRENDS



# CAPITAL MARKETS






Global Cities · The 2018 Report
The Future of Real Estate in the World's Leading Cities

cover image: Joe Pugliese / AUGUST

Shoppers in Hong Kong

# EDITOR'S CHOICE

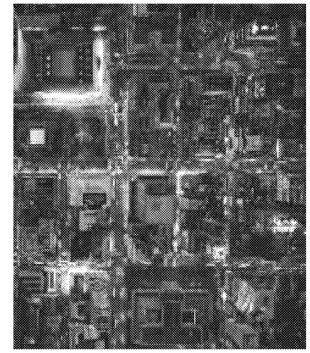


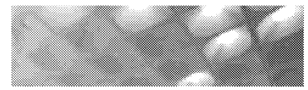


## ELECTRICALLY CHARGED

*Elon Musk, the tech visionary, talks about the future of driving, solar power, and tunnelling.*

SEE PAGES 10-13





## PARADISE CITY

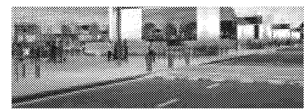
*If you built the ideal city, what elements from the Global Cities would it combine?*

SEE PAGES 16-19

## TAKING ON THE WORLD

*The fourth phase of globalisation for the corporate occupier is focused on innovation and flexibility.*

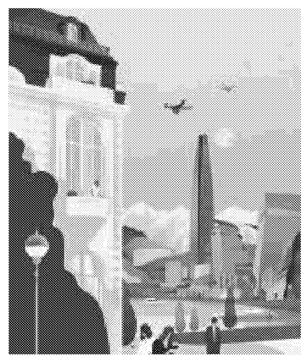
SEE PAGES 38-40



## CAPITAL CITIES

*As investors look further afield for higher returns, attention is shifting towards the Momentum Cities.*

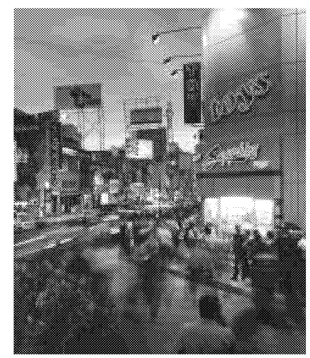
SEE PAGES 28-30



## WE BUILT THIS CITY

*The gap between work and home is narrowing, as mixed-use development reshapes the city centre.*

SEE PAGES 20-23



# THE SUPER CITIES

A series of experiments carried out in an Illinois factory over eighty years ago created a blueprint for the 21st century Global City. The lessons for real estate are huge.

JAMES ROBERTS
Chief Economist & Editor of Global Cities
Knight Frank

Hong Kong: Towers with panoramic views can make the workplace feel special

This year's Global Cities report looks at what constitutes best in class across all aspects of property: encompassing building design, occupier trends, place making, investment strategy, and mix of uses. However, success in real estate is often achieved by being on the ground where economic growth is strong, raising the question: what does a best in class city economy look like?

The answer is increasingly about having the culture, diversity, lifestyle, and opportunities necessary to draw talented people. While employers can provide a micro-location – the workplace – where these factors are brought together, they must similarly exist at a city level to generate the critical mass of skilled and creative people that are necessary to feed growth for successful firms.

To find out how this is achieved at a city level, we need to look at a study which occurred in an American telephone factory.

### THE HAWTHORNE EFFECT

Between 1924 and 1933, researchers from Harvard University ran tests on workers at the Hawthorne Works near Chicago, which made telephony equipment, to establish how changes in the workplace environment impacted productivity. In one part of the factory brighter lights were installed, in another they remained the same. The researchers expected to observe higher worker productivity in the better lit area. To their surprise, productivity increased in both the test areas.

A separate test room was then established, where different aspects of the workplace were changed. Yet, every variation brought about higher productivity than when workers were on the factory floor. When they left the test room, returning to the ordinary assembly lines, the workers' productivity gradually receded again. The experiments were then followed up by interviews with the workers involved, which revealed that being in the test room with University academics showing an interest in their work made them feel special, but also conscious of being observed.

Moreover, the interviews seemed to have the greatest impact on productivity, as the workers revealed insights on how they thought the factory could increase efficiency. The academics also began to deduce that the workers had their own informal groups or cliques that were unrelated to the teams the firm had assigned them to. The approval of their fellow clique members was more highly prized for Hawthorne workers than that of their bosses.

This phenomenon of workers becoming more productive when they are made to feel special and under the spotlight is known as the Hawthorne Effect.

### WORKERS 'ON STAGE'

Hawthorne showed workers are more productive when they are 'on stage' in front of an audience. Wanting to impress the boss is part of the effect, but so is the sense of elevation that comes from being a focus of attention. Nor is it always the boss that workers want to excel in front of – the opinions of their informal network are important. Also, being moved into a special environment (the test room in Hawthorne's case) provides a novelty boost, and encouraging open discussion delivers further productivity gains.

The modern workplace reflects the findings of the Hawthorne experiments. The move from cellular to open plan offices placed workers centre stage; in full view of their informal group and the boss. Activity-based working, with more table-top work areas and fewer upright panels to hide behind, has enhanced the effect. Peppering the office with break out areas, cafés and buffets, has ramped up communication, and allowed the informal networks to thrive.

The attempts to make the workplace special have dazzled. Yoga areas and running tracks on the roof for tech firm offices are the extremes that grab the headlines. Yet, tower offices with panoramic views, or relocating from a non-descript business park to a trendy downtown location, are also part of the drive to make the workplace feel special.

### THE HAWTHORNE CITY

However, on average nearly 20% of our working day is actually spent away from the desk according to Loughborough University, and 80% of our total week is the free time outside of work. With so much of our lives occurring outside of the office, to be truly globally competitive, the Hawthorne Effect needs to stretch across the city as a whole.

> **A city has to inspire and contain as much wow-factor as a Google office, if it hopes to draw firms of that calibre.**

A city has to inspire and contain as much wow-factor as a Google office, if it hopes to draw firms of that calibre. It must be integrated into the informal networks that thrive in today's Global Cities – tech geeks, foodies, LGBT, culture vultures, and the craft beer crowd. A city must now provide the ambitious with a stage they want to succeed on, as for some people impressing their bohemian friends in the cool part of town is more important than pleasing any boss.

The cities that genuinely achieve this are those in the front rank of the Global Cities; locations that cannot are losing businesses, jobs and investment to places that can. Fairfield, Connecticut, last year lost GE's headquarters to Boston, with its famous universities and innovation culture. Despite the uncertainty of Brexit, Snap Inc (the owner of SnapChat) chose London for its first European office, even though a host of other cities could offer guaranteed access to the European Union market.

### FLEXIBLE OFFICE MARKETS

This drive towards informal networks, and a fluid business and cultural environment, is being reflected in the rise of new districts and different office formats. From London's Southbank to Silicon Beach in Los Angeles, alternative Central Business Districts (CBDs) are thriving, as they combine work and lifestyle, but in a different cultural environment. Firms now move to where they can obtain the right quality office in a local setting that appeals to staff, rather than hugging the traditional hubs of their industry.

Similarly, the coworking office provides a platform for informal networking among entrepreneurs. This is the real estate manifestation of the 'gig economy', whereby more people work on a freelance basis, in a world of fluid teams that come together on a project-by-project basis.

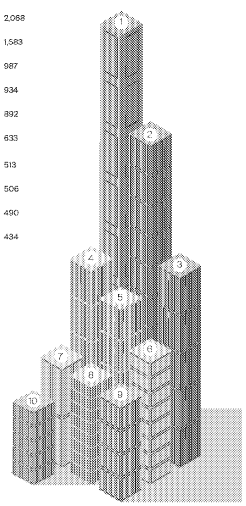
WeWork is now approaching 190 centres in 12 countries, while Blackstone is acquiring The Office Group, a flexible offices firm in the UK, demonstrating that coworking space is becoming an established feature of the real estate landscape. There are even examples of financial and professional firms setting up incubators or accelerators, to act as a bridge between their own businesses and the new wave of start-ups.

### TECH REVOLUTION

Unquestionably today, the cities who are successfully achieving this urban Hawthorne Effect are those at the forefront of the tech and creative revolution, which is demonstrated by economic growth. Since 2007, the GDP of Berlin, with its thriving technology scene, has expanded by 19.0%, whereas in finance-oriented Frankfurt output grew by just 5.9%, according to Oxford Economics.

Forecast City GDP in 2018 – US$ billions

| | | |
|---|---|---|
| 1 | TOKYO | 2,068 |
| 2 | NEW YORK METRO | 1,583 |
| 3 | GREATER LONDON | 987 |
| 4 | LOS ANGELES | 934 |
| 5 | PARIS METRO | 892 |
| 6 | CHICAGO | 633 |
| 7 | DALLAS | 513 |
| 8 | SHANGHAI | 506 |
| 9 | WASHINGTON | 490 |
| 10 | SAN FRANCISCO | 434 |




Source: Oxford Economics



New York's economy has diversified, reducing its dependence on finance industries



Similarly, in the US we see tech and R&D oriented cities like San Francisco (17.6% GDP growth since 2007) and Boston (15.2%) outperforming locations like Chicago (6.2%) and Miami (6.6%).

However, note the level of growth seen since 2007 in cities like London (21.2%) and New York City (11.5%). Both were finance-led cities back in 2007, which successfully re-weighted towards technology and creative industries in the last decade. This arguably makes adaptability a greater strength than a large tech exposure. If the technology sector moves into a downturn we will find out whether Berlin can quickly reposition itself towards the next rising industry. To a property investor London and New York City offer the security of having proved themselves capable of reinvention.

In this regard China's larger cities are displaying encouraging signs. Shanghai, which back in 2007 was thought of as a manufacturing city, is growing fast as a tech centre. The top ten ranking of global internet firms based on revenue contains three Chinese firms - Shenzhen's social media giant Tencent, online retailer Alibaba of Hangzhou, and Baidu, a search engine from Beijing.

> **The top ten ranking of global internet firms based on revenue contains three Chinese firms.**

This demonstrates that some of China's leading cities are evolving away from exporting cheap manufactures, and moving up the value chain. This will focus attention upon India, where the rate of GDP growth is forecast by the IMF to outpace that of China, and whether it can build on the success of Bengaluru and develop more tech clusters.

### MAINTAINING GLOBAL STATUS

The emerging picture is of a world that embraces the Hawthorne Effect workplace, which is open, inspiring, diverse, and a forum for ideas and opinions. The Global City has to be the same, in order to feed industry with the right staff for a creative-driven economy. However, many cities in developed economies now face populist pressure to step back from globalisation, and accept fewer migrant workers. Some cities in developing nations face the challenge of introducing freedoms in lifestyle and expression that have previously been curtailed.

The sanctuary cities in the USA and Canada, which have refused to enforce some federal immigration controls, may offer an example of how cities can defend themselves against change imposed from outside. This could offer an advantage to those cities which have some degree of political independence.

The best in class Global City is a diverse and vibrant place to work and live. Maintaining these qualities is the big challenge for 2018.

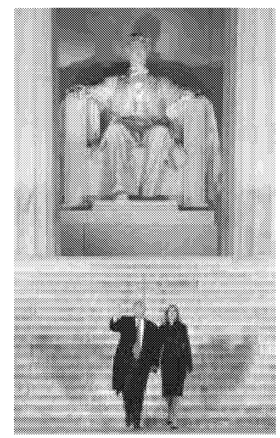
## WASHINGTON TAKES TRUMP IN ITS STRIDE

**ALEXANDER (SANDY) PAUL**
Senior Managing Director,
National Market Research,
Newmark Knight Frank

*The Trump Administration has had a modest impact on investor and occupier demand for commercial real estate in the Washington Metro area, a trend that is likely to continue into 2018.*

The president spoke on the campaign trail of ramping up spending on infrastructure, which could improve access to new and existing developments as well as benefit the region's beleaguered subway system, but he has already run into opposition from his own party's budget hawks in Congress. A renewed focus on defense spending – the president included an additional US$54 billion in his budget proposal compared with the current Federal outlay – could elevate local office sub-markets with high concentrations of defense contractors, particularly in Northern Virginia. However, proposed cuts to discretionary spending elsewhere could offset much of that impact.

More broadly, there have been concerns since the election that the new president's unpredictability could convince foreign investors that the U.S. and Washington DC are no longer safe havens for capital. However, the relative strength of the American economy compared with others around the globe will likely keep foreign investment dollars flowing into U.S. markets—including that of the nation's capital.



Demand for real estate in Washington DC has not been impacted by the change of government

# ELECTRICALLY CHARGED

The Tesla co-founder, Elon Musk, on revolutionising the road.

**GILES WHITTELL**
Author and Journalist

Last October, Tesla Motors posted a video on YouTube consisting of about three minutes of undeniably compelling dash-cam footage. It shows the view from the forward-looking camera of a Tesla Model X saloon driving itself to work. The soundtrack is *Paint It Black* by The Rolling Stones.

There is a person in the driver's seat, but he never touches the wheel, he just taps his fingers along to the music. After a couple of minutes on California's Highway 280 the car takes an off-ramp, heads into the hills and stops outside Tesla's headquarters. The 'driver' gets out, leaving the car to find a parking space and back into it.

Full disclosure: I have taken that off-ramp, parked in that car park and met Tesla's mercurial co-founder, Elon Musk. For readers new to the Musk phenomenon, he is the South African-born co-founder of PayPal, who inspired the Tony Stark character in the Iron Man films, and is Chairman and CEO of electric car firm, Tesla Inc.

**ON A MISSION**

Musk is on a mission to rebuild the future. He appeared as if from nowhere at the open plan desk he uses when at Tesla, wearing a blue polo shirt and an earnest look that he often uses to avoid appearing arrogant. Instead of small talk he offered an opening riff on battery power output and drag coefficients. We moved swiftly on to capacitors, rockets and a trip he once took to Moscow in search of intercontinental missile casings.

He kept returning to what unifies his work – the need for a wholesale switch to clean energy. "We're talking about changing what will probably be two billion cars," he said. "We know we have to move away from oil because it's a finite resource. It almost seems like the behaviour of a three year old not to act soon."

That was on the eve of the launch of the Tesla Model S, and Musk has not let up since. He confounded doubters again with the world's first all-electric SUV, which can out-accelerate a Buggati Veyron. He has made colossal bets on car-charging networks, reusable rockets that can deliver satellites to orbit then land backwards on barges floating hundreds of miles offshore, rooftop solar power, electric lorries, lithium-ion batteries and driverless technology.

When I met him, he was upbeat. "I'm actually very confident that it will work out,"' he said. As ever, he was able to draw strength by thinking bigger and over a longer timescale than anyone else. On being asked whether he was attempting to change the buying and refuelling habits of an entire culture, he replied: "Of course we are. Absolutely. We used to feed horses, didn't we?"





Illustration by Thomas Danthony

Forbes puts his net worth above US$15 billion. Tesla's market cap regularly exceeds that of General Motors. That is how he has earned a hearing whenever he opens his mouth.

Musk told investors recently he "could be completely delusional", but even when he talks about one day colonising Mars or digging tunnels underneath LA – as he does from time to time – he can carry people with him. The prevailing view, which Wall Street broadly shares, is that if part of him is mad it is only a small part; the marbling in the steak. Whatever else he is, Musk is an engineering genius and a social visionary who is already changing the way we live and the places we call home.

### GOALS AND PREDICTIONS

Bloomberg Businessweek has a blog devoted exclusively to tracking Musk's goals and predictions as they are announced and achieved, or delayed. It lists 47 of them under Tesla alone, including forecasts that half of all US vehicles will be driverless by 2027, and that the first hands-free journey across America will be made this year.

Musk's supporters have learned that he should not necessarily be taken literally. The point is not whether he will build a vacuum tube to shuttle people between cities by a given date. The point is that he has popularised the 'Hyperloop' concept, given it a name and challenged others to make it real, which they may do. Coming from anyone else, the idea of travelling at 700 miles an hour in an underground tube would have been dismissed out of hand. Coming from Musk, the Hyperloop concept has been seized on by engineers who want to emulate his chutzpah.

In the engineering under Tesla cars' aluminium skins, Musk has made myriad innovations but sought few patents. His goal is critical mass for electrification – and we will get there, he insists, without the need for human drivers.

### FULLY AUTOMATED

Driverless cars were not Musk's first obsession and he was not first on the scene – that was Google – but as of 2017 Autonomous Vehicles (AVs) are the portal to his view of the future. Through that portal lies a world where cities are clean and quiet because personal transport is electric. Time in traffic is no longer wasted because you can work (or sleep, within "about two years", he says) as you roll. The smokestacks that used to rise over power stations will be history, replaced by billions of photovoltaic cells disguised as roof tiles, drip-feeding electricity into wall-mounted batteries that power not just your house and car, but the grid.

At a recent TED Talk, Musk, was asked if he truly believed the part about ending traffic jams. Did AV technology really mean commuters would get dropped off at work, then rent out their cars to others for the middle of the day like driverless Ubers? "Absolutely this is what will happen," he said. "There will be a shared autonomy fleet where you buy your car and you can choose to use it exclusively [or] you could choose to have it be used only by friends and family, [or] only by other drivers who are rated five star. You can choose to share it sometimes, but not other times. That's 100% what will occur. It's just a question of when." The prediction is met by a ripple of applause.

In the places where he works people hang on his every word, and work 100-hour weeks to meet his targets. In the outside world he has his sceptical critics for sure, but what no one disputes is the likely impact of driverless cars generally.

In Singapore, where self-driving taxis were launched last year, a research project led by MIT's Professor Carlo Ratti estimates that the city's 'mobility demand' could be met by 30% of the vehicles now on its roads once they ditch their drivers. The number falls to 20% if passengers are willing to share vehicles.

This is a huge change, although whether it happens depends on people's readiness to abandon private car ownership in favour of a subscription model. Musk's strategy is to be ready either way. His ambition is to tip the entire global auto industry towards batteries, and be the market leader as two billion petrol and diesel cars are replaced by electric ones. For this to happen his latest model, the US$35,000 Model 3, needs to be a mega-seller.

### RE-IMAGINING LA

In LA, planners are reimagining whole swathes of the city on the assumption that, thanks to ride-sharing and driverless cars using roads more efficiently, six-lane boulevards can eventually be turned into multi-purpose ribbons of relaxation. If current ride-sharing trends continue, the share of urban American road space taken up by cars could drop by one estimate from 80% to 20% in a few years.

Elon Musk's predictions often have a starting gun effect on researchers and engineers

> **We know we have to move away from oil because it's a finite resource. It almost seems like the behaviour of a three year old not to act soon.**

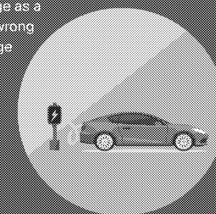
His latest scheme is a network of car tunnels under LA. Musk announced his plans with the tweet: "Am going to build a tunnel boring machine and just start digging". So he has – a giant trench and the beginnings of a tunnel on land he owns next to the SpaceX headquarters in LA. He has been photographed there with the mayor of the local municipality, and has teased the web with an animation of cars zipping through tunnels at three times the speed limit on electric 'skates'.

Essentially Musk's career since PayPal has been defined by a two-stage master plan. Stage one was about electric cars. Stage two is about enabling them to drive themselves and juicing them with solar power. Depending how things turn out over the next ten years he could really end up being thought of as the Sun King. Even if he turns out to be closer to Icarus, given what he has achieved already he probably would not mind.

## REAL ESTATE IN MUSK'S FUTURE

JAMES ROBERTS
Chief Economist, Knight Frank

The changes envisioned by Elon Musk could reshape the landscape of real estate. New investment opportunities should emerge as a result, while assets on the wrong side of the trends will change use – and perhaps rise in value as a result. Here is Knight Frank's view on the implications for real estate markets around the world of Musk's technology revolution:



**PARKING SPACES**
A recent study found that 14% of the developed land in LA County is taken up by car parking spaces. In a future where a shopping mall only requires a taxi rank for driverless cars, the car park can be redeveloped, probably as leisure property to complement the retail. Basement parking in office buildings could house data centres, gyms or cinemas.

**AUTOMOTIVE PROPERTY**
Some city centre car parks will become apartments or hotels. Others will be drop-in stations, where driverless vehicles go for charging, minor repairs and cleaning. Similarly, we could see demand for edge-of-CBD industrial units for comprehensive repairs and overnight storage of vehicles. In Musk's all-electric world, fuel stations will evolve increasingly towards convenience retail and food-to-go outlets. Private car ownership will probably continue among the wealthy, maintaining demand for high-end showrooms.

**SOLAR ENERGY**
Across the Global Cities, property developers are under pressure from government, communities and occupiers to ensure their buildings are as sustainable as possible. In a future world of very efficient photovoltaics, coloured to match the exterior cladding, which are feeding power to batteries for local storage, modern buildings could become more self-sufficient in their energy use.

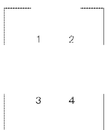
**SUPER COMMUTING**
While a distant horizon project, Musk's tunnelling scheme could extend the commuter belts around cities. Vehicles riding at high speed under the congestion would allow those seeking affordable homes to look much further afield. This would extend the economic influence of a Global City over a much wider area, leading to the development of new suburbs.

# THE BIG FOUR

Market experts on the ground address the big questions facing London, Manhattan, San Francisco and Hong Kong.

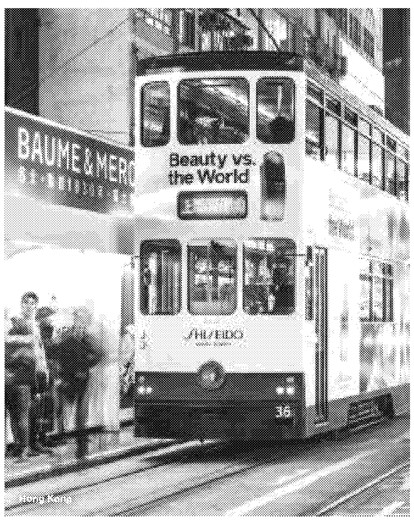
London


Manhattan





San Francisco



Hong Kong

**Park Avenue had long represented the center of Manhattan's office market, but a seismic western shift of capital has pushed the city's core closer to the Hudson.**

## 1 / LONDON

How has the move towards Brexit impacted the London economy?

The London economy has performed better than anyone would have expected in the aftermath of the vote to leave the EU in June 2016. Firms like Apple, Deutsche Bank, and Wells Fargo have committed to new HQs in London, Amazon and Facebook are both recruiting here, and unemployment is at its lowest level for over 40 years. Overseas firms have seized on the fall in value for the pound to invest in London at a discount.

There has been huge variation in the reaction to Brexit between technology industries and the financial sector. Most tech firms quickly shrugged off Brexit and returned to expanding again soon after the June 2016 referendum. The financial sector remains cautious due to concerns over whether some operations may have to relocate to cities in the EU.

I believe the EU will be reluctant to see the flow of capital from London to European firms disrupted by bank relocations – which would also push up the cost of raising finance. I see financial market access being maintained in the long-term.

JAMES ROBERTS
Chief Economist
Knight Frank

## 2 / MANHATTAN

How have major new development projects in recent years reshaped the geography of Manhattan?

The rapid development of a cluster of office buildings within a dedicated area is not new to Manhattan. It happened in Rockefeller Center, Times Square and the original World Financial Center, to name just a few locations. Each new cluster has pushed the boundaries of Manhattan's office market further west. Park Avenue had long represented the center of the market, but a western shift of capital has pushed the city's core closer to the Hudson.

The addition of 18 million sq ft to the West Side, including 7.1 million sq ft leased or sold, has resulted in a significant number of employees from large, highly successful companies migrating to an area that has never been so populated. The notion that global financial institutions, media conglomerates and prominent law firms would anchor buildings along Tenth and Eleventh Avenues in Midtown was beyond far-fetched just a few years ago. New and fully amenitized assets have gained traction despite less-than-favorable locations. Changes in market dynamics have altered the commercial landscape, providing opportunities for tenants in more diverse locations.

JONATHAN MAZUR
Senior Managing Director
National Research, Newmark Knight Frank

## 3 / SAN FRANCISCO

How do long-term San Francisco tenants compete in this market?

Tech growth has profoundly affected both supply and rent levels, yet tech represents only 35% of the market. Traditional tenants with 10 year leases rolling in 2017 have net negative 6.3 million sq ft of space to choose from now. This is because the space has been leased by new tech companies that were not in existence ten years ago. New development - over 5.3 million sq ft of deliveries in the past decade, and another 6.4 million sq ft coming in the next three years - should help ease the crunch. However, more than half of the space underway is already pre-leased, so the impact of additional space will be limited.

Tenants are also facing asking rates that are double what they saw 10 years ago. As a result, established tenants are finding ways to downsize and become more efficient, whether by densifying occupancy or bifurcating and sending transferable jobs to nearby secondary markets like Oakland.

Renewals are another cost-saving option, and tenants often opt to exchange improvement packages for reductions in rent.

ANDREA ARATA
San Francisco Director of Research
Newmark Knight Frank

## 4 / HONG KONG

Why is so much investment capital coming to the global real estate market via Hong Kong?

The rise of Hong Kong on the global investment stage was driven by the need for Chinese firms to expand, diversify and seek greater value. Hong Kong has evolved in the last ten years from an entrepôt into a fully-fledged international financial centre for the region. This has enabled Chinese firms to raise capital here and launch their bids unimpeded by the capital outflow restrictions that apply on the mainland.

Hong Kong is also helped by its excellent connectivity within Asia Pacific. In addition, its sophisticated legal system, high market transparency and accumulated financial expertise have enabled the city to stand out from other business centres on the mainland.

Not surprisingly, the city has been attracting strong occupier demand from mainland firms vying for top spots in the Hong Kong financial market. Nearly all the new leases in Q1 2017 were by mainland firms.

Hong Kong is evolving too as we can see from the development of new CBDs and new transport links.

DAVID JI
Head of Research & Consultancy
Knight Frank Greater China

# PARADISE CITY

If one built the ideal city today, what elements would it combine from the Global Cities? Here is our selection of the best from around the urban world.

**JAMES ROBERTS**
Chief Economist, Knight Frank

In 2009, New York City opened The High Line, re-purposing an old elevated railway line as a park which now attracts five million visitors a year. Soon afterwards the copycat versions began appearing elsewhere. Across the globe, city authorities and developers are on the lookout for innovations that lift the urban environment. In some cases this stretches beyond just a single project, like The High Line, to city-wide initiatives or even informal communities that have expanded to colonise several surrounding districts. The growth of London's Silicon Roundabout into a tech ecosystem covering swathes of the city in just a few years is one example of this.

To identify examples where innovation has become a city level phenomenon, we ask the question: if you built the ideal city from the best elements around the world, what would it include? Here is our view on what constitutes best in class in the urban environment.

### SEOUL'S SMART CITY TECHNOLOGY

South Korea is arguably the world's most technologically advanced nation, so it is no surprise its capital leads in smart city technology. The routes for night buses were influenced by analysing smart phone data on where late night calls were made. In the newly built Songdo smart city, near Seoul airport, there are no rubbish bins or garbage collections – litter is sucked into an underground disposal system, where it is either recycled or burnt as fuel.

Parents can use Songdo's CCTV network to watch their children playing outdoors, while sensors in car parking spaces inform residents that a spouse has arrived home. Energy use per person in Songdo is 40% less than in urban districts of comparable size.

### DENVER'S LIFESTYLE

Denver is proof that not all city dwellers are afraid of the great outdoors. From the city's downtown the Rocky Mountains are visible in the distance; and this is a big part of its appeal and success. More people want to work in cities that match their lifestyle. In Denver's case, it draws those who want a life that is more outdoorsy, less frenetic, and laid-back.

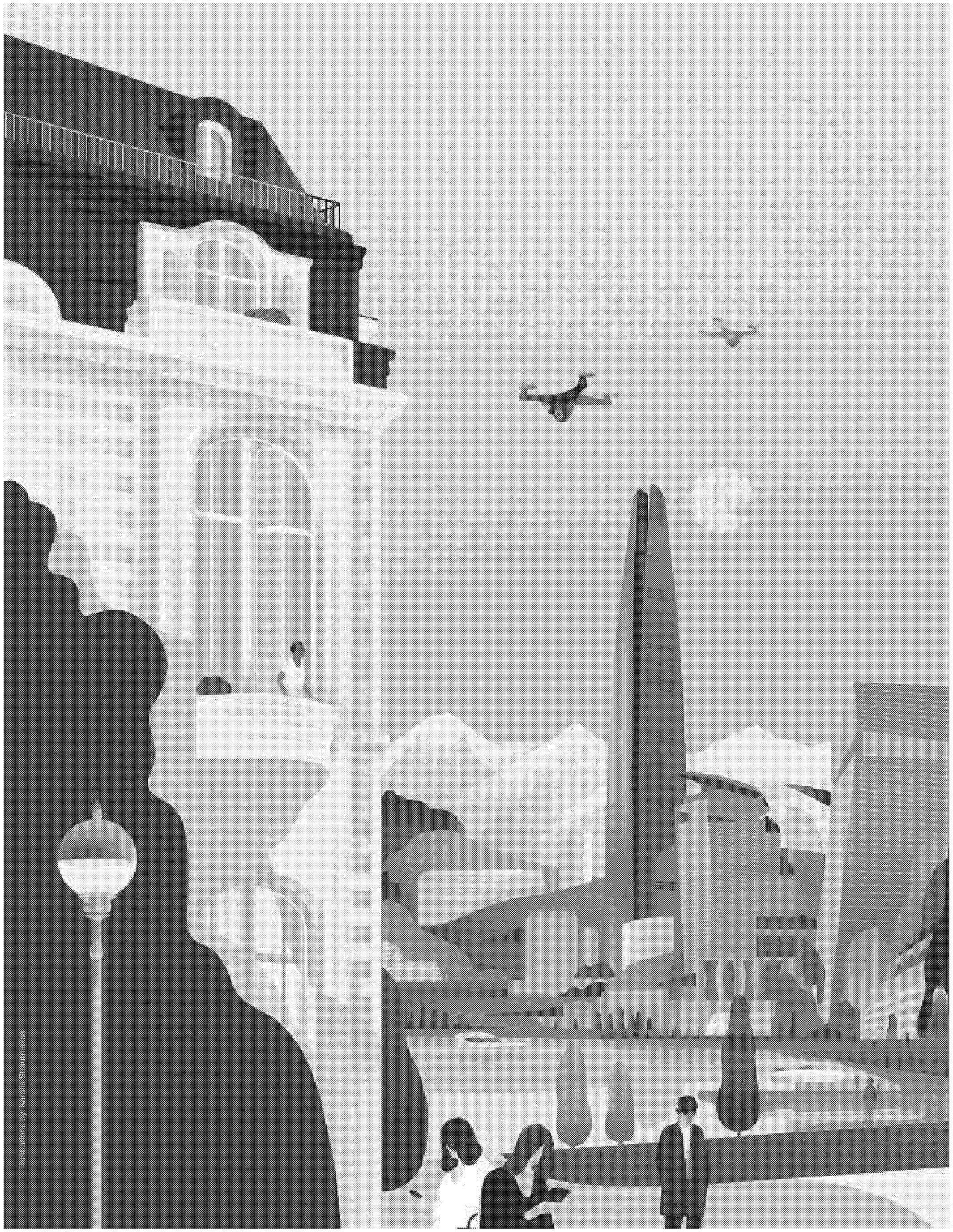
At the forefront of current trends is the LoDo district; a bustling trendy area, known for its nightlife, which in turn has drawn creative firms seeking offices. Up to 2007, LoDo was a classic 'old warehouses into trendy offices and apartments' regeneration story. Yet, new office developments in the last decade and the digital revolution have pulled LoDo centre stage in Denver's downtown market, and demand is driving development in adjacent emerging neighbourhoods. This matches the global trend of work and lifestyle becoming interwoven in today's urban economy.

### SINGAPORE'S CITY IN A GARDEN

In the 1960s, Singapore's visionary leader, Lee Kuan Yew, set out to develop a 'Garden City', introducing an annual tree planting day, encouraging conservation, and developing parks. Today, green areas now cover 30% of the city, which has over two million trees. There are an estimated 100 hectares of rooftop gardens and greenery in building façades, with The Pinnacle@ Duxton as an example. The development boasts two 1,600 ft sky gardens linking seven 48-storey towers, as well as a park at ground level. The upcoming Paya Lebar mixed-use development will contain 100,000 sq ft of green space on its four hectare site.

The National Parks Board's stated mission is no longer to build a 'Garden City', but to create a 'City in a Garden'.








### THE ARCHITECTURE OF PARIS

In the 1850s and 1860s, under the direction of Georges-Eugène Haussmann, Paris was rebuilt to rid itself of the slums that bred revolution. Haussmann built an iconic city with wide tree-lined boulevards, limestone building façades, and expansive parks and squares. Today, behind the extensive historic façades one finds modern offices, shops and homes, providing flexible properties that serve a constantly evolving modern Global City.

However, Parisians retain their revolutionary spirit. Keeping Paris at the cutting edge of architecture is the under construction DUO in the 13th arrondissement, with its twin towers. A nod to the Haussmann approach, this 1.1 million sq ft mixed-use development is keeping the city green with gardens integrated into the design.

### LA'S SILICON BEACH

When the tech action from Silicon Valley came south to Los Angeles, a new ecosystem emerged. Games company, EA, setting up shop in Playa Vista in 2004 began the rise of Silicon Beach. Google followed in 2011 with a 100,000 sq ft campus in Venice, and the tech giant plans to turn the aircraft hangar where Howard Hughes built his giant Spruce Goose seaplane into a 319,000 sq ft office. Venice is also home to local success story, Snap Inc, which will be expanding into a 300,000 sq ft office in Santa Monica.

Part of the appeal is good universities, plenty of creative workers, and adjacency to Los Angeles International Airport. Another draw is the regeneration of the Venice area, and lots of multi-family housing in Playa Vista, making Silicon Beach a great place to live and work. Even programmers like to surf!

### MELBOURNE'S WATERFRONT

Melbourne has significantly expanded its CBD, and introduced more mixed-use development into the city centre, by spreading along the Yarra River. The Docklands regeneration includes 6.7 million sq ft of prime office space – mostly campus-style buildings with large floor plates. The tenant base includes financial and professional firms, like ANZ, KPMG and NAB, and media occupiers such as Channel Nine, Fairfax Media, and Seven Network. NAB offers a coworking space called The Village for its small business clients to use.

The redevelopment area spans 190 hectares (44 of which are water). Docklands now has a 53,000-seat stadium, 741 yacht berths, 3.7 hectares of open spaces, and 45 public art works. When the regeneration completes it will have a population of 20,000 residents and 80,000 workers.

Pudong in Shanghai

# WE BUILT THIS CITY

The gap between work and home is narrowing as vibrant mixed-use locations takeover city centres across the globe.

**LIAM BAILEY**
Global Head of Research, Knight Frank

Over the past few years this report has documented the growing focus by city authorities and private developers on creating true mixed-use environments – those that aim to provide seamlessly for living, working and leisure. This process has been encouraged by shifts in economic activity, for example the redevelopment of former industrial and dockland districts near city centres, and also by rising competition between businesses as they vie to attract and retain talent. Young employees, in particular, increasingly seem less attracted to the pattern of travelling from a monocultural housing zone to a similarly one-dimensional office neighbourhood.

While the development of mixed-use projects in markets like London or New York City may feel relatively advanced, there are clear signs that the future rate of delivery of this type of environment will rise over the coming decade. If we consider key economic forecasts we can observe supports for future growth including: a rise in the overall numbers of employees in these markets, especially strong in sectors that have helped to fuel the mixed-use concept; an increase in the incomes of these employees (notably in cities across developing economies); and an enhanced desire to spend their income in ways that supports the expansion of the full range of facilities and uses that make these environments successful.

Over the last decade, employee numbers have risen in key Global Cities, partly as a result of general population growth, but also as a result of the ability of the most successful cities to pull in workers from surrounding regions. While an impressive sounding 1.1 million additional workers have been added to London's workforce since 2007, even this figure pales alongside the additional 2.1 million in Beijing or the two million in Mumbai.

## How rising incomes are spent will influence the shape and content of urban environments

Critically, for our purposes, rapid employment growth has been happening in the sectors that have powered the expansion of mixed-use urban forms: finance, information, telecommunications and business services. At the current time the biggest global cluster of finance and business service jobs is to be found in London (with 2.7 million employees across the metropolitan region). A decade hence and the largest concentration is likely to be found in Beijing (forecast 3.4 million, according to Oxford Economics) - although the fastest rate of growth will be seen in Bengaluru, which is expected to see an anticipated 65% growth over the 10 years to 2027 (to 809,000).

The ability to support the services and facilities that generally accompany mixed-use development - retail, restaurants and hotels - has been driven by growth in disposable incomes in some markets; although in others the picture has been more mixed. This growth has been rapid in Asia, typified by an 87% rise in Shanghai over the past decade, compared with less impressive rates of around 10% across U.S. cities and 5% in Europe. This weakness in developed markets reflects the impact of the global financial crisis that in many western cities saw real incomes squeezed during the five years from 2007, with a recovery only noticeable from 2012 in most cases.

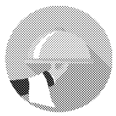
The rise in disposable income across Asia reflects the rapid growth of professional and high-skilled employment. In Beijing a decade ago, the numbers of people earning between US$35,000 and US$70,000 stood at 231,000, compared to 1.7 million in London. In ten year's time the relationship is expected to reverse with numbers anticipated to stand at 3.5 million and 2.1 million, respectively.

Moving up the income curve and the growth of higher wages in developing markets becomes even clearer. The number of people earning between US$70,000 and US$100,000 in Mumbai in 2007 was 32,000, but by this year this number had increased by 244% to 109,000. In 10 years' time the number is expected to be a little over 210,000 – if achieved, this would see the population of this earning group approach the levels expected at the same point in time in Berlin. On the same metric the expectation is that there will be a similar number of people earning this level of income in Shanghai in 2027 as in Los Angeles.

How rising incomes are spent will influence the shape and content of urban environments. Looking at those sectors that help to glue mixed-use locations together, there is an expectation of considerable future growth in emerging markets. Take Nairobi as an example, the total spend in restaurants, and eating out more broadly, is anticipated to rise from US$848 million in 2017 to US$1.5 billion over the next decade. Even the Kenyan capital's impressive performance on this measure is overshadowed by the 100% to 200% growth expected in key Indian and Chinese cities.

The increase in restaurant spend is mirrored in the hotel sector. Markets as mature as those in London, San Francisco or Miami will see hotel spend rise by around a third over the next 10 years, while key African and Asian cities will see growth of 50%, 100% and even 200%.

Over the next few pages we examine examples of best in class mixed-use development. If the forecasts detailed above are proved accurate there is likely to be an exponential growth in the demand for these environments in an ever-widening spread of cities over the next decade. The opportunity for developers and other experts involved in providing these environments is set to grow in tandem.

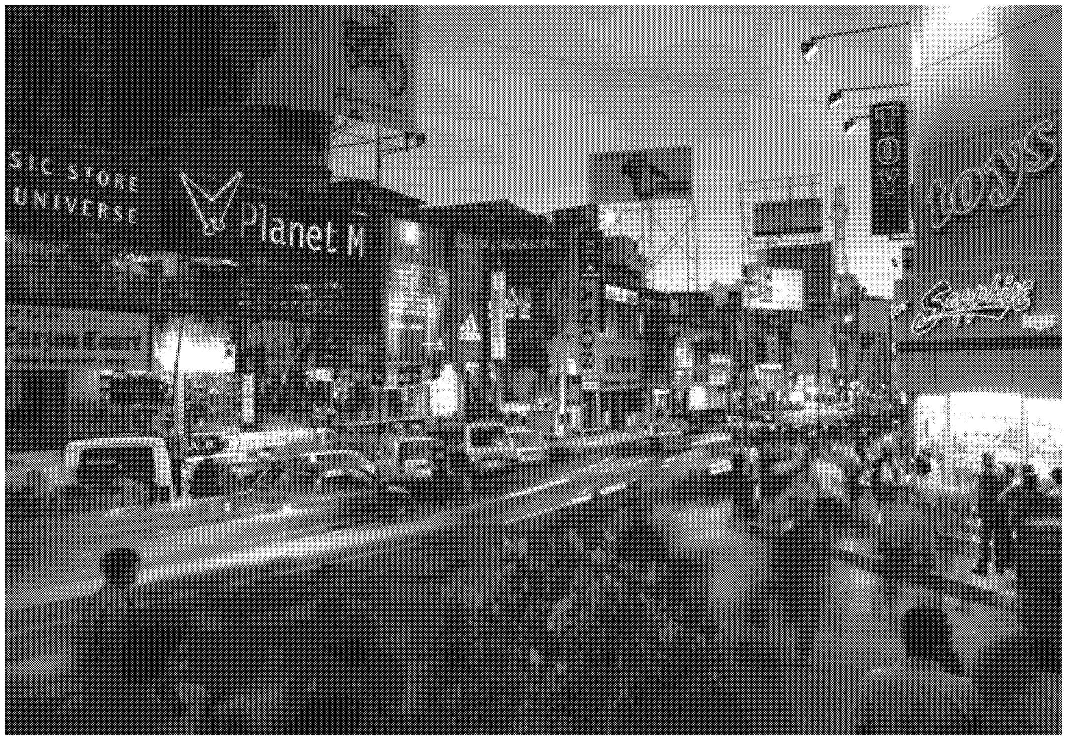


**Spending on eating out, forecast % change 2017-2027**

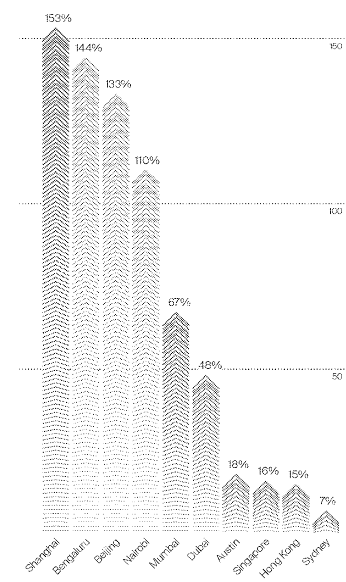
| | |
|---|---|
| BENGALURU | 176.9% |
| MUMBAI | 136.7% |
| SHANGHAI | 97.0% |
| BEIJING | 96.0% |
| NAIROBI | 82.8% |
| SINGAPORE | 35.2% |
| HONG KONG | 33.0% |
| AUSTIN | 26.4% |
| DUBAI | 22.1% |
| SYDNEY | 19.6% |

Source: Oxford Economics

**Top right:** Interior shot of Moshi Moshi, London
**Below:** Brigade Road, the main shopping street in Bengaluru




Forecast growth in households with an income of US$35,000–US$70,000 2017-2027




Source: Oxford Economics,
Note: Resident based, constant 2012 prices

# MIXED *use* CITIES

Market experts on the ground share their insights on Berlin, Dubai, Nairobi and Toronto.

