



Park City

Manhattan

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A development project in Midtown Manhattan with an emphasis on incorporating the natural environment into an urban setting.

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Figure 1: Proposed site for Park City Manhattan



Figure 2: Rural New York

Thesis Abstract

Park City Manhattan is mixed-used urban development located on the East River in the New York Borough of Manhattan. Surrounded by the densely packed concrete jungle of Midtown, Park City is a project that takes an alternative approach to urban development by heavily incorporating interior and exterior green spaces based on the local natural environment. While New York contains parks such as Central Park and The High Line, most of the city lacks dense greenery and open space that the public can enjoy. To create a successful and realistic development, research for the project will involve statistical analysis of Manhattan's problematic real estate market. The research will uncover data which allows a proper program for the development and give a solid base for the design process.



Figure 3: Typical New York Avenue



Figure 4: Times Square, Popular Cultural Desitnation

Project Narrative

New York is often considered the cultural, financial, and media capital of the world. It is one of the largest metropolitan areas in the world with over 20 million residents and receives over 60 million tourists a year. Manhattan is the densest part of the metropolitan area, it is characterized by high population & towering high-rises. Most of Manhattan is covered in steel, concrete, brick, and glass structures, with minimal green space. Park City Manhattan takes an alternative approach towards urban development by heavily integrating the natural environment into all areas of the project. Park City Manhattan provides an opportunity to design a massive mixed-use development that is at the same time harmonious with nature.

The site chosen for the project contains three blocks of undeveloped land at 702 and 666 1st Ave, along with a small park and a waterfront esplanade. The proposed area sits just south of the United Nations complex along the East River. The parcel is considered a part of Midtown Manhattan, which is the largest central business district in the world and the center for tourism in the city. An empty lot in such a desirable location provides a great opportunity to design a new and innovative development that will benefit thousands of occupants and many of the people residing in the neighboring area.



Figure 5: Common New England City Center



Figure 6: Use of Natural Features in Boulder, Colorado

ParkCityManhattan will contain high-rise towers composing of retail, office, hotel, and residential space. The high-rise towers on the site will integrate green space throughout the building, giving occupants access to lawns, plants, and trees. Most of the square footage allowed on the site will be contained within the high-rise towers, providing more available space at the ground level which could be used for public spaces.

Low-rise buildings and green spaces will fill the remaining space on the site. Like the high-rise towers, these smaller structures will contain a mixture of occupancy types. The three to five story buildings between the towers will create a ground level town center, like the ones found in small towns throughout the region. The abundant space between these buildings will be filled with green spaces. The smaller buildings allow the entire site to be active throughout the day and year. While parks are active in the summer, winter heavily reduces park visitors. Bringing low density shops, small offices, townhomes, and apartments into the green space it guarantees year-round usage. A low-rise town center filled with green spaces is very uncharacteristic of Midtown Manhattan and will offer residents and neighbors a chance to escape a crowded man-made environment.

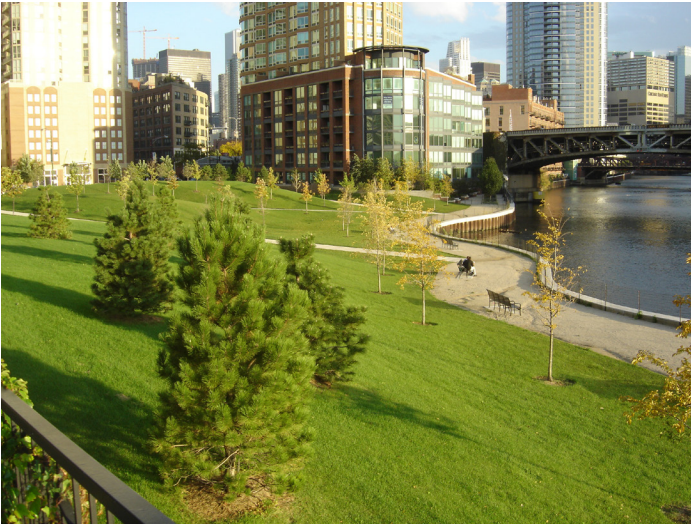


Figure 7: Grant Park in Chicago



Figure 8: Nashville Development Utilizing Varied Building Heights

Project Typology

Park City Manhattan is classified as a small-scale urban development project consisting of two high-rises (500+ feet) and several low-rise mixed-use buildings. Occupancy types include residential, office, retail, and hospitality. Park City is also characterized by urban green spaces which incorporate lawns, gardens, tree clusters, and meadows using local plants and trees. The development is designed to incorporate interior and exterior green-spaces between every building. Residential units will be equipped with outdoor spaces and building setbacks will be used for public green spaces. The Robert Moses Playground and the East River Esplanade will also be redesigned to help enhance the natural aspect of the site.



Figure 9: Hudson Yards Rendering

Case Study: Hudson Yards

Project Type: Urban Redevelopment

Location: New York, NY

Size: 18 Million Sq Ft

Hudson Yards is a large mixed-use development project located along the Hudson River in Manhattan, New York. The project, currently under construction, stands out as the largest development project in US history in terms of square footage. The site will include retail, office, hotel, and residential space, along with a school and a community center. Public green space will cover 14 of the 28 acres on the site. Despite only one of the towers being completed, the project has attracted many commercial tenants, residents, and tourists.



Figure 10: Hudson Yards, August 2018



Figure 11: Rendering of The Vessel

The Hudson Yards is constructed above the West Side railyard in an area historically used for low industry. Throughout the United States, the trend in many cities is gentrifying decrepit areas close to the downtown core. These gentrified neighborhoods typically have great transportation access to the city, contain modern mixed-use buildings, and serve as a popular cultural hub for the city. The Hudson Yards fit all the basic criteria of a typical American urban gentrification project. The site is located on the perimeter of the largest central business district in the world. It contains sleek modern high-rises, abundant green space for the public, and cultural features which include The High Line, an art center called The Shed, and a public landmark called The Vessel.

The Hudson Yards differs from most other gentrification projects when it comes to the sheer size of the development. In total, the project will contain 18 million square feet of residential and commercial space. The project is unique since the West Side railyard on which the project is built on top of, will continue to serve its original purpose. It is common for urban renewal projects to demolish or convert the original structures on the site into commercial and residential space.

The project accomplished due to the cooperation between the city government and private enterprise. The site was re-zoned and received special approval which allowed its high-rises to be constructed. The development responds to the environment by raising the ground level above the 100-year flood level, ensuring long term resiliency. Public green spaces and plazas help create a socially interactive neighborhood. As mentioned before, several cultural features already draw in thousands of people each day.



Figure 12: Aerial Rendering

Structure

The entire base and all the towers are supported by 234 caissons which run through the underground West Side railyard. A thick concrete platform acts as a bridge over the railyard and will serve as the ground level base for the development.

Sunlight

The towers contain setbacks and are placed at a distance from each other, this provides solar access for most of the site. The extensive green space is used to divide the towers into separate spaces, while providing solar access at the ground level.

Massing / Geometry

Fourteen towers varying in shape, occupancy, and height will fill the site once complete. All towers are characterized by glass facades and angled cuts in building mass. This common design unifies the design and mass of the site.

Circulation

Expansive public spaces allow fluent pedestrian circulation throughout the site. A new subway station connects people to the Flushing Line subway. One end of the High Line Park is located in the Hudson Yards, which draws many people through the site.

While still under construction, The Hudson Yards is a successful example of a high-density development that balances building footprint size and public space. Similar to Park City, the Hudson Yards is located along the waterfront and incorporates green spaces throughout the site. Hudson Yards shows that cultural facilities have already enhanced the attractiveness of the site. For Park City to be as successful as the Hudson Yards, a variety of occupancies and features are needed to draw people's interest. Park City should be designed as an important cultural center for the city rather than just a place for people to live and work.