## 1 / BERLIN

*How has the tech boom influenced the residential market in Berlin? Is there a shift towards developing trendy homes?*

London, Berlin, perhaps Stockholm, and then what? Europe's IT and start-up scene is primarily focused in these three cities. Berlin ranks highly for lifestyle, and is known for its hipness, creativity and tolerance. Other advantages include Berlin's three universities, diverse research institutions, incubators, and a slew of venture capitalists – in short, the perfect mix for creative industries looking at funding, networking and product development.

The boom for the start-up scene has direct consequences for the office and housing markets. Berlin has developed Germany's largest concentration of co-working spaces and innovation hubs. In recent years, more than 50 corporate accelerators, including Lufthansa, Metro and Cisco, have relocated their innovation hubs to Berlin. Meanwhile, the market for flexible office space is increasingly dominated by listings for schemes that accommodate several hundred workplaces. On the residential side, the requirements of start-up entrepreneurs and IT specialists are demonstrated by a growing supply of serviced apartments and in the demand for buy-to-let condominiums.

**SVEN HENKES**
Managing Director / COO
Ziegert Immobilien

## 2 / DUBAI

*Why are overseas buyers still targeting Dubai? What is the balance between investors and occupiers?*

A third of the world's population is accessible within a four-hour flight of Dubai and two-thirds within eight hours, making the city a well-placed strategic hub for regional and global investors. So significant is this investment that in 2016, 136 nationalities purchased property in Dubai, providing the city with a more diverse purchaser base than any other world city.

Regulations introduced since 2013, aimed at deterring speculation and reducing market volatility, have heightened Dubai's profile as a favoured destination for both regional and international property investors.

The Emirate's population has increased by 134% in the last decade, rising from 1.3 million to 2.4 million, this has supported the fundamental argument for property investment. Add to this the government's commitment to infrastructure investment (preparations for Expo 2020 include the expansion of the metro, airport and road network), improvements in market transparency and the increased availability of quality investment stock, and Dubai is ensuring it can compete with the world's top tier of global cities.

**MARIA MORRIS**
Partner, Residential Sales
Knight Frank UAE

## 3 / NAIROBI

*Bringing work and home life together in mixed-use developments is a rising tide globally – are there similar examples in Nairobi?*

Nairobi, like many regional hubs in emerging markets, has a rapidly-expanding population and the city's infrastructure struggles to keep pace. One challenge that this creates is traffic, which means a large amount of time is spent sat in the numerous tailbacks that occur in and around the city. As a result, the concept of live-work-play mixed-use developments is rapidly catching on, with a number of projects offering office, residential and retail elements within one scheme.

Garden City, a mixed-use development by Actis on Thika Road, is a high quality shopping mall with blocks of high-end apartments and offices under construction. This is a model set to be mirrored by Centum's Two Rivers development, and The Pinnacle which has just broken ground on Upper Hill. Simple solutions are also being used to create mixed environments by linking separate neighbourhoods. For example, the new footbridge over the Nairobi River connects an office development, 14 Riverside Drive, with the residential development Riverside Park further illustrating this growing desire to be able to walk to work.

**BEN WOODHAMS**
Managing Director
Knight Frank Kenya

## 4 / TORONTO

*What measures aimed at taming house price growth have been introduced in Toronto, and how much impact are they having?*

The provincial government introduced at the end of April 2017 new legislation designed to cool the housing market. It's too early to determine what, if any, impact these measures will have, but many industry experts feel they will have little to no long-term effect.

Planning policy in Ontario over the past decade has favored densification over new greenfield ground-level development. This has had the effect of limiting the supply of homes. Basic economics says when demand exceeds supply, prices go up. In Toronto, the average detached home now costs in excess of US$1.5 million, driving many buyers into condos or out of the city.

Some people have been moving farther from the core, accepting commute times that in some cases exceed two hours. We are now starting to see substantial price increases in Toronto's bedroom communities. Buyers are at times lowering their expectations as to the type of home or the location that they can afford.

**MARC DEXTER**
Associate Vice President - Toronto
Newmark Knight Frank Devencore

# ONES *to* WATCH

Choosing a district that is on the rise is a tried and tested strategy when buying a home. Our experts identify the neighbourhoods in the Global Cities we see as strong opportunities.

**OUR EXPERTS**

**BUDA, AUSTIN**
GRAHAM HILDEBRAND
Director of Research & Marketing - Texas, Newmark Knight Frank

**DOWNTOWN, MIAMI**
ERIC MESSER
Research Services Manager
Newmark Knight Frank

**ST LEONARDS, SYDNEY**
MICHELLE CIESIELSKI
Head of Residential Research
Knight Frank Australia

**HARUMI, CHUO WARD, TOKYO**
NICHOLAS HOLT
Head of Asia Pacific Research
Knight Frank

**SARRIÀ-SANT GERVASI, BARCELONA**
MARK HARVEY
Head of European Sales
Knight Frank

### BUDA, AUSTIN

Buda is booming. Only 20 miles to the south of Austin, Texas, Buda is one of the fastest-growing suburbs in the local market and is likely to remain so in the future. Its location along the I-35 corridor and median home sales price of US$250,000 keep Buda in high demand with young families and first-time home buyers. However, tightening inventory levels are pushing demand farther south toward San Marcos, a commuter city of Austin that has seen its median sales price jump 42% this year.

### DOWNTOWN, MIAMI

Residential development is thriving in Downtown Miami. In the Central Business District, the completion of Brickell City Centre added approximately 800 residential units and plenty of retail to the Brickell submarket. The two expanding sub-markets, Downtown and Edgewood, have over 2,700 units under construction. Downtown's next luxury residential project, Miami World Center, is set to break ground in 2017, offering 500 plus residences, ample office and retail space, and access to the Brightline intercity rail system. Continued infrastructure expansion has made Miami one of America's fastest developing cities.

### ST LEONARDS, SYDNEY

Located on the lower North Shore of Sydney, St Leonards stands out as a key area of growth with its population projected to double by 2030. US$6 billion will be spent upgrading local infrastructure, including an additional Metro station to be operational by 2024, with 3,700 new apartments forecast over this time. The suburb will be one to watch as it transforms from a traditional office and industrial market with world-class hospital facilities, into a vibrant, mixed-use neighbourhood.

### HARUMI, CHUO WARD, TOKYO

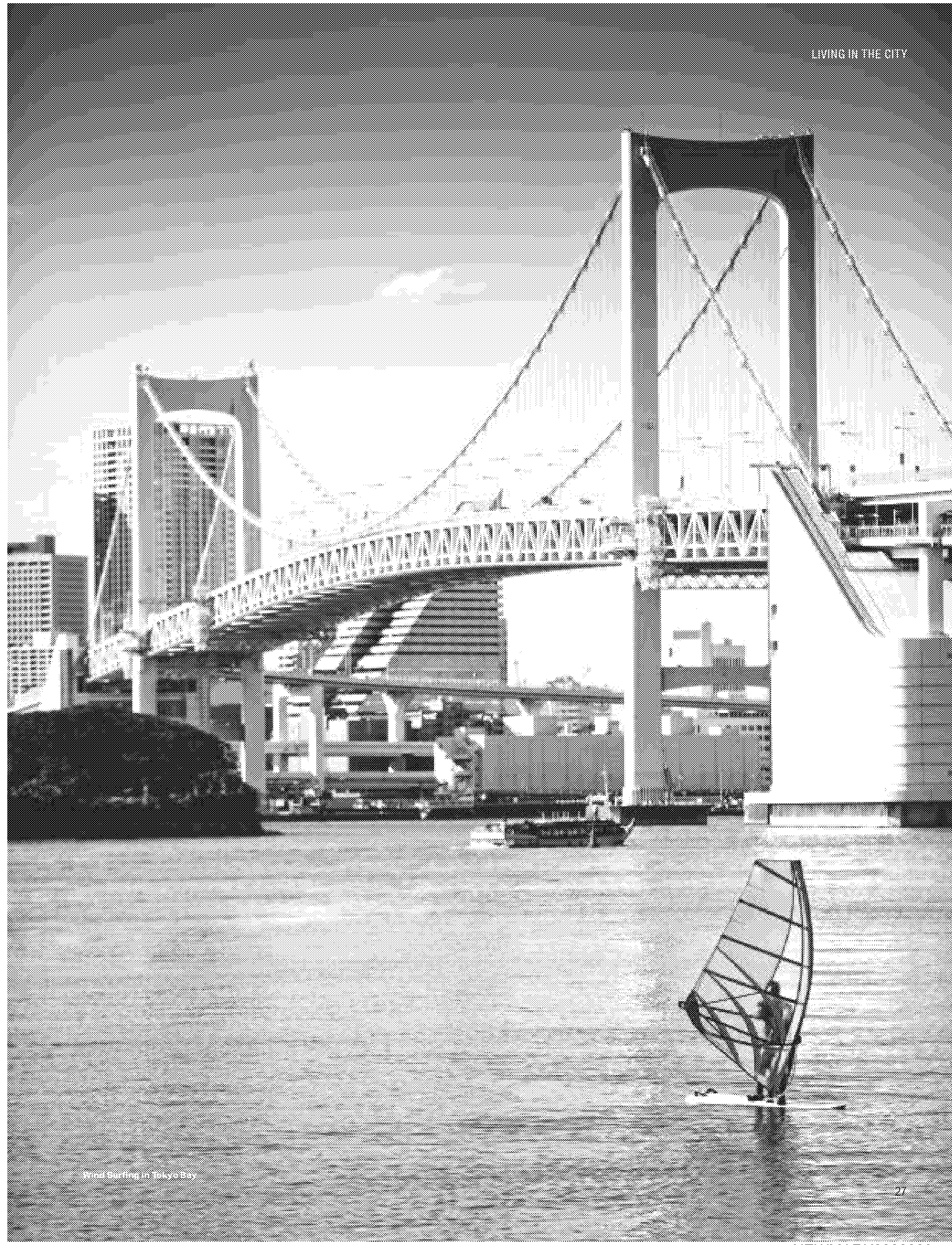
Heading towards the 2020 Olympics, the redevelopment of Tokyo Bay could provide potential opportunities for property investors. The Harumi area, which will act as the Olympic Village, will see around 5,000 new units released to the market after the Games. Although investors will have to keep an eye on the demand and supply dynamics - the low cost of debt and the relatively favourable demographics in central Tokyo compared to the national picture means that this is certainly a neighbourhood to keep an eye on.

### SARRIÀ-SANT GERVASI, BARCELONA

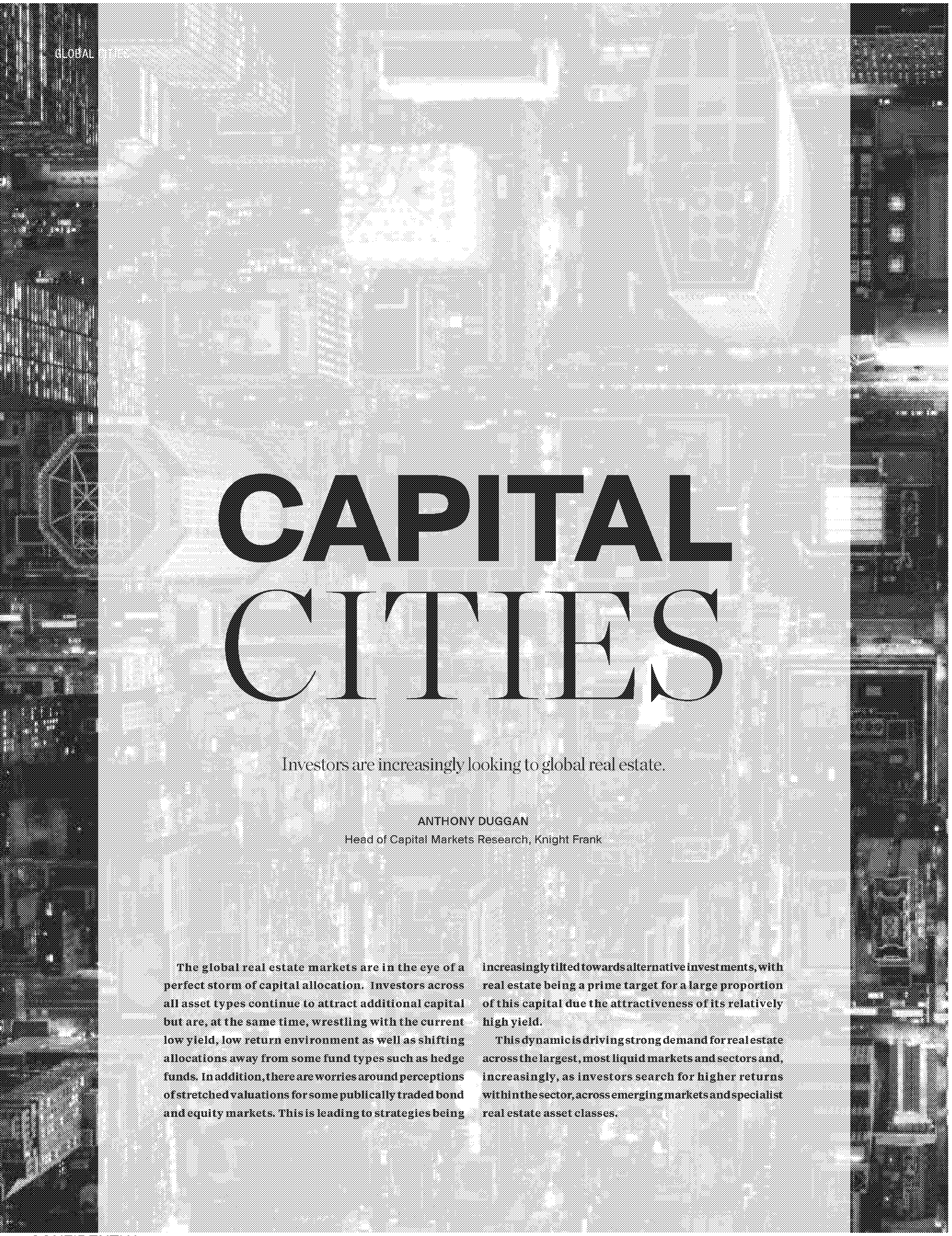
The area to the west of Paseo de Gracia, running parallel to the Avenida Diagonal, is undergoing a transformation. This southern tip of the Sarrià-Sant Gervasi neighbourhood, one of the city's key business districts, depicts Barcelona's heritage at its best; grand apartment blocks with wrought-iron balconies nestled close to Turó Park and surrounded by tapas bars and pavement cafes. International developers are increasingly active in the area seeking prime development or conversion opportunities. Prices for a modernised apartment in the neighbourhood are nudging US$830 per sq ft.







Wind Surfing in Tokyo Bay



# CAPITAL CITIES

Investors are increasingly looking to global real estate.

ANTHONY DUGGAN
Head of Capital Markets Research, Knight Frank

**The global real estate markets are in the eye of a perfect storm of capital allocation. Investors across all asset types continue to attract additional capital but are, at the same time, wrestling with the current low yield, low return environment as well as shifting allocations away from some fund types such as hedge funds. In addition, there are worries around perceptions of stretched valuations for some publically traded bond and equity markets. This is leading to strategies being increasingly tilted towards alternative investments, with real estate being a prime target for a large proportion of this capital due the attractiveness of its relatively high yield.**

**This dynamic is driving strong demand for real estate across the largest, most liquid markets and sectors and, increasingly, as investors search for higher returns within the sector, across emerging markets and specialist real estate asset classes.**



### EVOLVING STRATEGIES

As you might expect, when it comes to best in class for real estate strategy, there is no single right answer. Each investor has individual requirements and ambitions for their capital and this manifests itself into distinct and nuanced approaches. Add the fact that every property is different in some way, and you get a marketplace that requires subtlety, expertise and, undoubtedly, flexibility.

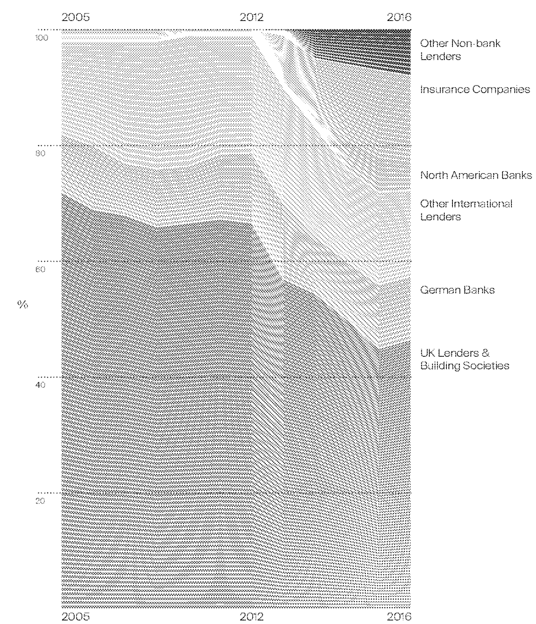
Indeed, as the ocean of capital chasing real estate both broadens and deepens, even the traditionally clear demarcations between investor types in the real estate space are morphing. Private Equity funds have been widening their offerings with major investors including Blackstone and Carlyle raising core-plus funds to complement their more opportunistic capital. Institutional investors are broadening both the types of assets they buy, including an increasing weighting towards specialist sectors, and the variety of exposure to real estate including products such as debt funds.

### GROWTH IN DEBT

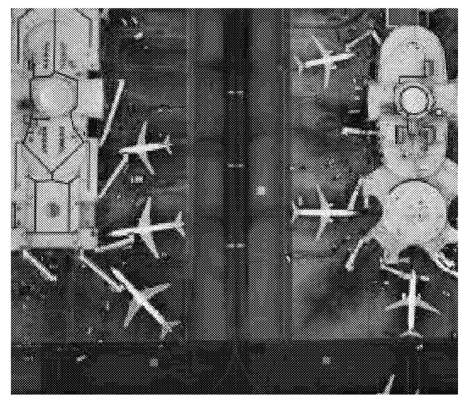
In Europe, until recently, commercial real estate debt was seen as a product offered by banks using their balance sheets and a growing Commercial Mortgage Backed Security market. However, following the Global Financial Crisis in 2008-2009 many banks retrenched from the market in the face of increased regulation and legacy asset issues. In their place, this space has been filled, at least in part, by investors traditionally focussed on direct real estate ownership; attracted by the returns available, a legal charge on the underlying asset and the loan to value ratio protection from valuation falls. The broad variety of these new entrants means debt is increasingly available, from senior debt through to higher margin non-senior positions including junior lending, mezzanine, stretched senior or B notes. At the same time, institutional lenders are gradually diversifying their exposure to specialist asset classes such as student housing and healthcare debt.

These new players in the market now have significant capital to deploy to debt strategies. However, they will increasingly be in competition with the traditional bank lenders who we expect to start to rebuild their exposure to real estate. As legacy issues are sorted and those banks in economies with rising interest rates start to attract substantial capital, there will be increasing pressure to lend. The resultant impact on the global property markets could be significant. The market cycle so far has been driven primarily by equity capital and conservative lending; an increase in debt at the same time as overall capital allocations to real estate continue to grow is likely to add another stage to the maturing cycle.

Allocation of outstanding UK CRE debt by category of lender




Source: UK Commercial Property Lending, De Montfort University



**Left:** Aerial photography of New York City
**Right:** LAX Airport: Infrastructure assets are drawing attention as investors cast the net wider

La Défense, Paris: Super Cities are expected to continue to see high volumes of investment

**TARGET LOCATIONS**

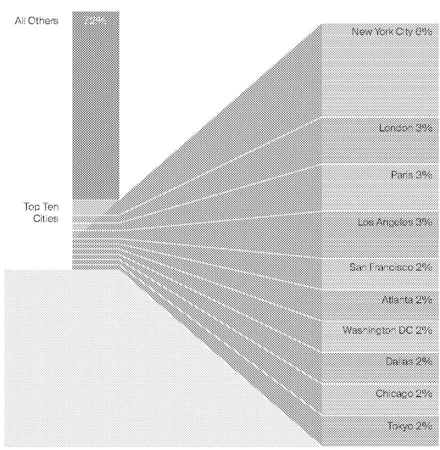
Overall, as more capital flows towards real estate, both equity and debt, the competition for assets is only going to get fiercer. We expect the major economies and their Super Cities to continue to attract the majority of this activity but, increasingly, investors will look to emerging markets for higher returns and less competition.

**EMERGING MARKETS AND MOMENTUM CITIES**

Indeed, we now observe greater volumes of capital flowing towards those markets that have taken longer for their economies to recover since the financial crisis and hence have lagged the market cycle so far. Many are now showing real signs of improvement and stronger occupier dynamics that will, in turn, lead to positive rental growth and capital value outperformance.

The locations that will outperform at this point in the cycle are the Momentum Cites. As discussed throughout this report, these cities are going through an evolution driven by a compelling mix of education, lifestyle, infrastructure, technology and real estate that makes them the places where people want to work, shop, play and live. In a virtuous circle, this mix attracts further domestic investment, which helps to create additional momentum and, importantly, the liquidity and performance needed to draw in global real estate investors.

Global transaction volumes 2016: Dominance of the top ten cities

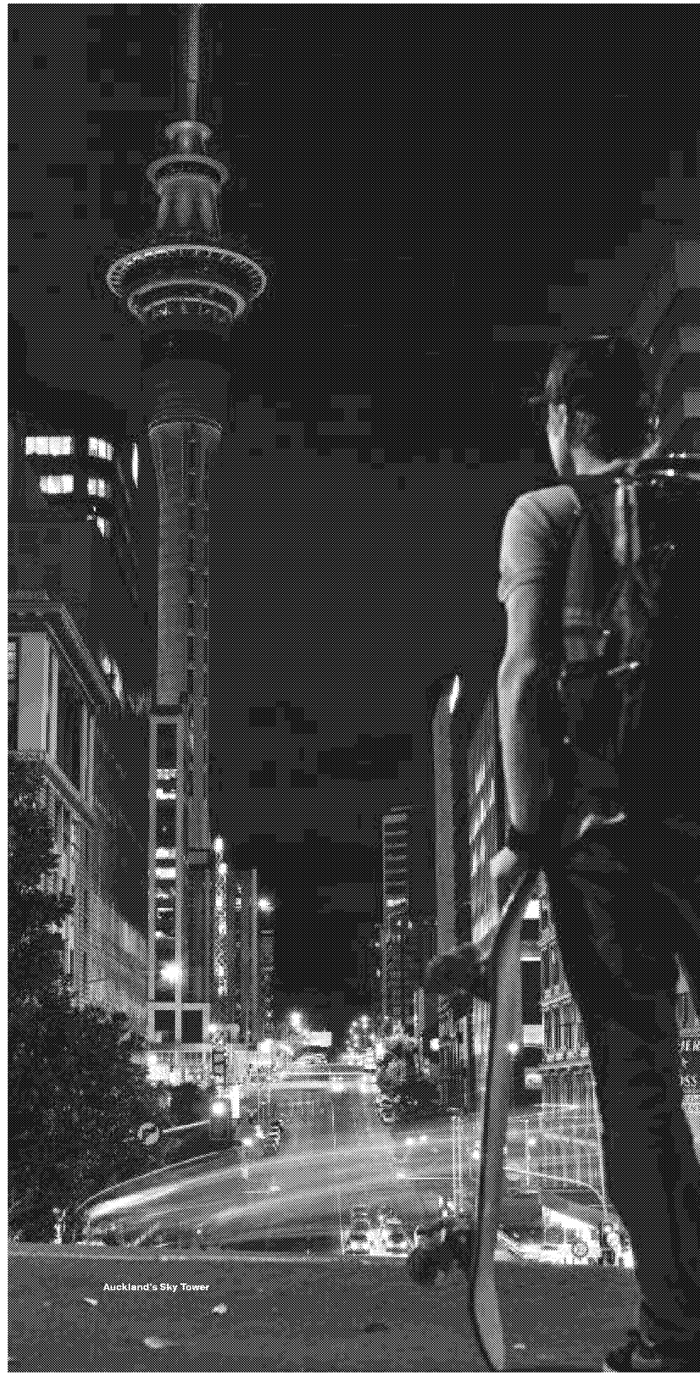



Source: Real Capital Analytics

**An increase in debt at the same time as overall capital allocations to real estate continue to grow is likely to add another stage to the maturing cycle**







Auckland's Sky Tower

# AUCKLAND: BLURRING THE LINES

RACHEL MCELWEE
Head of Research
Knight Frank New Zealand

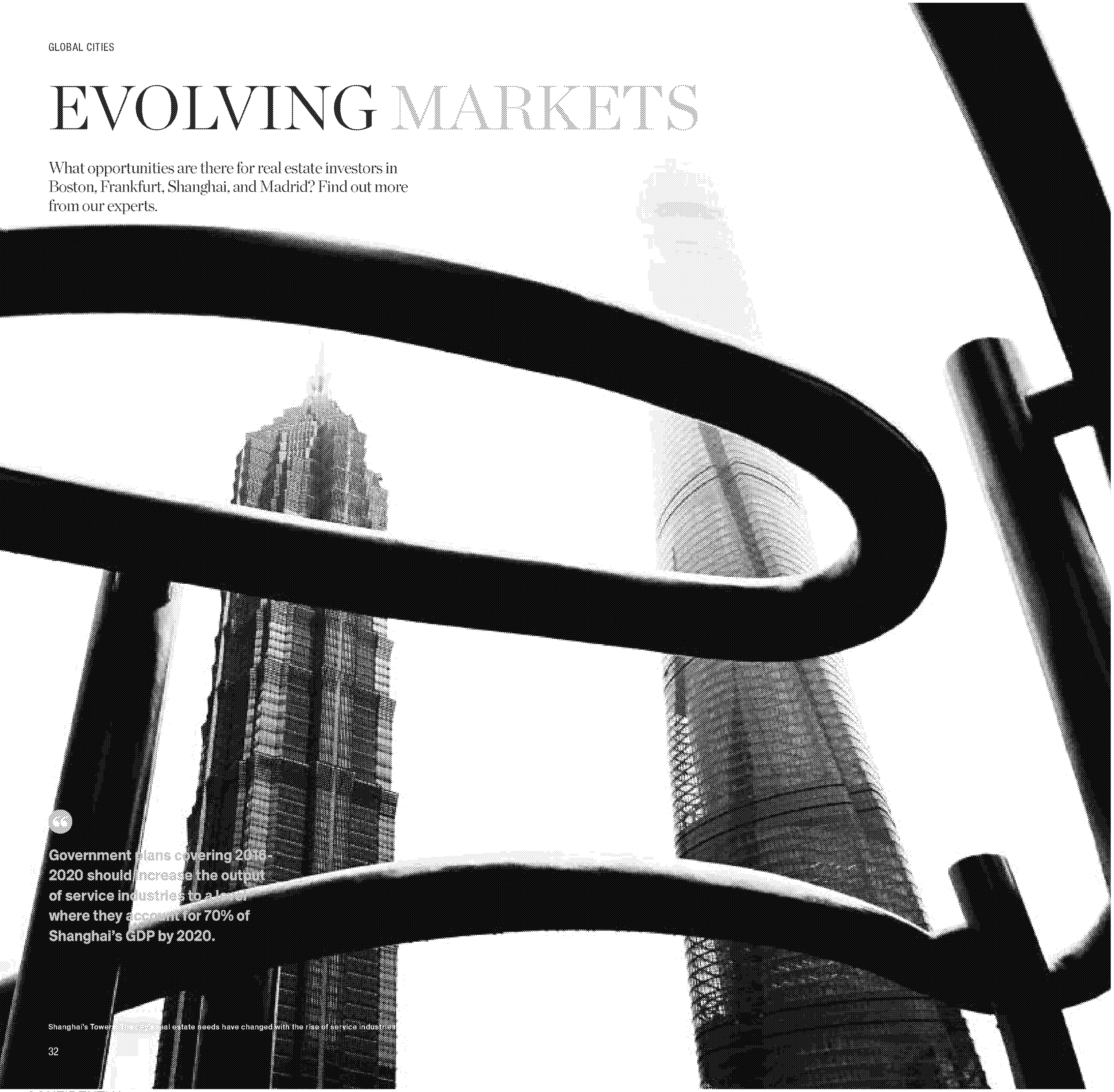
*Mixed-use development is reshaping Auckland's central city, blurring the lines between work and living environments.*

The largest urban regeneration project currently underway in New Zealand, Wynyard Quarter, is transforming the former industrial port into a mix of residential, retail, leisure, hotel and office space. New types of purpose built spaces will be created such as the innovation hub, housing a campus-style precinct fostering creativity, technology and originality for start-up companies. A diverse range of tenants include the Auckland Theatre Company, financial firm ASB, architects Warren and Mahoney, the Hyatt Hotel Group, and multinational dairy co-operative Fonterra.

When completed in 2030, Wynyard Quarter will house approximately 3,000 residents and 25,000 workers. The redevelopment covers 37 hectares of land and stretches three kilometres along the coast. Investment backing for the project came from off-shore, private investment, third sector and government sources. The waterfront could be further transformed if Auckland stages the next America's Cup in four years' time.

# EVOLVING MARKETS

What opportunities are there for real estate investors in Boston, Frankfurt, Shanghai, and Madrid? Find out more from our experts.



> Government plans covering 2016-2020 should increase the output of service industries to a level where they account for 70% of Shanghai's GDP by 2020.

Shanghai's Tower[illegible] real estate needs have changed with the rise of service industries

*Jonathan Sullivan, Research Manager-Boston, Newmark Knight Frank*

HAS RECENT REDEVELOPMENT IN THE CITY CHANGED WHERE INVESTORS ARE WILLING TO ACQUIRE REAL ESTATE IN BOSTON? WHICH DISTRICTS ARE UP-AND-COMING?

Redevelopment activity in Boston, including within its vibrant Seaport District, has yielded a series of high-profile tenant relocations and robust investor activity. Amazon just became the Seaport's newest big-name tenant, following the likes of GE and Reebok. GE is moving its headquarters from Fairfield, Connecticut, while Reebok is relocating from the Boston suburb of Canton. The district has become the place to be, driving construction activity as well as record-level pricing.

Obstacles to new development in Boston persist, notably site availability and permits, while new construction demand is arguably at an all-time high. The Seaport's transformation has been critical in satisfying the demand for both new and trendy offices, and multi-family units.

Investors are also focusing on fringe locations with immediate connectivity to Boston and where infrastructure improvements are underway. Recently, Somerville agreed to redevelop 15.5 acres in Union Square into a 2.3 million sq ft mixed-use project.

*Regina Yang, Head of Research & Consultancy - Shanghai, Knight Frank Greater China*

IS THE TRANSITION OF SHANGHAI'S ECONOMY FROM MANUFACTURING TO SERVICES CREATING NEW OPPORTUNITIES FOR REAL ESTATE INVESTORS?

Shanghai's economy is now in the process of shifting away from manufacturing to services. Government plans covering 2016-2020 should increase the output of service industries to a level where they account for 70% of the city's GDP by 2020.

Driven by this economic transition, and coupled with the proliferation of the mobile services, e-commerce has quickly become a key driver of the economy. The increase for online retail sales has in turn led to significant demand of warehouses. In recent years, investors have also shown great interest for this asset class. Domestic developers and financial institutions including Vanke, Ping'an, and Greenland have expanded their presence in warehouse market. Limited supply and higher returns have also propelled warehouses to become the third most sought-after asset class after office and physical retail. As the macro-environment continues to drive e-commerce this market segment will see further growth in the foreseeable future.

*Ralph Schonder FRICS, Managing Partner, Knight Frank Invest Germany*

WHAT IMPACT WILL BREXIT HAVE ON THE FRANKFURT INVESTMENT MARKET?

Germany's attractiveness as a safe haven investment market has grown in the wake of the UK's vote to leave the EU. The Brexit process has particular implications for Frankfurt, as Germany's only skyscraper city is in a strong position to pick up demand from any financial sector occupiers deciding to relocate staff from London to the EU. To date, Brexit has had only a limited impact on the office take-up of Germany's financial centre, but the first occupational deals that can be directly linked to Brexit are now beginning to trickle through.

Investors will be wary of Frankfurt's vacancy rate, although that supply will allow the city to absorb a moderate level of new demand, even in medium-sized as well as large modern spaces, without significant upward pressure on rents. Investor interest will be even further stimulated, after a year-on-year growth rate for sales of more than 50% in H1 2017, if more Brexit-related leasing deals are signed; especially as the city currently offers higher-yielding opportunities than some of the other major German markets.

*Humphrey White, Managing Director, Knight Frank Spain*

WHICH DISTRICTS IN MADRID AND WHAT KIND OF PROPERTIES ARE IN DEMAND WITH INVESTORS?

Madrid has been a key target market for international property investors since the beginning of 2014. Commercial investment has been performing well since that year and, so far in 2017, office investment has already reached US$810 million, 5% above the same period last year. Although almost every quarter has been a record-breaker, property investors are still able to find opportunities in Madrid. Investors follow a research-driven rationale: net take-up has been increasing since Q3 2013 and the capital's rent levels are still 28% below the peak, and significantly lower than other core markets in Europe.

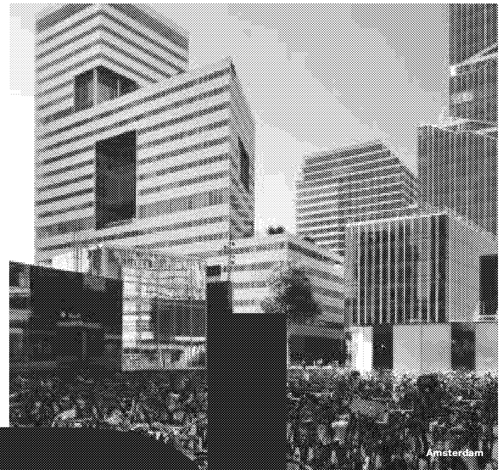
Offices have been the preferred investment for many property investors: SOCIMIs (Spanish REITs), investment funds, family offices, PropCos and Sovereign wealth funds. Madrid's CBD is the most popular district for office investment, followed by the Northern "Nudo Norte" submarket where many multinational firms have headquarters - this area is a natural extension of the CBD.

# NEW HORIZONS

Much cross-border property investment piles up in the world's mega cities, but for those willing to cast their net wider, there are excellent cities that are sometimes overlooked.

There is now a huge array of 'top ten' city rankings, looking at everything from house prices to financial sector activity to the number of tech start-ups. Certain cities dominate the many rankings, like London, Hong Kong, and New York City, and unsurprisingly they have been popular with international real estate investors in recent years. However, there are other cities, which are as well run, have very similar economies to these big centres, and in some cases offer better growth prospects.

The Google office in Copenhagen or Jakarta has the same tenant as the headquarters in Silicon Valley, and in 2018 we expect to see more investors pursue this line of thinking. Below are five Global Cities that we see drawing more overseas capital in the future.


Amsterdam

### AMSTERDAM

Amsterdam is an increasingly attractive destination for investors seeking an alternative to more expensive European markets such as London, Paris and Berlin. High office vacancy rates were previously a concern for those looking to deploy capital, but availability is now rapidly tumbling and supply shortages have emerged in the most sought-after office districts. Combined with strong demand from the city's vibrant and expanding technology sector, tight supply will drive rental growth, and create opportunities for new development, particularly in central areas.

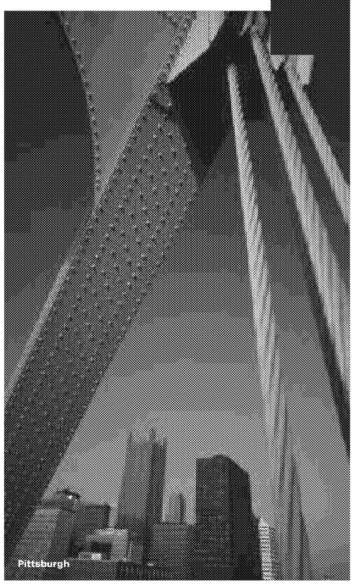
*Matthew Colbourne, Associate – International Research, Knight Frank*


Seattle

### SEATTLE

Amazon's rapid growth has cultivated an innovative and competitive market, making Seattle one of the world's leading tech hubs. Companies large and small are migrating to Seattle in order to access one of the most educated workforces in the U.S. With the completion of its latest construction projects, Amazon's footprint will grow to over 12 million sq ft. Thanks to Amazon and other titans including Microsoft, Costco and Boeing, the region has supported and sustained growth through all economic cycles.

*Blake Bentz, Research Coordinator – Seattle, Newmark Knight Frank*


Pittsburgh

### PITTSBURGH

A fast rising tech market, Pittsburgh has seen more than 70 IT-focused firms headquartered in Silicon Valley and elsewhere open local offices over the past 10 years. Amazon, Apple, Facebook, Google and Uber are among the users that have caused rents and property values to surge. The energy, financial and business services, healthcare and life science industry sectors remain well represented within Pittsburgh. However, the city's status as a growing technology hub, and hotbed for artificial intelligence and autonomous vehicle development, is triggering unprecedented revitalization.

*Pamela Lowery, Vice President Research - Pittsburgh, Newmark Knight Frank*

### MANILA

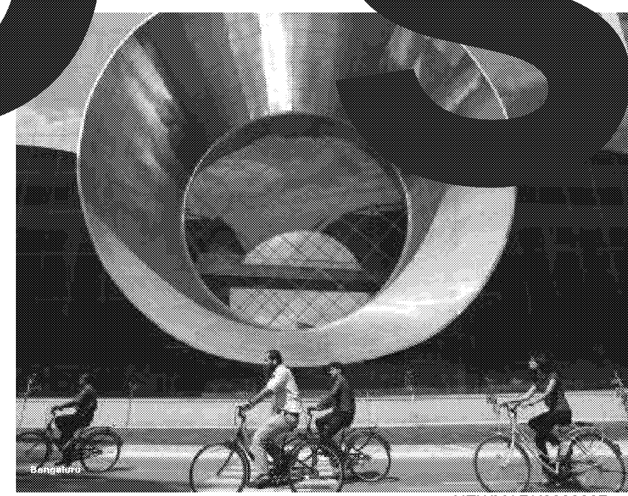
With a population close to 13 million people, Manila lies at the epicentre of the unprecedented growth occurring in the Philippines' real estate market. Opportunities to invest in property development are amplified by the country's attractive investment grade rating, high GDP growth rate, and strong macro-economic fundamentals. Increased cross-border investment is expected in the forthcoming years, especially as commitments amounting to US$24 billion in real estate and infrastructure development from China are set to position the Philippines as a regional hub.

*Jan Paul D. Custodio, Senior Director - Research and Consultancy, Santos Knight Frank*

### BENGALURU

The IT sector in Bengaluru has transformed the city's character, turning the pensioner's paradise into a bustling cosmopolitan hub. This has stirred up its real estate market, which has become a major global office destination. The inclusion of Bengaluru in the Smart City list - an ambitious Indian government project to enhance liveability in urban centres, will lead to improved infrastructure; providing smart solutions to bridge service delivery gaps and enable technology use. This will further attract real estate investors to the city.

*Vivek Rathi, Vice-President - Research, Knight Frank India*


Bengaluru

# GLOBAL GATEWAY

Nabil AlKindi is re-shaping Dubai's DIFC, adding more culture, leisure and public areas to a global business centre.

The Dubai International Financial Centre (DIFC) first opened in 2004, creating a new financial hub to serve the Middle East, Africa and South Asia (MEASA) region. Through a combination of offering international standards of regulation, common law courts, and high quality business premises, it has flourished. Mindful of future trends, the DIFC is evolving to match the changes in the global economy.

Nabil AlKindi, Chief Real Estate Officer of DIFC, speaks to Knight Frank about plans for the centre's future.

**It is surprising to think that the DIFC was only established in 2004, given its size today. How has such rapid growth been achieved?**

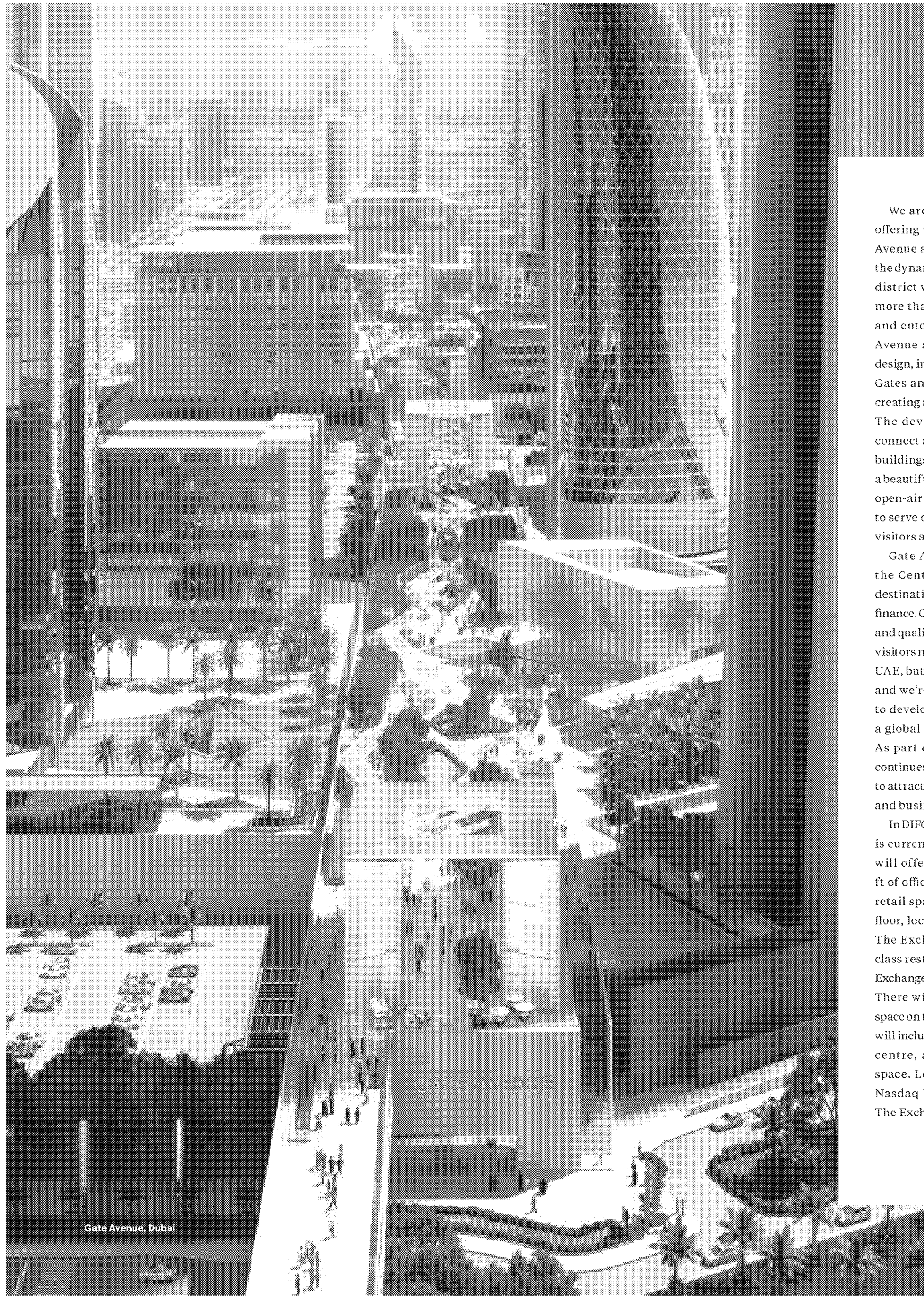
Having begun with 19 companies and 75 professionals in 2004, DIFC is now home to over 1,700 firms with close to 22,000 employees – milestones of which we are enormously proud.

DIFC serves a broad market, spanning the MEASA region. DIFC was conceived as a much-needed gateway to this market, and has quickly achieved a strong track record as a financial hub where ease of doing business is paramount. Our large, well-regulated and best in class ecosystem has, and continues to attract top financial and professional services firms from around the world. As part of our 2024 Strategy, we plan to grow threefold with the aim of becoming a global hub for the South-South economic corridor. The development of the DIFC master plan is an integral component in this growth strategy, as we aim to have 50,000 professionals working in the district by 2024.

**In most Global Cities more retail, leisure, culture, and homes are appearing in city centres. How is the DIFC responding to this trend?**

In the world's most popular cities for lifestyle and business, the trend is moving away from single-use zoning to mixed-use developments. Rather than isolated office towers, business parks and shopping malls, people now want their offices and homes to be located at the heart of vibrant, integrated districts with easily accessible amenities and a community-focused, neighbourhood feel.

In keeping with Dubai's reputation as a modern, forward-looking city, DIFC is ahead of this trend. We have always been more than a financial centre; we are also an active community of shops, offices, residential apartments, hotels, cafes and restaurants, art galleries, parks and open spaces. More than 20,000 people come to work here every day, and they also take advantage of our world-class amenities and events, staying after work for dinner, exhibition openings, the gym, socialising or events.




Gate Avenue, Dubai

We are also increasing our retail offering with the 660,000 sq ft Gate Avenue at DIFC, which will become the dynamic epicentre of the financial district when it opens in 2018, with more than 200 prime retail, dining and entertainment locations. Gate Avenue at DIFC will feature iconic design, including a series of miniature Gates and a large, modern mosque, creating a vibrant urban living centre. The development will seamlessly connect all the various elements and buildings within the district through a beautiful underground space and an open-air promenade of around 1 km, to serve office workers, residents and visitors alike.

Gate Avenue at DIFC reinforces the Centre's offering as a premier destination for lifestyle, business and finance. Our exceptional infrastructure and quality of life draw employees and visitors not just from elsewhere in the UAE, but also from around the world, and we're proud of our contribution to developing Dubai's reputation as a global business and tourism hub. As part of the 2024 Strategy, DIFC continues to develop with the ambition to attract thousands more individuals and businesses in mind.

In DIFC's Gate Village, The Exchange is currently under construction and will offer an additional 114,000 sq ft of office space and 33,000 sq ft of retail space from 2018. A concourse floor, located on the podium level of The Exchange, will offer two world class restaurants, fronting onto 'The Exchange Square', a landscaped piazza. There will be additional restaurant space on the rooftop. The development will include a state-of-the-art business centre, and seven floors of office space. Long-standing DIFC tenant, Nasdaq Dubai will also relocate to The Exchange.

**In five years' time, what will be the characteristics that make an office building 'best in class'?**

Modern, forward-thinking multinationals and entrepreneurs are already looking to locate in safe, vibrant neighbourhoods in trendy global hubs like San Francisco, Tokyo or Dubai. Companies are looking for areas where their employees don't just come to work, but can also plan their breakfast meetings, break out of the office into stylish coworking zones, check in on the go with free Wi-Fi, shop or work out on their lunch breaks and hang out after hours for cultural activities. DIFC is a vibrant mixed-use community, which offers a variety of cultural activities, retail, dining and entertainment, enhancing the quality of work life for our member companies and residents. The district is master planned with all the necessities and luxuries of modern life within walking distance.

With qualified candidates in high demand, sophisticated, high quality office space is a key perk for attracting top recruits – and as social issues become embedded in the vision of many companies, environmentally friendly infrastructure, walkability and public transport links are becoming important. DIFC is committed to increasing the attractiveness of our commercial space, by offering innovative, energy-efficient offices equipped with next-generation telecoms connectivity.

In five years' time, four walls and a computer will not be enough. Integrated mixed-use developments like DIFC offer dining, amenities and a sense of being engaged within an active community. We need to offer more thoughtfully planned urban districts, which combine business and office space with all the pleasures and necessities of modern life, smart infrastructure and a lively culture.

# TAKING on the WORLD

For occupiers, the business rationale for 'going global' is changing, creating some fundamentally different property requirements.

DR LEE ELLIOTT
Head of Commercial Research, Knight Frank

The emergence of the Global Cities is a direct consequence of the on-going need for corporates to secure competitive advantage and commercial relevance. Yet neither the source of this advantage, nor the global geography of business which has derived from it, has been static. There have been four recognisable phases through which this global geography of business has evolved.

**PHASE 1: ADVANTAGE THROUGH SCALE**

Initially, significant office occupiers such as investment banks, accountants, management consultants, lawyers and the like, sought to drive growth through the simple exportation of services across the globe. This was a rudimentary strategy whereby the dots on the map signified the global coverage upon which competitive advantage was secured. The tier one markets of London, Tokyo, New York City and Paris were firmly to the fore.

**PHASE 2: ADVANTAGE THROUGH COST EFFICIENCY**

A second phase emerged as corporates sought to utilise global markets as a means of delivering cost efficient services. A corporate strategy based on scale was usurped by one focused on broadening representation in those cities where operating costs were lower than in developed economies. This led to a raft of corporate off-shoring initiatives, which placed customer and shared service centres in cities like Bengaluru, Cape Town, and Warsaw.

**PHASE 3: ADVANTAGE THROUGH PUTTING THE RIGHT THINGS IN THE RIGHT PLACE**

Next has been a push towards functional specialisation. Combining the learning from the previous two phases, corporates created global operational portfolios whereby functions, part-functions or entire service lines, have been placed in those global locations that can best provide the right human resources at a price point and skill level appropriate to the significance of that function or service.

**PHASE 4: ADVANTAGE THROUGH SPEED AND AGILITY**

We are now in a fourth phase of global business growth in which speed takes precedence over size. Emboldened, enabled and forever disrupted by technology, corporations go global to gain rapid access to the latest innovative ideas, and the talent pools generating such ideas, in order to utilise any competitive advantage before it becomes eroded. To achieve this, a corporation must have the systems, processes and platforms to leverage these short-lived moments of advantage, and at a global level.

In this phase, business success becomes a function of agility, connectivity – both physical and virtual - and the rapid capitalisation of good ideas. Crucially, the decision to go global is occurring at a much earlier point in the business life-cycle – again through the ability of technology to reduce barriers to entry. As we noted in last year's Global Cities report, the emergence of tech and creative businesses with global intent or significance has brought various tier two cities, such as Austin, Berlin and Dublin, into firmer focus as global business centres and, hence, office markets of international significance.

**THE TRUE IMPLICATIONS OF GOING GLOBAL**

There are broader property market implications emerging from this fourth phase. The demand side of the property equation is changing and is forcing cities to change their 'offer' to occupiers. There are five key shifts:

1

**A BROADER POOL OF DEMAND WITHIN CITIES** – demand is now drawn from a deeper range of industry sectors and with a greater variation in the size of floor-space requirements. We have witnessed, for example the tech sector replace financial services as the dominant source of demand in the London market over a number of years, but also a small reduction in the average size of leasing deals across the city. Global Cities are no longer centres of singular sector excellence but rather markets that have diversity.

2

**A VERY CLEAR AND INTENSE URBAN FOCUS** - city cores, in markets such as Manhattan, are being re-born as places whereby innovative and creative talent can be sourced and secured. This is exemplified by companies such as Nike and Spotify expanding in New York City.

3

**THE PUSH FOR FLEXIBILITY** – in an environment of short-lived competitive advantage, occupiers are demanding flexibility in terms of building design, lease terms and, critically, tenure. On this last point, we have seen the rapid emergence of coworking space across Global Cities – one recent study predicts that there are currently more than 11,000 coworking facilities globally and that the market will have a Compound Annual Growth Rate of 24% in the years out to 2020. Coworking increasingly provides a solution not just for start-ups but also corporations who generate innovative products through smaller, creative teams.

4

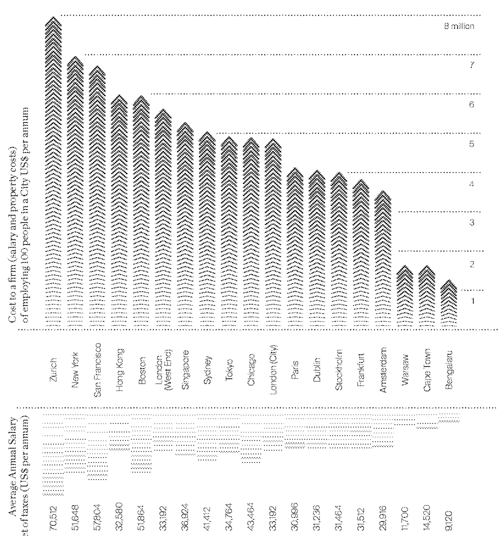
**THE FLIGHT TO QUALITY AND SERVICE** – linked to points two and three, has been a growing occupier focus on securing high quality and heavily serviced space, which serves as a magnet in attracting and retaining talent to drive growth. This has been compounded by low levels of new office development over recent years.

5

**SPACE AS AN ACCELERATOR OF INNOVATION** - the fourth phase of going global does not alter the need for offices but does change the way in which offices are utilised. No longer a battery farm for email processing and administration, offices are being used as innovation labs with corporates such as Coca-Cola, Telefonica, and Capital One creating distinct business accelerators and incubators within the Global Cities.

> **We are now in a fourth phase of global business growth; in which speed takes precedence over size.**

People and property costs across the Global Cities




Source: Knight Frank; Deutsche Bank AG 'Mapping the world's prices, 2017'.



CHHATRAPATI SHIVAJI INTERNATIONAL AIRPORT

# THE RISE OF NAVI MUMBAI

*A new business district was needed for Mumbai, beyond the city centre, to house its tech sector*

VIVEK RATHI, Vice President Research, Knight Frank India

Mumbai's CBD and Off-CBD comprises locations like Nariman Point, Fort, Cuffe Parade and Worli. Until the late 1990s, these districts accounted for more than 90% of the office stock in the city and were the only meaningful locations in the city from an occupier's perspective, mainly on account of their indomitable status as the commercial and trade hub of the city. However, continued growth in commerce and a shortage of land in the CBD encouraged new office development post-2000 elsewhere.

Attracting occupiers mainly from the IT/ITeS sector, Navi Mumbai has emerged as the tech hub of the city, accounting for one-fifth of the current office stock. In the last decade, the emergence of Navi Mumbai, the satellite city of Mumbai, led to office developments mainly in locations like Airoli, Vashi, Mahape, Turbhe and Belapur. Central to its success has been the availability of large land parcels, which paved the way for development of modern buildings, offering large floor plates and affordable rentals.

# BUILT TO SERVE

What are main issues faced by occupiers in Beijing, Dallas, Mexico City, and Dublin? Four local experts provide their insights.

*David Ji, Head of Research & Consultancy, Knight Frank Greater China*

HOW WILL UPCOMING NEW SUPPLY RESHAPE THE OCCUPIER MARKET IN BEIJING?

We estimate that Beijing will see approximately 35.5 million sq ft of grade A office space coming to the market between 2017 and 2021, mostly in the CBD. This means that the average annual supply in the next five years will reach 7.1 million sq ft. However, in the past ten years, the annual average absorption of grade A space was 4.6 million sq ft. The challenge facing capital is whether the market can rapidly absorb the glut of supply ahead.

As occupiers will be spoilt for choice we believe that the balance of power in negotiations will switch from the landlord towards the tenant.

As the quality of the new office space is much higher, competition between new buildings to attract prospective tenants is fierce, especially in the CBD area. Build quality aside, good location, and more importantly, incentives, discounts, and more flexible leasing terms will be factors in attracting occupiers.

*Graham Hildebrand, Director of Research & Marketing - Texas, Newmark Knight Frank*

WHAT ARE THE KEY FACTORS DRAWING SO MANY COMPANIES TO THE DALLAS SUBURBS?

Dallas's market benefits from a business-friendly climate, strong economy and thriving population. Its diversified employer base allows for growth during varied business climates. The current cycle has so far seen the creation of more than 732,000 new jobs, or roughly the population of Zurich, Switzerland, added to the economy. Rapid tenant growth has resulted from the sheer number of corporate relocations and expansions currently underway, in addition to those announced for future occupancy.

The availability of land for corporate campuses, proximity to housing and depth of employee talent have made suburbs such as Frisco, Grapevine and Plano the destinations of choice for corporations, with nearly 100 such announcements made since 2015. These developed and planned locations, including the "$5 Billion Mile" in Frisco, will add nearly 12 million sq ft of office space and are anchored by headquarters locations for JCPenney, FedEx Office, Liberty Mutual, State Farm and Verizon, among others.





*Juan Flores, Director of Research - Mexico Newmark Knight Frank*

HAS THE NEW GOVERNMENT IN THE U.S. IMPACTED THE WILLINGNESS OF INTERNATIONAL CORPORATIONS TO BASE OPERATIONS IN MEXICO CITY?

International firms in Mexico have maintained their growth expectations and investment plans. Perhaps those expectations are not as optimistic as they were in the previous decade, but most of these companies have decided to ride out the storm. In the end, the ties between both economies are stronger than the actions any government may take to bring them down.

The Mexico City market has become more modern in recent years, with a number of state-of-the-art buildings that are attracting a growing number of foreign users, making asking rents highly competitive. Occupiers are also taking into account such internal factors as space efficiency and financing options offered by developers. External factors, like access to public transportation, security and amenities, are also playing a major role in the occupancy of new space.

Today, the occupier market is driven principally by businesses in the telecommunications, financial and insurance industries.

**The Mexico City market has become more modern in recent years, with a number of state-of-the-art buildings that are attracting a growing number of foreign users.**

*John Ring, Head of Research, Knight Frank Ireland*

HOW HAS THE GROWING IMPORTANCE OF THE TECH SECTOR INFLUENCED OCCUPIER TRENDS IN DUBLIN?

'Flexibility' has become a key word in the Dublin office occupier's lexicon. Flexibility is highly valued in the tech industry due to the fast evolving nature of the sector which demands a high degree of adaptability to changing circumstances. With tech accounting for the lion's share of Dublin's office take-up – Google, Facebook and Twitter all have their European Headquarters here – the industry has brought this emphasis on flexibility to Dublin's occupier market. As a result, landlords have had to react. Hence, we are seeing the traditional 25-year institutional lease of old giving way to more flexible terms of shorter duration. The drive for flexibility is also influencing occupier fit-out habits, with activity based working and coworking culture set to take-off in a significant way. Lastly, tech employees are seeking the flexibility allowed by living close to work, which is driving demand for city centre apartment living.

Torre Mayor, Mexico City

# A STATEMENT *of* INTENT

The move to a new office is increasingly being used to drive a wider process of business transformation.

DR LEE ELLIOTT
Head of Commercial Research, Knight Frank

Hudson Yards on Manhattan's West Side

The days when the office was viewed by business leaders as simply a container in which to place people are long gone. Today, the office has become a mechanism through which wider strategic objectives can be advanced. Consequently, the relocation process has a lot hinging on it.

In reviewing the key leasing transactions that have taken place in the Global Cities over recent years, it is abundantly clear that the majority of deals are indeed underpinned by one or more the five broader strategic considerations shown at the foot of this page.

A case point is the recent reconfiguration of the Australian offices of KPMG. These moves saw the Big Four professional services firm commit to over 300,000 sq ft in Tower 3 at the International Towers Complex in Sydney's new Barangaroo district, and to a similar amount of tower space at Collins Square near Melbourne's Southern Cross Station.

KPMG realised that a relocation into new space presented a tremendous opportunity to re-set the business away from a 'conservative' image towards one that was more innovative and progressive. In short, an image that was aspirational to the next generation of KMPG people; but which also excited and empowered the existing workforce, whose average age is just 28.

It was also a move that illustrated to clients that KPMG was a business which created innovative solutions and services, via a collaborative ethos. In this sense, the internal configuration and fit-out of the space was as important as the modern, cutting edge exteriors of the buildings. Associated with the relocations therefore was a corporate mission to create the 'workplace of the future' – space that is productive through the application of technology; that enables collaboration between employees by encouraging agility; and space which perpetuates a true sense of community. The total space taken by KPMG across the two cities has actually reduced – something that clearly supports the inevitable financial considerations of occupation. Yet despite this, the business is firmly re-set through its innovative use of well-considered and well-designed real estate.

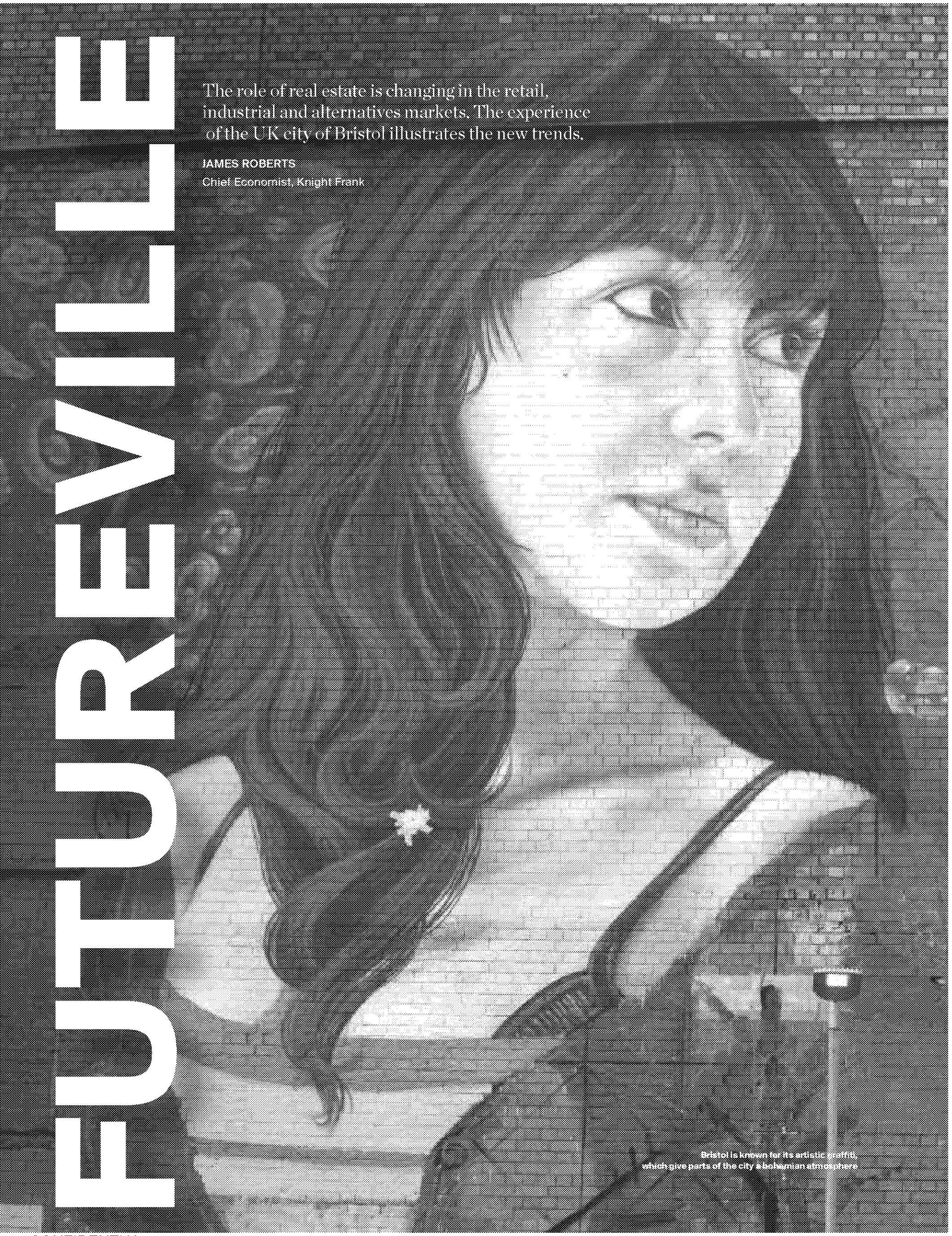
KPMG's new and vibrant Melbourne office

This theme of using new office space to make a statement is also evident in the relocation of the New York office of global law firm, Cooley LLP. Moving from 100,000 sq ft in Midtown Manhattan's Grace Building, Cooley has committed to 130,000 sq ft across five upper floors at 55 Hudson Yards – a 50-storey tower at the heart of an exciting new neighbourhood emerging on Manhattan's West Side. As the firm approaches its centenary year in 2020, there is clear symbolism in a move to a LEED gold-rated building, which represents what Cooley's CEO, Joe Conroy, describes as being "among the world's most sophisticated law firm office spaces". This is a building which, as well as being a clear corporate commitment to New York City, also makes a bold statement about Cooley as a global law firm best positioned for the next generation.

These are just two examples of real estate being utilised by occupiers to drive a wider transformation of business profile or processes. There are many more playing out across the Global Cities on a daily basis. As real estate moves re-set businesses and enable strategic objectives to be fulfilled, competitive advantage ensues. This creates pressure for others to follow-suit. On this basis, real estate decisions will forever represent a clear statement of corporate intent.

FOR MANY BUSINESSES A MOVE TO A NEW OFFICE CAN:

1. SUPPORT THE TRANSFORMATION OF COMPANY CULTURE
2. USHER IN NEW WORKING PROCESSES AND BEHAVIOURS
3. AID THE ATTAINMENT OF CORPORATE AND SOCIAL RESPONSIBILITY (CSR) TARGETS
4. SERVE AS A KEY COMPONENT OF TALENT ATTRACTION AND RETENTION STRATEGIES
5. ACTIVELY PROMOTE A BRAND'S IDENTITY AND VALUES



# FUTUREVILLE

The role of real estate is changing in the retail, industrial and alternatives markets. The experience of the UK city of Bristol illustrates the new trends.

JAMES ROBERTS
Chief Economist, Knight Frank

Bristol is known for its artistic graffiti, which give parts of the city a bohemian atmosphere

The emergence of new technology has sparked a debate on how much commercial real estate will be needed in the future. Change of use will be part of the solution, although there is an emerging picture of real estate finding its place in the new digital economy, by doing what a physical place does best – bringing people together to communicate and interact. This is leading to radical new formats reflecting different lifestyles and the possibilities of the new technology.

Bristol, in the south west of Britain, is a multi-faceted city. Historic, but a centre for hi-tech industries. A university city, yet famous for its street graffiti. A hub for lawyers and bankers, with a vibrant nightlife. This complex city offers insights on how real estate is adapting to trends in the digital economy.

**THINKING INSIDE THE BOX**

Containerization led to closure of the docks in the centre of Bristol – known locally as the Floating Harbour. This makes it ironic that within the expansive redevelopment of the Floating Harbour – with its modern apartments, riverside bars, and historic ships – a shopping mall called Cargo has opened, consisting entirely of shipping containers. Cargo's retailers are niche, independent, and add a sense of the bohemian to the local area.

The container mall is a phenomenon that is spreading fast around the globe – from Toronto's Market 707 to Boxpark in Shoreditch, to Re:START in Christchurch, New Zealand. The concept is proof that retail is evolving to match the lifestyles of city dwellers who are seeking new experiences, and comfortably move between the everyday and the unconventional. The container mall also shows how real estate is complementing the rise of e-commerce, by supplying the lifestyle experience in the retail mix.

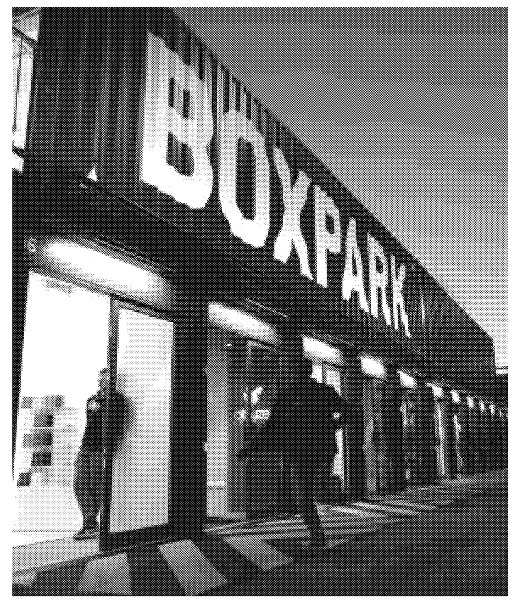
**THE HUMAN FACTOR**

Internet and wifi never killed off the office – as some pundits predicted – in part because humans like to be around humans. Across the Global Cities start-up entrepreneurs, who could work from home, pay money and go through a daily commute in order to sit in a coworking office. This happens for many reasons. A spare bedroom in the suburbs is a lonely place to work, while face-to-face interaction has far more possibilities for conveying information than any email. All of this is true of retail, which is why the sector is adapting to the rise of online shopping by refocusing on human interaction and experience.

A citizen of Bristol's Southville – once a factory district, but now a gentrified suburb peppered with artsy graffiti – can meet a friend in a shipping container café, and rub shoulders with the trendy crowd. They then go shopping in Cabot Circus (a modern retail mall), and try on designer clothes. If our Southville resident tires of the branded stores, then they could head over to Clifton, a well-heeled area known for its Georgian architecture, and explore the boutique shops and posh bars.

Following all this human interaction and variety of experience, the surprising part happens: the shopper goes home and buys the goods online. The same blending of physical and virtual worlds is found across the globe – from Chicago to Delhi to Melbourne. The process can also happen in reverse, with the initial research conducted online, but the actual purchase made on a trip to the city centre.

> **The container mall also shows how real estate is complementing the rise of e-commerce, by supplying the lifestyle experience in the retail mix.**




Container malls, like Boxpark in Shoreditch, London, are a rising tide in retail

**MULTI-CHANNEL WORLD**

E-commerce is not a replacement for physical shops, but it has changed thinking on how a retailer interacts with the shopper. There is an overall retail experience that stretches beyond any one shop. This is not a new concept, but there is a growing realisation that the experience cannot be managed within a single mall or main street.

In the typical Global City today, one finds districts matching lifestyles which are interdependent upon other districts offering different experiences. Bohemian craft shops in one place, designer boutiques in another, and each playing a mutually beneficial role in drumming up trade. This generates a critical mass of shoppers within the city centre. Developers are applying more thought to the journey between these different locations. This is stretching beyond landscaped public realm, to include street markets, lunchtime concerts, and weekend events.

In the future we see further blurring of these lines between retail and lifestyle, with web apps allowing on-the-spot customisation of goods, for home delivery. Retail property will provide a 'town square' of idea generation and interaction, with other shoppers and store employees (who will increasingly become product experts) collaborating via social media to help us decide on the optimum product to buy. In the future, the choice of a wedding outfit could be crowd sourced.

**FACTORY OR SHED?**

Like many developed economy cities, Bristol has long since realigned from manufacturing to services. Consequently, industrial property in the region more commonly refers to logistics not manufacturing facilities. The rise of e-commerce has been a fillip for logistics property demand.

For logistics, a city is never just the municipal boundaries but takes in the wider economic zone of influence, including satellite towns, surrounding countryside, airports and port facilities. To set alongside the mega-sheds that serve such vast areas, the rise of e-shopping has increased demand for smaller, suburban sheds, where the goods can be transferred from trucks to small vans for local delivery. Another trend is co-location, with big distributors allowing partner companies to occupy a section of a shed.

Driverless vehicles and warehouse automation will speed through flow of goods, and accelerate the trend towards central facilities supported by suburban sheds, which in the future will turn into launch pads for delivery drones. Robotics will also create future demand for edge of city centre industrial units, as repair shops and storage facilities for driverless taxis and street cleaning robots.

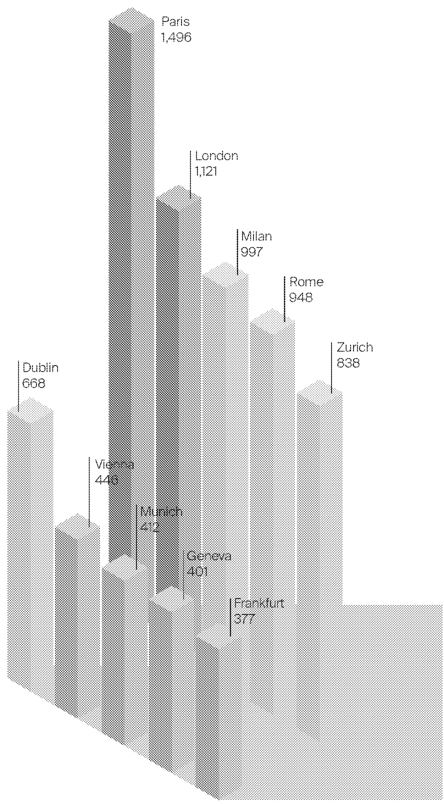
With ever greater automation, the need to base manufacturing in countries with low labour costs is dwindling. This is bringing production back on-shore, and some warehouses just outside developed economy cities may be redeveloped as factories. In contrast, some factories in developing nations may switch to logistics use; as rising living standards creates demand for sheds from e-shopping firms.

**ALL CHANGE**

With the advent of driverless cars, the need for so many parking spaces will dwindle. When you step out of a driverless Uber vehicle someone else will jump in. The huge expanses of car parking

**The emerging picture is one of real estate repositioning itself to match changes in lifestyle initiated by the new possibilities of the technology we access.**

Top Ten European Prime Retail Rents by City US$ per sq ft




Source: Oxford Economics
Note: Based on Q1 2017 figures, US$ exchange rate based on Oanda.com for 31st March 2017



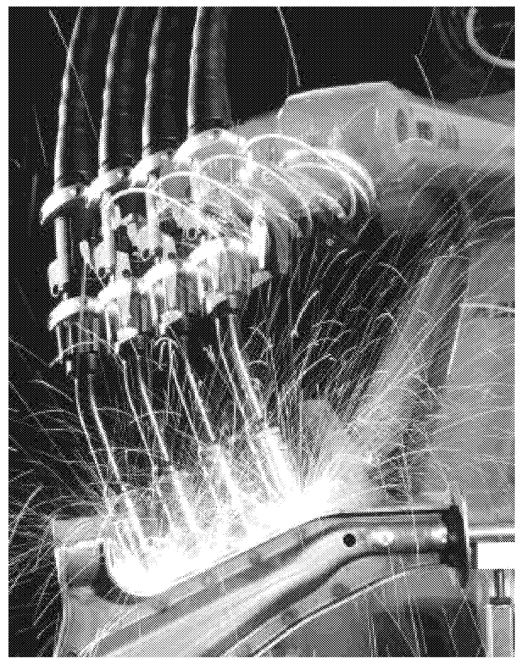
next to shopping malls and office buildings will be freed up for redevelopment. Fortunately, demand for other types of real estate is growing.

In 2016, 122 million Chinese tourists took holidays abroad, spending US$109.8 billion overseas, with Thailand and Indonesia popular for holidays; and Japan and South Korea for 'medical tourism', according to CTA. However, just 16% of Chinese tourist spending happens overseas at present, pointing to further growth to come. Taken alongside increasing personal wealth in other developing nations, this bodes well for future growth in global tourism, and consequently demand for hotels and leisure property.

Bristol's hotel and leisure market does well from the rise of staycation in developed economies, particularly short city breaks, creating demand for a variety of hotel and leisure formats. This can range from budget hotels to luxury spas. Tech disruption has reached the hotels sector, with the rise of online firms like Airbnb. However, hotels will always be able to compete on the experience factor, which has helped retail property to find its place in relation to internet alternatives.

Another real estate sub-sector that is common in Bristol is student accommodation. Its two universities are playing an ever greater role in the city's economic and social life, and a variety of

Bristol's retail market ranges from Cabot Circus, a modern mall, to boutique shops in Clifton



Automation will bring more factories back to the west

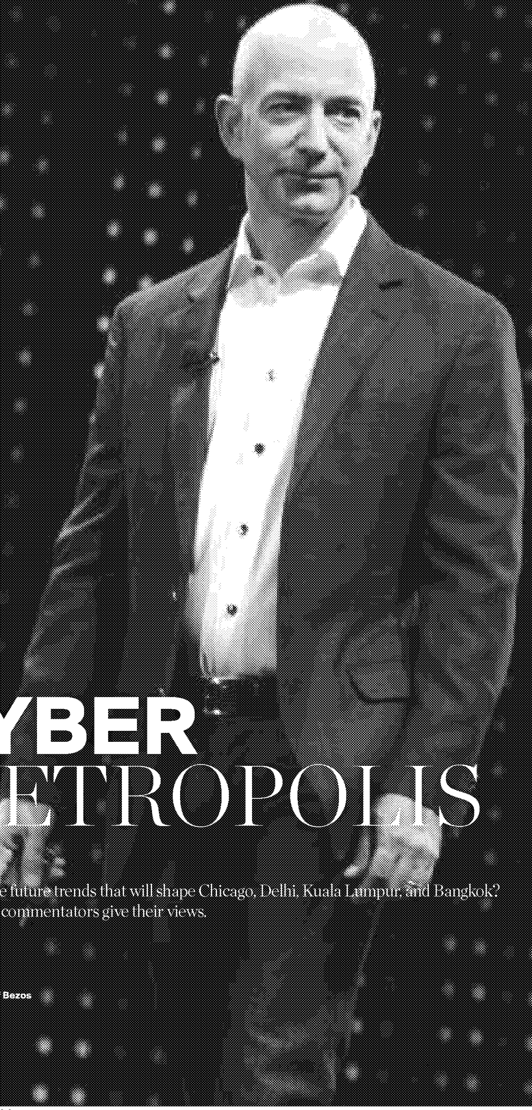
needs and budget levels must be met. For foreign students cultural barriers can make 'living out' in a flat in the city difficult, while post-graduate students often seek better quality accommodation. Consequently, the variety and quality of student residences has broadened.

Moreover, the coworking office giant WeWork is taking the 'student hall' approach beyond academia, with its new WeLive communal housing business. This opens new possibilities in multi-family housing, another growing market in the modern city. Moreover, there is evidence that not all older citizens want to stay in the suburbs when children leave home, resulting in a return to city centre living for the senior demographic. In the long-run this could underpin a market for city centre retirement apartments and care homes, in response to a greying urban population.

**REAL ESTATE'S NEW ROLE**

The emerging picture is one of real estate repositioning itself to match changes in lifestyle initiated by the new possibilities of the technology we access. The internet is not making shops or offices redundant, but they are now repositioning as forums for human interaction, thus fulfilling a role that the online world struggles to replicate – the rich experience and riot of information that comes from being around other people.

There is further disruption to come. Robotics will bring factories back to the fringes of developed cities, and shift Asian factory cities towards service industries. New types of industrial property will be needed in a future world of driverless cars. As driverless technology frees up land for redevelopment, opportunities will emerge in the markets for hotels, student accommodation, and multi-family housing.



# CYBER METROPOLIS

What are the future trends that will shape Chicago, Delhi, Kuala Lumpur, and Bangkok? Our market commentators give their views.

Amazon CEO Jeff Bezos

**How is the rise of e-commerce impacting demand for logistics real estate in Chicago?**

In Chicago, the rise of e-commerce coupled with Americans' preference for speedy deliveries has created unprecedented demand for distribution centers and logistics real estate. The demand for same-day or next-day delivery has helped drop the vacancy rate to new lows while causing construction starts to skyrocket. E-commerce has accounted for several of the largest transactions completed in Chicago in the last 18 months, with Amazon completing 4.4 million sq ft in deals.

Online retailers require more distribution space than traditional retailers, because they need to individually package single items. Historically, e-commerce distributors have demanded massive, single locations, but with the promise of faster delivery times the single warehouse model is becoming inefficient. Future demand for industrial space will come from the 'last-mile' fulfilment centers that are located along major highways and have sufficient loading dock infrastructure. These fulfilment centers will be key to establishing delivery networks that allow online retailers to achieve delivery deadlines.

AMY BINSTEIN
Research Manager – Chicago
Newmark Knight Frank

**How has the rise of online shopping in Delhi impacted demand for physical shops?**

Traditionally, Delhi has been an amalgamation of shopping streets and malls, but the latest addition to its retail landscape is the rise of internet shopping that is taking the capital by storm. Delhi has an Internet user base of 12.1 million making it a ready destination for online retailers. Coupled with this, factors such as favourable demographics and a fast-paced lifestyle have added to the attractiveness of the 'click-and-sell' model.

Online retail and physical shops are mutually supportive; as online shopping offers convenience and discounts, while shops allow the customer to experience the goods. This is leading to the synergy between modern malls and internet shopping in Delhi. Brands such as H&M, GAP, and Nike offer multiple touch points to customers, and see internet shopping as a natural extension of their offline business in malls. This ground shift in the buying pattern of the populace, points towards a paradigm shift in the retail market.

ANKITA SOOD
Lead Consultant, Research & Advisory Services, Knight Frank India

**How are new and upcoming infrastructure projects changing the Kuala Lumpur real estate market?**

The public transport network serving Greater Kuala Lumpur (GKL), home to more than 8 million people, at about 45 km rail length per million people is comparable to that of Singapore and Hong Kong. The 51 km Sungai Buloh-Kajang mass rapid transit line (MRT Line 1) provides interchange with the light rail transit (LRT), KL Monorail, KTMB Komuter, and KLIA Express lines. GKL's connectivity is set to improve with additional rail lines totalling 130 km in the development pipeline or proposed.

Thanks to the expanded transport infrastructure, decentralised office locations such as Kuala Lumpur Sentral, Damansara Heights, Bangsar South and the Taman Tun Dr Ismail - Bandar Utama – Mutiara Damansara corridor, continue to draw interest from local and multi-national occupiers. There is also a rise of transit-oriented developments (TODs) and emerging property hotspots in GKL.

Moving forward, the Kuala Lumpur-Singapore High Speed Rail (HSR) project is a game-changer for the two countries.

JUDY ONG
Executive Director - Research
Knight Frank Malaysia

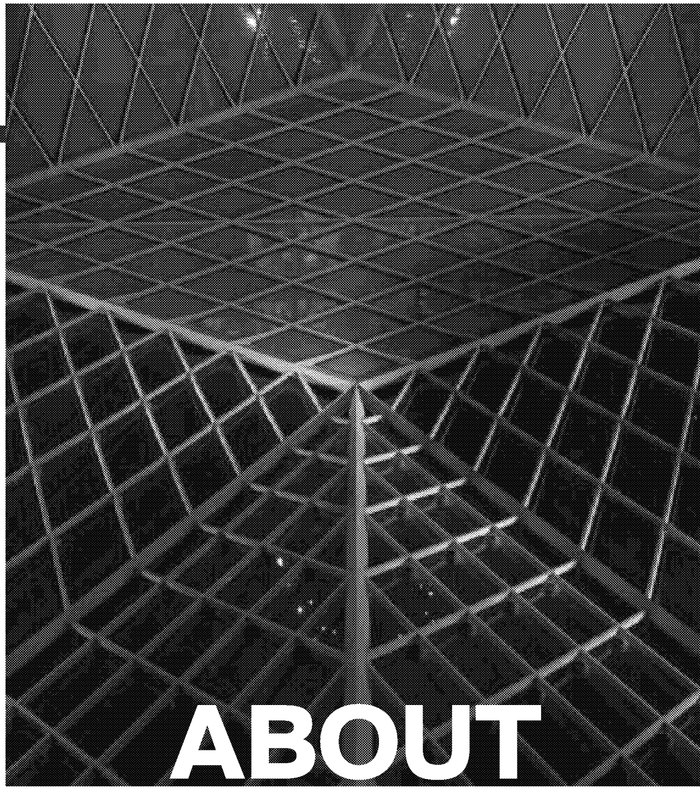
**How are technological advances changing the real estate market in Bangkok?**

E-commerce has transformed the retail landscape in Bangkok, however bricks-and-mortar stores will stay. To maximize the efficiency of their existing physical stores, we expect to see retailers growing sales via a multi-channel strategy, where offline and online stores support each other.

Retailers that are smart at balancing and optimizing the customer experience across channels are the ones that are winning. This is why we are seeing so many examples of online retailers that are now opening physical stores. E-commerce is also generating more demand for office and warehouse space, as online firms have expanded aggressively, acquiring offices and warehouses to operate from.

Technology is likely to evolve at a faster pace and continue to transform the lifestyle of people. Technological advances will allow people to bypass existing infrastructure and developmental constraints, and the impact on real estate is likely to be positive as well as transformational.

RISINEE SARIKAPUTRA
Head of Research and Consultancy
Knight Frank Thailand



# ABOUT THE GROUP

At Knight Frank and Newmark Knight Frank, we build long-term relationships, which allow us to provide personalised, clear and considered advice on all areas of property in all key markets. We believe personal interaction is a crucial part of ensuring every client is matched to the property that suits their needs best – be it commercial or residential.

Operating in locations where our clients need us to be, we provide a worldwide service that is locally expert and globally connected.

We believe that inspired teams naturally provide excellent and dedicated client service. Therefore, we have created a workplace where opinions are respected, where everyone is invited to contribute to the success of our business, and where they are rewarded for excellence.

The result is that our people are more motivated, ensuring your experience with us is the best that it can be. Together, Knight Frank and Newmark Knight Frank have a global platform of more than 15,000 people across 418 offices in 60 countries.

Important Notice



This report was researched and written during the period May to late August 2017, based on evidence and data available to Knight Frank LLP and Newmark Knight Frank at the time. Rents quoted in the reports are in US dollars, but growth rates are in local currencies to remove exchange rate effects. Americas rents quoted in this report are prime average asking rents, whereas rents in other geographies are quoted normal prime achieved.

RESEARCH

# MANHATTAN
## 3Q17 OFFICE MARKET

# LARGE DEALS DRIVE A STRONG QUARTER OF LEASING

The Manhattan office market recorded 9.3 million square feet of leasing activity in the third quarter of 2017, a 6.3% increase from the third quarter of 2016. This year, 28.5 million square feet of space has been signed, with 37 deals signed over 100,000 square feet. Fourteen of these were signed in the third quarter alone. This year-to-date leasing total is 5.1% above the 10-year average and up 4.2% from last year's total of 27.4 million square feet. Government and membership organizations signed three of the top four deals this quarter.

Despite a drop in availability this quarter to 12.3%, Manhattan overall availability increased 80 basis points year-over-year. Over the past four quarters, there has been a net addition of 4.1 million square feet of available space, 69.8% of which has been sublease space. Consequently, Manhattan has posted net absorption of negative 2.8 million square feet year-to-date.