Figure 13: Site Plan

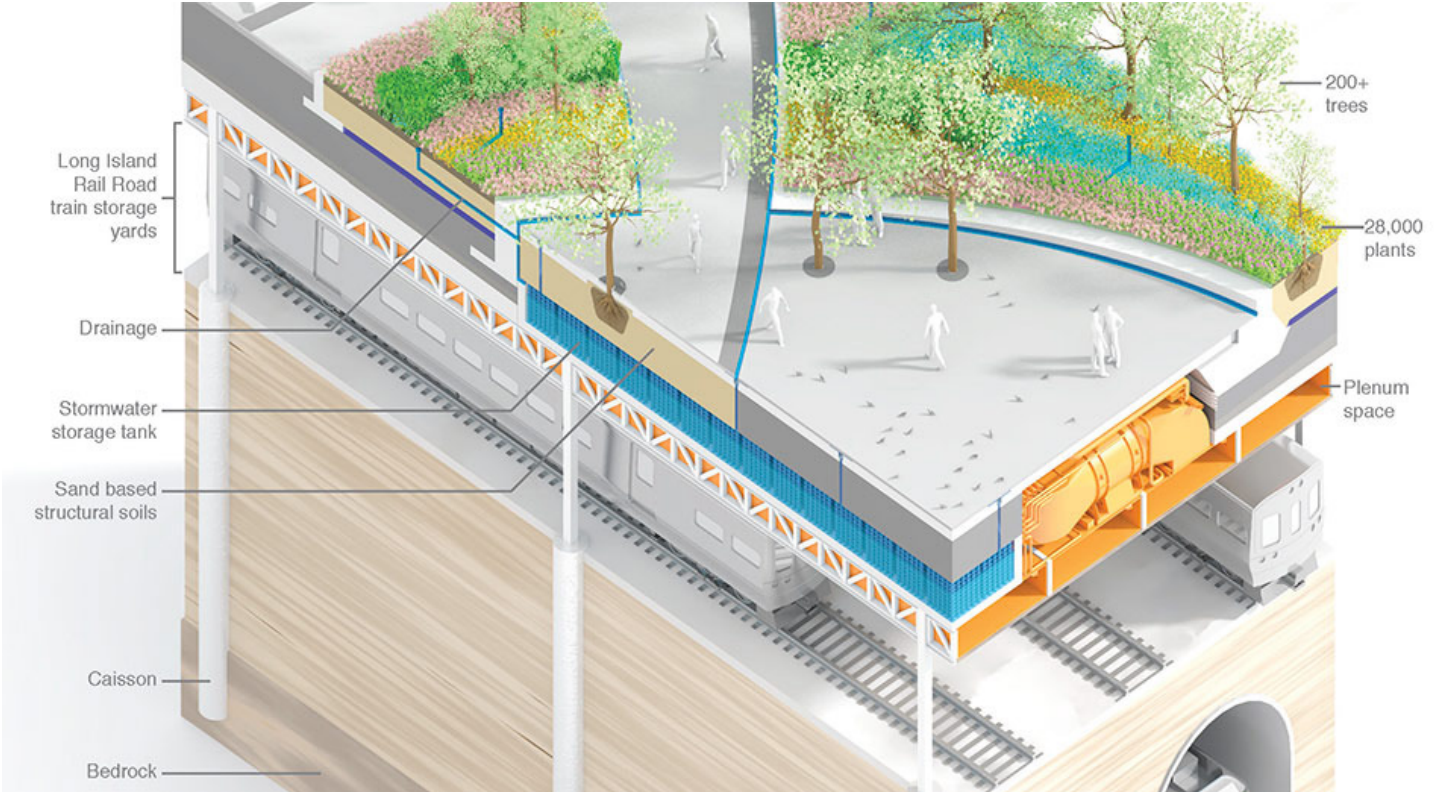


Figure 14: Platform Section Cut



Figure 15: King Street West Rendering

Case Study: King Street West

Project Type: Mixed-Use Community
Location: Toronto, ON
Size: 61 Thousand Sq Ft
Architect: Bjarke Ingels Group

King Street West is a mixed-use condo community located on the transition zone between the downtown and the low-rise northeast neighborhoods. The building design is characterized by “pixel” blocks which are stacked in a way that emulates a mountain range. This provides each unit with a terrace that accommodate plants and trees. The design also preserves three historic buildings on the site and contains a ground level retail center with a plaza.



Figure 16: Pedestrian Pathway



Figure 17: Public Plaza

In the past Bjarke Ingel has used terraces to enhance the livability for occupants. A prior project of his called The Mountain provided each housing unit with an outdoor natural space is a great example of his design philosophy which tries to incorporate nature. While many apartment buildings have balconies for each unit, Bjarke Ingel takes it a step further and treats them as sizeable outdoor green space.

King Street West is unique in that three buildings original to the site will be renovated and incorporated into the new building, but ultimately preserved. Part of the building is elevated above the street level and rests on top of the existing buildings on the site. The building design also creates a cave like public plaza in the middle of the block. Bjarke's building acts as a roof for the pedestrian walkways, while the existing buildings act as the cave's walls.

The design involves rotating structural blocks containing living spaces 45 degrees. These "pixels" are rotated to maximize solar and fresh air exposure. The blocks create apartment terraces which support trees and plants, while the exterior walls will contain vertical gardens. The building allows occupants to be surrounded by nature, despite the site's location in a dense urban environment. Social interaction is heavily integrated into the design by incorporating a public plaza in the middle of the building. The site is located on one of the busiest streets in Toronto. King Street contains many bars, restaurants, and shops. Bjarke Ingel's building will no doubt become an iconic landmark for the popular thoroughfare.



Figure 18: Residential Terraces



Figure 19: Project Sits on Top of the Preserved Historic Buildings

Structure

The blocks which make up the building, dubbed “pixels,” are composed of concrete and act as the structural component for the building. The historic buildings which are preserved will support the elevated half of the building.

Sunlight

The “pixels” which compose the building are rotated 45 degrees to allow direct sunlight into the apartments.

Massing

The building mass represents the hills and valleys found in the outer suburbs of city.

Circulation

A few pedestrian walkways connect the surrounding neighborhood to the plaza on the site. King Street is a major thoroughfare which receives a lot of pedestrian, automobile, and public transportation traffic.

Geometry / Repitition

The building design can be classified as cubist, as the same square unit is repeated throughout the whole building. While the overall building shape is complex, it is a very simple structure at its root.

King Street West heavily focuses on making sure each residential unit has access to their own green space, as well as creating a public space on the ground level. The building proves that fusing the natural environment with an urban can be achieved through a “pixel” building block solution. By elevating the building, public spaces increase in size at the ground level. A central plaza can house retail and more natural features, attracting more people to the site. Bjarke Ingel’s design is like Park City’s concept of reducing building foot print and providing abundant green space for the public.