While Manhattan overall asking rents have grown 4.7% per annum over the past five years, they have decreased 1.1% year-over-year to $75.87/SF at the end of the third quarter. The addition of large blocks of space at competitively priced buildings and the rise of sublease space have contributed to the decline in the total average asking rent.

TAMI tenants leased 12.7% of the total square footage signed this quarter, down from 16.4% in the third quarter of 2016. Amazon signed the largest TAMI deal of the quarter at 5 Manhattan West on the Far West Side for 360,000 square feet. MacMillan Communications relocated from 175 Fifth Avenue into 260,836 square feet at 120 Broadway.

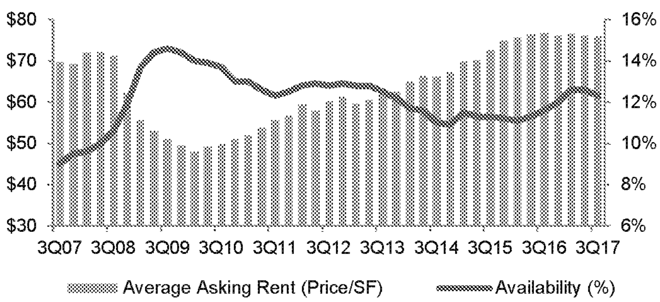
FIRE sector transactions accounted for 1.3 million square feet, or 14.4% of the total square feet leased throughout this quarter. This is 12.6% less than was leased a year ago. Only two of the largest 10 transactions this quarter were FIRE tenants. Morgan Stanley renewed and expanded into an additional 57,000 square feet of space for a total of 227,552 square feet at 1221 Avenue of the Americas. Guardian Life Insurance signed a deal to relocate into 148,318 square feet of Coach's sublease space at 10 Hudson Yards. Additionally, the Stagwell Group, an investment firm, leased 83,955 square feet at 1 World Trade Center in an effort to consolidate its 14 subsidiaries.

## Current Conditions

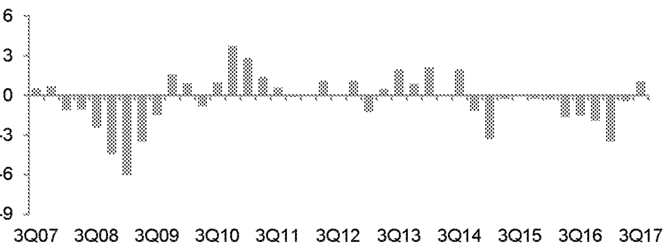
- Manhattan overall availability dropped 30 basis points as a result of large blocks leased this quarter in Midtown and Downtown.
- Although Manhattan overall asking rents have grown 4.7% per annum over the past five years, they have decreased 1.1% year-over-year in the third quarter.
- Government tenants and membership organizations signed three of the top four deals this quarter—ranks typically held by TAMI and FIRE.

## Market Analysis

**Asking Rent and Availability**




**Net Absorption**
Square Feet, Millions




## Market Summary

| | Current Quarter | Prior Quarter | Year Ago Period | 12 Month Forecast |
|---|---|---|---|---|
| Total Inventory | 448MSF | 448MSF | 443MSF | ↑ |
| Availability Rate | 12.3% | 12.6% | 11.6% | ↑ |
| Quarterly Net Absorption | 1,039,357 | -434,570 | -1,513,254 | ↓ |
| Average Asking Rent | $75.87 | $76.07 | $76.75 | ↓ |
| Under Construction | 13.9MSF | 11.4MSF | 11.1MSF | ↑ |
| Deliveries | 71,000 | 221,720 | 120,413 | ↑ |

## Midtown:

### Leasing Accelerates

Midtown leasing totaled 5.9 million square feet, 20.0% above the 10-year quarterly average and 2.0% higher than in the prior quarter. Seven of the largest 10 deals of the quarter occurred in Midtown. The Far West Side led all submarkets with 720,353 square feet of net absorption, driven by four deals above 100,000 square feet. This brings the total occupancy of the buildings on the Far West Side with an approximate completion date over the next five years to 76.5%.

Of the seven blocks of space that came on the market in Manhattan, six were in Midtown. The largest was at 330 West 42nd Street in the Times Square submarket, where a 661,960-square-foot block came on the market, mostly because of 1199SEIU United Healthcare Workers East and some smaller tenants vacating the property. In Times Square South, a 206,917-square-foot block became available at 498 Seventh Avenue as a result of Liquidnet Holdings, which is reported to be looking at alternative spaces within the same submarket.

Strong leasing outpaced the addition of large blocks, causing positive net absorption of 1.1 million square feet. This is on the heels of negative absorption in nine out of the previous 10 quarters.

Asking rents averaged $80.78/SF this quarter, down 100 basis points from the prior quarter and down 2.5% from last year.

## Midtown South:

### Slow Leasing Drives Absorption Negative

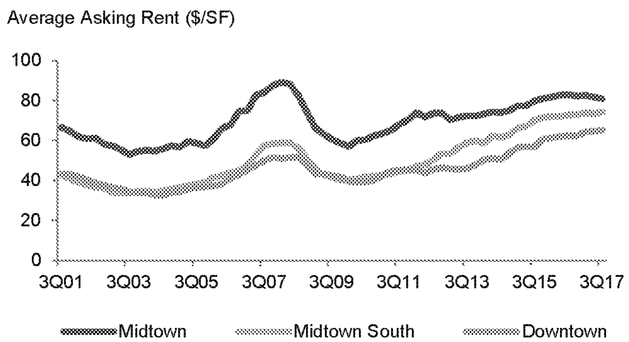
Leasing in Midtown South totaled 1.3 million square feet during the third quarter. This represents a 26.8% increase from the 1.0 million square feet leased in the third quarter of 2016 but is 43.9% below the 10-year quarterly leasing average. Only 15 deals above 20,000 square feet occurred in Midtown South this quarter.

While Midtown South remains the market with the lowest availability rate in Manhattan, 2.4 million square feet of space has hit the market over the past year, pushing availability up 310 basis points to 11.1%. Tepid leasing and an increase in availability pushed absorption to negative 488,441 square feet for the seventh consecutive quarter.

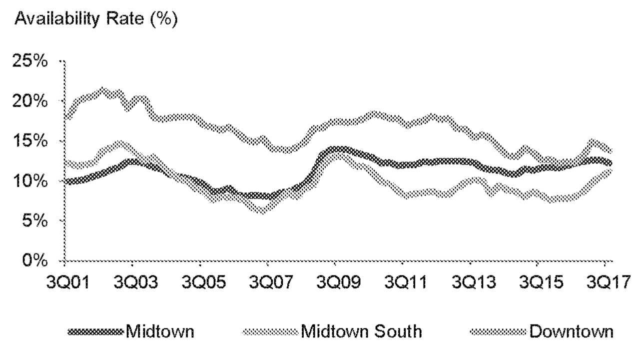
Several notable tenants signed expansion deals in the third quarter. In the largest deal of the quarter, Group Nine Media renewed and expanded its space at 568 Broadway for 100,000 square feet. Square Space, a computer services website, expanded into an additional 49,705 square feet of space at 225 Varick Street. WeWork expanded its headquarters by 40,650 square feet at 115 West 18th Street. Yelp, another major TAMI company, expanded by 39,565 square feet at 11 Madison Avenue.

Midtown South asking rents rose 2.3% year-over-year to $74.26/SF this quarter, as a result of both new construction and spaces that became available in prime buildings.

### Average Asking Rent by Submarket




### Availability by Submarket



## Downtown:

### Government Tenants Dominate

The Downtown market ended the quarter with 1.8 million square feet of leasing activity. This is 14.6% above the 10-year quarterly average and is 41.2% higher than leasing at this time last year. Three of the five largest deals that were signed in Manhattan during the quarter occurred Downtown. Availability decreased by 60 basis points quarter-over-quarter but increased by 150 basis points year-over-year to end the quarter at 13.8%. Nevertheless, Downtown still has the largest availability of all the major markets, largely a result of the addition of 3 World Trade Center in the first quarter.

Two of the top three deals were government agencies, which reflects the ongoing commitment of the government tenants that maintain major tenancy in this market. The New York City Housing Authority renewed its 461,000 square feet at 90 Church Street in the Downtown West submarket, and the New York City Department of Investigations expanded its space at 180 Maiden Lane for a total of 276,000 square feet. Yet another government agency, the New York City Department of Sanitation, signed a deal to relocate out of 137 Centre Street into 72,180 square feet at 375 Pearl Street, which is currently under renovation. The Department of Sanitation will join the ranks of the Human Resources Administration and the Department of Finance, which have also signed leases to occupy portions of the old Verizon Building.

Downtown average asking rents have consistently been increasing, shrinking the gap between it and the other markets. The average asking rent Downtown ended the quarter at $65.06/SF, 4.3% higher than at this time last year.

### Midtown Lease Transactions

| Tenant | Building | Submarket | Type | Square Feet |
|---|---|---|---|---|
| 1199SEIU United Healthcare | 498 Seventh Avenue | Times Square South | Direct New | 580,000 |
| Amazon | 5 Manhattan West | Far West Side | Direct New | 360,000 |
| Accenture | 1 Manhattan West | Far West Side | Direct New | 250,000 |
| Morgan Stanley | 1221 Avenue of the Americas | Sixth Avenue/Rockefeller Center | Direct Renewal | 227,552 |
| Estee Lauder | 767 Fifth Avenue | Plaza District | Direct Renewal | 220,000 |

### Midtown South Lease Transactions

| Tenant | Building | Submarket | Type | Square Feet |
|---|---|---|---|---|
| Group Nine Media | 568 Broadway | Noho/Soho | Direct Renewal/Expansion | 100,000 |
| Justworks Inc | 601 West 26th Street | Chelsea | Sublease New | 59,140 |
| Squarespace | 225 Varick Street | Hudson Square/Meatpacking | Direct Expansion | 49,705 |
| WeWork | 115 West 18th Street | Chelsea | Direct New | 40,650 |
| Yelp | 11 Madison Avenue | Flatiron/Union Square | Direct Expansion | 39,565 |

### Downtown Lease Transactions

| Tenant | Building | Submarket | Type | Square Feet |
|---|---|---|---|---|
| New York City Housing Authority | 90 Church Street | Downtown West | Direct Renewal | 461,000 |
| New York City Dept. of Investigation | 180 Maiden Lane | Downtown East | Direct New | 276,000 |
| MacMillan Communications, Inc. | 120 Broadway | Downtown East | Direct New | 260,836 |
| WeWork | 115 Broadway | Downtown West | Direct New | 85,000 |
| Stagwell Group | 1 World Trade Center | Downtown West | Direct New | 83,955 |

## Submarket Statistics

| | Total Inventory (SF) | Under Construction (SF) | Total Availability Rate | Qtr Absorption (SF) | YTD Absorption (SF) | Direct Asking Rent (Price/SF) | Sublet Asking Rent (Price/SF) | Total Asking Rent (Price/SF) |
|---|---|---|---|---|---|---|---|---|
| **Midtown** | **279,714,060** | **10,154,170** | **12.2%** | **1,102,039** | **228,960** | **$82.73** | **$69.87** | **$80.78** |
| Eastside | 24,315,048 | 90,505 | 10.3% | 139,049 | -187,226 | $76.87 | $61.54 | $74.20 |
| Far West Side | 6,576,361 | 6,000,000 | 8.3% | 720,353 | 403,093 | $106.23 | NA | $106.23 |
| Grand Central | 45,782,051 | 2,576,665 | 13.6% | 130,750 | 249,959 | $77.61 | $57.97 | $74.91 |
| Murray Hill | 7,837,204 | | 8.4% | -84,440 | 10,219 | $57.69 | $54.38 | $56.90 |
| Park Avenue | 26,294,031 | 670,000 | 12.1% | 400,436 | 288,074 | $112.50 | $87.03 | $105.93 |
| Penn Station | 21,078,692 | 750,000 | 10.7% | -174,474 | -538,685 | $66.23 | $60.73 | $65.44 |
| Plaza District | 27,099,287 | | 16.7% | 32,585 | -229,014 | $115.14 | $78.51 | $112.04 |
| Sixth Ave/Rock Ctr. | 44,989,557 | | 11.4% | 503,397 | 911,303 | $84.42 | $87.46 | $84.99 |
| Times Square | 14,803,805 | | 13.0% | -701,043 | -441,272 | $77.48 | $61.81 | $76.22 |
| Times Square South | 35,334,092 | | 13.3% | 6,122 | -338,898 | $64.10 | $53.11 | $62.18 |
| Westside | 25,603,932 | 67,000 | 9.2% | 129,304 | 101,407 | $69.36 | $60.47 | $68.76 |
| **Midtown South** | **73,713,227** | **1,241,098** | **11.1%** | **-488,441** | **-1,798,694** | **$75.07** | **$71.78** | **$74.26** |
| Chelsea | 24,832,191 | 711,510 | 10.4% | 187,861 | -98,718 | $72.06 | $75.07 | $72.91 |
| East Village | 1,425,593 | 199,772 | 3.0% | -14,283 | -16,612 | $50.89 | NA | $50.89 |
| Flatiron/Union Square | 26,821,288 | 73,332 | 10.8% | -670,300 | -1,092,651 | $73.23 | $74.69 | $73.40 |
| Hudson Square/Meatpacking | 11,667,014 | 175,484 | 15.9% | -10,566 | -316,539 | $85.16 | $69.82 | $79.62 |
| Noho/Soho | 8,967,141 | 81,000 | 8.9% | 18,847 | -274,174 | $71.08 | $61.62 | $67.12 |
| **Downtown** | **94,938,958** | **2,500,000** | **13.8%** | **425,759** | **-1,297,764** | **$66.42** | **$51.69** | **$65.06** |
| Downtown East | 49,828,327 | | 11.9% | 428,462 | 121,371 | $58.20 | $47.24 | $57.21 |
| Downtown West | 36,504,641 | 2,500,000 | 16.9% | -91,866 | -1,668,865 | $73.61 | $55.00 | $71.63 |
| Tribeca/City Hall | 8,605,990 | | 11.5% | 89,163 | 249,730 | $69.66 | $61.18 | $69.55 |
| **Manhattan** | **448,139,207** | **13,895,268** | **12.3%** | **1,039,357** | **-2,867,498** | **$77.35** | **$67.42** | **$75.87** |

# ECONOMIC CONDITIONS

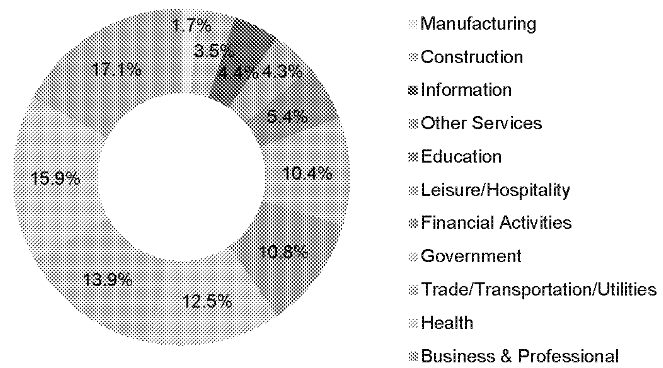
New York City's unemployment rate increased to 5.1% in August 2017, rising just above the full employment rate (generally considered to be 5.0%) for the first time since the fourth quarter of 2016, and above the U.S. rate. However, the current rate remains below last year's rate of 5.5%.

The New York City payroll employment continued to rise through August 2017, growing 2.1% over the past year to reach 4.41 million jobs. The growth came mostly as a result of the private sector, adding 89,000 jobs, while the government sector only added 500 jobs comparatively.

The education sector experienced the strongest growth percentage over the year with a growth of 8.6%. Professional and Business services employment grew by 3.7% over the past year, while the financial sector employment saw a modest grow of 0.9%. Information employment saw a net loss of 5,000 jobs, a 2.5% decrease.

## Employment By Industry

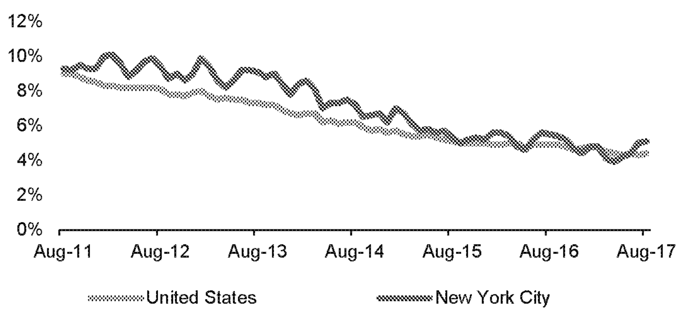
New York City, August 2017




Source: U.S. Bureau of Labor Statistics

## Unemployment Rate

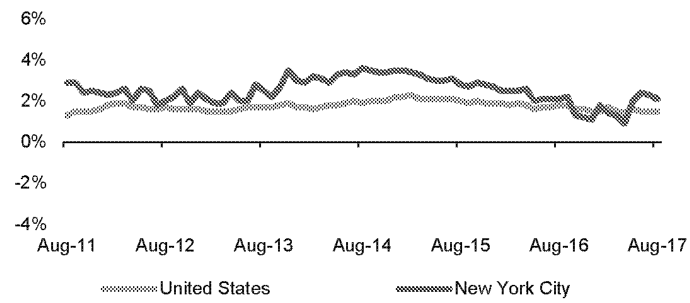
Seasonally Adjusted




Source: U.S. Bureau of Labor Statistics

## Payroll Employment

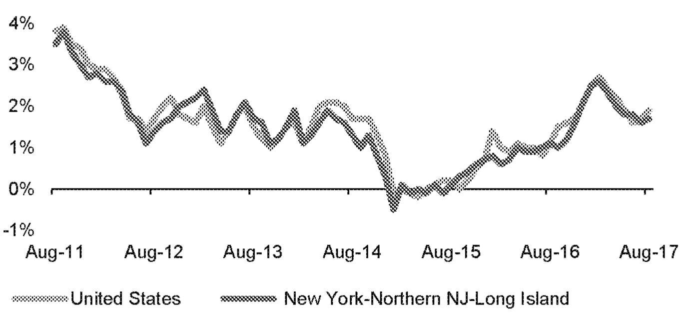
Total Nonfarm, Not Seasonally Adjusted, 12-Month % Change




Source: U.S. Bureau of Labor Statistics

## Consumer Price Index (CPI)

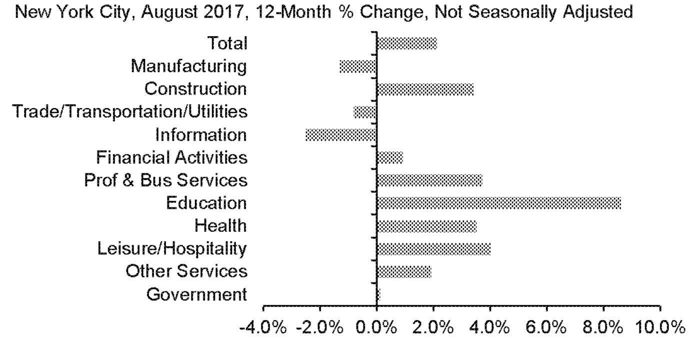
All Items, 12-Month % Change, Not Seasonally Adjusted,




Source: U.S. Bureau of Labor Statistics

## Employment Growth by Industry

New York City, August 2017, 12-Month % Change, Not Seasonally Adjusted




Source: U.S. Bureau of Labor Statistics

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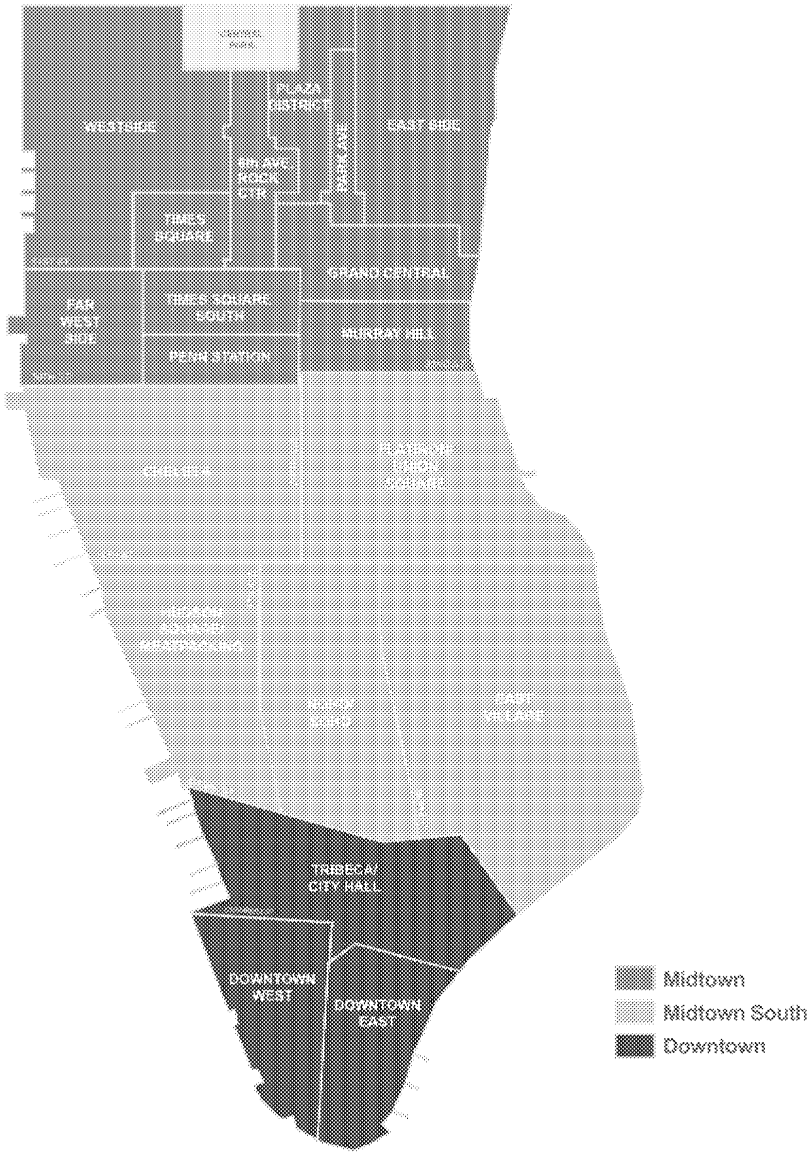
Research Analyst

Manhattan Submarkets




**Newmark Knight Frank has implemented a proprietary database and our tracking methodology has been revised. With this expansion and refinement in our data, there may be adjustments in historical statistics including availability, asking rents, absorption and effective rents.**

Newmark Knight Frank Research Reports are also available at www.ngkf.com/research

3Q17

# NEW YORK CITY OFFICE MARKET OVERVIEW

# KEY TAKEAWAYS

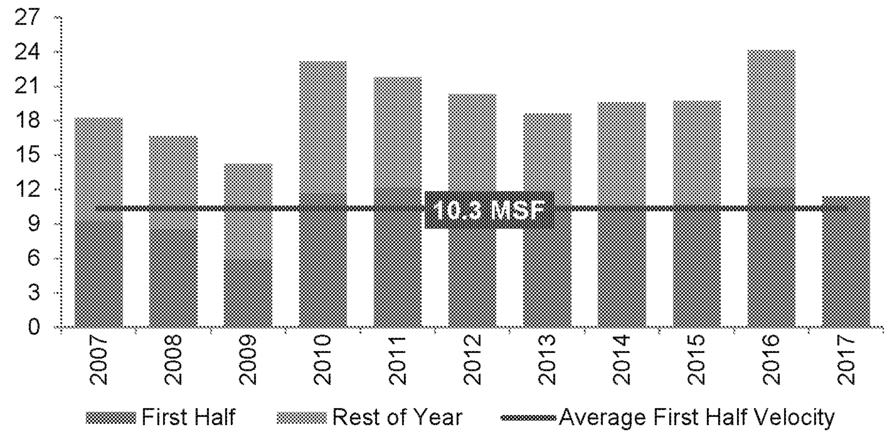
Newmark Knight Frank

| | |
| --- | --- |
| LEASING ACTIVITY | Midtown leasing is lower by 14.0% year-over-year with 39.3% of activity driven by the ten largest deals of the quarter. Downtown activity in the first half of the year was the strongest total in three years. |
| INDUSTRY GROWTH | TAMI employment growth since 2010 has outpaced FIRE and Healthcare, but total employment is 25% below FIRE; Healthcare has added the most jobs over the past 10 years. |
| AVAILABILITY | Availability has consistently increased over the past two quarters with the highest rates in the most active submarkets – Far West Side, Downtown West and Plaza District. Midtown South sublease availability has grown considerably in the past twelve months. |
| RENTAL RATES | Asking rent growth moderated in Midtown and Midtown South. Taking rents continue to rise at the expense of net effective's as landlords are delivering more concessions to tenants. |
| PREMIER SPACE | The development of high-priced, boutique and large-scale assets continued, which has resulted in the trophy relocation market outpacing 2016. |
| NEW SUPPLY | Approximately 14.2 million square feet of development projects are scheduled for completion by 2021 with another 15.5 million square feet in the planning stages. |
| BOROUGH TRENDS | Modest declines in Brooklyn availability occurred for the first time in a year as leasing outpaced the amount of space added to the market. Asking rents declined quarter-over-quarter for the first time in nearly four years as availability continues to rise. |

# MIDTOWN MARKET OVERVIEW

*While leasing activity is lower by 14.0% year-over-year, sizable transactions continue to occur as 40.0% of activity was driven by the ten largest deals of the quarter.*

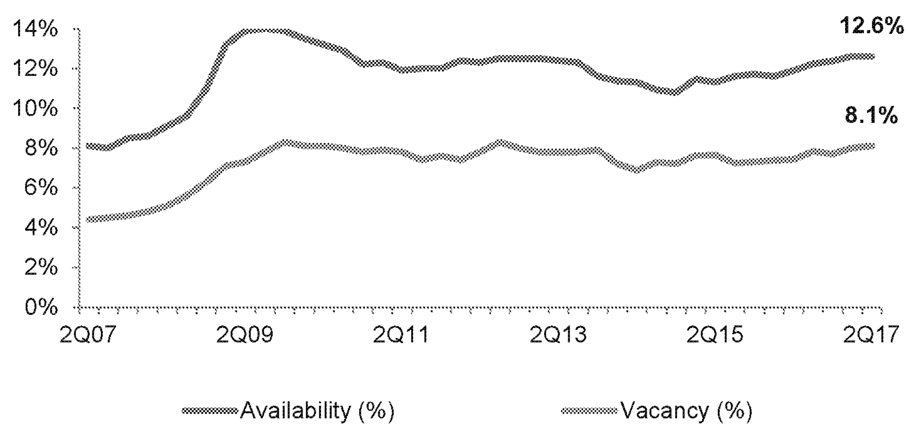
**Leasing Activity**




**Second Quarter Top Deals**

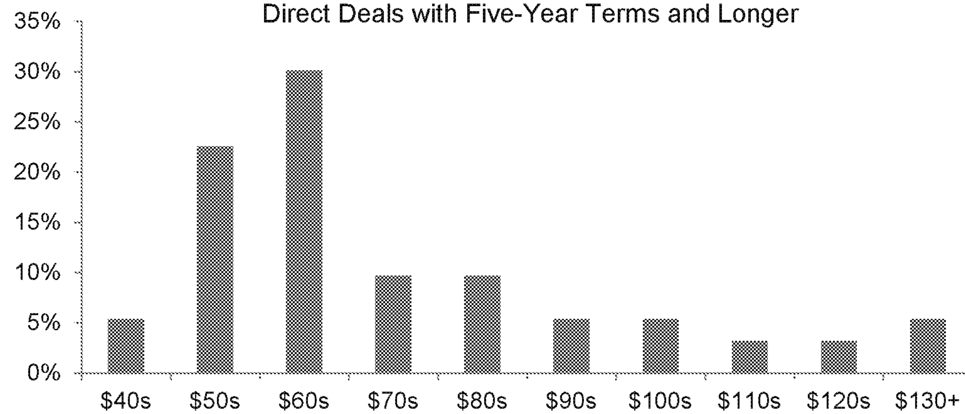
| Top Deals | Address | SF | Lease Type |
|---|---|---|---|
| BlackRock, Inc. | 50 Hudson Yards | 847,000 | Direct New |
| HSBC Bank | 452 Fifth Avenue | 548,000 | Renewal |
| JP Morgan Chase Digital Media | 5 Manhattan West | 306,000 | Expansion |
| Mizuho Corporate Bank | 1271 Avenue of the Americas | 148,000 | Direct New |
| Deloitte LLP | 1221 Avenue of the Americas | 98,000 | Direct New |

**Availability and Vacancy Rates**




**Number of Deals by Taking Rent**

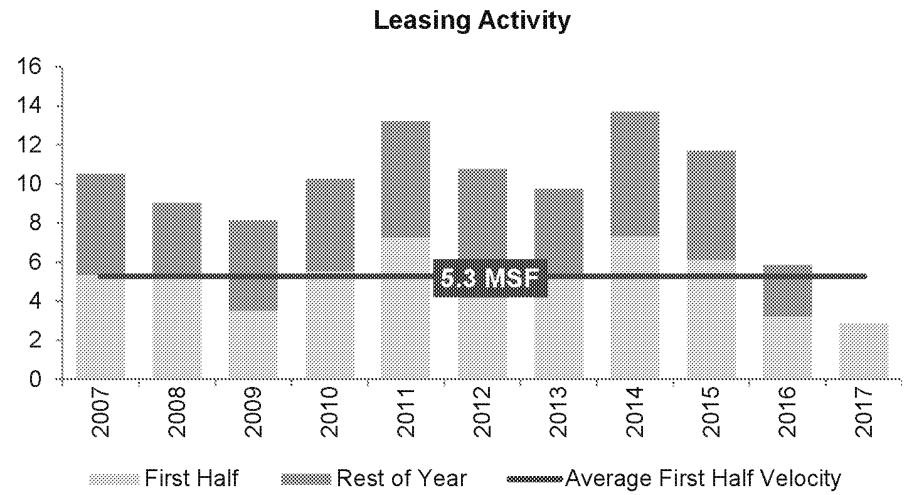
Direct Deals with Five-Year Terms and Longer



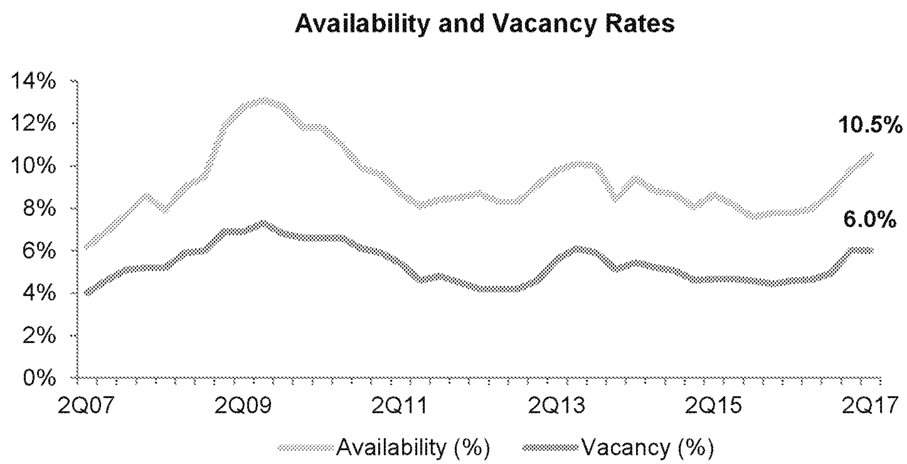
# MIDTOWN SOUTH MARKET OVERVIEW

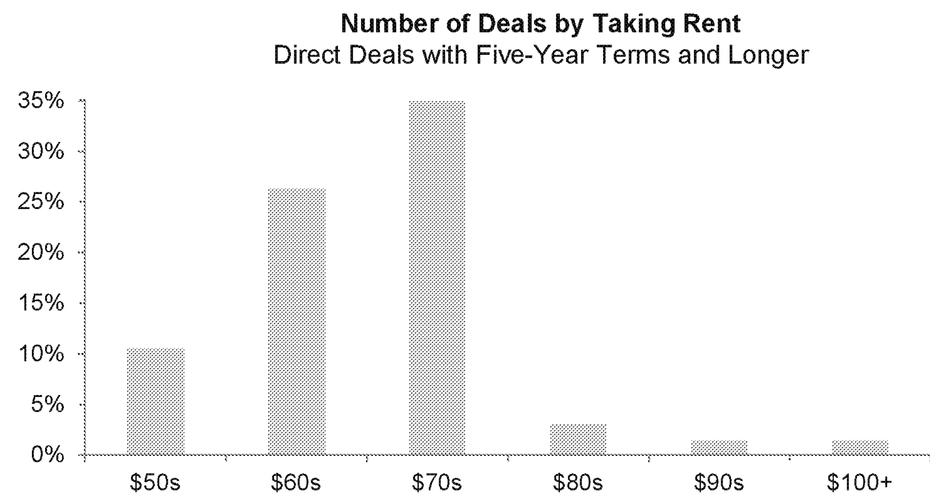
Newmark Knight Frank

*Availability has increased consistently since fourth quarter 2015 as leasing activity has not kept pace with the addition of new space.*



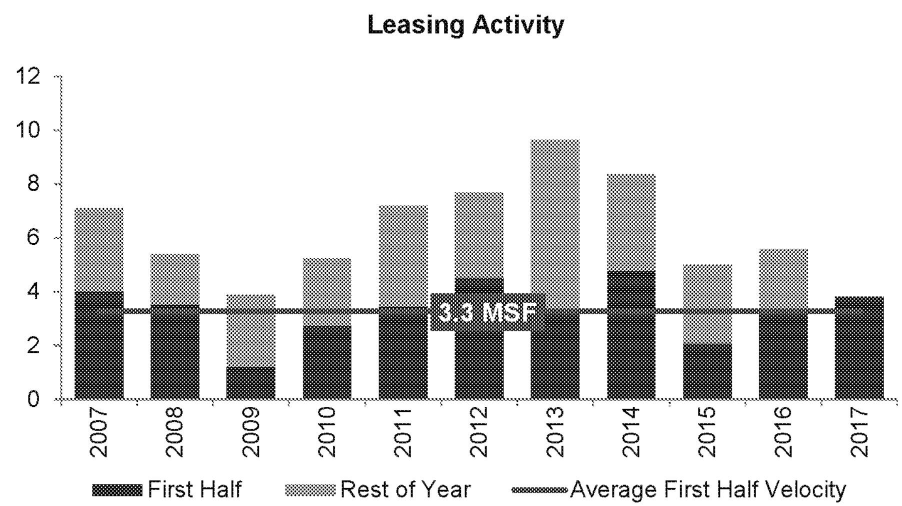

| Second Quarter Top Deals | | | |
|---|---|---|---|
| **Top Deals** | **Address** | **SF** | **Lease Type** |
| Aetna Life Insurance | 61 Ninth Avenue | 145,000 | Direct New |
| M.A.C. Cosmetics | 233 Spring Street | 86,000 | Direct New |
| Facebook | 225 Park Avenue South | 67,011 | Expansion |
| Sequin | 601 West 26th Street | 65,000 | Direct New |
| Harry's | 75 Varick Street | 61,611 | Direct New |



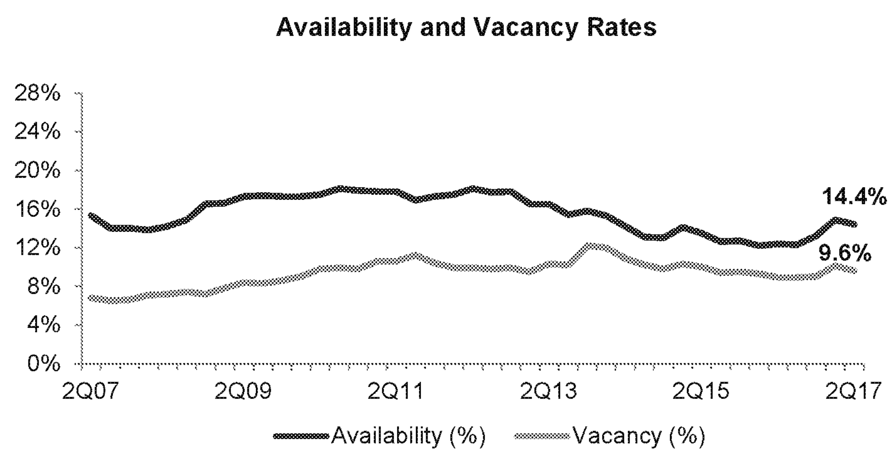



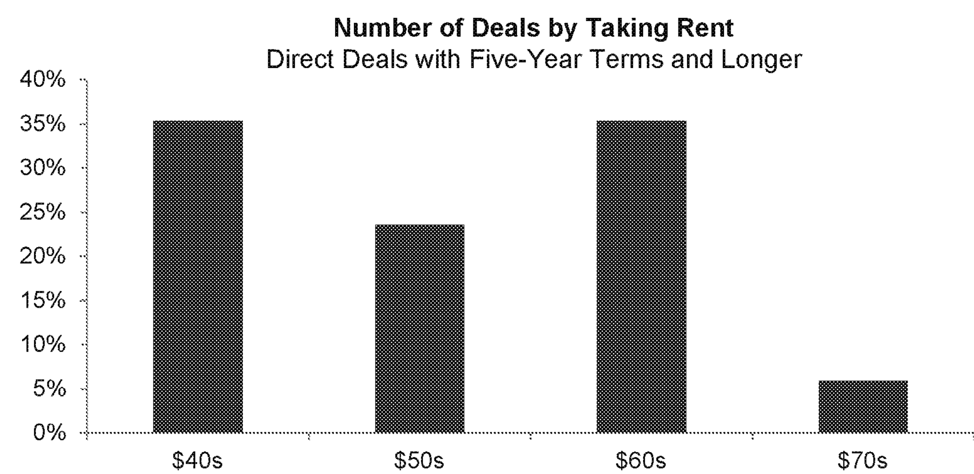
# DOWNTOWN MARKET OVERVIEW

*Downtown leasing activity in the first half of the year was the strongest total in three years and was the only Manhattan market that had a second quarter decline in availability.*




| Second Quarter Top Deals | | | |
|---|---|---|---|
| **Top Deals** | **Address** | **SF** | **Lease Type** |
| New York City Human Resources Administration | 375 Pearl Street | 193,821 | Direct New |
| Spotify | 4 World Trade Center | 100,936 | Expansion |
| Business Insider | 1 Liberty Plaza | 90,000 | Direct New |
| Sanctuary for Families | 120 Broadway | 50,734 | Direct New |
| Pace University | 110 William Street | 35,988 | Direct New |

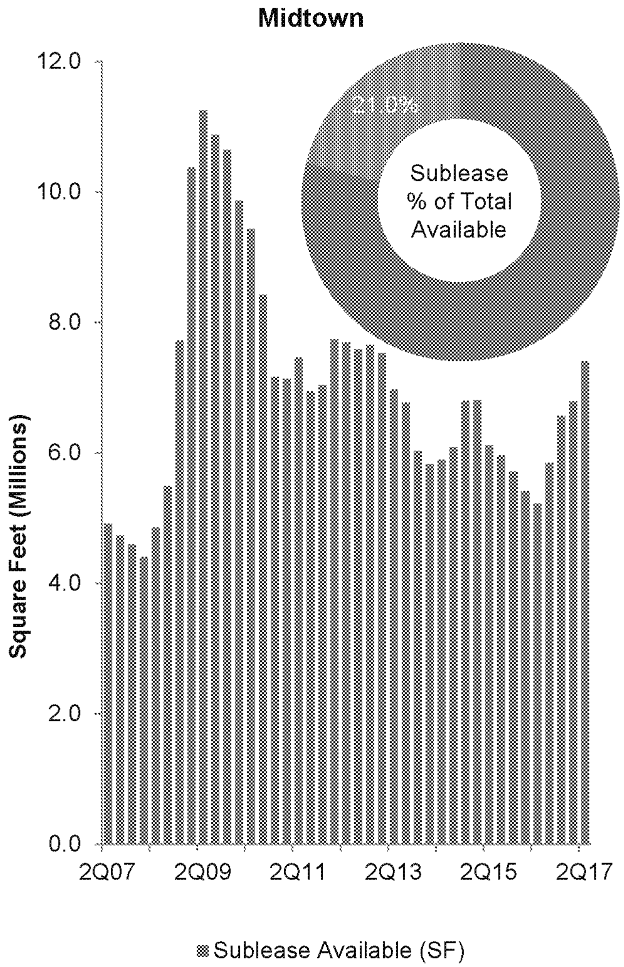


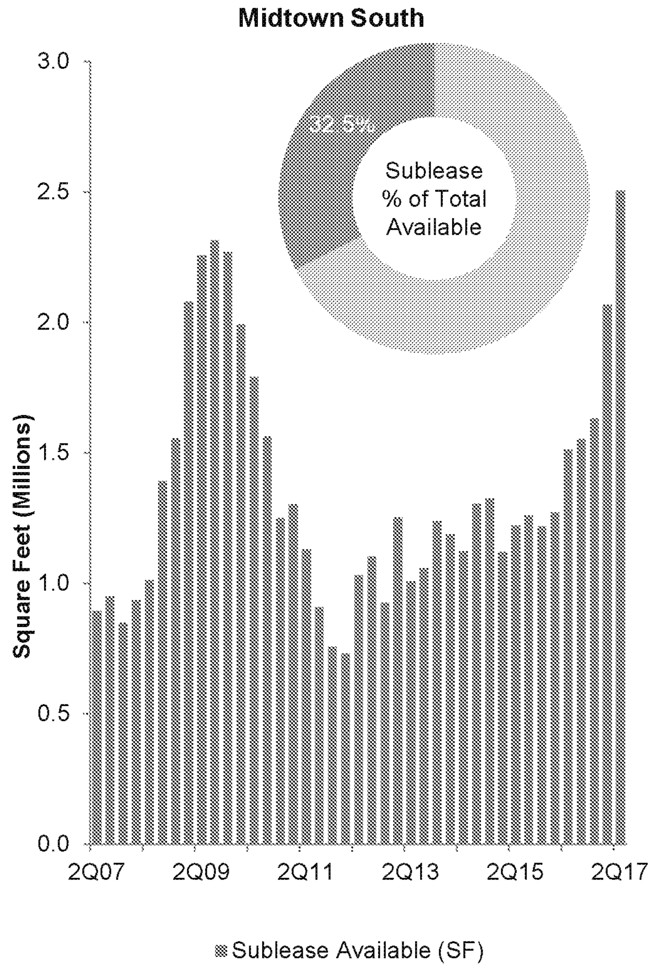



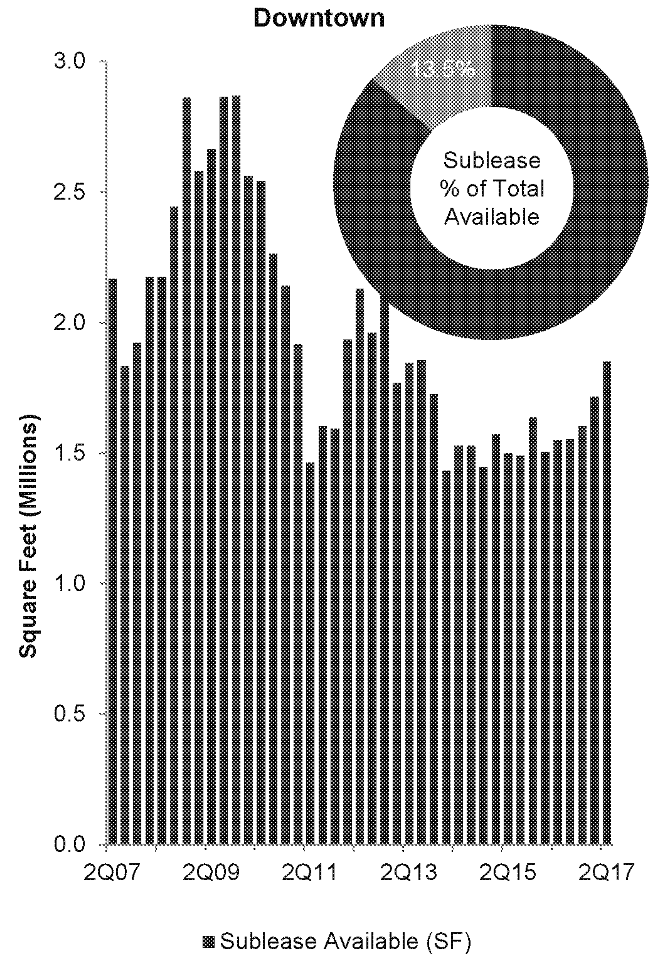
# SUBLEASE TRENDS

Newmark Knight Frank

*Sublease availability increased in all three markets, with Midtown South sublease percentage growing 380 basis points as several blocks became available in Hudson Square.*