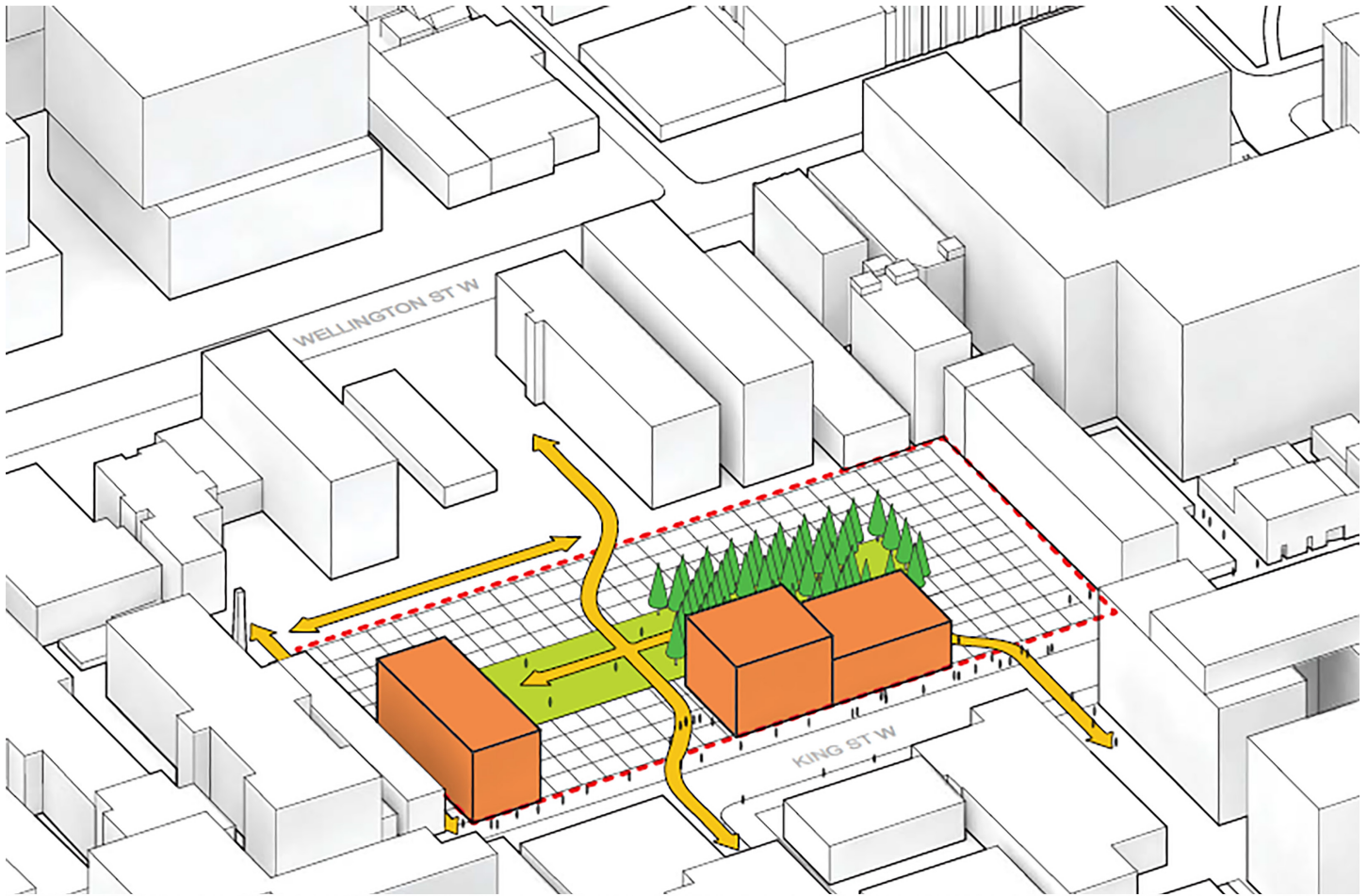


Figure 20: Public Circulation Diagram

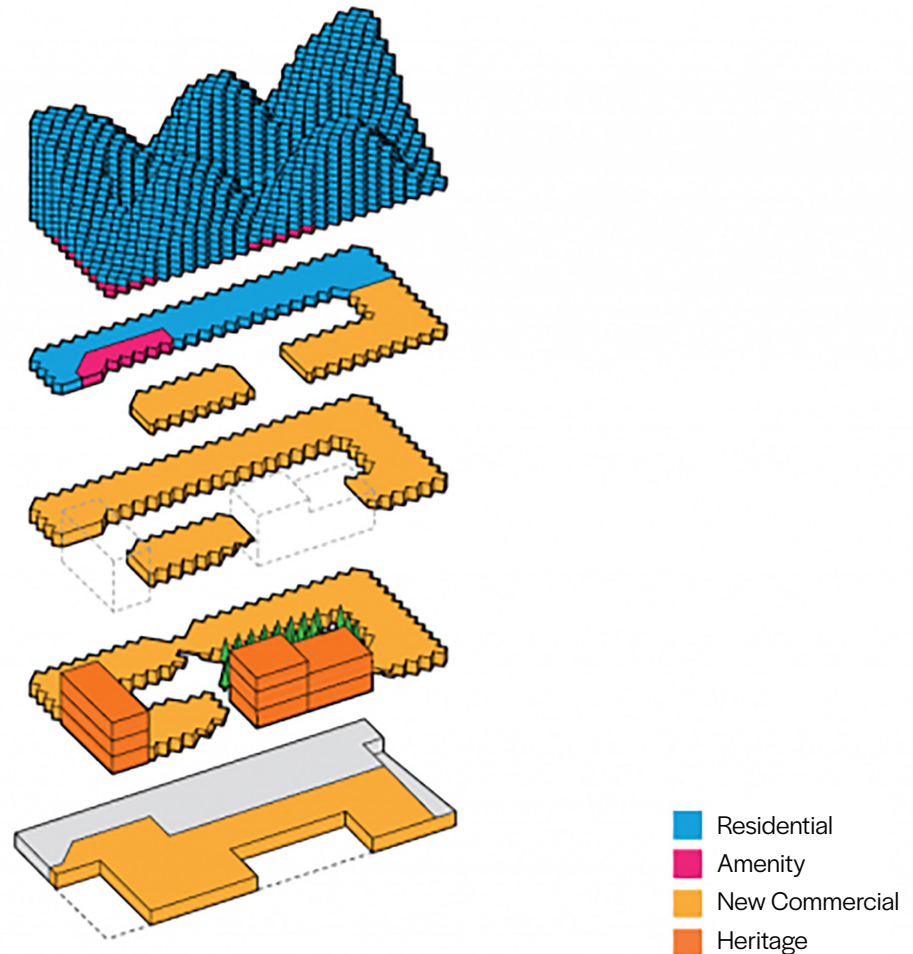


Figure 21: Design Diagram



Figure 22: Project Rendering

Case Study: Battersea Power Station Redevelopment

Project Type: Mixed-Use Redevelopment
Location: London, UK
Size: ~5 Million Sq Ft
Architect: Rafael Vinoly

Battersea Power Station is a massive mixed-use redevelopment project located on the south bank of the River Thames in central London. The development centers around the discontinued coal power plant, the Battersea Power Station, a London landmark. The project includes 2.5 million square feet of office and retail space, 3,444 new residential homes, 517 additional affordable homes, a library, a hospital, and childcare facilities. Currently under construction, the project is estimated to cost \$13.3 billion dollars. Expansive ground level and rooftop green spaces give residents and the public an escape from the busy city center.



Figure 23: Power Plant Rooftop Garden



Figure 24: Pedestrian Walkway

Most of the buildings on the site will be newly constructed modern mixed-use mid-rises, similar in design to the new modern buildings being constructed throughout the capital. Like the Hudson Yards, Battersea Power Station is designed to be an economic and cultural hub for the city.

The most distinguishing aspect of this project are the plans to convert the old coal fire plant into a new office complex for Apple, as well as 250 residential units. The power station will be the centerpiece of the development, and its iconic look will be carefully restored.

The project blends the natural environment in every corner of the site, covering 24 of the sites 42 acres. The overall masterplan responds to the urban environment by restricting the height limit of the new buildings, thus preserving views of iconic power station. While no buildings challenge the dominance of the power station, the new mid-rises have been criticized because their aesthetics greatly contrast the power plan. Locals fear the old style of architecture is quickly being torn down and replaced with modern high-rises, changing the cultural aesthetics of the city. Despite the criticisms, this development is a big deal since previous attempts at developing the site have been denied by the city government since they would end up altering the power plant too much.



Figure 25: Example of a Public Plaza

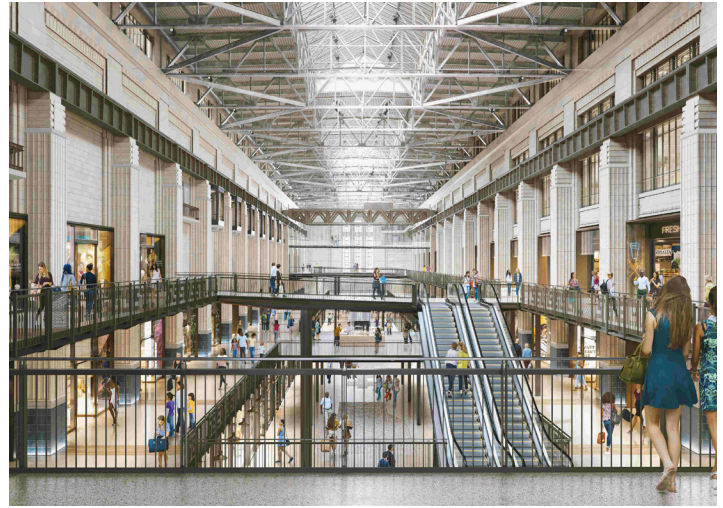


Figure 26: Interior Rendering of Power Plant Once it's Renovated

Structure

The power plant was designed to mimic a cathedral, using brick reinforced with steel as the primary structure and exterior material.

Sunlight

The power plant renovation will contain relatively few windows, so occupants won't have as much natural light as the newer modern buildings on the site. The new mid-rises contain glass curtain walls, giving occupants abundant natural light.

Massing

The new buildings to be constructed on the site are all roughly the same height, vary in shape. Most of the buildings will be elongated, undulating masses designed to mimic nature. The power station was designed in the art deco style, simplified as a large rectangular structure with four large smokestacks rising from each corner of the main hall.

Circulation

The site will contain mostly pedestrian walkways and very little streets. People will have a connection to the London subway system and access to the River Thames.

Park City's site doesn't contain any historic structures like the Battersea site, but is in proximity to the historic Tudor City. It is important for a design to fit with its environment, and the Battersea Power Station is a good example of what a design should avoid. The development incorporates green spaces on the rooftops, making it look like a large park instead of a massive development. Park City will utilize the idea of inserting public green space where ever a suitable surface can be found.

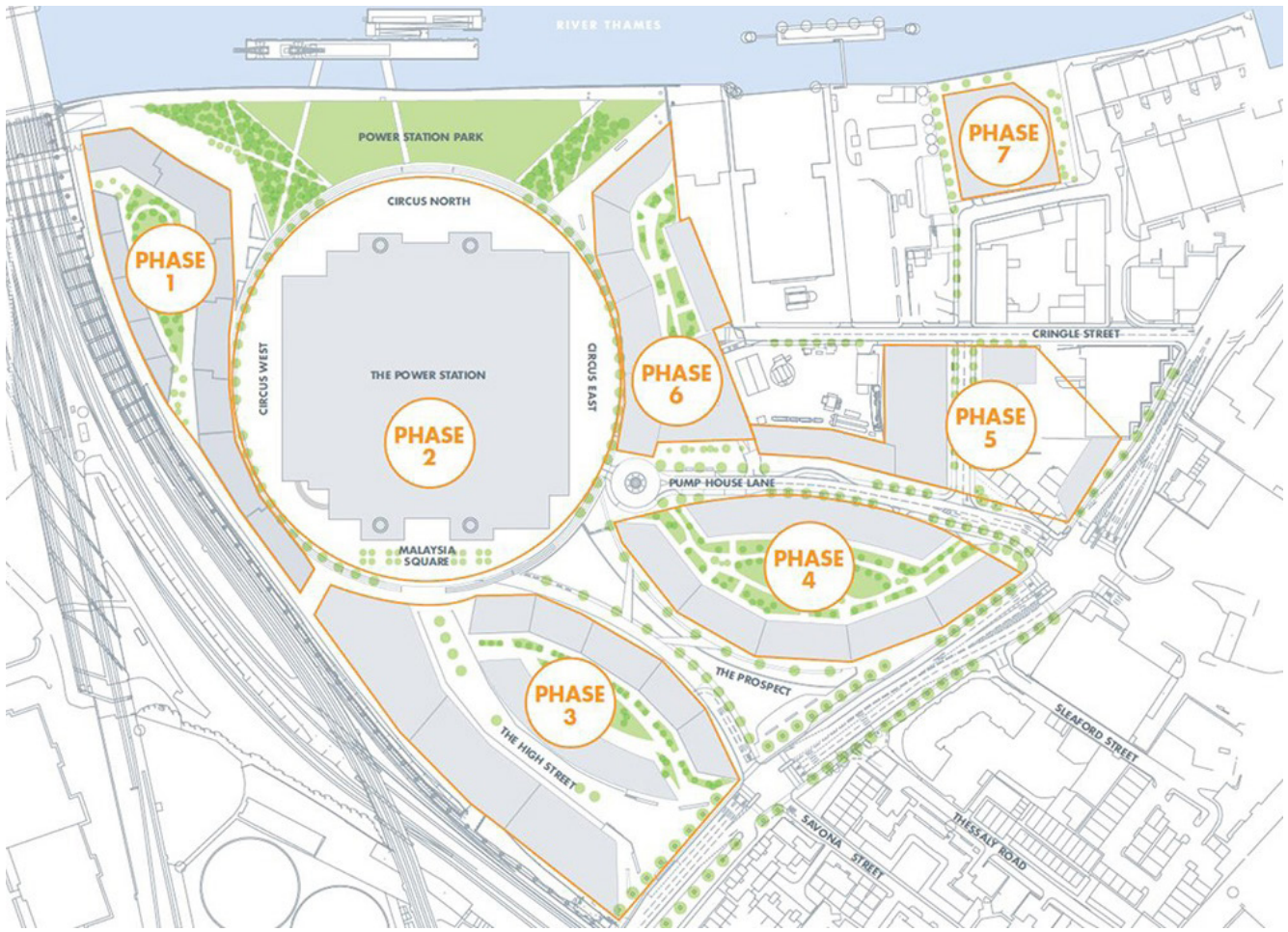


Figure 27: Site Plan Divided into Construction Phases



Figure 28: Aerial Rendering of the Site



Figure 29: Bosco Verticale Towers

Case Study: Bosco Verticale

Project Type: Residential High-rise

Location: Milan, Italy

Size: 390,000 Sq Ft

Architect: Stefano Boeri

Bosco Verticale are two residential towers located in Milan’s central business district. The towers are distinct as they contain 96,000 square feet of outdoor terraces which hold 730 trees, 5,000 shrubs, and 11,000 perennials. While the terraces provide residents with an outdoor living space, the plants themselves serve many purposes which include regulating sunlight throughout the year, capturing dust particles, releasing humidity, offsetting the buildings carbon pollution, and reducing noise pollution.



Figure 30: View of Terraces



Figure 31: Bosco Verticale with the Business District in Background

Many new building projects around the world are starting to incorporate both private and public green spaces. Like Bjarke Ingel's Toronto project, Bosco Verticale concentrates plants and trees to improve the quality of life for the residents and the community.

Bosco Verticale is a unique project, especially for the city of Milan. While the Hudson Yards and Battersea Power Station contain expansive plazas and lawns, Bosco Verticale is designed to be completely self-sustainable. The trees and plants remove an estimated 44,000 pounds of CO₂ out of the air every year, which is predicted to offset the amount produced by the building.

The buildings continue their sustainability approach through rainwater collection, which reduces the need for using outside sources. Solar panels provide power for all residents, an advantage of the city's humid subtropical environment. The towers contain an amount of plants equivalent to an acre of forest, creating a local and protective microclimate. Bosco Verticale proves that sustainable design incorporating the natural environment is possible. The project has inspired similar projects throughout the world. As countries around the world begin the combat carbon pollution, Bosco Verticale serves as a trailblazing example of a possible means to alter our cities in a way that benefits the future.



Figure 32: Residential Terrace



Figure 33: Building during the Fall

Structure

The weight of the plants and trees are supported by thick steel reinforced concrete slabs.

Sunlight

Natural light is regulated by the trees located on the terraces. During the summer, the trees block direct sunlight and lower cooling costs for residents. In the winter when the trees shed their leaves, direct sunlight can shine into the apartments, which reduces the mechanical heating load.

Massing

Bosco Verticale has a simple rectangular mass; the towers reach heights of 364 and 249 feet.