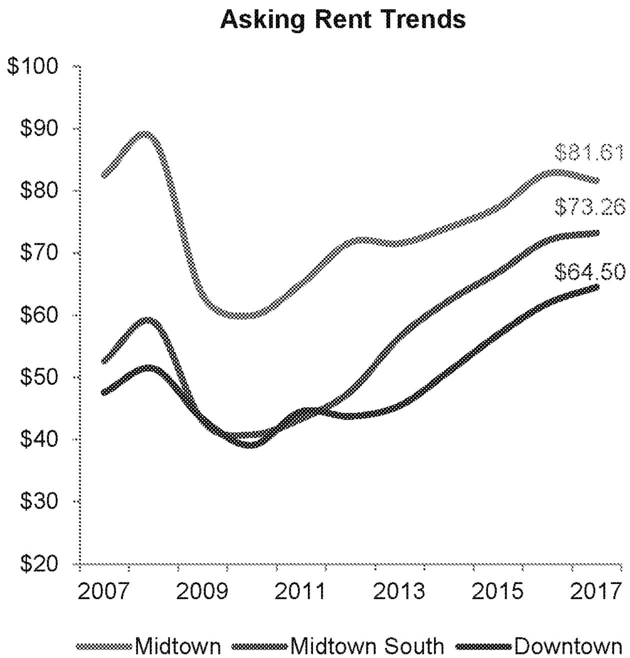



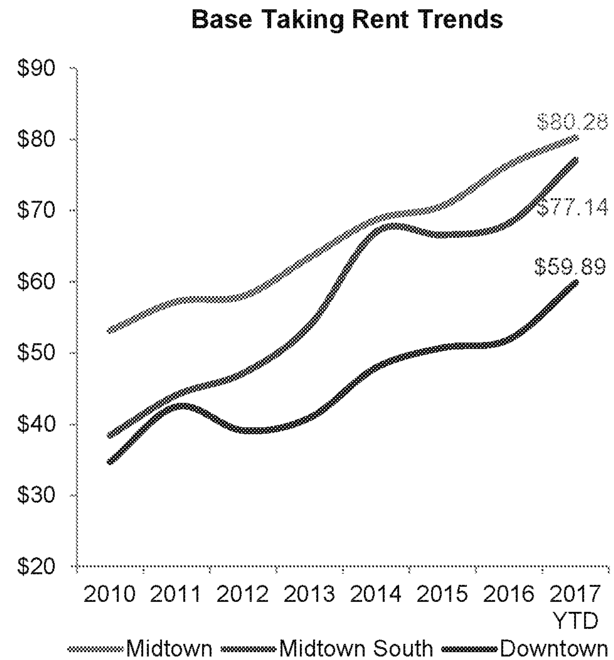
# RENTAL RATE TRENDS

Newmark Knight Frank

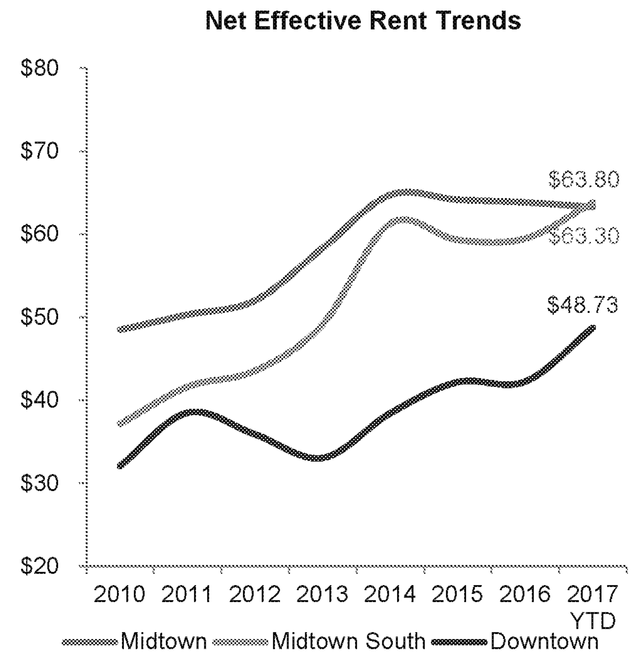
*Asking rent growth moderated in Midtown and Midtown South. Taking rents continue to rise at the expense of net effective's as landlords are delivering more concessions to tenants.*




| Market | Average Annual Change Since Trough (2009-2010) | Change Since 2016 |
|---|---|---|
| MT | 5.1% | -1.4% |
| MTS | 8.6% | 1.8% |
| DT | 7.4% | 4.3% |




| Market | Average Annual Change Since Trough (2009-2010) | Change Since 2016 |
|---|---|---|
| MT | 6.1% | 5.0% |
| MTS | 10.5% | 13.0% |
| DT | 8.1% | 15.3% |



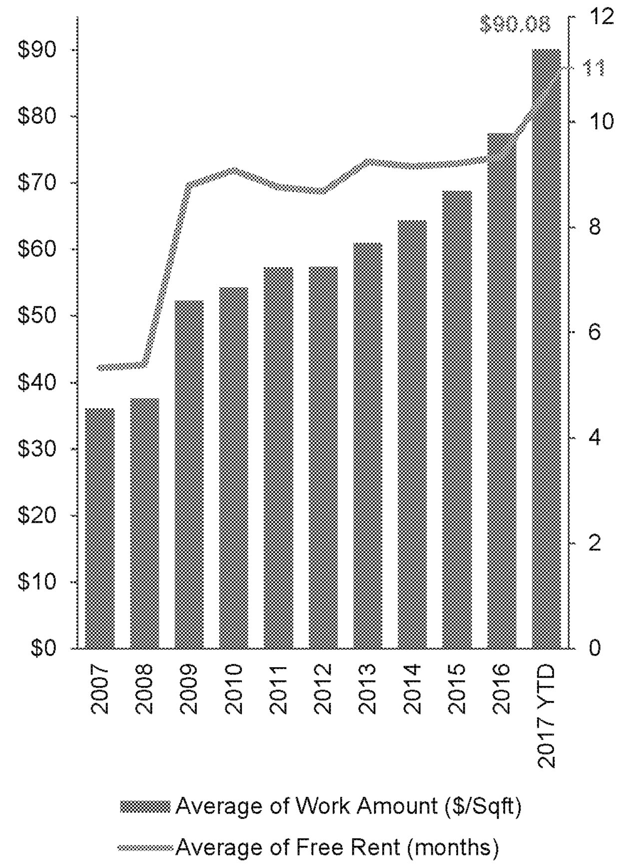

| Market | Average Annual Change Since Trough (2009-2010) | Change Since 2016 |
|---|---|---|
| MT | 3.9% | -0.9% |
| MTS | 8.0% | 7.3% |
| DT | 6.1% | 15.3% |

*Base Taking and Net Effective rents base on Direct Deals with 5+ year term length

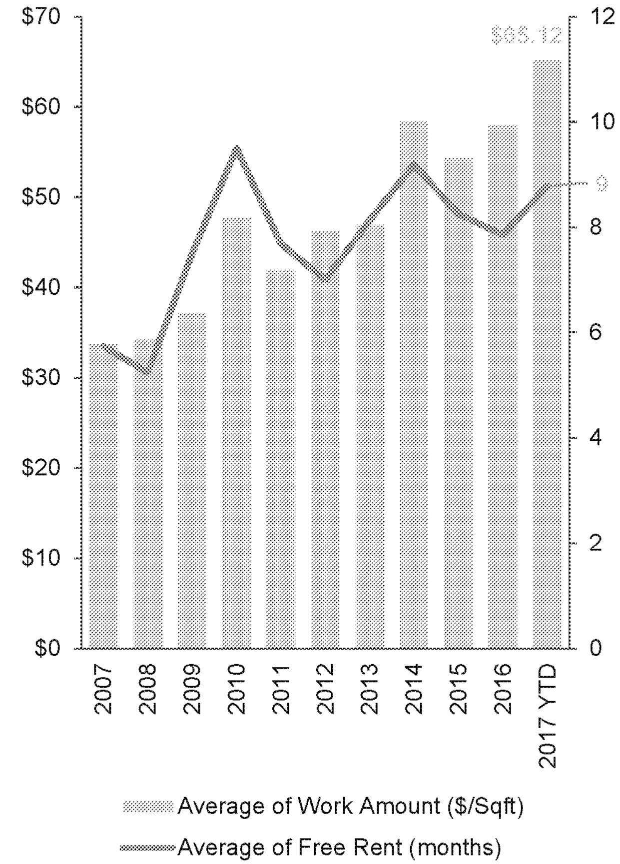
# CONCESSIONS ANALYSIS
## For Direct Deals with >10-Year Terms, +10K SF

*Work allowances have risen dramatically in Midtown and are more than twice the average from 2007. Downtown concessions have flattened following years of consistent increases.*

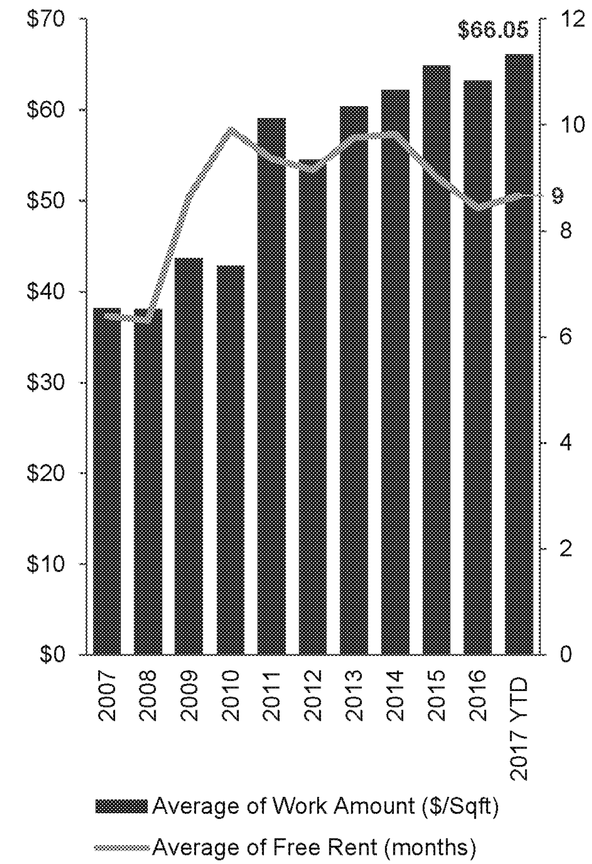
### Midtown




### Midtown South

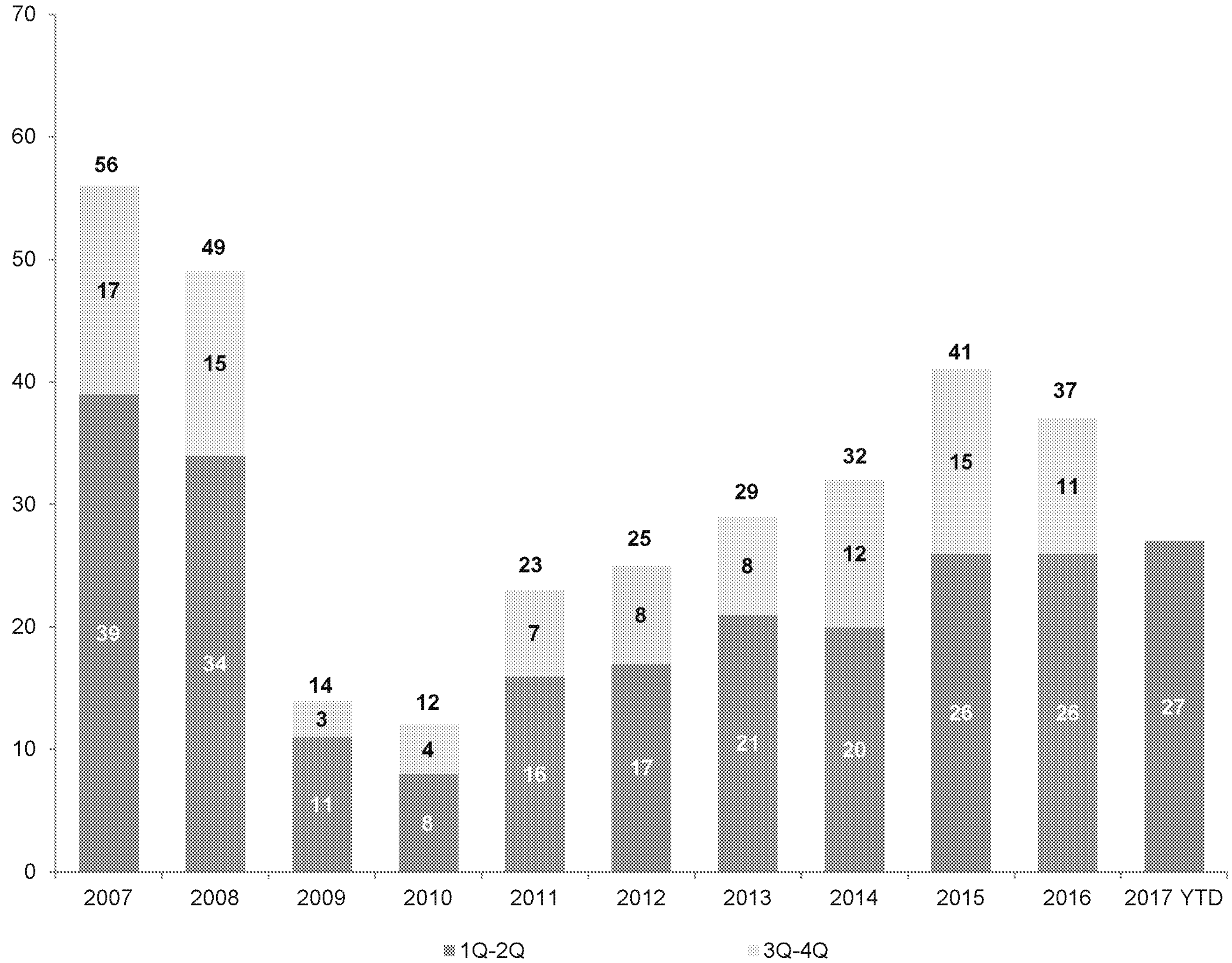



### Downtown



# TRIPLE-DIGIT TAKING RENT ASSETS
## Buildings that Signed Taking Rents Over $100/SF

Newmark Knight Frank



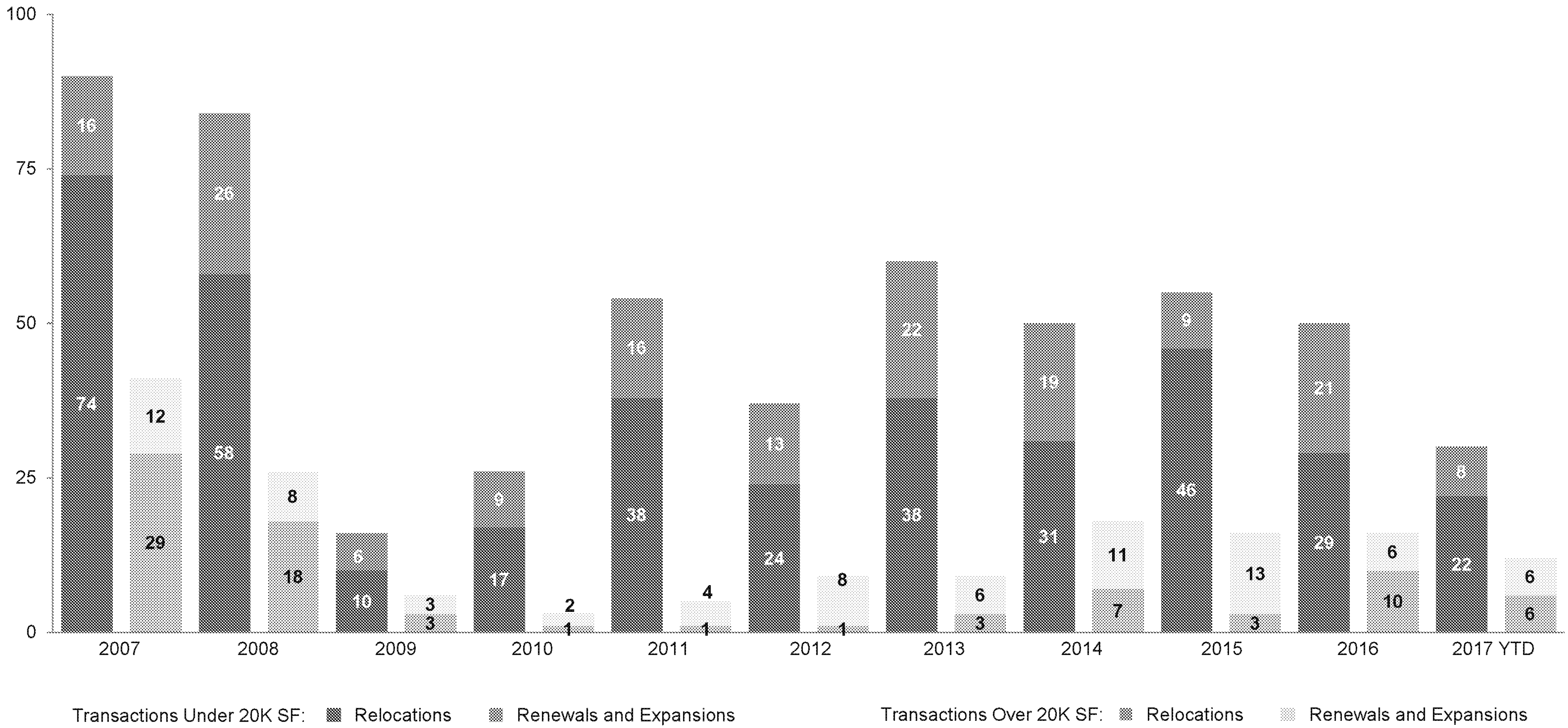

| Buildings with $100+ Taking Rents in 2017 YTD | |
|---|---|
| Midtown | Rent Range |
| 1 Bryant Park | $100+ |
| 1 Manhattan West | $108 |
| 10 Hudson Yards | $108 |
| 1211 Avenue of the Americas | $100+ |
| 152 West 57th Street | $110 |
| 200 Park Avenue | $120 |
| 230 Park Avenue | $100 |
| 250 West 55th Street | $118 |
| 280 Park Avenue | $110 |
| 375 Park Avenue | $170-$185 |
| 400 Park Avenue | $105 |
| 450 Park Avenue | $131-$149 |
| 510 Madison Avenue | $105-$110 |
| 520 Madison Avenue | $127 |
| 535 Madison Avenue | $120 |
| 55 Hudson Yards | $102 |
| 590 Madison Avenue | $100-$145 |
| 599 Lexington Avenue | $100 |
| 65 East 55th Street | $130+ |
| 650 Madison Avenue | $100-$130 |
| 712 Fifth Avenue | $115 |
| 767 Fifth Avenue | $190 |
| 90 Park Avenue | $108 |
| Midtown South | Rent Range |
| 1 SoHo Square | $100+ |
| 61 Ninth Avenue | $130 |
| 853 Broadway | $100+ |
| 860 Washington Street | $128-$155 |

Source: Newmark Knight Frank Research

# MANHATTAN TOP-TIER TRENDS
## Transactions with Taking Rents Over $100/SF

Newmark Knight Frank

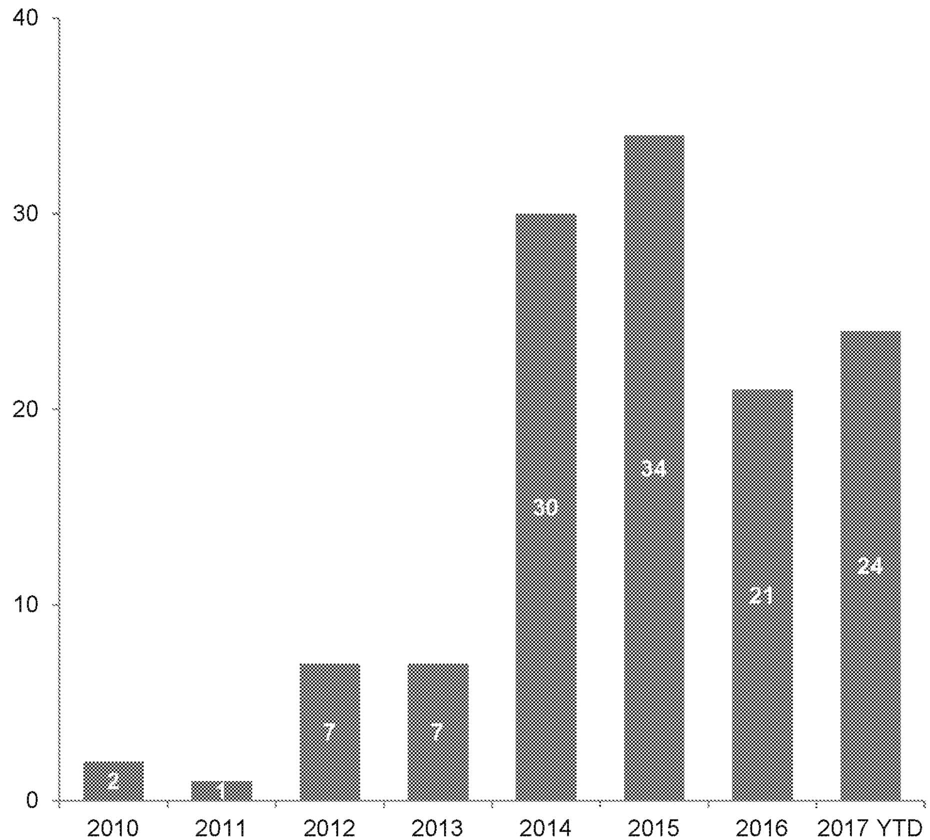
*The development of high-priced, boutique and large-scale assets continued, which has resulted in the trophy relocation market outpacing 2016.*



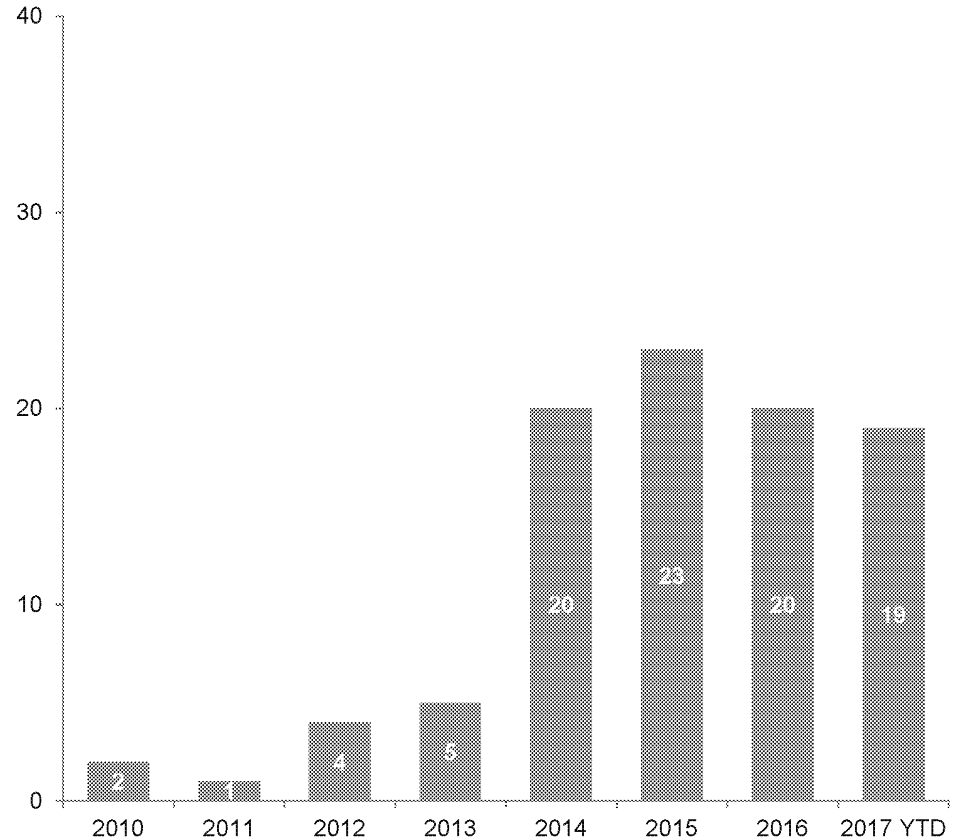
# MIDTOWN SOUTH TOP-TIER TRENDS
## Transactions and Assets with Taking Rents Over $75/SF

*The ceiling on taking rents in Midtown South continues to expand as the market is on pace to surpass 2015 totals despite fewer transactions having occurred.*

**Number of Deals Signed Over $75/SF**




**Number of Assets with $75+/SF Taking Rents**

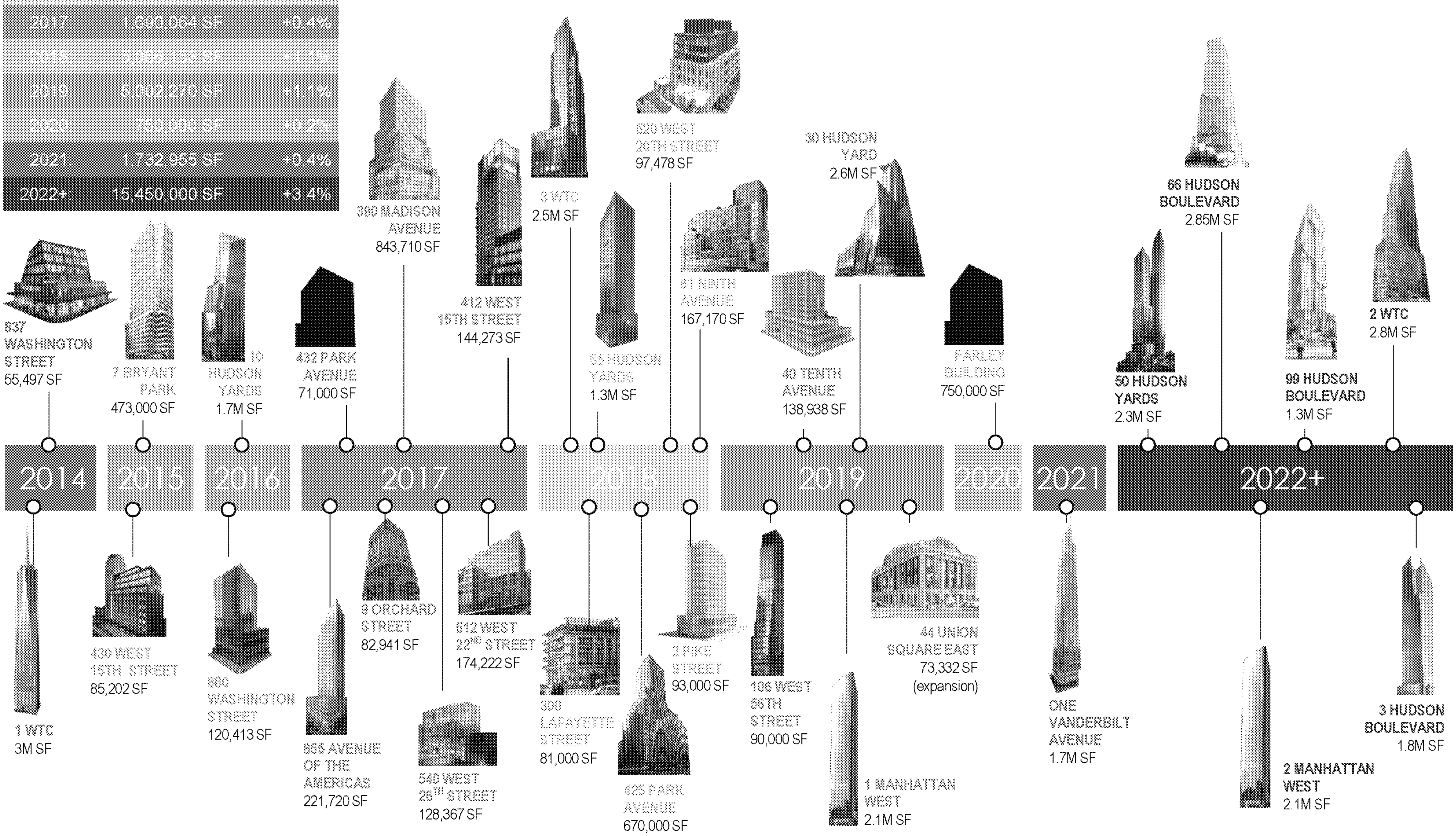


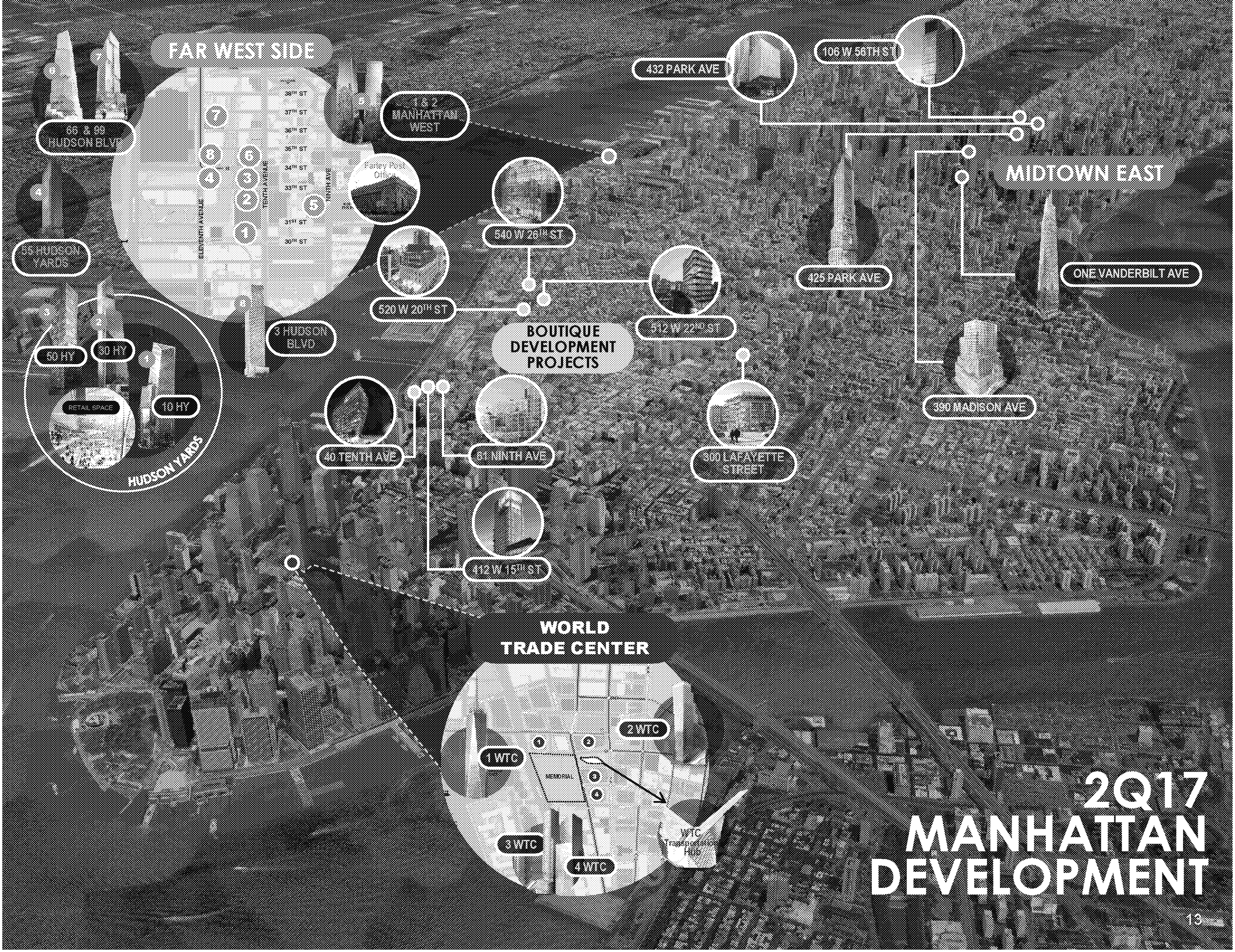

Source: Newmark Knight Frank Research

# COMMERCIAL DEVELOPMENT PIPELINE
## Manhattan (MSF)

Newmark Knight Frank

| Year | Development Planned | Impact on Inventory |
|---|---|---|
| 2017: | 1,690,064 SF | +0.4% |
| 2018: | 5,065,153 SF | +1.1% |
| 2019: | 5,002,270 SF | +1.1% |
| 2020: | 750,000 SF | +0.2% |
| 2021: | 1,732,955 SF | +0.4% |
| 2022+: | 15,450,000 SF | +3.4% |



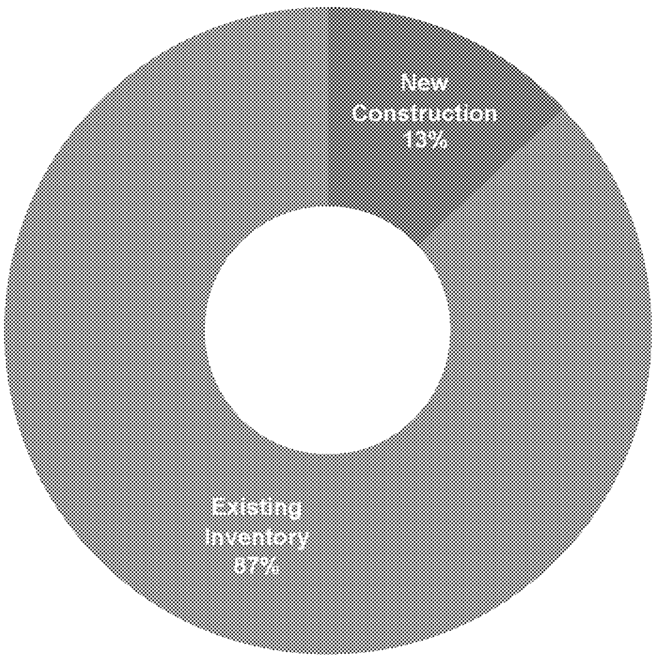

FAR WEST SIDE
66 & 99 HUDSON BLVD
55 HUDSON YARDS
50 HY
30 HY
10 HY
RETAIL SPACE
HUDSON YARDS
3 HUDSON BLVD
1 & 2 MANHATTAN WEST
Farley Post Office
ELEVENTH AVENUE
TENTH AVENUE
NINTH AVE
540 W 26TH ST
520 W 20TH ST
512 W 22ND ST
BOUTIQUE DEVELOPMENT PROJECTS
40 TENTH AVE
61 NINTH AVE
412 W 15TH ST
300 LAFAYETTE STREET
432 PARK AVE
106 W 56TH ST
MIDTOWN EAST
425 PARK AVE
ONE VANDERBILT AVE
390 MADISON AVE
WORLD TRADE CENTER
1 WTC
2 WTC
3 WTC
4 WTC
MEMORIAL
WTC Transportation Hub
2Q17
MANHATTAN
DEVELOPMENT
13

# RELOCATIONS AND NEW CONSTRUCTION

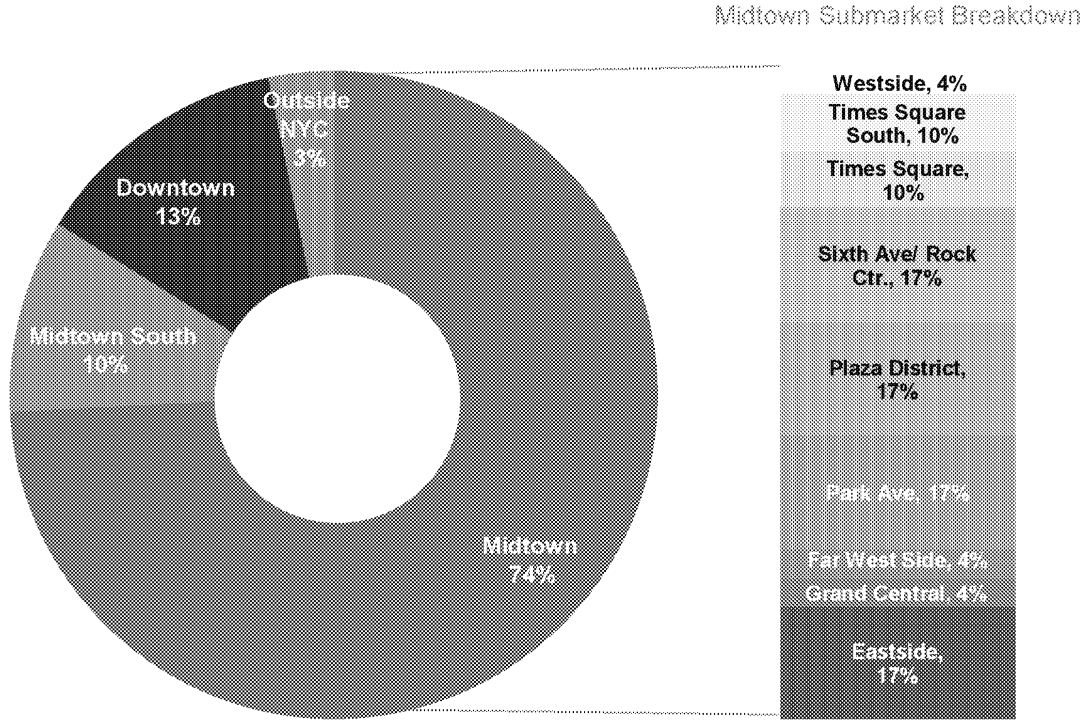
Newmark Knight Frank

*Tenants from the traditional Midtown core are driving relocations to new construction, highlighted by second quarter transactions by Blackrock and Silver Lake Partners.*

**2016-2017 Relocations to New Construction versus Existing Inventory**




**Tenants Relocating to New Construction from Other Markets**



# MANHATTAN DEVELOPMENT OVERVIEW
## Far West Side

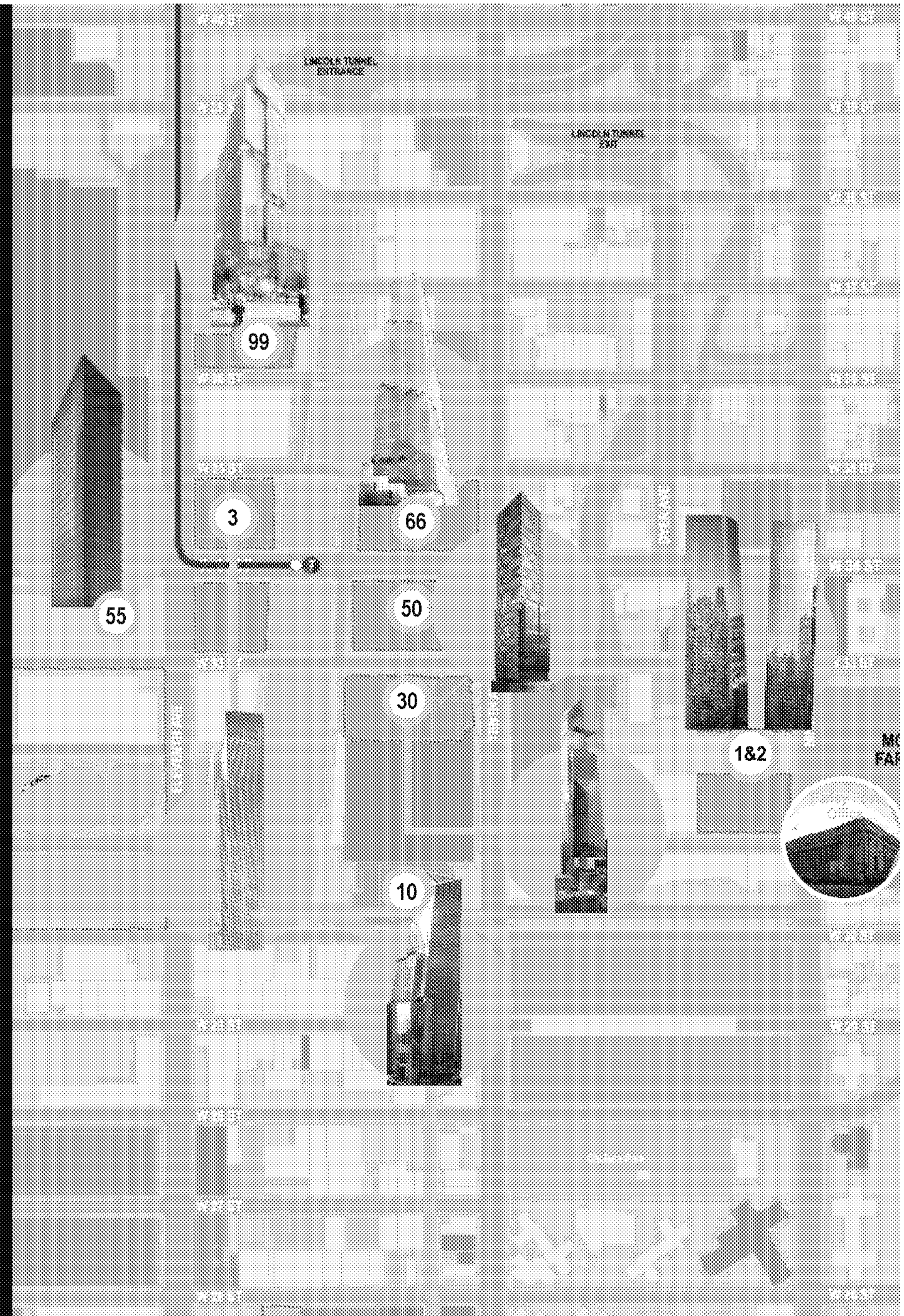
RELATED | RELATED / MITSUI FUDOSAN

| 10 HUDSON YARDS | 30 HUDSON YARDS | 50 HUDSON YARDS | 55 HUDSON YARDS |
|---|---|---|---|
| 94% | 100% | 37% | 58% |
| 1.7M SF | 2.6M SF | 2.3M SF | 1.3M SF |
| Completed | Under Construction | Planned | Under Construction |
| 2016 | 2019 | 2022 | 2018 |
| Coach, L'Oreal, BCG<br>SAP America<br>Intersection<br>Sidewalk Labs<br>Vayner Media<br>Chain Bridge Asset<br>Ardea Partners | Time Warner<br>Related, KKR<br>Oxford Properties<br>Wells Fargo<br>DNB ASA | BlackRock Inc | Boies, Schiller<br>MarketAxess<br>Intercept<br>Milbank Tweed<br>Point 72<br>Silver Lake Partners |