Circulation

The building site is mostly covered by a lawn which is open to the public. Being in the central business district, Bosco Verticale has multiple street access points, as well as proximity to various forms of public transportation.

Repetition

The building's design incorporates repetitive rectangular terraces that dominate the look of the exterior.

Bosco Verticale is a great example of a self-sustainable, vertical forest that proves the benefits of incorporating plants and trees to the exterior. While aesthetically pleasing, trees also serve as a passive system in several different ways and efficiently reduces building mechanical load. Bosco Verticale also shows high-rises can support a dense vertical forest, a design aspect Park City will have to include. Translating this design philosophy to Park City will be important for Manhattan and will greatly enhance the surrounding neighborhood.



Figure 34: Floor Plans

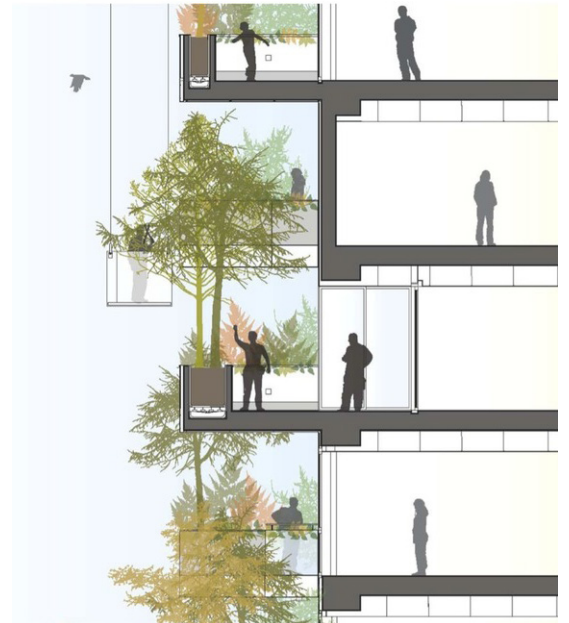


Figure 35: Section Cut

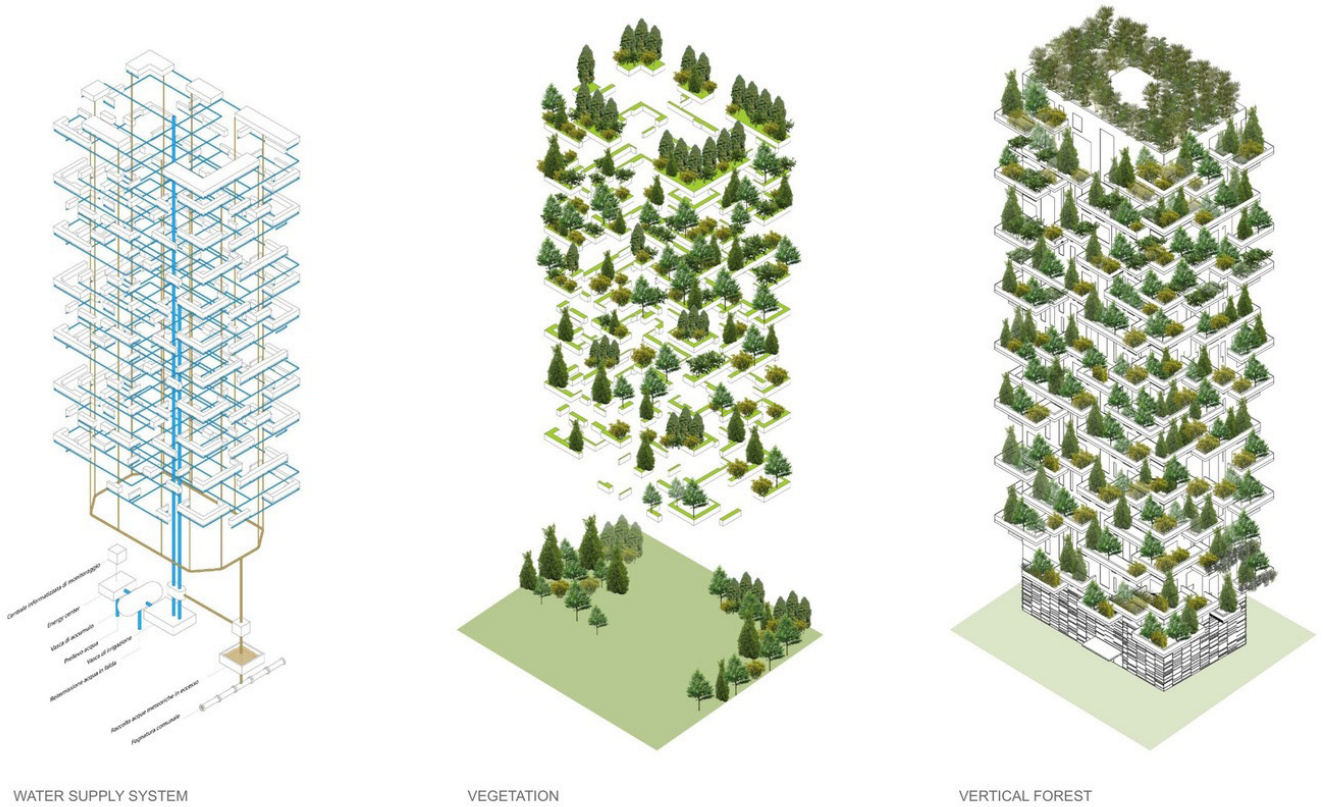


Figure 36: Systems Diagrams

Major Project Elements

Park City Manhattan will distinguish itself from other development projects in New York by focusing on introducing vast amounts of interior and exterior green space.

Residential units will occupy half of the total allowable floor space. Every building on the site will contain residential units to encourage active use of the entire site. Units will come in the form of townhomes and apartments, ranging in price and scale from luxury penthouses to affordable micro apartments. This ensures that a wide range of people can enjoy the same community.

The other half of the floor space will be dedicated towards retail, hotel, and office space. Retail spaces will be located on the ground level, with the office and hotel space right above it.

The site will also include a school, a performing arts center, outdoor amphitheater, and public sculptures. This will increase the project's desirability and draw additional people to the site, increase local retail and restaurant spending.

User/Client Description

The land which Park City Manhattan will be located is currently owned by the Solow Building Company, a large real estate development company. Solow has owned the land for approximately 16 years and has investigated redevelopment proposals twice in the past. Solow would act as the current clients for the project, as the company has held on to the land for close to two decades and still are interested in developing it.

Users of the site will include several thousand residents, workers, and people enjoying the recreational spaces. The school will bring in hundreds of students every day during the school year. Performers will hold shows and practice in the performing arts center. The apartments on my site will cater to middle to upper class residents, who will be able to choose amongst a variety of floor plan arrangements. The retail, office, and hotels will employ hundreds of people. Due to the lack of large public spaces in Midtown Manhattan, many people will walk to the site to take advantage of experiencing the natural environment.

Site

Park City is located on the East River in the Midtown section of Manhattan, New York City. It occupies the large plot of vacant land south of the United Nations Headquarters, and it is currently owned by Solow Building Company. Park City will also include Robert Moses Playground to the north and the esplanade park to the south east.

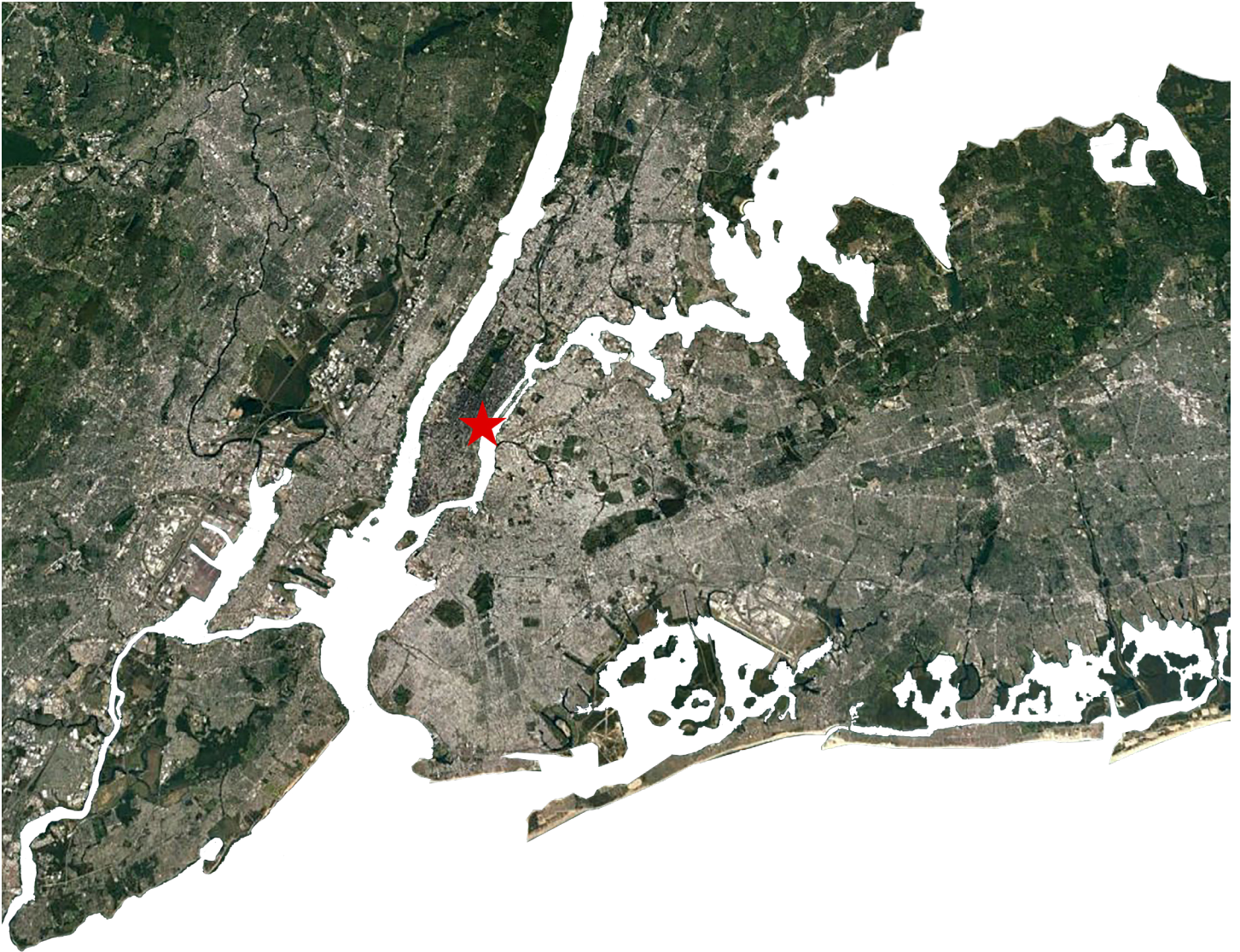
The site was chosen since it's located in Midtown Manhattan, the largest central business district in the world. Most of the site is vacant, which is extremely rare for Manhattan. Nearby landmarks include the UN Headquarters, Grand Central Station, and the Chrysler Building. Due to all the factors mentioned above, this site provides a great opportunity for designing an urban development.



New York

Population: 19,849,399 | Site

Area: 54,555 Sq Mi



New York City

Metro Population: 20,320,876 | Site

City Population: 8,622,698

Area: 302 Sq Mi



Figure 39: Midtown, Manhattan



Site

- Site
- Landmark
- Ferry
- Park
- Subway
- School



Site Looking East from 1st Ave



Figure 40: While Trees Line some Streets, Buildings Lack Plant Life

Figure 41: Central Park is One of the Few Places Forests are Found

Project Emphasis

Park City Manhattan is a massive urban development project that will emphasize integrating the natural environment into its design. Manhattan is one of the most densely populated places on earth, therefore residents and tourists have limited options when it comes to green spaces. Since parks, plants, trees, and lawns aren't abundant in Manhattan, it would be greatly beneficial for the city to create more green space. Despite that the project will contain over 5,500,000 sq. ft of residential and commercial space, trees, plants, and public green spaces will be heavily integrated into the design to create a sustainable and green urban environment.

Project Goals

- **Create a design that successfully incorporates the natural environment into the buildings and public spaces.**
- **Produce unique and functional designs for each building apart of the project.**
- **Create a project that is financially feasible.**
- **Provide a majority of the residential units with a private green space.**
- **Design residential units that are financially obtainable for the average New Yorker.**
- **Produce high quality renderings that thoroughly depict the site.**
- **Create a building program that fits with the demands of the commercial market of the city.**

Academic research goal involves the use of statistical research to understand the commercial and residential real estate market in Manhattan. This is accomplished by compiling dozens of different data sets into a central document, eventually producing graphs, charts, and analytical descriptions. My research will form Park City's commercial program, creating an appropriate balance between retail, office, and hotel space.

The professional goal is to have accurate and reliable sources for the data on the real estate market. All the information used in my research comes from professional or academic sources. The sources are sometimes double checked to determine if the values provided are similar to data from other sources.

Personal goals for this project are to create buildings with a well thought out design. While creating a suitable building program and having efficient layouts are important, the buildings should look aesthetically pleasing and have a design that's bold and tied to the city.

Thesis Research: Project Program





Introduction

The research conducted for the Park City project involved analyzing the real estate market of Manhattan. Data was gathered in order to create an accurate commercial space program with an optimal amount of office, retail, and hospitality space within the Park City development. Residential and commercial rents and sales figures were calculated using current and historical. Additional census data was used to provide a more in depth look into the likely composition of the projects program. Academic articles were used to analyze and shape the major characteristics of the project.

The following tables and charts contain the statistics used in the thesis research. The data is broken down and summarized into Park City's project program and it's financial revenues. The program that was created will then be implemented into the design phase of the project in Spring 2019.

Literature Review: The Role of Urban Green Space for Human Well-Being

By: Christin Bertram & Katrin Rehdanz

Over time cities have changed dramatically in almost every way. Earlier cities were constructed around pedestrian and livestock paths as they were the only means of transportation at the time. Eventually trains, automobiles, subways, and airplanes were invented giving today's modern cities complex transportation systems. Buildings used to not reach more than a few stories in height due to construction technology, but today concrete and steel construction methods allow buildings to rise over 2,000' above the ground. There is no denying that cities have changed over time to accommodate different needs and different tastes. One of the few features which has been important throughout history is the need for public and green space. Interacting with other people and nature has always played an important role in a person's wellbeing. Unfortunately, today many large cities with populations in the millions lack green space.

While New York started off as a small Dutch Colony, its population growth has exploded to over 8 million residents today. As the population grew and the city was developed, open space has disappeared. Today only a few large parks are located within the borough of Manhattan. Manhattanites live in one of the most densely packed cities in the US and are exposed to a mostly man-made environment. This reasonably effect people's wellbeing at some level, since humans traditionally lived with the natural environment. One group of researchers from Germany decided to go out and create quantifiable data which measures the effects of green space on human wellbeing in Berlin. Specifically, they wanted to see if green space improves people's quality of life and calculate what amount of green space is optimal for a person's quality of life.

Close to 75% of the 741 million people living in Europe call an urban environment home. Berlin is the capital and largest city in Germany, with over six million people in its metropolitan area. While Berlin boasts large public spaces such as the Tiergarten, the city has a population density of 11,000 sq/mi. This dense urban environment is a rational candidate when it comes to studying the effects of green space. While some neighborhoods have easy access to parks, other neighborhoods are mostly urbanized

Manhattan is like Berlin in that it is a highly populated and dense metropolitan area, but considerably larger in scale. Manhattan's population density has also limited the amount of green space within the city as close to 2 million people now live in the borough. While large green spaces such as Central Park and Washington Square provide residents with access to the natural environment, most of the city is composed of concrete, steel, asphalt, and glass. Therefor the research on the effects of greenspace in Berlin will apply to Manhattan.