Brookfield Properties | QIA | MOINIAN | TISHMAN SPEYER

| 1 MANHATTAN WEST | 2 MANHATTAN WEST | 3 HUDSON BOULEVARD | 66 HUDSON BOULEVARD | 99 HUDSON BOULEVARD |
|---|---|---|---|---|
| 40% | 0% | 0% | 0% | 0% |
| 2.1M SF | 2.1M SF | 1.8M SF | 2.85M SF | 1.3M SF |
| Under Construction | Planned | Planned | Planned | Planned |
| 2019 | 2023 | TBD | TBD | TBD |
| Skadden, Arps<br>NHL | TBD | TBD | TBD | TBD |

Available | Leased/Sold



# MANHATTAN DEVELOPMENT OVERVIEW
## World Trade Center

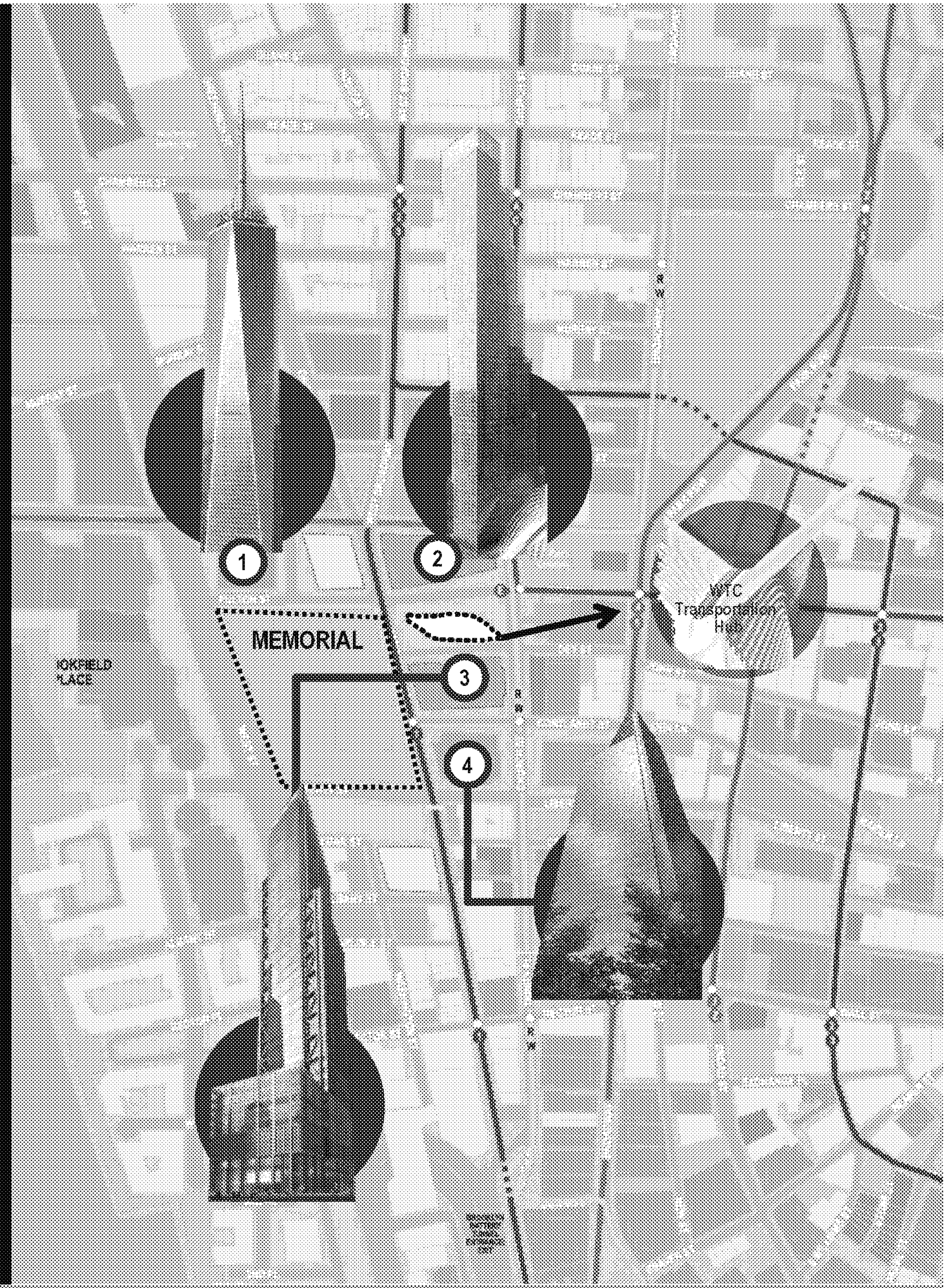
Newmark Knight Frank

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

SILVERSTEIN PROPERTIES

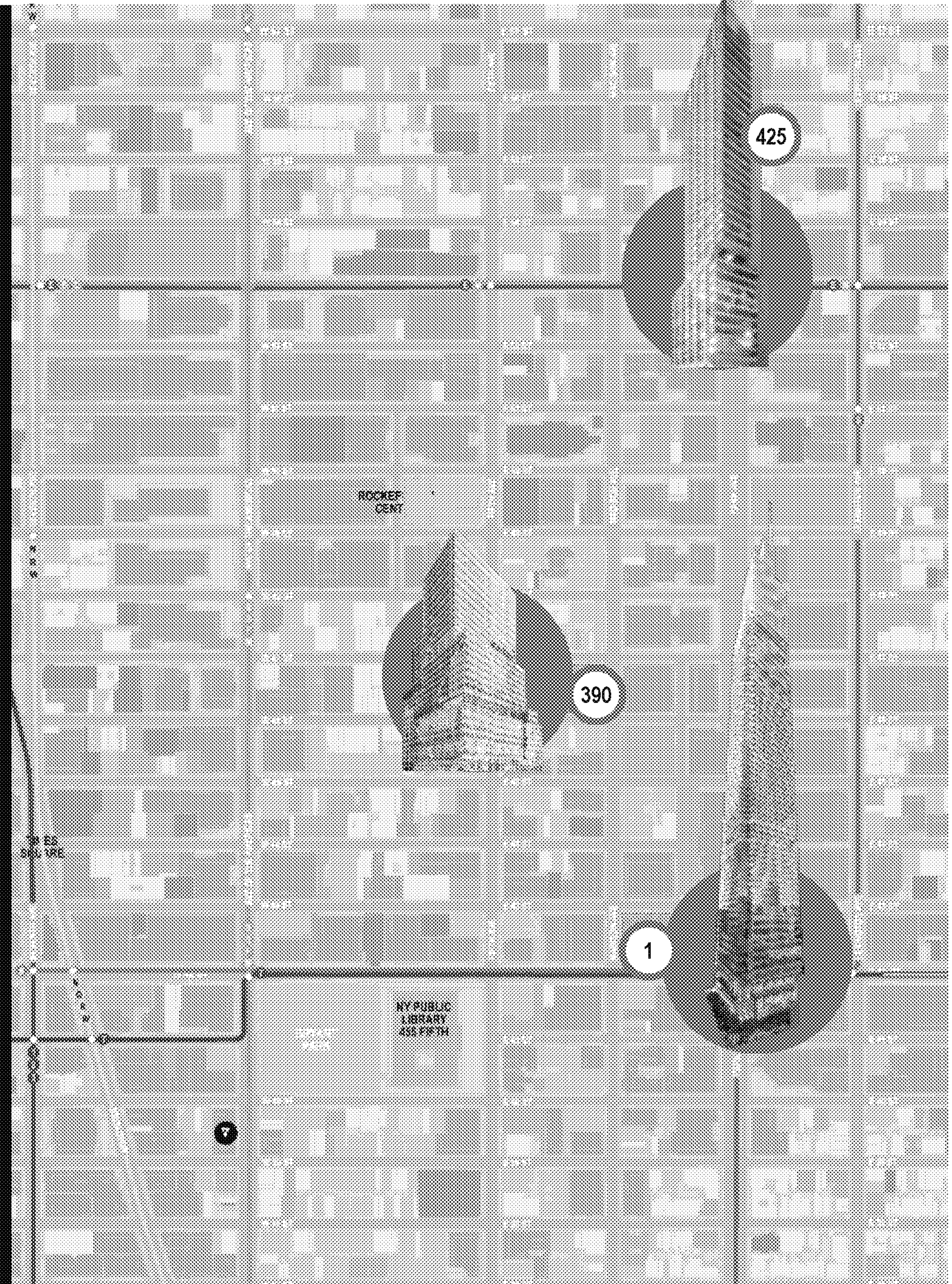
| 1 WORLD TRADE CENTER | 2 WORLD TRADE CENTER | 3 WORLD TRADE CENTER | 4 WORLD TRADE CENTER |
|---|---|---|---|
| 68% | 0% | 28% | 100% |
| 3.0M SF | 2.8M SF | 2.5M SF | 2.3M SF |
| Completed | Planned | Under Construction | Completed |
| 2014 | TBD | 2018 | 2013 |
| Conde Nast, Vantone, GSA, Moody's xAd, High 5 Games Ameriprise, Mic | TBD | Group M | Port Authority, NYC Zurich, SNY Spotify Global Atlantic Validus Group Hudson River Trading |

Available Leased/Sold



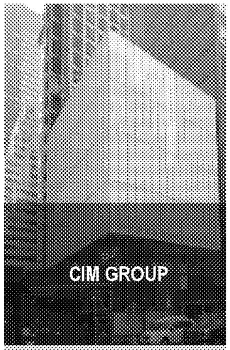
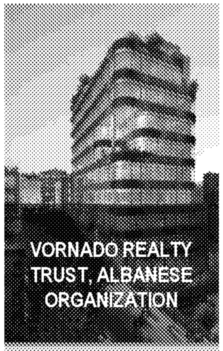
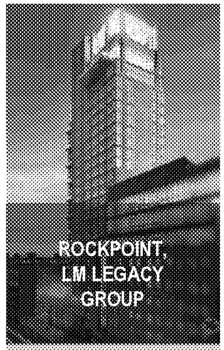
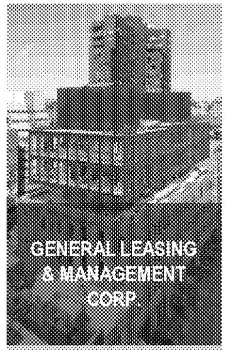
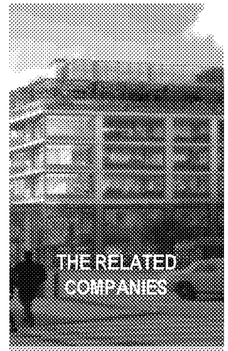
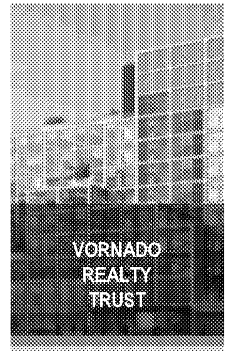
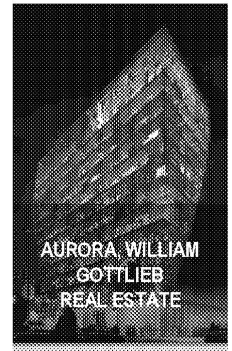
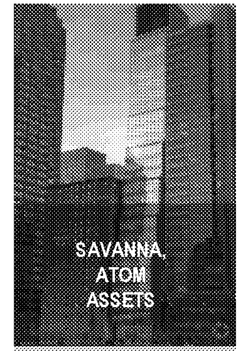
| | | |
|---|---|---|
| L&L HOLDING COMPANY / RREEF | L&L HOLDING COMPANY | SL GREEN REALTY CORP |
| **390 MADISON AVENUE** | **425 PARK AVENUE** | **ONE VANDERBILT AVENUE** |
| 24% | 32% | 17% |
| 843,710 SF | 670,000 SF | 1.7M SF |
| Under Construction | Under Construction | Planned |
| 2017 | 2018 | 2021 |
| Hogan Lovells | Citadel | TD Bank |

Available ◉ Leased/Sold



# MANHATTAN DEVELOPMENT OVERVIEW
## Select Boutique Assets

Newmark Knight Frank

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  |  |
| CIM GROUP | SAVANNA | VORNADO REALTY TRUST, ALBANESE ORGANIZATION | ROCKPOINT, LM LEGACY GROUP | GENERAL LEASING & MANAGEMENT CORP. | THE RELATED COMPANIES | VORNADO REALTY TRUST | AURORA, WILLIAM GOTTLIEB REAL ESTATE | SAVANNA, ATOM ASSETS |
| **432 PARK AVENUE** | **540 WEST 26TH STREET** | **512 WEST 22ND STREET** | **412 WEST 15TH STREET** | **520 WEST 20TH STREET** | **300 LAFAYETTE STREET** | **61 NINTH AVENUE** | **40 TENTH AVENUE** | **106 WEST 56TH STREET** |
| Park Avenue | Chelsea | Chelsea | Chelsea | Chelsea | Noho / Soho | Chelsea | Hudson Square / Meatpacking | Sixth Ave / Rock Ctr. |
| 71,000 SF | 128,367 SF | 174,222 SF | 144,273 SF | 97,478 SF | 81,000 SF | 167,170 SF | 138,938 SF | 90,000 SF |
| 2017 | 2017 | 2017 | 2017 | 2018 | 2018 | 2018 | 2019 | 2019 |
| Under Construction | Under Construction | Under Construction | Under Construction | Under Construction | Under Construction | Under Construction | Under Construction | Planned |

Source: Newmark Knight Frank Research

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Brazil
Chile
Colombia
Costa Rica
Dominican Republic
Mexico
Peru
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Cambodia
China
Hong Kong
India
Indonesia
Japan
Malaysia
New Zealand
Singapore
South Korea
Taiwan
Thailand

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Tanzania
Uganda
Zambia
Zimbabwe

Middle East
Saudi Arabia
United Arab Emirates

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www.ngkf.com

# Midtown Large Blocks Analysis Availability by Year

October 2017

| Building Address | Total SF Available | 2017 |
|---|---|---|
| 1675 Broadway | 100,000 | |
| 1 Penn Plaza | 103,303 | |
| 424-438 W 33rd Street | 103,343 | |
| 31 Penn Plaza | 103,996 | |
| 1633 Broadway | 106,230 | |
| 1900 Broadway - One Lincoln Plaza | 107,499 | |
| 11 Times Square | 108,923 | |
| 214 West 38th Street | 108,991 | |
| 1501 Broadway | 113,258 | |
| 320 West 31st Street | 113,387 | |
| 777 Third Avenue | 123,250 | |
| 717 Fifth Avenue | 125,616 | |
| 733 Third Avenue | 131,554 | |
| 340 Madison Avenue | 136,167 | |
| 520 Madison Avenue | 140,466 | |
| 787 Eleventh Avenue | 155,191 | |
| 31 W 52nd Street | 169,916 | 47 |
| 335 Madison Avenue | 171,000 | |
| 825 Seventh Avenue | 178,366 | |
| 1400 Broadway | 179,467 | |
| 135 West 50th Street | 183,948 | |
| 498 Seventh Avenue | 206,917 | |
| 620 Eighth Avenue | 249,940 | |
| 605 Third Avenue | 266,185 | |
| 485 Lexington Avenue | 266,453 | |
| 299 Park Avenue | 276,266 | |
| 575 Fifth Avenue | 294,800 | |
| 55 Hudson Yards | 303,107 | |
| 65 East 55th Street, Park Avenue Tower | 314,265 | |
| 75 Rockefeller Plaza | 343,969 | |
| 1250 Broadway | 405,498 | |
| 390 Madison Avenue | 640,117 | |
| 330 W 42nd Street | 661,960 | |
| 550 Madison Avenue | 852,796 | |

| Building Address | Total SF Available | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|
| 530 Fifth Avenue | 183,068 | | | | | | | | |
| 1440 Broadway | 281,420 | | | | | | | | |
| 405 Lexington Avenue, Chrysler Building | 288,178 | | | | | | | | |
| 1114 Avenue of the Americas | 596,470 | | | | | | | | |
| 601 Lexington Avenue | 723,602 | | | | | | | | |
| 1325 Avenue of the Americas | 244,540 | | | | | | | | |
| 875 Third Avenue | 327,401 | | | | | | | | |
| 399 Park Avenue | 335,928 | | | | | | | | |
| 1185 Avenue of the Americas | 438,300 | | | | | | | | |
| 9 West 57th Street | 595,200 | | | | | | | | |
| 1155 Avenue of the Americas | 654,611 | | | | | | | | |
| 4 Times Square | 835,421 | | | | | | | | |
| 1345 Avenue of the Americas | 1,050,533 | | | | | | | | |
| 1221 Avenue of the Americas | 308,374 | | | | | | | | |
| 1100 Avenue of the Americas | 349,205 | | | | | | | | |
| 425 Park Avenue | 458,600 | | 10 | | | | | | |
| 1271 Avenue of the Americas | 1,159,465 | | | | | | | | |
| 55 East 52nd Street | 658,544 | | | | | | | | |
| 250 Park Avenue | 116,848 | | | | | | | | |
| 21 Penn Plaza | 150,000 | | | | | | | | |
| 245 Park Avenue | 220,000 | | | | | | | | |
| 625 Madison Avenue | 400,000 | | | | | | | | |
| 825 Third Avenue | 539,000 | | | 11 | | | | | |
| 441 Ninth Avenue | 700,000 | | | | | | | | |
| 1 Manhattan West | 1,000,047 | | | | | | | | |
| 10-60 Columbus Circle | 1,076,562 | | | | | | | | |
| 1166 Avenue of the Americas | 160,960 | | | | | | | | |
| 375 Park Avenue, Seagram Building | 250,818 | | | | | | | | |
| 219 East 42nd Street | 300,000 | | | | | | | | |
| 7 Times Square | 301,090 | | | | | | | | |
| 235 East 42nd Street | 672,913 | | | | 14 | | | | |
| Farley Building | 750,000 | | | | | | | | |
| 277 Park Avenue | 966,680 | | | | | | | | |
| 1301 Avenue of the Americas | 576,553 | | | | | | | | |
| 2 Penn Plaza | 1,468,700 | | | | | | | | 2 |
| 350 Park Avenue | 232,260 | | | | | | | | |
| 3 Times Square | 855,000 | | | | | 4 | | | |
| 1 Vanderbilt Avenue | 1,532,955 | | | | | | | | |
| 452 Fifth Avenue | 313,200 | | | | | | | | |
| 5 Times Square | 1,101,779 | | | | | | 4 | | |
| 50 Hudson Yards | 1,450,000 | | | | | | | | |
| 40 East 52nd Street | 268,651 | | | | | | | | |
| 300 Park Avenue | 773,056 | | | | | | | 5 | |
| 2 Manhattan West | 2,100,000 | | | | | | | | |
| **Total # of Blocks** 0 | | **47** | **10** | **11** | **14** | **4** | **4** | **5** | **2** |

Source: Newmark Knight Frank Research

# Midtown South Large Blocks Analysis Availability by Year

October 2017

| Building Address | Total SF Available | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|
| 261-271 Eleventh Avenue, Terminal Stores | 100,000 | | | | |
| 18 West 18th Street | 100,000 | | | | |
| 315 Park Avenue South | 119,350 | | | | |
| 40 Tenth Avenue | 125,982 | | | | |
| 412 West 15th Street | 129,666 | | | | |
| 1 SoHo Square: 161 Avenue of the Americas and 233 Spring Street | 149,984 | 12 | | | |
| 512 West 22nd Street | 174,121 | | | | |
| 150 Fifth Avenue | 212,500 | | | | |
| 315 Hudson Street | 233,826 | | | | |
| 601 West 26th Street, Starrett-Lehigh Building | 254,516 | | | | |
| 375 Hudson Street | 277,339 | | | | |
| 63 Madison Avenue | 444,255 | | | | |
| 620 Avenue of the Americas | 115,202 | | | | |
| 75 Ninth Avenue, Chelsea Market | 420,000 | | | 2 | |
| 1 Madison Avenue | 946,709 | | | | 1 |
| **TOTAL NUMBER OF BLOCKS** | | **12** | **0** | **2** | **1** |

Source: Newmark Knight Frank Research

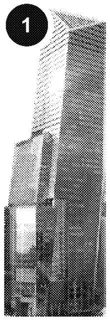
# Downtown Large Blocks Analysis Availability by Year

October 2017

| Building Address | Total SF Available | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|
| 120 Broadway | 114,568 | | | | | | |
| 1 State Street Plaza | 118,489 | | | | | | |
| 60 Hudson Street | 120,000 | | | | | | |
| 300 Vesey Street, formerly 1 North End Avenue | 137,779 | | | | | | |
| 195 Broadway | 205,514 | | | | | | |
| 375 Pearl Street | 258,612 | 13 | | | | | |
| 180 Maiden Lane | 265,270 | | | | | | |
| 55 Water Street | 269,764 | | | | | | |
| 32 Old Slip | 323,554 | | | | | | |
| 199 Water Street, One Seaport Plaza | 413,947 | | | | | | |
| 1 World Trade Center | 555,716 | | | | | | |
| 28 Liberty Street, formerly 1 Chase Manhattan Plaza | 837,067 | | | | | | |
| 3 World Trade Center | 1,803,484 | | | | | | |
| 60 Broad Street | 467,000 | | 1 | | | | |
| 13-17 Laight Street | 115,000 | | | | | | |
| 250 Broadway | 350,000 | | | 3 | | | |
| 7 Hanover Square | 845,000 | | | | | | |
| 200 Liberty Street, 1 World Financial Center | 204,067 | | | | | | |
| 59 Maiden Lane | 263,121 | | | | | | |
| 225 Liberty Street | 350,000 | | | | 4 | | |
| 111 Wall Street | 975,179 | | | | | | |
| 150 William Street | 450,853 | | | | | | |
| 80 Pine Street | 499,141 | | | | | 2 | |
| 60 Wall Street | 949,632 | | | | | | 1 |
| **TOTAL NUMBER OF BLOCKS** | | **13** | **1** | **3** | **4** | **2** | **1** |

Source: Newmark Knight Frank Research

# Far West Side Development | September 2017



## 1 10 HUDSON YARDS

RELATED

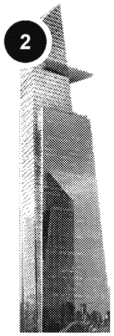
1.7M RSF (Office) / 47 stories

Building Opened in 2Q16

Abatement: First 5M RSF (in Zone 3) receives 40% savings on real estate taxes

| Tenants: | |
|---|---|
| Coach | 750,000 RSF |
| L'Oreal | 402,000 RSF |
| Boston Consulting Group | 193,000 RSF |
| SAP America | 115,000 RSF |
| Vayner Media | 90,000 RSF |
| Intersection / Sidewalk Labs | 67,000 RSF |
| Ardea Partners | 15,536 RSF |
| Chain Bridge Asset Mgmt | 5,927 RSF |

Agent: CBRE



## 2 30 HUDSON YARDS

RELATED

2.6M RSF / 80 stories

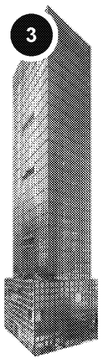
Delivery 2019

45,000-50,500 RSF floor plates

Abatement: First 5M RSF (in Zone 3) receives 40% savings on real estate taxes

| Condo Tenants: | |
|---|---|
| TimeWarner | 1.4M RSF |
| Wells Fargo | 500,000 RSF |
| KKR | 343,000 RSF |
| RELATED | 200,000 RSF |
| OXFORD | 200,000 RSF |
| Lease Tenants: DNB ASA | 45,000 RSF |

Agent: CBRE



## 3 55 HUDSON YARDS

MITSUI FUDOSAN

RELATED

1.3M RSF / 50 stories

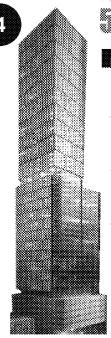
Delivery scheduled for TI September 2017, Move-in 2018

Floors 2-8: 44,000 RSF floor plates
Floors 10-50: approx. 28,000 RSF floor plates

Abatement: 31% abatement of taxes

| Tenants: | |
|---|---|
| Milbank | 257,557 RSF |
| Point 72 | 250,000 RSF |
| Cooley | 130,000 RSF |
| Intercept Pharmaceutical | 85,281 RSF |
| Boies, Schiller | 81,835 RSF |
| MarketAxess | 83,000 RSF |
| ThirdPoint | 75,000 RSF |
| Silver Lake Partners | 58,000 RSF |
| Mount Sinai | 25,000 RSF |

Agent: CBRE



## 4 50 HUDSON YARDS

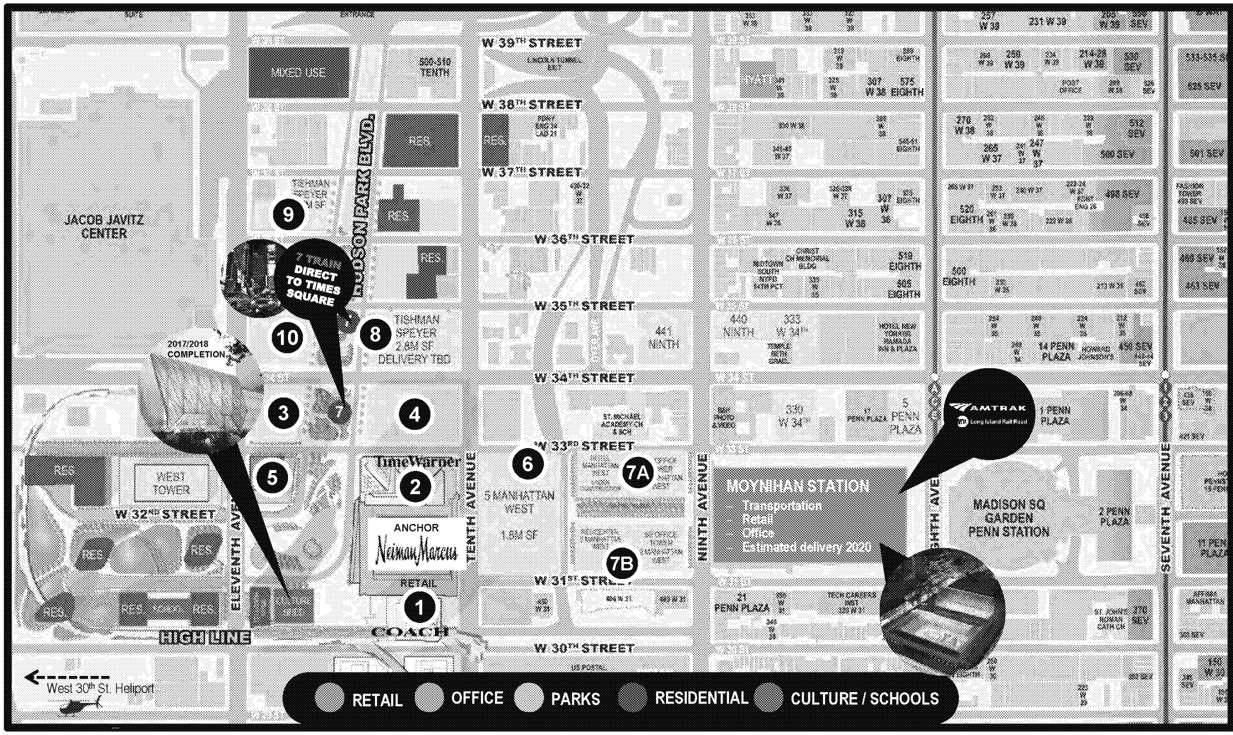
RELATED

2.85M RSF / 62 stories

Potential for 75,000 RSF base/podium floors

Estimated delivery 2022

Tenants: BlackRock 850,000 RSF





## 5 35 HUDSON YARDS

RELATED

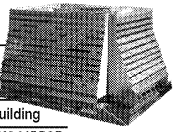
EQUINOX

1.13M RSF / 72 stories

Luxury Equinox hotel (217 Rooms)

Delivery 2018/2019

Architects: DS+R, rockwellgroup, David Childs SOM



## 6 5 Manhattan West

450 West 33rd Street

Brookfield, QIA Qatar Investment Authority

1.8M RSF / 16 stories

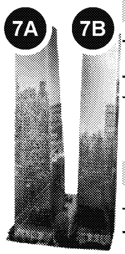
100-140,000 RSF floor plates

Renovation delivery 2016

Total renovation of existing building

| Tenants: | |
|---|---|
| JPMorgan | 428,365 RSF |
| amazon | 400,000 RSF |
| FISA - City of NY | 351,061 RSF |
| R/GA | 225,350 RSF |
| markit | 139,332 RSF |
| | 60,000 RSF |
| IPG | 52,350 RSF |

Agent: CUSHMAN & WAKEFIELD



## 7A 7B 1 & 2 MANHATTAN WEST

Brookfield, QIA Qatar Investment Authority

### 1 MANHATTAN WEST (NORTH)

2.1M RSF / 67 stories

1.25M RSF available (+/- 36,000 RSF floor plates)

Delivery 2019

| Tenants: | |
|---|---|
| Skadden | 610,000 RSF |
| accenture | 250,000 RSF |
| | 160,631 RSF |
| McKOOL SMITH | 64,120 RSF |

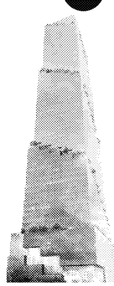
### 2 MANHATTAN WEST (SOUTH)

1.9M RSF available / 67 stories

Delivery TBD

Abatement: 25% savings on real estate taxes (in Zone 2)

Agent: CUSHMAN & WAKEFIELD



## 8 66 HUDSON BLVD.

TISHMAN SPEYER

2.85M RSF / 70 stories

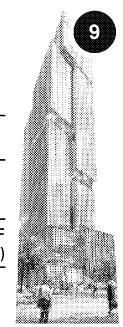
75,000 RSF base/podium floors

Estimated delivery 2020, subject to signing Pfizer

Pfizer — Lease out for 800,000 RSF (floors 7-21)

Potential for extra height ceilings. Accessible private terrace on every floor

Agent: TISHMAN SPEYER



## 9 99 HUDSON BLVD.

TISHMAN SPEYER

1.3M RSF / 44 stories

48,000 RSF base/podium floors

Estimated delivery TBD, subject to signing a 420,000 RSF anchor tenant

Architect: Henning Larsen Architects

42-story Aloft Hotel planned for the remaining lot at the southeast corner of the block

Agent: TISHMAN SPEYER

## 10 3 HUDSON BLVD.

M MOINIAN

1.8M RSF / 66 stories

Floors 9-46: 31,000-35,000 RSF floor plates

Estimated delivery TBD, subject to signing an anchor tenant

Upper Floors 23-46: TBD
Lower Floors 2-22: $85 PSF
Floors 6-46: office
Floors 47-66: residential or office

Agent: AVISON YOUNG

**Newmark Knight Frank**

| Tenant | Current Location | SF Min | SF Max | LXD | Industry | Brokerage Firm | Broker Name | Current District | Current Submarket | Current Class | Comments | Region |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Morgan Stanley | Multiple Locations | 2,000,000 | 2,000,000 | 2022-2023 | Financial Services | CBRE | Robert Alexander | | | | Targets include 2 Manhattan West, 66 Hudson Boulevard, and 2 WTC | |
| Deutsche Bank | 60 Wall Street | 800,000 | 1,200,000 | 2022 | Financial Services | JLL | Peter Riguardi, Mitchell Konsker, Lisa Kiel | Downtown | Downtown West | A | RFPs out at 2 WTC, 2 MW, 50 HY, 66 HB but may renew | MT, DT |
| Polo Ralph Lauren | 625 Madison Avenue | 700,000 | 1,000,000 | 2019 / 2024 | Retail | Studley | David Goldstein | Midtown | Plaza District | A | New CEO. Possible consolidation into exisisting offices. Some employees will be relocated to the Tommy SL space at Starrett | MT |
| Facebook | 770 Broadway | 800,000 | 800,000 | 2023 | Internet New Media | Cushman & Wakefield | Gus Field | Midtown South | Noho/Soho | B | Early in process. Expanded by 75k at 225 PAS. | FWS, MTS, DT |
| CBS | Multiple Locations | 800,000 | 800,000 | | Media/Communications | Cushman & Wakefield | Charles Borrok | | | | Considering consolidating locations. May be looking at Far West Side. | NYC |
| Alliance Bernstein | 1345 Avenue of the Americas | 600,000 | 700,000 | 2024 | Financial Services | Newmark Knight Frank | Neil Goldmacher, Jared Horowitz, Brian Goldman | Midtown | Sixth Avenue/Rockefeller Center | A | | NYC |
| Thomson Reuters | 3 Times Square | 600,000 | 700,000 | | Media/Communications | Colliers | Joseph Cabrera | Midtown | Times Square | A | Renewing | |
| Ernst & Young | 5 Times Square | 600,000 | 700,000 | 2022 | Financial Services - Accounting | Newmark Knight Frank | Neil Goldmacher | Midtown | Times Square | A | RFPs submitted to 1271, 1 Manhattan West, 50 Hudson<br><br>Separate requirements in Downtown and Jersey City for 150K SF each. | MT |
| Pfizer | 219 East 42nd Street, 235 East 42nd Street | 500,000 | 600,000 | | Health Care | Cushman & Wakefield | Josh Kurlioff, Peter Hennessy | Midtown | Grand Central | A | Focused on Western submarkets in MT. Want new construction. | MT |
| Amazon | 1350 Avenue of the Americas | 250,000 | 400,000 | | Internet New Media | JLL | Derek Trulson | | | A | LO at 5 Manhattan West | Manhattan, Outer Boroughs |
| Chubb Insurance | 1133 Avenue of the Americas, 55 Water Street | 250,000 | 350,000 | 2024 | Insurance | CBRE | Stephen Siegel | Midtown | Sixth Avenue/ Rockefeller Center | A | Negotiating at 50 Hudson Yards | |
| IBM | 590 Madison Avenue, 51 Astor Place | 250,000 | 350,000 | | Computer Software | CBRE | Carl Eriksen | Midtown, Midtown South | Plaza District, Noho/Soho | A | | |
| Scripps Network Subsidiary | 75 Ninth Avenue, 1180 Avenue of the Americas | 300,000 | 350,000 | | Media/Communications | Cushman & Wakefield | Sam Clark | Midtown South, Midtown | Chelsea, Sixth Avenue/Rockefeller Center | A | Looked at FWS and Farley | |
| Madison Square Garden | 2 Penn Plaza, 11 Penn Plaza | 200,000 | 350,000 | 2021 | Leisure | Newmark Knight Frank | Andrew Sachs, Neil Goldmacher | Midtown | Penn Station | A | | MT |
| Bank of America | Multiple Locations | 300,000 | 300,000 | | Financial Services | | | | | | Looking at 1100 Avenue of the Americas and 7 Times Square. | |
| Citibank | Multiple Locations | 300,000 | 300,000 | | Financial Services | | | Midtown | | A | In the market for an expansion, looking at 1100 Avenue of the Americas. | |
| Ernst & Young | 5 Times Square | 300,000 | 300,000 | | Financial Services - Accounting | CBRE | Michael Geoghegan | Midtown | Times Square | A | Negotiating at 3 WTC | Jersey City, Outer Boroughs, DT, LI |

| Tenant | Current Location | SF Min | SF Max | LXD | Industry | Brokerage Firm | Broker Name | Current District | Current Submarket | Current Class | Comments | Region |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Altice | Bethpage, Long Island | 200,000 | 300,000 | | Telecommunications | Cushman & Wakefield | Peter Hennessy | | | | Negotiating at 1 Court Square in LIC | LIC |
| Ann Taylor | 7 Times Square | 250,000 | 300,000 | 2020 | Retail | CBRE | Steve Siegel, Eric Deutsch, Jared Freede | Midtown | Westside | A | Renewal pending | DT |
| Guttman College | 50 West 40th Street | 300,000 | 300,000 | Dec-19 | Education | Newmark Knight Frank | Howard Kesseler | Midtown | Times Square South | B | Early in process | NYC |
| Sidley Austin | 787 Seventh Avenue | 300,000 | 300,000 | 2022 | Business Services - Legal Services | Colliers | Joe Cabrera | Midtown | Westside | A | Looking at new construction. | MT, DT |
| Touro College | 27 West 23rd Street | 300,000 | 300,000 | 2021 | Education | JLL | Rob Martin | Midtown South | Flatiron/Union Square | C | 498 Seventh Ave. deal died. Likely to consolidate multiple locations. | NYC |
| New York Economic Development Corp | 110 Williiam Street | 225,000 | 275,000 | 2019 | Government | Newmark Knight Frank | Neil Goldmacher | Downtown | Downtown East | A | Early in the process. May consider Brooklyn but most likely to stay Downtown. Need proximity to City Hall. | DT, BKN |
| Wolters Kluwer | 111 Eighth Avenue | 250,000 | 250,000 | | Business Services - Legal Services | Colliers | Mark Friedman | Midtown South | Chelsea | A | Getting close to a deal 28 Liberty. | DT |
| Credit Agricole SA | 1301 Avenue of the Americas | 200,000 | 250,000 | 2023 | Financial Services | JLL | Paul Ferraro | Midtown | Sixth Avenue/Rockefeller Center | A | Close to deal at 1633 Broadway | MT |
| Credit Suisse | 1 Madison Avenue | 250,000 | 250,000 | 2020 | Financial Services | CBRE | | Midtown South | atiron/Union Squa | A | Right to renew for no less than all of the building. May only need 300k of the 1mm SF occupancy. Looked at JC waterfront. | Jersey City |
| Cahill Gordon & Reindel LLP | 80 Pine Street | 250,000 | 250,000 | 2020 | Business Services - Legal Services | Newmark Knight Frank | Moshe Sukenik, Chris Mongeluzo | Downtown | Downtown East | A | | |
| Mastercard | 114 Fifth Avenue | 200,000 | 200,000 | | Financial Services | Cushman & Wakefield | Mitchell Barnett | Midtown South | Chelsea | | Lease out at at 150 Fifth, waiting for board approval. | NYC |
| McKinsey & Company | 55 East 52nd Street, 875 Third Avenue, 99 Park Avenue | 200,000 | 200,000 | 2019 | Business Services - Consulting | CBRE | John Nugent | Midtown | | | Onto 1 Vanderbilt for 200,000 RSF. | NYC |
| Ignitia | Multiple Locations | 200,000 | 200,000 | | Real Estate | Cushman & Wakefield | Alan Wildes | | | | | MTW, BKN |
| Shiseido | 900 Third Avenue | 150,000 | 200,000 | | Consumer Products Manufacturers | CBRE | Michael Geoghegan, Ralph Giordano | Midtown | Eastside | A | LO at 390 Madison Avenue | NYC |
| Discovery Communications | 850 Third Avenue | 150,000 | 200,000 | 2020 | Media/Communications | JLL | Cynthia Wasserberger, Mitchell Konsker | Midtown | Eastside | A | Back out in the market. Have also looked at 1 Manhattan West. Need studio space. Includes TV One Requirement. | MT |
| Bessemer Trust | 630 Fifth Avenue | 100,000 | 200,000 | 2024 | Financial Services | Cushman & Wakefield | Rob Lowe, John Cefaly | Midtown | Sixth Avenue/Rockefeller Center | A | Early in process | NYC |
| Blue Apron | 5 Crosby Street | 130,000 | 200,000 | Jan-19 | Internet New Media | CBRE | Sacha Zarba | Midtown South | Noho/Soho | C | Requirement was on hold. Active again now. | DT/MTS/Brooklyn |
| Carlyle Group | 520 Madison Avenue | 130,000 | 160,000 | | Financial Services | JLL | Steven Rotter | Midtown | Plaza District | A | Negotiating for the top 2 floors at 299 Park | |
| J. Crew Group, Inc. | 770 Broadway | 100,000 | 150,000 | | Consumer Product Manufacturers - Apparel | JLL | Jim Wenk | Midtown South | East Village | B | | |
| NASDAQ Stock Market, Inc. | 1 Liberty Plaza | 100,000 | 150,000 | | Financial Services | Cushman & Wakefield | | Downtown | Downtown West | A | | |

| Tenant | Current Location | SF Min | SF Max | LXD | Industry | Brokerage Firm | Broker Name | Current District | Current Submarket | Current Class | Comments | Region |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Macquarie Bank | 599 Lexington Avenue | 150,000 | 150,000 | | Financial Services | CBRE | Bob Alexander | Midtown | Eastside | A | Looked at 1100 AoA | NYC |
| Ziff Davis | Multiple Locations | 100,000 | 150,000 | 2019 | Media/Communications | Sacha Zarba | CBRE | MTS | atiron/Union Square | | Out of 63 Madison and 345 Hudson, looking to consolidate on the Eastside. | |
| Flatiron Health | 200 Fifth Avenue | 125,000 | 150,000 | | Health Care | Studley | Zev Holzman | Midtown South | Flatiron/Union Square | A | | MTS |
| Mitsubishi | Multiple | 150,000 | 150,000 | | Financial Services | Transwestern | Lindsay Ornstein | | | | | |
| TIAA | 750 Third Avenue | 75,000 | 150,000 | | Financial Services | CBRE | Neil King, Paul Amrich | Midtown | Eastside | A | | MT |
| Moelis & Company | 399 Park Avenue | 100,000 | 150,000 | | Financial Services | Cushman & Wakefield | Lou D'Avanzo | Midtown | Park Avenue | A | | |
| McDermott Will & Emery | 340 Madison Avenue | 150,000 | 150,000 | | Business Services - Legal Services | Newmark Knight Frank | Noel Flagg | Midtown | Grand Central | A | | MT |
| NYU Langone | Multiple Locations | 150,000 | 150,000 | | Health Care | Cushman & Wakefield | Mark Mandell | | | | | Eastside |
| FTI Consulting | 3 Times Square | 100,000 | 150,000 | 2021 | Business Services - Consulting | Colliers | Robert Gallucci | Midtown | Westside | A | Looking at 1633 Broadway, 4 Times Square | MT |
| Pillsbury Winthrop Shaw Pittman | 1540 Broadway | 100,000 | 150,000 | Apr-19 | Business Services - Legal Services | Studley | Mitch Steir; David Goldstein | Midtown | Westside | A | working on a renewal | NYC |
| Katten Muchin Rosenman | 575 Madison Avenue | 150,000 | 150,000 | 2021 | Business Services - Legal Services | Cushman & Wakefield | Rob Lowe | Midtown | Plaza District | A | Early in process. Starting to tour. May renew. | MT |
| Mount Sinai | Multiple Locations | 100,000 | 150,000 | | Health Care | Cushman & Wakefield | Jonathan Serko | | | | LO on West 57th Street | MT |
| United Nations | Multiple Locations | 150,000 | 150,000 | | Government | Cushman & Wakefield | Dirk Hrobsky | | | | Deal at 222 East 41st Street died after NYU took the Entire Building | Grand Central |
| Blank Rome | 405 Lexington Avenue | 100,000 | 140,000 | 2018 | Business Services - Legal Services | CBRE | Brian Hay, Ken Rapp | Midtown | Grand Central | A | Looked at Built space | NYC |
| ACS | 150 William Street | 120,000 | 130,000 | | Charitable Organizations/ Not-for-profit | JRT | Ellen Israel | Downtown | Downtown East | B | | Outer Bouroughs |
| MongoDB | 229 West 43rd Street | 125,000 | 125,000 | 2018 | Computer Software | Cushman & Wakefield | Dirk Hrobsky | Midtown | Times Square | A | LO at 1633 Broadway | DT |
| UN Joint Staff Pension Fund (UNJSPF) | 885 Third Avenue | 120,000 | 120,000 | | Government | Cushman & Wakefield | Dirk Hrobsky | Midtown | Eastside | A | | |
| Capital Group | 630 Fifth Avenue | 100,000 | 100,000 | | Financial Services | CBRE | Ken Rapp | Midtown | Sixth Avenue/Rockefeller Center | A | Looking at 1271 Avenue of the Americas | |
| Casper | 230 Park Avenue South | 100,000 | 100,000 | | Consumer Products Manufacturers | CBRE | Sinclair Li | MT | Grand Central | B | Current space is tired, looking for upgrade. | |
| Liquidnet Holdings | 498 Seventh Avenue | 100,000 | 100,000 | | Computer Software | JLL | David Dusek | Midtown | Times Square South | B | On to sublease at 620 8th Avenue, 5 floors. | Westside, Times Square South, MTS |
| ColumbiaDoctors | 1290 Avenue of the Americas | 100,000 | 100,000 | | Health Care | Newmark Knight Frank | Neil Goldmacher | Midtown | Sixth Avenue/Rockefeller Center | A | | NYC |
| IBM | Multiple Locations | 100,000 | 100,000 | | Computer Software | CBRE | Carl Eriksen, Dempsey, Ackerman | | | | LO at 601 West 26th Street for short term lease | |
| American Lawyer Media | 120 Broadway | 80,000 | 100,000 | | Media/ Communications | Colliers | Leon Manoff | Downtown | Downtown East | A | Likely to renew | |
| Telerep | 1 Dag Hammarskjold Plaza | 90,000 | 100,000 | 2019 | Media/Communications | CBRE | | Midtown | Eastside | A | Likely to renew | |
| Axis Capital | 1211 Avenue of the Americas | 100,000 | 100,000 | | Insurance | Cresa Partners | Mark Jaccom | Midtown | Sixth Avenue/ Rockefeller Center | A | Likely to renew | |

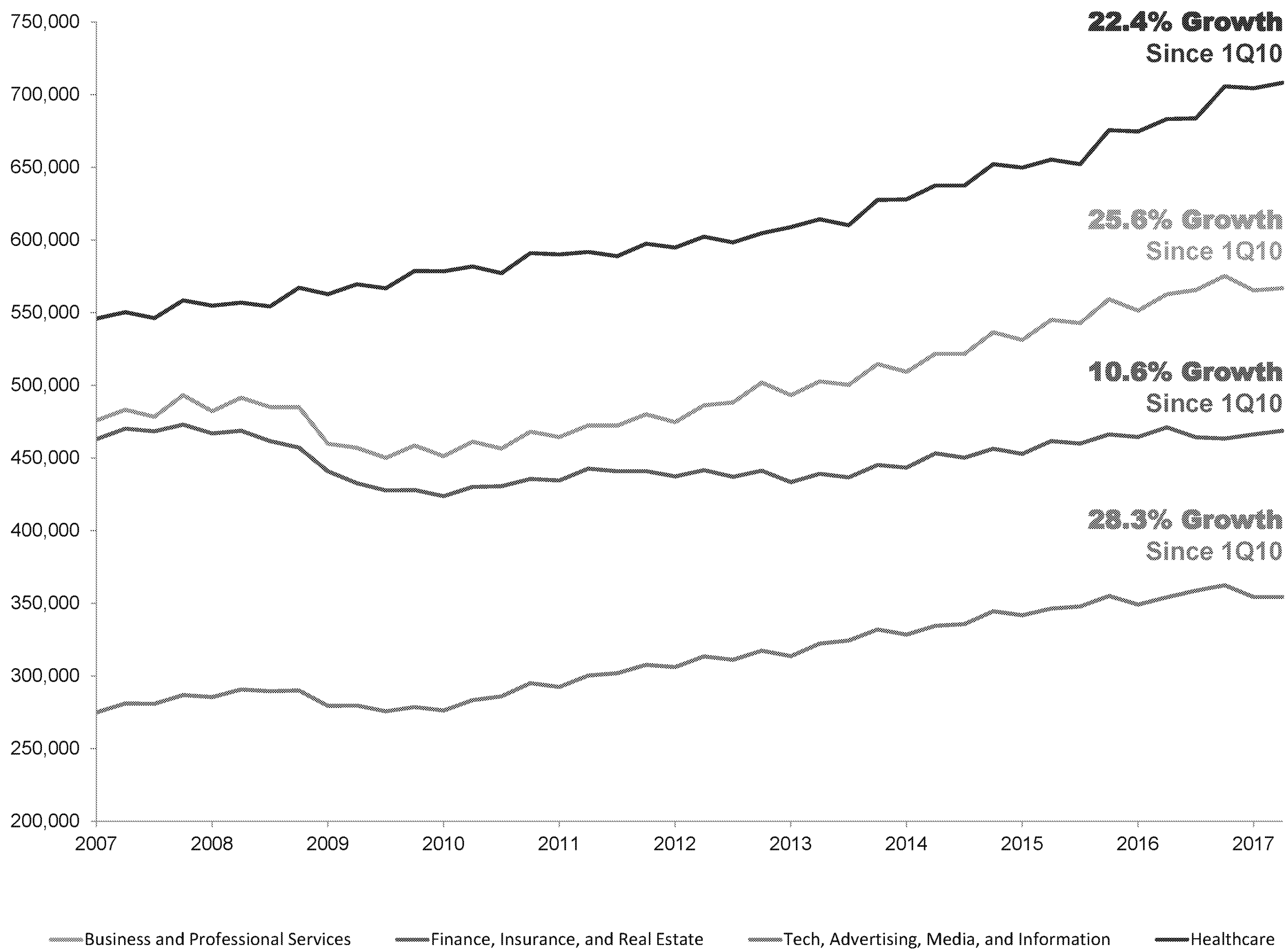
# NEW YORK CITY TECHNOLOGY AND MEDIA TRENDS

**Newmark Knight Frank**

# New York City Technology and Media Trends | Executive Summary

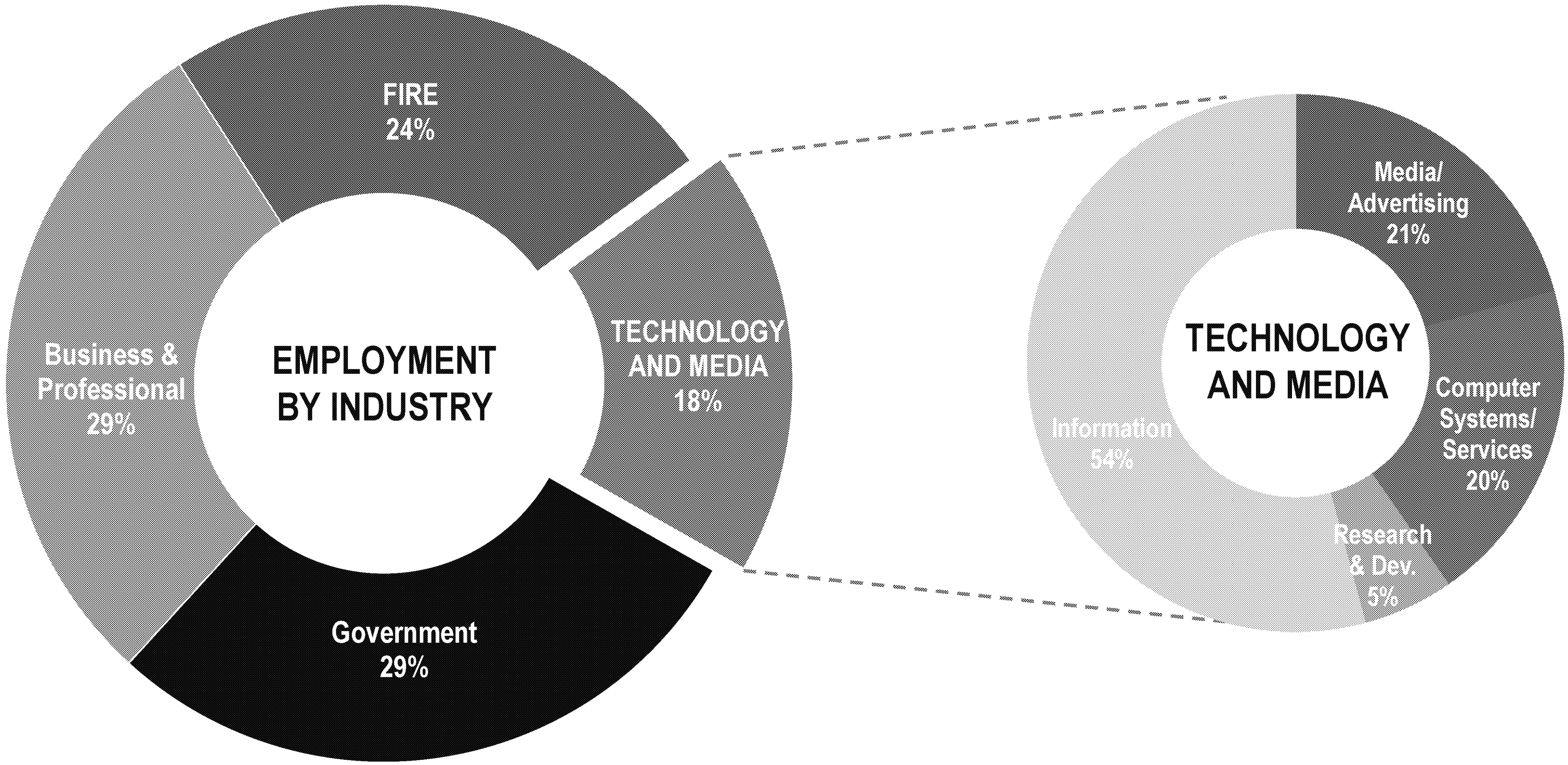
- At 28%, technology and media employment growth rate since 2010 exceeds that of FIRE, Business Services and Healthcare.
- Tenants in the market from technology and media industries represent 27% of the total square footage currently looking for space, yet accounts for just 18% of total employment.
- The majority of technology and media activity in Manhattan has occurred in Chelsea, Flatiron, Times Square South and Lower Manhattan.
- Averaging just 6.7 years per deal, technology and media tenants on average sign shorter leases than FIRE and legal companies, allowing growing creative businesses to retain flexibility.
- Available sublease space in Midtown South is on the rise with 43% of the market's availability located in Chelsea.
- Coworking locations are up 86% since 2009 with technology and media companies comprising a significant portion of the occupancy.
- More than 50% of TAMI tenants paid in the $30's and $40's during 2007, compared with 60% of TAMI tenants currently paying in the $60's, $70's and $80's.

# New York City Employment | Employment by Industry



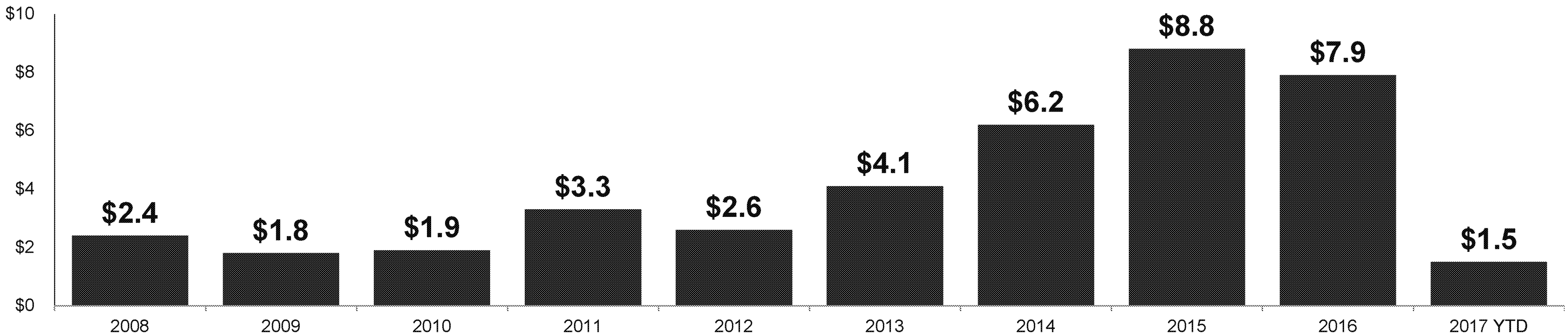

- Technology and media employment growth since the trough of the recession has outpaced the FIRE sector.
- Despite this growth, technology and media employment has not yet caught up to either of the other sectors' total employment. Technology and media employment is currently 37% below Professional/ Business Services and 24% below FIRE.
- The Healthcare sector has added the most jobs over the past 10 years with a net gain of 129,800 jobs.

# **New York City Office Using Employment** | Employment by Industry

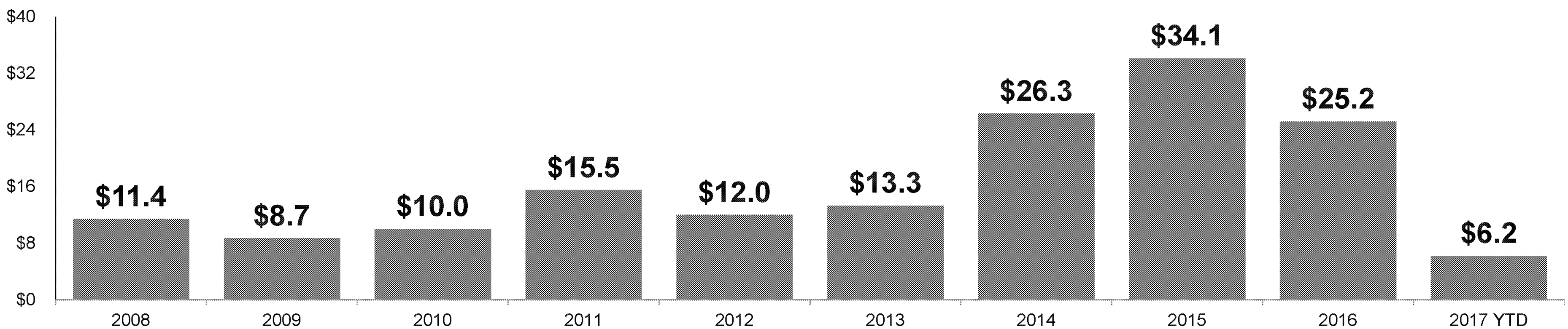


# Venture Capital Funding

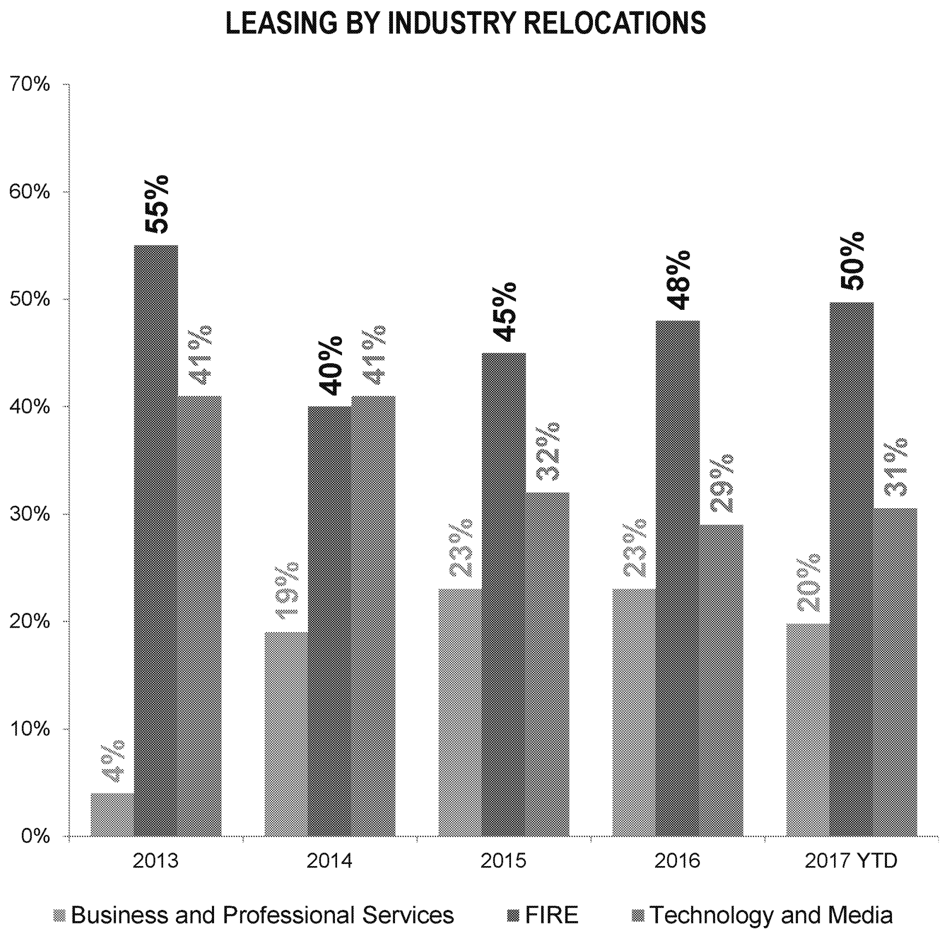
New York Venture Capital Funding ($B)

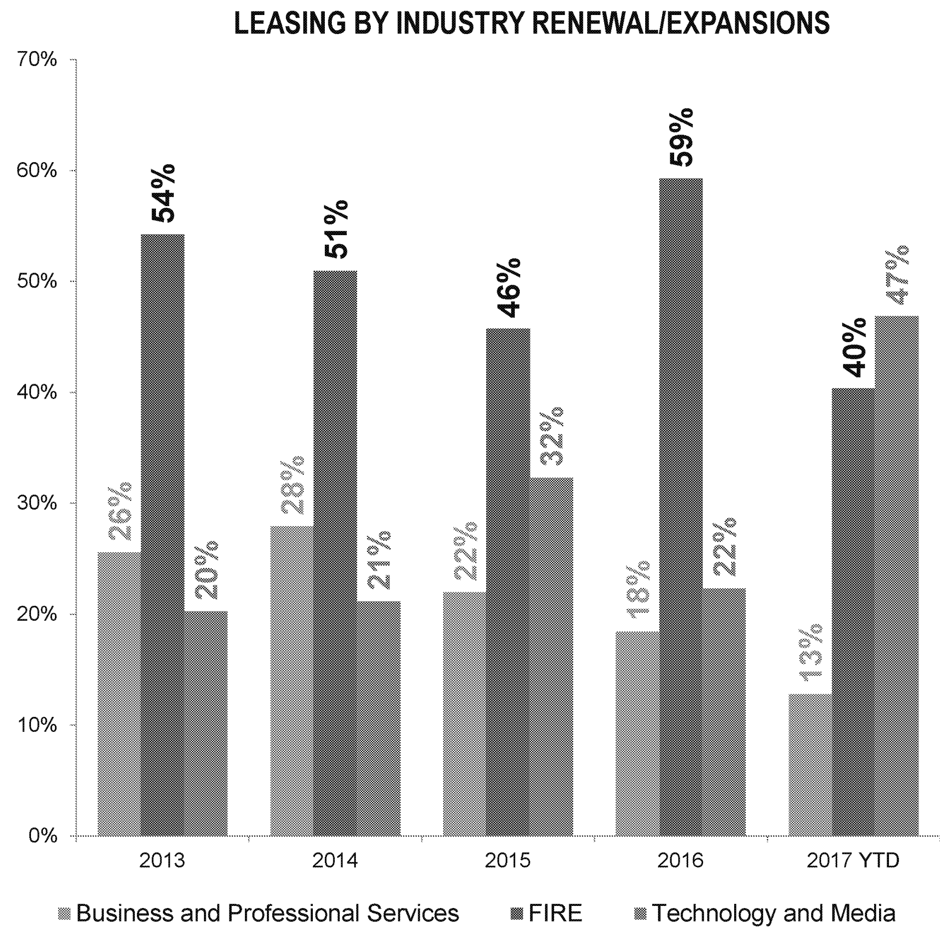



Silicon Valley Venture Capital Funding ($B)



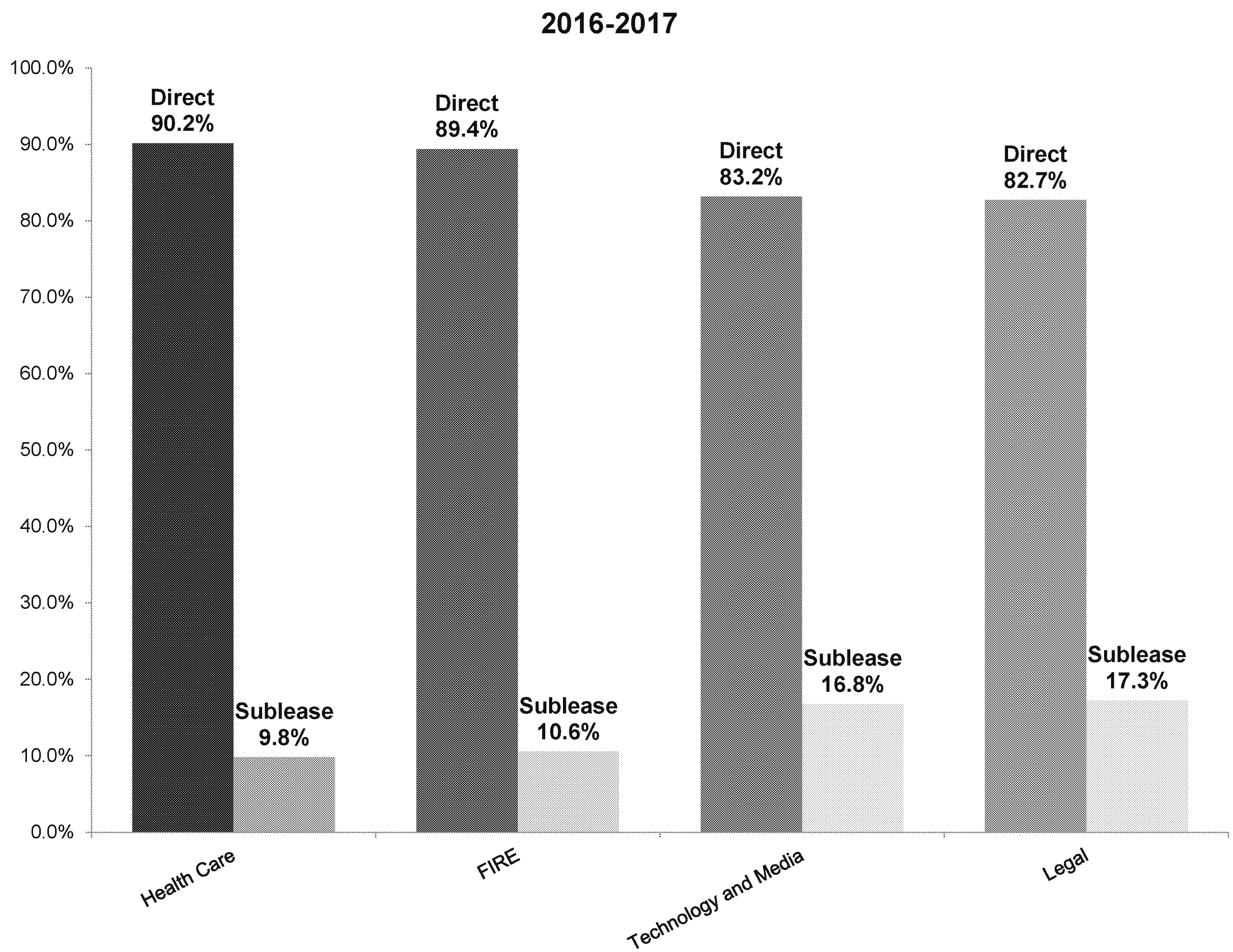
# **Leasing Activity by Industry** | Relocations and Renewals/Expansions



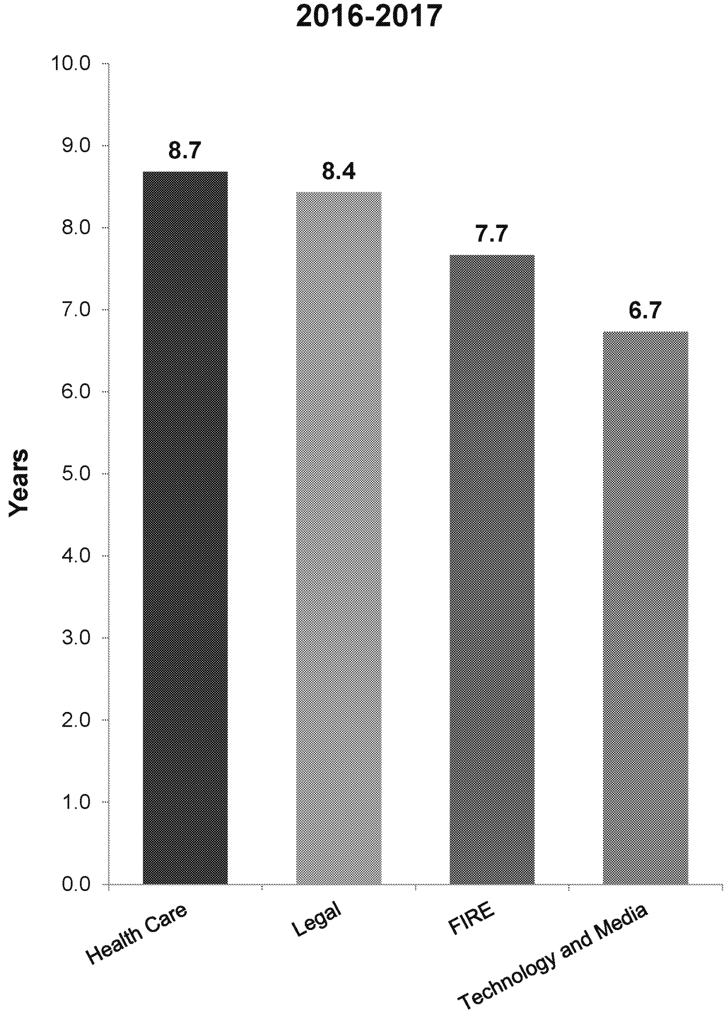

Source: Newmark Grubb Knight Frank Research, New York State Department of Labor

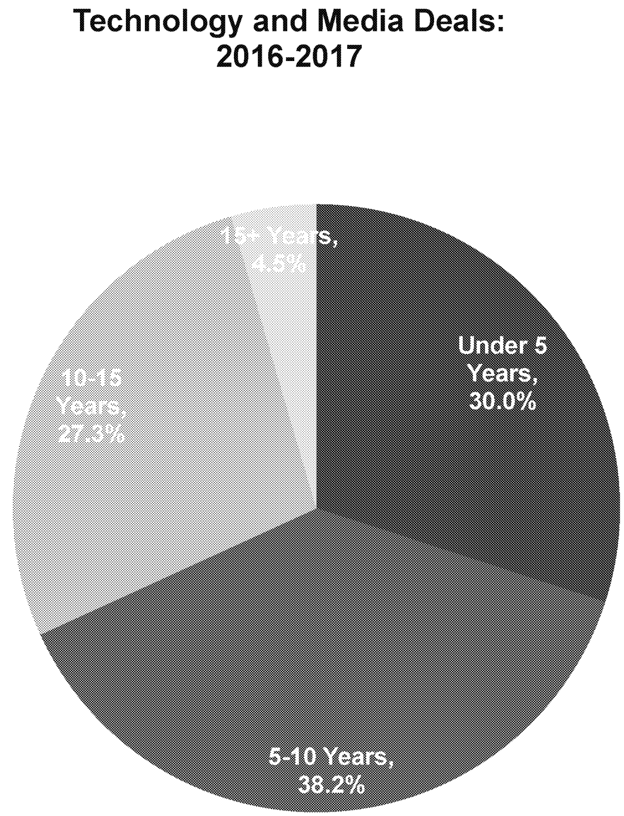
# **Deal Type Comparison** | Direct vs. Sublease




- Technology and media companies anticipating changes to personnel tend to sign sublease deals with shorter terms, due to frequently changing headcounts and space demands.
- Health Care companies generally have a more stable headcount and occupation requirement, allowing them to sign longer, direct deals.

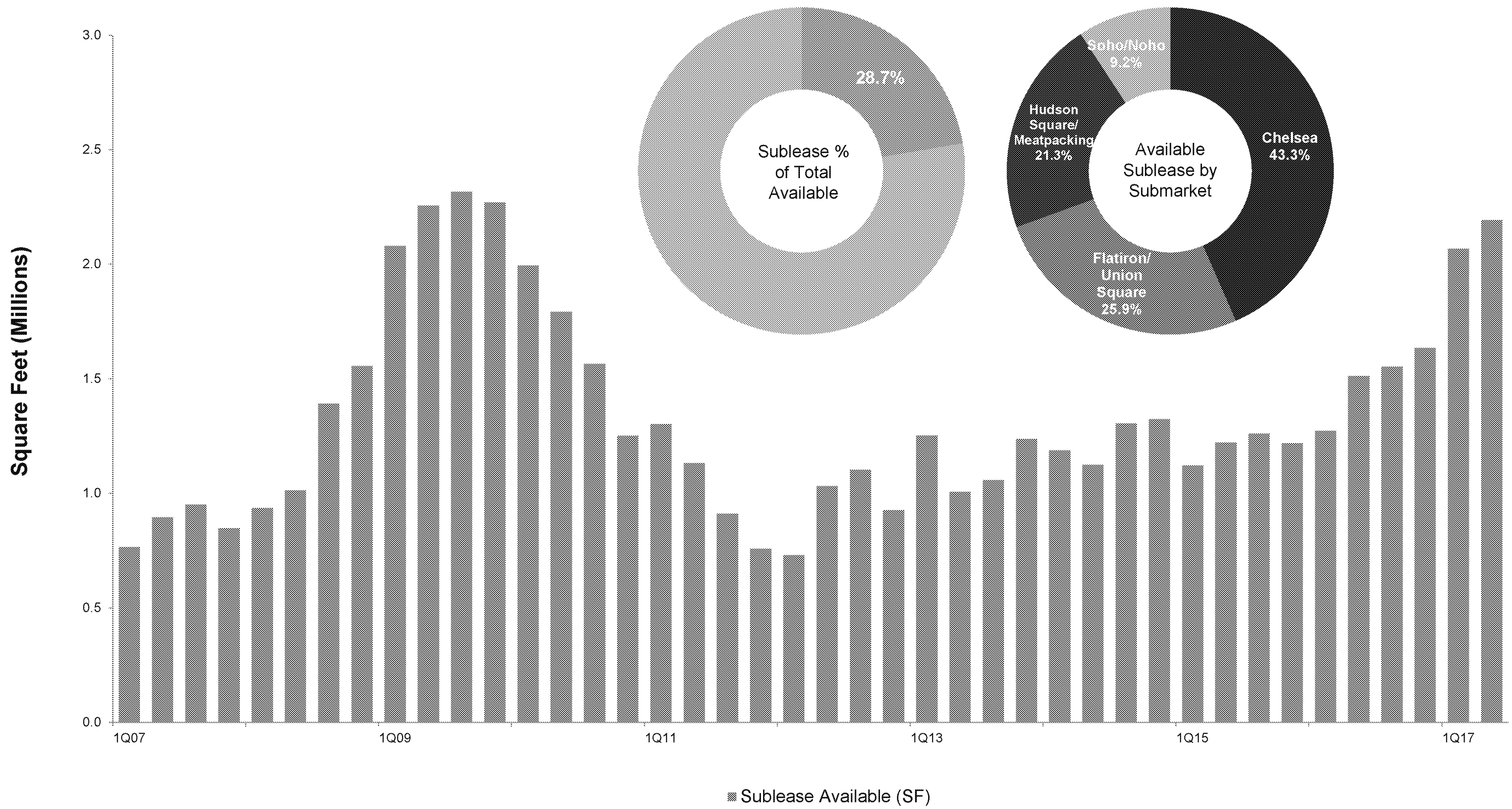
# **Deal Length Comparison** | Average Term by Industry



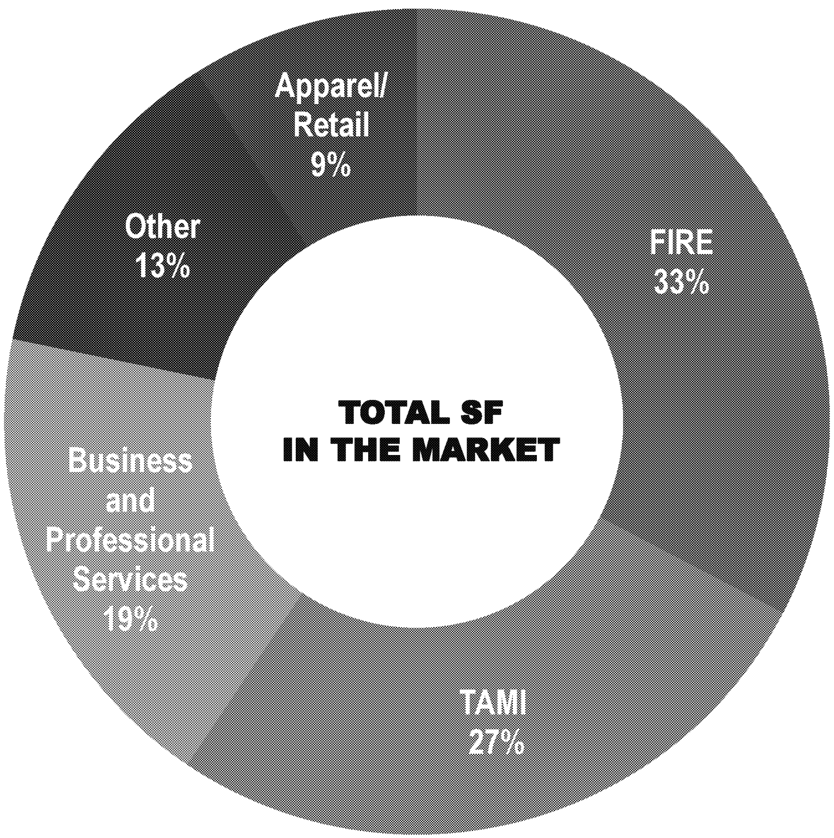

- Technology and media companies on average sign shorter deals than other major industries, allowing for a higher level of flexibility.
- The majority of deals signed by TAMI companies since 2016 are under 10 years in length.

# **Sublease Trends** | Midtown South



# Active Tenants in the Market

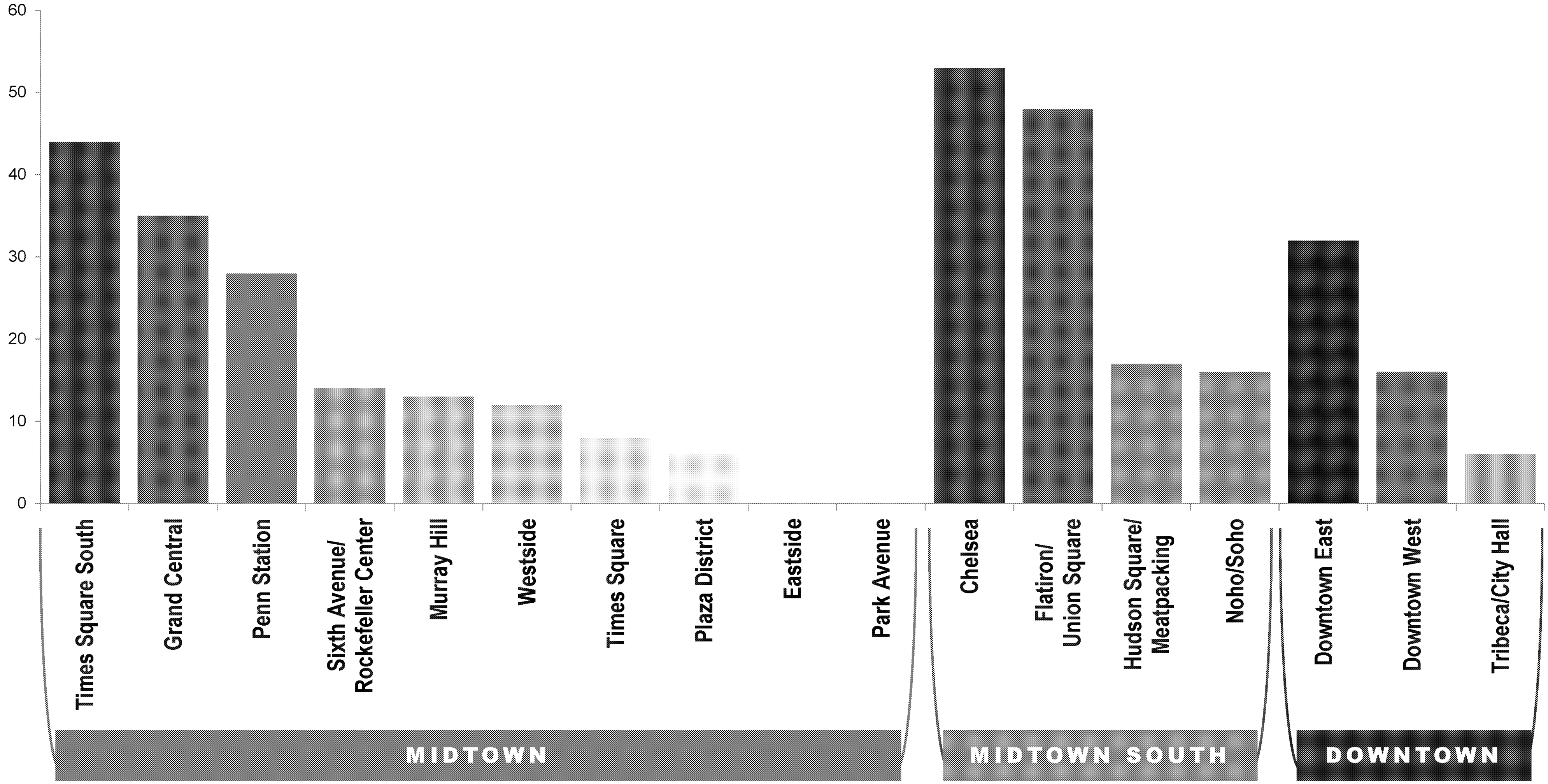
**INDUSTRY BREAKDOWN**



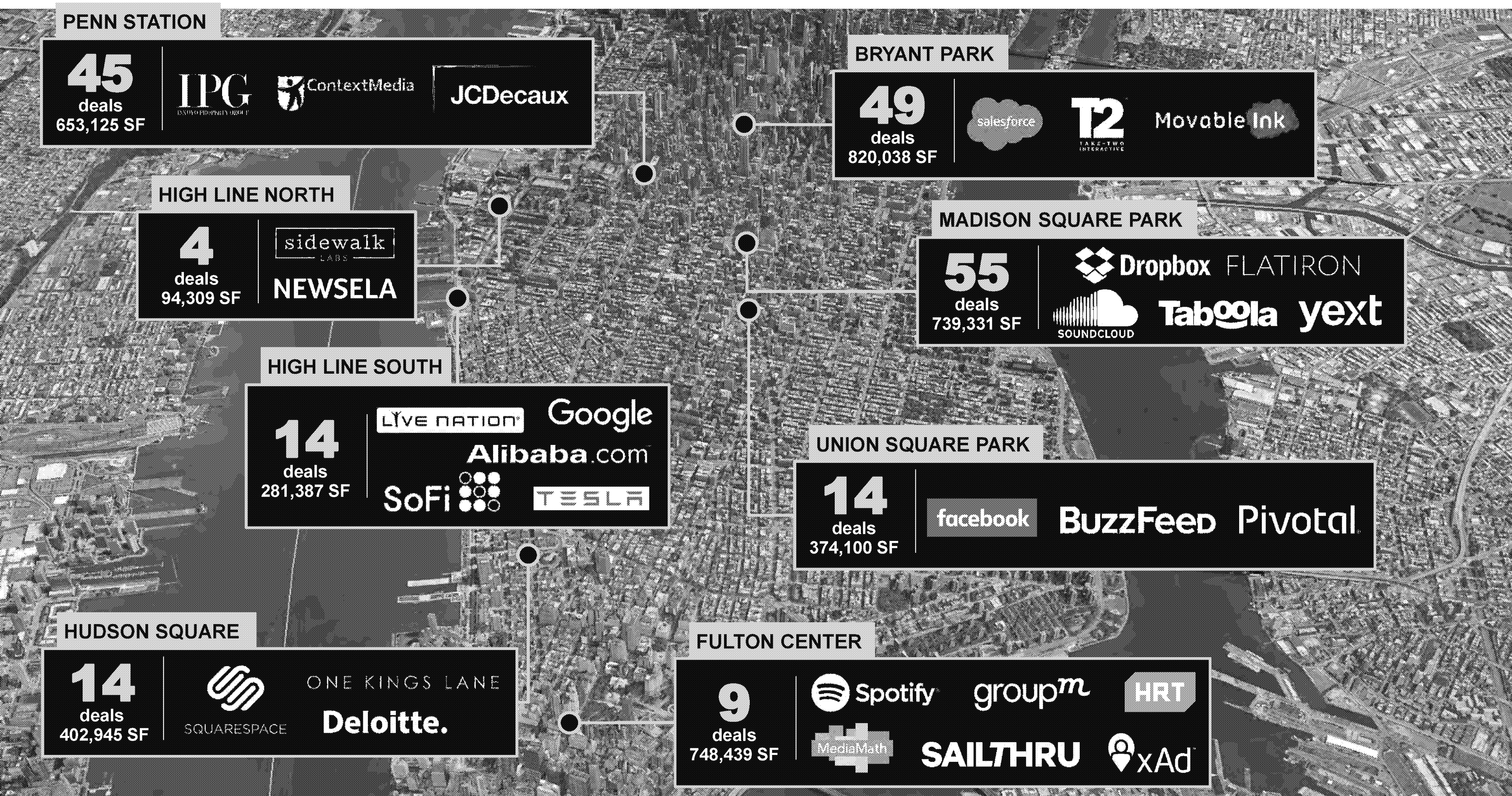

**TECHNOLOGY AND MEDIA TENANTS IN THE MARKET**

NETFLIX
Microsoft
mongoDB
FOURSQUARE
facebook
PERCH
TravelClick
BLUECORE
Gett
IBM
Discovery COMMUNICATIONS