Prior to conducting the study, the article mentions noteworthy previous research on the psychological effects the natural environment has on people. Nature has been shown to reduce stress, improve emotional health, improve self-regulation, and increase life expectancy. Urban parks increase social interactions, as well as increase social cohesion and identity. It is also proven that trees and plants help reduce noise pollution and provide an effective buffer between a noise source.

increase social interactions, as well as increase social cohesion and identity. It is also proven that trees and plants help reduce noise pollution and provide an effective buffer between a noise source and homes. While there have been studies done which highlight the benefits of green space, there are also studies done which point out some negative effects which parks bring. The biggest concern is with the security of the parks during nighttime, as parks are often empty and aren't illuminated as much as other parts of the city. Parks may also create a source of pollen, which will irritate people with allergies.

If Park City's design was to bring a positive experience to its residents and those living nearby, these negative concerns should be addressed. Security concerns could be addressed by providing well lit sidewalks and creating a layout which doesn't cause spaces to be isolated from the public. Carefully choosing plants and trees which are more sensitive to people's allergies would be an effective strategy, as the climate of New York can support many different types of vegetation.

The study's research methodology involves talking to Berliners and asking them questions about their quality of life and happiness using a scale system. People's addresses were recorded in order to calculate the amount of green space within a 1 km radius of their house. Researchers also calculated the distance between a participant's home and the nearest park that is at least 5 hectares in size, which would constitute as a "large" park.

The results of the study concluded that the amount of greenspace located within a 1 km radius of a person's home doesn't improve the quality of living in a linear fashion. The results show that responses reflect an inverted U-curve. This means that the addition of green space at first exponentially improves a person's wellbeing, but at a certain point the addition of green space decreases people's quality of life. Researchers believe that the amount of green space within walking distance forms an inverted U-curve because an increase in green space means a decrease in amenities. Parks may also lead to traffic congestion, therefor increasing local noise pollution. The fear of crime also remains a strong concern for those living near parks at night. The cultural attitudes towards nature were not considered as well. It is reasonable to believe that Berliners have a different affection towards nature compared to people who live in rural areas.

The study found that people who have 34 hectares of green space within a 1 km radius of their home (11% of the total area) have the highest reported quality of life. It was also discovered that people who have a park at least 5 hectares in size live more physically active lives. One parameter that was not studied was the disbursement of green space within the 1 km space. Some parts of Berlin consist of mostly small parks, while others contain a singular large park. The researchers concluded at the end that further investigation into the disbursement parameter was necessary. It was discovered that over $\frac{3}{4}$ of the participants have less than 34 hectares of green space within the 1 km radius of their home.

Other parameters were also measured during the research in order to discover how much green space contributes to the total quality of living. In terms of income, green space had a more positive impact on a person's life than the amount of money they made. Factors such as employment, relationship status, and job security proved more essential to a person's life than the amount of green space. Parks only improve real estate values if the park was actively used by the public, and it was discovered that homes near parks are much more valuable than homes in a more urban neighborhood.

The residents of Manhattan, like the Berliners in the study, lack an optimal amount of green space within their homes. Park City's site has five parks of at least one city block in size within a 1 km radius of the site. Two of these parks are separated from the site by the East River which makes getting to them harder. South of Park City's location is St Vartan Park, which is a one square block in size and contains many trees. But its proximity to the Queens-Midtown Tunnel Entrance (an interstate highway) causes a lot of noise pollution, which psychologically doesn't provide an escape from the city.

The study concludes that Berlin should focus on creating more green space within the city, as most residents currently lack optimal access. With Manhattan currently dealing with a similar problem, it is rational for the city to improve the amount of green space within it. Only three parks are within a reasonable commute of Park City, meaning the project site and its neighborhood really lack access to green space. Designing Park City to focusing on creating a large amount of public green space at ground level and incorporating it into the buildings would not only improve the wellbeing of residents living in Park City, but also increase the quality of living for those who commute to the site, visit it, or live in nearby neighborhoods.

Literature Review: Design Economics and Innovation in the Auto-Industrial Age

By: Peter Murphy

Most of the research for the Park City project focuses on creating a commercial building program that would be financially optimal in Manhattan commercial market. Park City's commercial space will be divided between office, hospitality, and retail space. The modern economy has changed greatly throughout the past few decades, resulting in consumer's shifting tastes towards online shopping and the increasing advancement and implementation of automation technology. Peter Murphy's academic journal uses historical context and predicts the future of the developed world economy. Park City's commercial space program could simply copy and adjust its program to match the strengths in Manhattan's economy, but it is likely that within the next twenty years that the commercial composition of the city will be drastically different. Therefore, it is essential that Park City's commercial spaces are designed in a way that allows for the simplest transformation possible of commercial space into another occupation type that will be more prevalent in the future.

One of the problems with modern capitalism is its foundation of continually increasing productivity while decreasing the amount of labor. While increasing productivity leads to economic success and wealth, it has been noted that this has happened through the means of automation. Before the 1960's many manufacturing plants required large workforces for products to be produced. While goods were costlier, many people were employed in order to create that good which lead to an increase in societal wealth. In a capitalistic economy though, companies strive to innovate their means of production in order to be more competitive. As automation made production cheaper, products became cheaper and as result consumer spending increased as well as the profit margins for these companies. An issue the modern world will face in the coming decades centers on what happens when automation is able to perform most of the jobs which rely on routine work. If people lose employment, then they don't have income which can spend. This would lead to an economic collapse since only a small percent of the workforce would have the ability to support the economy by spending wages.

Many economists note that as the economy changes, new types of jobs appear, and the workforce will then transition into new employment types. While this has been true so far, the fact is most jobs remain routine in nature. Automation is so successful because it can perform routine tasks in a very productive manner. Though new industries are being created, its routine jobs typically end up being taken over by machines. Between the years of 2008-2030, it is estimated that 34% of routine jobs will be replaced by machines, or 20% of the overall workforce. As the complexities of automation programs are improved over time, it is rational to believe that those numbers will only increase further down the line.

One might ask "is there any industry that will be safe from the inevitability of automation?" Historical analysis has shown that jobs that deal with design have been largely unaffected by

automation. In fact, the design industry has grown considerably in size and has outpaced the job growth rate of the US economy over the past decade. Why has the design industry grown considerably and avoided automation? It has to do with the nature of the work being done in the design field.

People who work in the design field don't rely on routines and rules in order to produce something, instead they rely on their imagination and creativity in order to come up with a design. If an architect designs a building, their brain goes through a complex creative process which draws on a multitude of points experienced throughout life. While an AI program could theoretically be created to analyze and store experiences throughout its life and draw upon those memories in order to create something creative, that process is considerably more complex than any routine program and thus creative AI won't be introduced into the modern economy anytime soon.

In recent decades the consumer population has started to value the design of products more, resulting in companies investing a lot of money in order to appeal towards the consumers. Apple is one of many companies which has seen great success due to its innovation in creating aesthetically pleasing designs. Today it is typical for even fast food restaurants to spend considerably more money on aesthetically pleasing buildings which require higher quality materials and more costly construction. Since the market requires most consumer products today to have some level of aesthetic design, over 100,000 design jobs have been added to the US workforce since 2000. The design field in the future will be one of the leading industries in future, and many offices around the world will shift occupancy towards design studios.

As for what the future of the economy will look like in the future, the best we can do as a society is make an educated guess based on data. While many office jobs will be automated in 20 years, most of them will remain. Office spaces will continue to be leased out to companies, only the industries occupying them will change. Retail will likely still exist in 20 years, but it is likely that most of it will be automated as the labor is very routine. Most humans don't place high value on interactions between themselves and a checkout clerk either, which only contributes to its inevitability. It is likely that hotels will also succumb to the effects of automation and the rise of apps like Airbnb will force hotel companies to switch to automation in order to remain competitive and profitable.