# Technology and Media Activity by Submarket |
Deals Signed 2016 – 2017 YTD

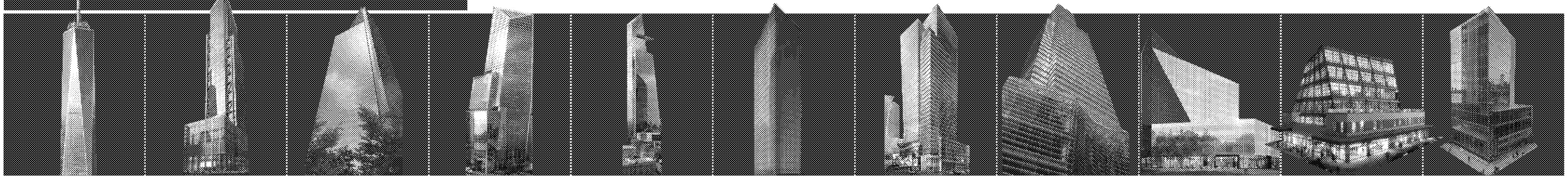


# Technology and Media Leasing Hotspots | Completed Transactions Since 2016



# Technology and Media Tenants Anchor Significant Projects
# New Construction

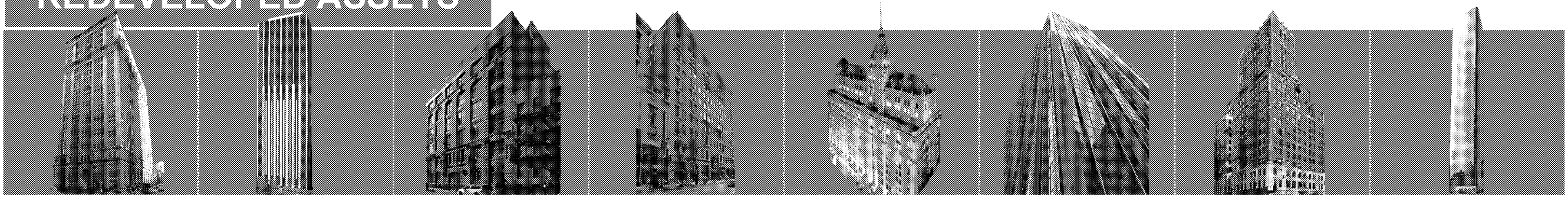
## NEW CONSTRUCTION



| | 1 World Trade Center | 3 World Trade Center | 4 World Trade Center | 10 Hudson Yards | 30 Hudson Yards | 55 Hudson Yards | 11 Times Square | 731 Lexington Ave. | 51 Astor Place | 837 Washington St. | 860 Washington St. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Submarket:** | Downtown West | Downtown West | Downtown West | Far West Side | Far West Side | Far West Side | Times Square | Eastside | Noho/Soho | Hudson Square/ Meatpacking | Hudson Square/ Meatpacking |
| **Delivery:** | 2014 | 2018 | 2013 | 2016 | 2019 | 2018 | 2010 | 2004 | 2013 | 2014 | 2016 |
| **Square Footage:** | 3,038,168 | 2,500,000 | 2,300,000 | 1,725,250 | 2,600,000 | 1,300,000 | 1,109,028 | 1,300,000 | 400,000 | 55,497 | 120,413 |
| **Major Tenants:** | Conde Nast, Moody's, High 5 Games xAd, Mic | Group M | Spotify, SNY, MediaMath | Vayner Media, SAP America, Intersection, Sidewalk Labs | Time Warner | MarketAxess | Microsoft | Bloomberg | IBM Watson | Samsung | SoFi, Alibaba, Tesla |
| **Percent of Building Occupied by Tech and Media:** | 46.7% | 27.6% | 30.2% | 15.8% | 57.7% | 6.4% | 27.9% | 43.6% | 42.6% | 100.0% | 67.4% |

# Technology and Media Tenants Anchor Significant Projects
# Redeveloped Assets

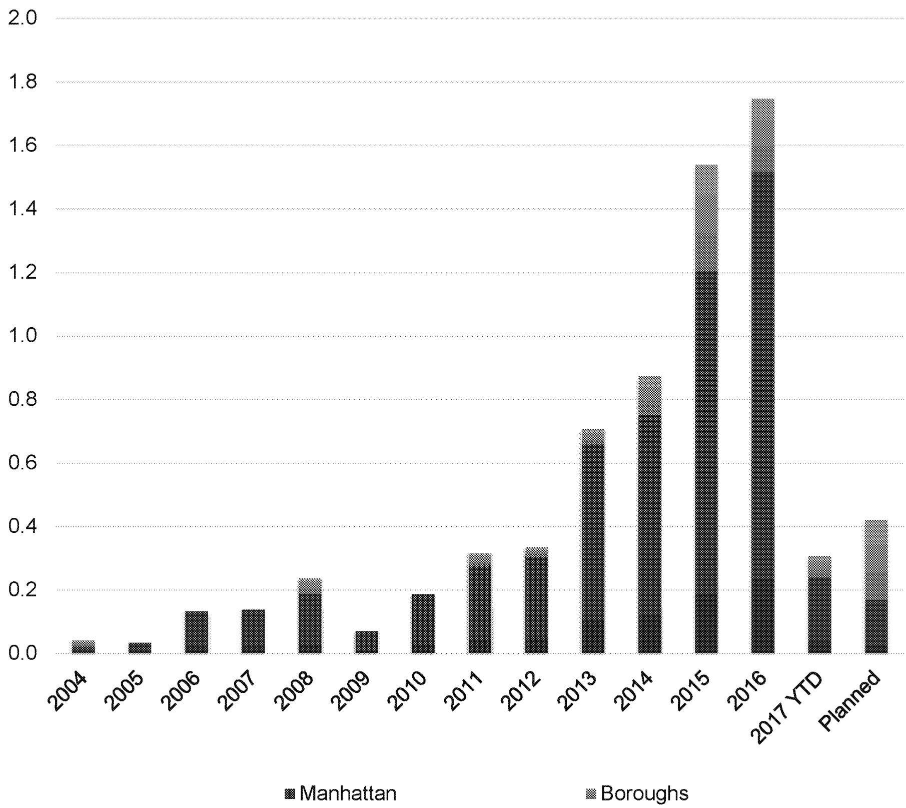
## REDEVELOPED ASSETS



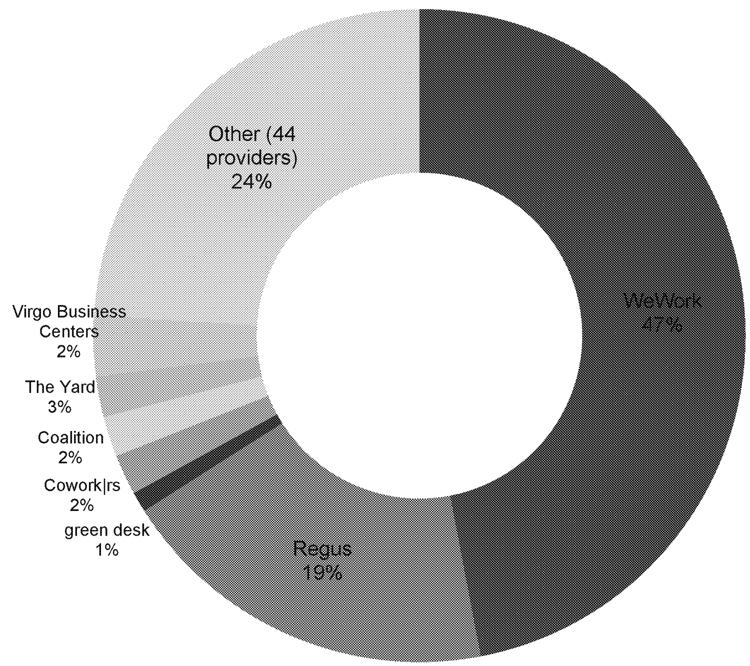
| | 225 Park Ave South | 1095 Avenue of the Americas | 245-249 West 17th Street | 7 West 34th Street | 229 West 43rd Street | 1271 Avenue of the Americas | 475 5th Avenue | 5 Manhattan West |
|---|---|---|---|---|---|---|---|---|
| **Submarket:** | Flatiron/Union Square | Sixth Avenue/ Rockefeller Center | Chelsea | Penn Station | Times Square | Sixth Avenue/ Rockefeller Center | Grand Central | Far West Side |
| **Delivery:** | 2016 | 2008 | 2013 | 2014 | 2015 | 2018? | 2013 | 2016 |
| **Square Footage:** | 477,956 | 1,200,000 | 300,000 | 431,082 | 789,826 | 1,962,900 | 275,764 | 1,742,194 |
| **Major Tenants:** | Facebook Buzzfeed | Salesforce, Verizon | Twitter | Amazon | Yahoo, Snapchat, Engine, Pubmatic, 10gen (now MongoDB) | MLB Advanced Media | Pinterest Penske Media | JPM Digital, Amazon, R/GA Media Group |
| **Percent of Building Occupied by Tech and Media:** | 82.0% | 34.9% | 71.6% | 100.0% | 41.6% | 20.4% | 31.9% | 37.6% |

# **Coworking Trends** | Manhattan and Outer Boroughs

**Leasing by Coworking Companies (MSF)**

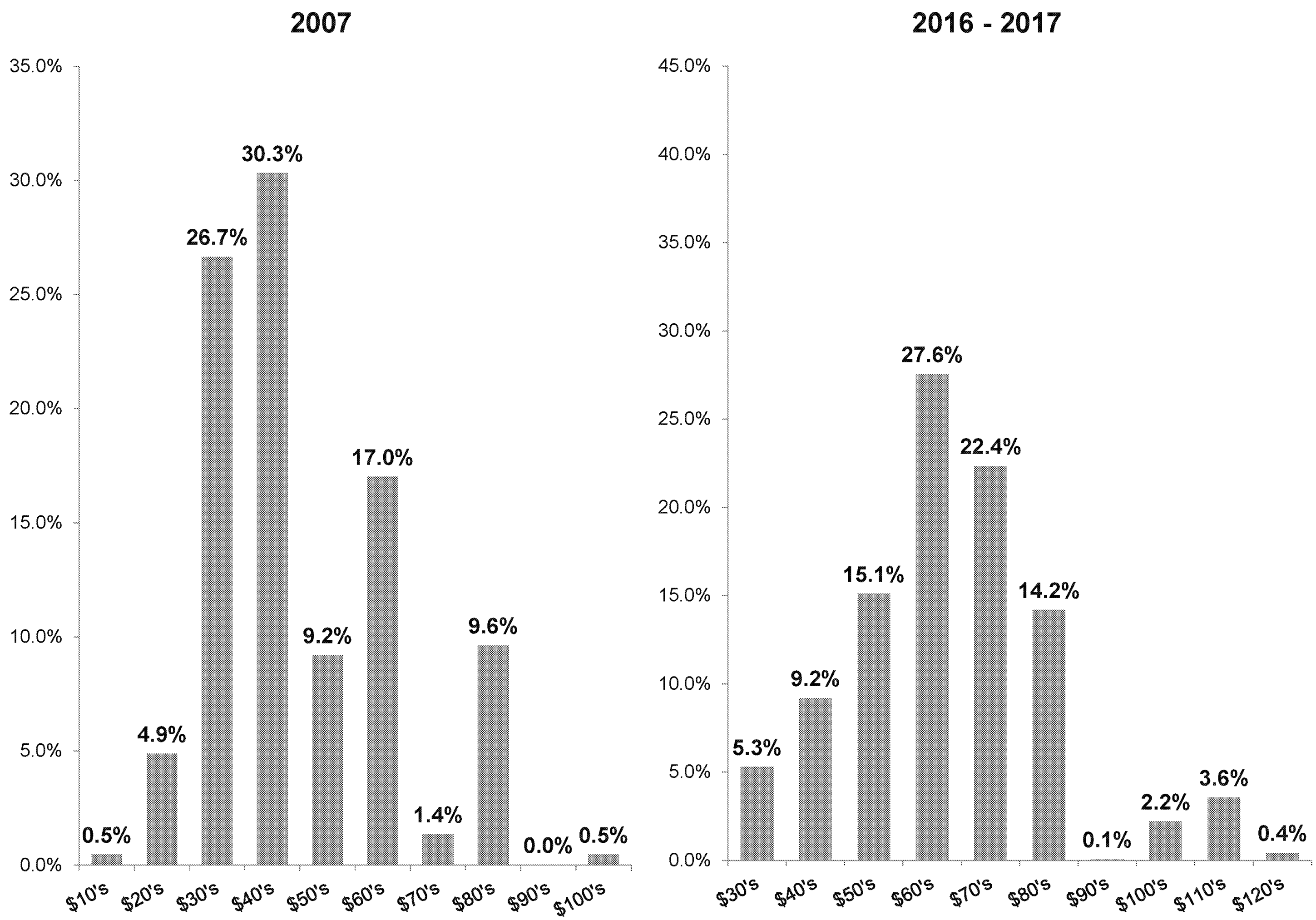



**Market Share of Providers**




- Coworking activity has risen 900% in the past seven years with 49 new providers opening between 2009 and 2016, bringing the total to 58.
- There are more than 200 total locations in New York City, up 86% since 2009.
- WeWork has increased its New York City portfolio by 8,838% since opening its first location, and averages 90,000 square feet per location.

# Technology and Media Taking Rent Comparison | Distribution of Rental Rates




- In 2007, the previous market peak, 57% of the square footage signed by technology and media tenants was priced in the $30s and $40s, compared to just 10% today.
- A decade later, the rent gradient has shifted higher, with 65% of leased square footage by technology and media tenants being priced in the $50s, $60s, or $70s.

| | Sale 1 | Sale 2 | Sale 3 | Sale 4 | Sale 5 | Sale 6 |
|---|---|---|---|---|---|---|
| Address | 85 Broad Street | 60 Wall Street | 388 & 390 Greenwich Street | 1 Battery Park Plaza | 1 New York Plaza | 61 Broadway |
| City, State | New York, NY | New York, NY | New York, NY | New York, NY | New York, NY | New York, NY |
| Land Size (SF) | 40,192 SF | 54,079 SF | 134,416 SF | 35,671 SF | 120,547 SF | 28,976 SF |
| Rentable Area (SF) | 1,119,813 SF | 1,625,000 SF | 2,634,674 SF | 870,000 SF | 2,545,000 SF | 787,000 SF |
| Year Built | 1983 | 1987 | 1986 | 1971 | 1970 | 1913 |
| Occupancy | 1242% | | | 667% | 538% | 1290% |
| Buyer | Ivanhoe Cambridge, Inc. | 60 Wall Owner LP | Citigroup Technology, Inc. | Allianz Real Estate America | China Investment Corporation (CIC) | RXR 61 Broadway Owner LLC |
| Seller | MetLife Real Estate | PGREF II 60 Wall Street, LP | 388 Realty Owner LLC | Rudin Management | Brookfield Office Properties, Inc. | 61 Broadway Owner LLC |
| Interest Conveyed | Leased Fee | Leased Fee | Leased Fee | Leased Fee | Leased Fee | Leased Fee |
| Investment Grade | A | A | A | A | A | A |
| Transaction Type | Sale | Sale | Sale | Sale | Sale | Sale |
| Transaction Date | May-17 | Jan-17 | Jun-16 | Jun-16 | May-16 | Apr-16 |
| Price | $652,000,000 | $1,040,000,000 | $1,767,913,114 | $178,850,000 | $677,670,000 | $215,600,000 |
| Price per SF | $582 | $640 | $671 | $206 | $266 | $274 |
| Cap Rate | 3.90% | 6.78% | 6.00% | 3.88% | 4.07% | 3.49% |
| IRR | 6.75% | 7.00% | 6.50% | 7.00% | 6.50% | 6.75% |
| Terminal OAR | 5.00% | 5.00% | 5.00% | 5.00% | 5.00% | 5.00% |
| Comments | The recent capital improvement program focused on elevating existing building amenities and adding state-of-the-art building services. They carry an abundance of conveniences into the office, including a high-end bike room, an expansive wellness center, conference facilities and food offerings. The Cap Rate of 3.9% reported as reliable source. | "GIC, Singapore's sovereign wealth fund, and Paramount Group, Inc. (NYSE: PGRE) ("Paramount") announced today that they have formed a 95%/5% joint venture. The joint venture completed a $575 million financing of the property. | Exercise of Option, Purchase By Tenant. SL Green will realize approximately $1.8 billion in sale proceeds at closing, including the lease termination payment. Proceeds of sale and the termination payment will be used by the Company to repay a portion of its corporate credit facility and retire the $1.45 billion mortgage on the Property, resulting in reduction of Company indebtedness of approximately $1.8 billion. | Partial Interest Transfer. This transaction represents the transfer of an approximately 49% interest. | The building suffered significant damage when Hurricane Sandy hit lower Manhattan in October 2012. Lower floors flooded and tenants couldn't access office space for weeks. The damage was repaired. On May 9, 2016, the company disposed of a 49% interest, including the non-controlling interest of 15.7%, in One New York Plaza in Downtown New York for $1,383 million. | Recapitalization. This transaction represents the transfer of a 49% partial interest. The purchase price was based on a gross valuation of $440 million for the 33-story, 787,000-square-foot office building. This would equate to a confirmed sale price of $215,600,000. A source deemed reliable has confirmed a Cap Rate of 4% which equates to approximately $8,624,000. The annual property taxes are $5,391,540 and there is a Lease Abatement in the amount of $314,352. |

| | Sale 7 | Sale 8 | Sale 9 | Sale 10 | Sale 11 | Sale 12 |
|---|---|---|---|---|---|---|
| Address | 2 Rector Street | 20 Broad Street | 100 Wall Street | 32 Old Slip | 123 William Street | 180 Maiden Lane |
| City, State | New York, NY | New York, NY | New York, NY | New York, NY | New York, NY | New York, NY |
| Land Size (SF) | 17,624 SF | 18,151 SF | 22,699 SF | 43,847 SF | 24,546 SF | 48,970 SF |
| Rentable Area (SF) | 476,000 SF | 473,000 SF | 520,000 SF | 1,161,435 SF | 552,305 SF | 1,192,893 SF |
| Year Built | 1909 | 1956 | 1969 | 1987 | 1957 | 1984 |
| Occupancy | 1602% | | 855% | 1304% | 780% | 5440% |
| Buyer | Bentall Kennedy and Cove Property Group | Metro Loft Management | 100 Wall Investments LLC | RXR 32 Old Slip Owner, LLC | ARC NYC123William, LLC | Downtown NYC Owner LLC |
| Seller | CIM Group LP | Vornado Realty Trust | 100 Wall Street Property Investors II LLC | 32 Old Slip Property Ground Tenant, LLC | EEGO-ARC 123 William JV, LLC | Almah, LLC |
| Interest Conveyed | Leased Fee | Leasehold | Leased Fee | Leasehold | Leased Fee | Leased Fee |
| Investment Grade | A | A | A | A | A | A |
| Transaction Type | Sale | Sale | Sale | Sale | Sale | Sale |
| Transaction Date | Mar-16 | Dec-15 | Jul-15 | Apr-15 | Mar-15 | Jan-15 |
| Price | $225,000,000 | $185,000,000 | $270,000,000 | $477,500,000 | $253,000,000 | $470,000,000 |
| Price per SF | $473 | $391 | $519 | $411 | $458 | $394 |
| Cap Rate | 1.69% | | 3.04% | 4.00% | 2.68% | |
| IRR | 7.25% | - | 6.00% | 6.00% | 7.00% | - |
| Terminal OAR | 5.00% | - | 5.00% | 5.00% | 5.00% | - |
| Comments | The buyers intend to renovate and reposition the building as a Class A office property. It is reported that the Pro Forma Cap Rate will be approximately 6% on cost. In other words, taking the sale price and adding the additional costs to renovate and stabilize, the projected Pro Forma is calculated to be approximately 6%. | The aggregate consideration for the sale of the leasehold and the early termination of the NYSE lease is $200,000,000 or $423 per square foot. The total income from this transaction is approximately $156,000,000 comprised of $141,000,000 from the gain on sale and $15,000,000 of lease. | Savanna acquired the property in May 2011 and completed $25 million of capital improvements during its ownership period, including a successful prebuilt program and future resiliency improvements following Hurricane Sandy in 2012. This was under contract for approximately 60 days. There were no sale conditions and no broker for the buyer. | Double Escrow, RXR had gone into contract on the property in December 2014 for an all-in price reported to be $675 MM. The transaction closed in what was, in part and in essence, a partial double escrow sale with RXR simultaneously selling its interest in the land beneath the building to a separate 3rd party as a leased fee and with RXR closing only against the remaining leasehold interest for the $477.5 MM. RXR obtained financing of approximately $325 MM loan from GE Capital for the acquisition of the leasehold. The loan is sub 3% interest-only for a five year term. | The building was about 82% occupied when the contract was signed. At the time of the sale the building was about 98% occupied, but the sale price reflects the 82% occupancy. Occupancy rate was 55% during the prior sale in 2013. | High Vacancy Property. 180 Maiden Lane is a 41-story, Class A, LEED-certified office building. Ownership plans an immediate and extensive capital improvement (including the $28 million lobby and amenities. |

| | Sale 13 | Sale 13 | Sale 14 | Sale 15 | Sale 16 | Sale 17 | Sale 18 |
|---|---|---|---|---|---|---|---|
| Address | 85 Broad Street | 80 Broad Street | 222 Broadway | 77 Water Street | 61 Broadway | 110 William Street | 55 Broadway |
| City, State | New York, NY | New York, NY | New York, NY | New York, NY | New York, NY | New York, NY | New York, NY |
| Land Size (SF) | 40,192 SF | 13,135 SF | 33,323 SF | 26,109 SF | 28,976 SF | 32,508 SF | 15,877 SF |
| Rentable Area (SF) | 1,119,813 SF | 411,944 SF | 775,854 SF | 546,803 SF | 787,000 SF | 928,000 SF | 358,637 SF |
| Year Built | 1983 | 1935/2007 | 1961 | 1969 | 1913 | 1957 | 1981 |
| Occupancy | 1242% | | | | 1290% | 366% | 833% |
| Buyer | Beacon Capital Partners | Broad Street Development | RAR2 - 222 Broadway Owner SPE, LLC | 77 Water Member LLC | RXR 61 Broadway Owner LLC | 110 William Property Investors III, LLC | 55 Broadway Associates, LLC |
| Seller | MetLife Real Estate | Savanna Partners | 222 Broadway Owner LLC | St. Paul Fire and Marine Insurance Company | 61 Broadway Owner LLC | 110 William LLC | 55 Broadway, LLC |
| Interest Conveyed | Leased Fee | Leased Fee | Leased Fee | Leasehold | Leased Fee | Leased Fee | Leased Fee |
| Investment Grade | A | B | A | A | A | A | A |
| Transaction Type | Sale | Sale | Sale | Sale | Sale | Sale | Sale |
| Transaction Date | Nov-14 | Aug-14 | Aug-14 | Aug-14 | May-14 | Apr-14 | Apr-14 |
| Price | $175,000,000 | $175,000,000 | $502,000,000 | $117,600,000 | $330,000,000 | $261,100,000 | $157,000,000 |
| Price per SF | $156 | $425 | $647 | $215 | $419 | $281 | $438 |
| Cap Rate | | 3.74% | 4.15% | | 4.58% | 5.00% | 3.80% |
| IRR | - | 6.50% | 7.00% | - | - | - | - |
| Terminal OAR | - | 5.00% | 5.00% | - | - | - | - |
| Comments | High Vacancy Property. This transaction represents the 50% partial interest transfer. Morgan Stanley has provided about $210 million of debt in conjunction with the sale of this 50% stake in the property. It is reported that the loan is a floating-rate loan. The mortgage has a two-year term and three one-year extension options. | Debt Assumption, Partial Interest Transfer. This transaction represents a 95% partial interest transfer. The Pro Forma Capitalization Rate is approximately 4.85% stabilized in two years. This would equate to an approximated Net Operating Income of $24,347,000. There was debt assumption in the amount of $135,000,000. L&L Holdings still manages this property and retains a 5% interest. | Debt Assumption, Partial Interest Transfer. This transaction represents a 95% partial interest transfer. The Pro Forma Capitalization Rate is approximately 4.85% stabilized in two years. This would equate to an approximated Net Operating Income of $24,347,000. There was debt assumption in the amount of $135,000,000. L & L Holdings still manages this property and retains a 5% interest. | Debt Assumption, Ground Lease (Leasehold). The building was remeasured by the seller before the sale and the new footage reported is the 628,863. A contact for the buyer has noted that the correct square footage is 546,803 SF. The Minnesota-based insurance firm the Travelers Companies sold its 49 percent stake in this building. The William Kaufman Organization owns a 51% and controlling interest in the property. The building has a loan in the amount of $45,000,000 from AXA-Equitable, as per county records, dated October 21, 2011. The buyer has assumed 49% of the existing date. | This transaction represents the transfer. The 4% cap rate was confirmed. There is a Lease Abatement in the amount of $314,352. | This was property was added to the market in August of 2013 and at that time was 99% occupied. There is a debt assumption in the amount of $141,500,000. The contract was signed on December 4, 2013 which equates to an escrow time of 147 days. There has been a 22% year-over-year increase in rental rates as of first quarter 2014 according to a contact. | The capitalization rate is 3.80%. J.P. Morgan provided $105 million in debt that carries a seven-year term. It's LTV was 67%. J.P. Morgan plans to securitize that loan. The buyer intends to add 9,000 square feet of retail on the lower floors. |

| | Sale 1 | Sale 2 | Sale 3 | Sale 4 |
|---|---|---|---|---|
| Address | **1515 Broadway** | **825 Eighth Avenue** | **245 Park Avenue** | **693 Fifth Avenue** |
| City, State | New York, NY | New York, NY | New York, NY | New York, NY |
| Land Size (SF) | 65,764 SF | 58,241 SF | 81,337 SF | 5,625 SF |
| Rentable Area (SF) | 1,750,000 SF | 2,080,000 SF | 1,785,219 SF | 95,845 SF |
| Year Built | 1972 | 1989 | 1965 | 1991 |
| Occupancy | 99% | 100% | 94% | 87% |
| Buyer | China Investment Corp. | SL Green/RXR Realty | HNA Group | Fimalac |
| Seller | SL Green | NY-Worldwide Plaza LLC | Brookfield Properties | Thor Equities |
| Interest Conveyed | Leased Fee | Leased Fee | Leased Fee | Leased Fee |
| Investment Grade | Class A | Class A | Class A | Class A |
| Transaction Type | Sale | Sale | Sale | Sale |
| Transaction Date | Contract | Contract | Contract | Sep-16 |
| Price | $2,000,000,000 | $1,700,000,000 | $2,210,000,000 | $525,000,000 |
| Price per SF | $1,143 | $817 | $1,238 | $5,478 |
| Cap Rate | 4.50% | 5.00% | 4.80% | 3.05% |
| IRR | 6.00% | 6.50% | 5.75% | 5.25% |
| Terminal OAR | 4.50% | 4.50% | 4.50% | 4.25% |
| Comments | China Investment Corp. is in contract to buy a 49 percent stake in a deal valued around $2 billion, or around $1,142 per square foot. Viacom is the largest tenant in the property, which was 97.3 percent occupied. | A partnership between SL Green Realty and RXR Realty is under contract to buy New York REIT's Midtown office tower, One Worldwide Plaza. The bid translates to around $810 per square foot. Eastdil Secured and CBRE are jointly representing the seller. | The largest tenants include Societe Generale, Major League Baseball, Angelo Gordon & Co. LLP and Rabobank Nederland. Major League Baseball leases 220,565 square feet which expires in October 2022. | The property comprises of 13,559 square feet of multi-level retail space (14.1%), 80,242 square feet of office space (83.7%), 2,044 square feet of stroage space (2.13%) totaling 95,845 square feet. The property was originally built as the Takashimaya department store and now houses Valentino's flagship retail store which encompasses the 4 levels of retail space. The Valentino lease ensures steady income as the in place rent representes over 82 percent of the buildings income. In addition the office space is 62.1 percent leased and accounts for just over 17 percent of the income. |

| | Sale 5 | Sale 6 | Sale 7 | Sale 8 |
|---|---|---|---|---|
| Address | **1095 Sixth Avenue** | **11 Madison Avenue** | **1250 Broadway** | **10 Hudson Yards** |
| City, State | New York, NY | New York, NY | New York, NY | New York, NY |
| Land Size (SF) | 59,250 SF | 83,938 SF | 31,792 SF | 79,943 SF |
| Rentable Area (SF) | 1,179,033 SF | 2,287,905 SF | 773,215 SF | 1,861,084 SF |
| Year Built | 1973/2008 | 1932/1998 | 1969 | 2015 |
| Occupancy | 95% | 98% | 88% | 100% |
| Buyer | Real Summit Investment | PGIM Real Estate | Jamestown Eastgate Realty | Allianz SE |
| Seller | JV Ivanhoe Cambridge & Callahan Capital Partners | SL Green Realty | JV Murray Hill Properties | ERY Tenant LLC |
| Interest Conveyed | Leased Fee | Leased Fee | Leased Fee | Leased Fee |
| Investment Grade | Class A | Class A | Class A | Class A |
| Transaction Type | Sale | Sale | Sale | Sale |
| Transaction Date | Aug-16 | Aug-16 | Aug-16 | Aug-16 |
| Price | $2,353,000,000<br>Adjusted to reflect 100% interest | $2,600,000,000 | $565,000,000 | $2,150,000,000<br>Adjusted to reflect 100% interest |
| Price per SF | $1,996 | $1,136 | $731 | $1,155 |
| Cap Rate | 3.78% | 3.40% | 3.07% | 4.48% |
| IRR | 5.50% | 5.50% | 7.50% | 6.00% |
| Terminal OAR | 4.50% | 4.50% | 5.00% | 4.50% |
| Comments | The property includes the office and retail condominiums located within the grade, 2nd through 6th floors and 13th through 41st floors of 1095 Avenue of the Americas and the 42nd Cube, 3-story annex retail building at 120 W. 42nd Street. The 7th through 12th floors are owner occupied by Verizon. Ivanhoe Cambridge and Callahan Capital Partners is selling a 49 percent equity interest in the property to Real Summit Investment, based on a purchase price of $2.353 billion for a 100 percent interest. Over 81 percent of the office space is leased to five tenants; Metlife Insurance, Dechert, LLP, Standard Chartered Bank, the Instinet Group, LLC, and the Bank Of Scotland. MetLife has subleased the majority of its space to Salesforce.com. There is 103,000 square feet of retail space. The majority of space is leased to Equinox and Whole Foods. 1095 AoA was originally built as the headquarters of the New York Telephone Company and subsequently became the headquarters for Verizon Communications. The Oxford and Callahan acquired the property in November 2014 for an agreed upon price of $2.2 billion from Equity Office Properties. The buyer was provided with various credits of $54 million for costs associated with the leasing costs and capital expenditures which were not been paid. As a result the actual net contract price was $2.146 billion. In March 2005, EOP acquired of 1095 AoA, except for the 6th through 12th floors, from Verizon Communications for $470,000,000. The property was underwent a complete renovation, that was completed by January 2008 at a cost of $350,000,000. The 3-story and below grade retail box was developed in 2012 for a total cost of $32 million. | Sale of a partial interest. PGIM Real Estate which is acquiring 40% interest in the property from SL Green Realty. The purchase price was based on $2.6 billion. The property is leased to 5 office tenants and 4 retail tenants. Originally, Credit Suisse leased over 79 percent of the property under a net lease that originally expires in May 2017. In early 2014, Credit Suisse signed a 20-year extension for 1,066,132 square feet of office space on the basement level, grade level, and 2nd through 10th floors, plus 21,293 square feet storage space. The tenant has an expansion option on the 11th and 13th floors totaling 177,626 square feet. Credit Suisse also surrendered its space on 19th through 29th floors. In addition to the Credit Suisse renewal, Sony leased 579,205 square feet on the basement level, at grade and on 19th through 28th floors through January 2031; as part of their lease, Sony will open a Sony experience store on the Madison Park side of the building. In addition, Yelp leased 152,232 square feet on the 14th and 16th floors through April 2025; and WME signed leases for 103,426 square feet on the 15th and 17th floors through September 2030. In all, over 2,090,000 square feet (assuming Credit Suisse exercises is expansion option) or nearly 92 percent of the subject's net rentable area was leased through either new leases or renewals since 2014. Previously in August 2015, SL Green acquired the property from a JV of Sapir Organization & CIM Group for a net purchase price of $2.422 billion. | Class A office tower located in the Madison/Union Square office submarket of Midtown South Manhattan. The property is approximately 88% leased to 24 office tenants at the time of sale. The largest office tenant is the Visiting Nurse Service of New York, who leases approximately 40% of the property's net rentable are. Approximately 50% of the property's net rentable area is occupied by leases that expire through 2018. | Sale of state of the art Class A office building, which is the first office tower to be completed in the Hudson Yards area. ERY Tenant LLC is a joint venture of Related Companies, Oxford Properties Group, JP Morgan, Kuwait Investment Authority, and Coach, which is selling a 48 percent equity interest in the property, based on a purchase price of $2.150 billion for a 100 percent interest. The Coach space currently consists of a 40 percent interest in the property. In conjunction with the prospective sale, Coach is in the process of signing a long-term lease for the space it intends to occupy. As part of the transaction, Coach is selling it's interest and will sign a long-term leaseback. The transaction is expected to close in July 2016, upon completion of the tower. The property is fully leased to 7 office tenants and a retail tenant. Over 71 percent of the property is leased to Coach, L'Oreal, Boston Consulting Group, and SAP America, Inc. under long term leases. |

| | Sale 9 | Sale 10 | Sale 11 | Sale 12 |
|---|---|---|---|---|
| Address | **1221 Avenue of the Americas** | **550 Madison Avenue** | **787 Seventh Avenue** | **645 Fifth Avenue** |
| City, State | New York, NY | New York, NY | New York, NY | New York, NY |
| Land Size (SF) | 102,452 SF | 36,803 SF | 80,333 SF | 12,350 SF |
| Rentable Area (SF) | 2,677,007 SF | 852,830 SF | 1,767,269 SF | 505,827 SF |
| Year Built | 1969/2000 | 1984 | 1985 | 1930/1947/1981 |
| Occupancy | 90% | 0% | 100% | 99% |
| Buyer | Cpp & Rockefeller Center Group | Olayan, LLC | JV CalPERS & CommonWealth Partners | JV Crown Acquisitions & Oxford Properties |
| Seller | Invesco | Chetrit Group | AXA Financial | Olympic Tower Associates |
| Interest Conveyed | Leased Fee | Leased Fee | Leased Fee | Leasehold |
| Investment Grade | Class A | Class A | Class A | Class A |
| Transaction Type | Sale | Sale | Sale | Sale |
| Transaction Date | Aug-16 | May-16 | Jan-16 | May-15 |
| Price | $2,300,000,000 | $1,400,000,000 | $1,899,037,256 | $1,300,000,000 |
| | Adjusted to reflect 100% interest | | | 100% Interest |
| Price per SF | $859 | $1,642 | $1,075 | $2,570 |
| Cap Rate | 2.90% | - | 4.22% | 4.29% |
| IRR | 6.50% | 5.50% | 7.00% | 5.50% |
| Terminal OAR | 5.00% | 4.50% | 5.00% | 4.75% |
| Comments | The property is approximately 90 percent leased to 15 office tenants. The four largest office tenants are White & Case, NBC Universal, Morgan Stanley, and MUFG Americas Holding Corp. These four tenants represent over 48 percent of the net rentable area. Ownership is in the process of instituting an extensive renovation program that is expected to be compelte in 2020 which will mordernize the property and lobby. The total purchase price is allocated to reflect a 100 percent interest in $2,300,000,000. | The Chetrit Group acquired the building in March 2013 for $1.1 billion from Sony Corporation, which owned and occupied the entire building as their US headquarters. Following the sale, Sony Corporation leased-back the building though March 2016. The building is currently vacant. The Chetrit Group intended convert the upper floors into hotel and residential uses. The owner intends to fully renovate the property for office use and redevelop the retail into multi level space. | The largest office tenants include BNP Paribas (389,232 square feet, 22.82% of NRA), Sidley Austin (338,398 square feet, 19.84% of net rentable area), Wilkie Farr & Gallagher (321,433 square feet, 18.85% of net rentable area), and Stifel Nicolaus (178,583 square feet, 10.47% of net rentable area). The agreed upon purchase price was $1.95 billion. The buyer was provided approximately $33 million in credit and income support for existing contractual costs associated with the free rent abatements, tenant improvements and capital expenditures which have not been paid. In addition, $17.1 million was allocated for the artwork located within the building. As a result the actual contract price was reduced to $1.889 billion. | Sale of a 50.123 interest in four retail and office properties to the joint venture of Crown Acquisitions and Oxford Propeties from Olympic Tower Associates at a purchase price that equals $1.3 billion based on 100 percent interest in the property. The property includes 645, 647, 651 Fifth Avenue and 10 East 52nd Street located between East 51st and East 52nd Streets. Olympic Tower is the commercial condominium located on the basement, grade through 21st floors of 645 Fifth Avenue, which contains 407,994 rsf. 647 Fifth Avenue is a 5-story retail building that contains 20,000 rsf and is master leased to Versace through 2023. 651 Fifth Avenue is a 55,000 sf, 5-story retail building that is master leased to Cartier through July 2022. 10 East 52nd Street is a 7-story office and retail building that contains 22,833 rsf. The property includes 6,917 sf of retail space on the basement, ground and 2nd floor, while the office space contains 15,916 sf. The retail is leased to Fig & Olive Fifth Avenue through June 2022. The office space is leased to Richemont North America, Inc. through 2028. The land under Olympic Tower is subject to two ground leases, Olympic Gold and Pochari. The Olympic Gold ground lease, which encompasses the majority of the property, commenced in September 1975 for a 99 year term with a fixed rent of $1,750,000 per annum. The Pochari ground lease, which refers to a small parcel previously known as 8 East 52nd Street (located under the northern entrance to the lobby), commenced in January 1968 with a current annual rent of $95,893. Olympic Tower was built by Aristole Onassis and his company, Victory Real Estate Development, and became the first New York skyscraper to include a |

| | Sale 13 | Sale 14 | Sale 15 | Sale 16 |
|---|---|---|---|---|
| Address | **230 Park Avenue** | **717 Fifth Avenue** | **11 Times Square** | **601 Lexington Avenue** |
| City, State | New York, NY | New York, NY | New York, NY | New York, NY |
| Land Size (SF) | 69,144 SF | 29,485 SF | 37,853 SF | 70,572 SF |
| Rentable Area (SF) | 1,404,918 SF | 352,951 SF | 1,107,839 SF | 1,669,897 SF |
| Year Built | 1928 | 1959/2001 | 2010 | 1977 |
| Occupancy | 90% | 92% | 83% | 99% |
| Buyer | RXR Realty | Anbang International | Norges Bank | Norges Bank |
| Seller | Invesco | Blackstone Group | SJP Properties & Prudential | Boston Properties |
| Interest Conveyed | Leased Fee | Leased Fee | Leased Fee | Leased Fee |
| Investment Grade | Class A | Class A | Class A | Class A |
| Transaction Type | Sale | Sale | Sale | Sale |
| Transaction Date | Mar-15 | Feb-15 | Feb-15 | Dec-14 |
| Price | $1,200,000,000 | $415,000,000 | $1,400,000,000 | $2,400,000,000 |
| | | Office Condo | Adjusted to reflect 100% interest | allocated |
| Price per SF | $854 | $1,176 | $1,264 | $1,437 |
| Cap Rate | 3.55% | 2.98% | 3.02% | 4.03% |
| IRR | 6.50% | 6.25% | 6.00% | 6.00% |
| Terminal OAR | 5.00% | 5.00% | 5.00% | 4.75% |
| Comments | The building is constructed over the Metro North Railway right-of-way and contains two vehicular tunnels through the building. The property is currently under contract of sale for $1.2 billion to RXR Realty from 230 Park Avenue Holdco, LLC c/o Monday Properties and Whitehall Street Global Real Estate Limited Partnership c/o The Goldman Sachs Group, Inc. The property last sold in 2011 to 230 Park Avenue Holdco, LLC c/o Invesco from W 2007 Monday 230 Park Owner LLC c/o Monday Properties and Whitehall Street Global Real Estate Limited Partnership c/o The Goldman Sachs Group, Inc. for $760 million. | Sale of an office condominium located on the 5th through 26th floors of 717 Fifth Avenue. The property is currently leased to 32 office tenants. The largest tenant is Bank of America (125,616 sf) which leases over 35 percent of the property through 2017. | Sale of a partial interest to Norges Bank who is acquiring 45% interest in the property from SJP Properties and Prudential. The purchase price was $630,000,000, which indicates a value of $1,400,000,000 for 100 percent of the leased fee interest in the property. The property is located on the easterly blockfront of Eighth Avenue bounded by West 41st and West 42nd Streets. | The property is currently 99 percent leased to 20 above grade office tenants and 15 retail tenants on the ground floor, second floor, concourse, and subconcourse levels. Nearly 28 percent of the property is leased to Citibank, which expires in April 2026. Norges Bank Investment Management, an arm of the central bank of Norway, is currently under contract of sale to purchase 45 percent interest in 601 Lexington Avenue, along with equal shares in two Boston office buildings, from real estate investment trust Boston Properties for $1.5 billion in cash. The combined purchase price is $4.06 billion for the three buildings based on 100 percent interest. the allocated purchase priced for 601 Lexington Avenue is $2.4 billion. |