As for the building program in Park City, the article suggests that commercial spaces will continue to be leased into the future, only occupation types will likely change. As far as functionality goes, office spaces will not struggle transitioning from a cubical office into a design studio. While the US economy will likely struggle with the continuation of automation its side effect of increased wealth disparity, the governments of the world will likely come to a solution at some point because the other option involves an economic collapse. While automation will change the world immensely in the future, Park City's developer will likely continue to find tenants for the project's commercial spaces

Retail



New York Retail Vacancy Rate

Date	Midtown	Midtown South	Manhattan	Date	Midtown	Midtown South	Manhattan
Jan 2007	1.7%	5.3%	3.5%	Jan 2013	2.4%	1.4%	2.0%
Feb 2007	1.7%	5.5%	3.3%	Feb 2013	2.3%	1.3%	1.9%
Mar 2007	1.9%	5.6%	3.6%	Mar 2013	2.4%	1.3%	1.9%
Apr 2007	1.7%	6.1%	3.7%	Apr 2013	2.3%	1.6%	2.0%
May 2007	1.6%	7.0%	4.1%	May 2013	3.4%	1.8%	2.5%
Jun 2007	2.0%	6.9%	4.3%	Jun 2013	3.2%	2.0%	2.6%
Jul 2007	1.9%	7.1%	4.3%	Jul 2013	2.9%	1.8%	2.4%
Aug 2007	1.9%	7.2%	4.2%	Aug 2013	2.8%	1.8%	2.4%
Sep 2007	2.1%	6.9%	4.2%	Sep 2013	2.8%	1.9%	2.4%
Oct 2007	1.7%	5.9%	3.6%	Oct 2013	2.9%	1.8%	2.4%
Nov 2007	1.5%	5.6%	3.3%	Nov 2013	2.9%	1.8%	2.4%
Dec 2007	1.5%	5.7%	3.3%	Dec 2013	2.9%	1.9%	2.4%
Jan 2008	1.5%	5.5%	3.2%	Jan 2014	2.8%	2.3%	2.6%
Feb 2008	1.5%	5.5%	3.2%	Feb 2014	3.2%	2.4%	2.8%
Mar 2008	1.6%	5.3%	3.2%	Mar 2014	2.3%	2.4%	2.5%
Apr 2008	1.6%	5.4%	3.2%	Apr 2014	2.1%	2.7%	2.5%
May 2008	1.4%	5.1%	3.2%	May 2014	2.7%	2.9%	2.9%
Jun 2008	1.4%	4.6%	3.0%	Jun 2014	3.1%	3.0%	3.2%
Jul 2008	1.3%	4.0%	2.8%	Jul 2014	2.4%	3.0%	2.9%
Aug 2008	1.4%	4.2%	2.5%	Aug 2014	2.4%	2.8%	3.0%
Sep 2008	1.4%	3.7%	2.7%	Sep 2014	2.4%	3.1%	3.2%
Oct 2008	1.3%	2.9%	2.5%	Oct 2014	3.4%	3.2%	3.7%
Nov 2008	1.4%	2.9%	2.1%	Nov 2014	3.4%	3.3%	3.7%
Dec 2008	1.4%	3.0%	2.2%	Dec 2014	3.0%	3.1%	3.6%
Jan 2009	1.5%	3.3%	2.3%	Jan 2015	3.5%	3.0%	3.6%
Feb 2009	1.6%	3.6%	2.4%	Feb 2015	3.5%	3.0%	3.6%
Mar 2009	1.5%	3.7%	2.7%	Mar 2015	3.6%	3.1%	3.7%
Apr 2009	1.6%	3.0%	2.7%	Apr 2015	2.9%	3.3%	3.5%
May 2009	1.6%	3.0%	2.4%	May 2015	3.0%	3.3%	3.5%
Jun 2009	1.6%	3.2%	2.4%	Jun 2015	3.1%	3.1%	3.5%
Jul 2009	1.6%	3.1%	2.4%	Jul 2015	2.8%	3.0%	3.4%
Aug 2009	1.7%	3.0%	2.4%	Aug 2015	2.7%	3.1%	3.3%
Sep 2009	1.6%	2.6%	2.2%	Sep 2015	2.7%	3.0%	3.3%
Oct 2009	1.5%	2.9%	2.3%	Oct 2015	2.7%	3.1%	3.4%
Nov 2009	1.6%	2.0%	2.2%	Nov 2015	2.9%	2.4%	3.1%
Dec 2009	1.7%	2.8%	2.3%	Dec 2015	3.0%	2.4%	3.1%
Jan 2010	1.7%	2.9%	2.4%	Jan 2016	2.9%	2.6%	3.2%
Feb 2010	1.8%	2.5%	2.2%	Feb 2016	3.1%	2.5%	3.2%
Mar 2010	2.1%	2.6%	2.4%	Mar 2016	3.0%	2.9%	3.2%
Apr 2010	1.9%	2.6%	2.3%	Apr 2016	3.0%	3.0%	3.1%
May 2010	1.9%	2.4%	2.2%	May 2016	3.0%	2.4%	3.8%
Jun 2010	1.6%	2.4%	2.1%	Jun 2016	4.9%	2.9%	4.3%
Jul 2010	1.8%	2.4%	2.2%	Jul 2016	4.4%	2.8%	3.8%
Aug 2010	1.4%	2.3%	1.9%	Aug 2016	4.0%	2.6%	3.9%
Sep 2010	1.5%	2.2%	1.9%	Sep 2016	3.7%	2.8%	3.4%
Oct 2010	1.6%	2.1%	1.9%	Oct 2016	3.8%	3.1%	3.6%
Nov 2010	1.5%	2.1%	1.9%	Nov 2016	4.0%	3.0%	3.7%
Dec 2010	1.5%	2.1%	1.9%	Dec 2016	4.0%	2.9%	3.6%
Jan 2011	1.6%	2.1%	1.8%	Jan 2017	3.8%	3.2%	3.6%
Feb 2011	1.6%	2.2%	1.9%	Feb 2017	3.9%	3.5%	3.9%
Mar 2011	1.6%	2.0%	1.8%	Mar 2017	4.1%	3.3%	3.9%
Apr 2011	1.7%	2.0%	1.9%	Apr 2017	3.7%	3.7%	3.9%
May 2011	2.0%	2.0%	2.0%	May 2017	3.6%	4.0%	4.0%
Jun 2011	1.9%	2.2%	2.0%	Jun 2017	3.5%	4.1%	4.0%
Jul 2011	1.9%	2.2%	2.1%	Jul 2017	3.4%	4.0%	3.9%
Aug 2011	2.0%	2.3%	2.1%	Aug 2017	3.4%	3.9%	3.9%
Sep 2011	1.9%	2.1%	2.2%	Sep 2017	3.4%	4.0%	3.9%
Oct 2011	1.9%	2.1%	2.2%	Oct 2017	3.6%	4.1%	4.2%
Nov 2011	2.1%	1.8%	2.1%	Nov 2017	3.6%	4.3%	4.5%
Dec 2011	2.0%	1.8%	2.0%	Dec 2017	3.3%	4.3%	4.3%
Jan 2012	1.8%	1.9%	2.0%	Jan 2018	3.5%	4.5%	4.6%
Feb 2012	1.8%	1.8%	2.0%	Feb 2018	3.9%	4.3%	4.7%
Mar 2012	1.8%	1.7%	1.9%	Mar 2018	3.8%	4.1%	4.6%
Apr 2012	2.0%	1.7%	2.0%	Apr 2018	3.3%	4.0%	4.4%
May 2012	1.7%	1.9%	2.0%	May 2018	3.3%	4.1%	4.4%
Jun 2012	1.8%	1.8%	1.9%	Jun 2018	3.2%	4.0%	4.3%
Jul 2012	1.9%	2.3%	2.3%	Jul 2018	3.2%	4.1%	4.3%
Aug 2012	2.4%	2.2%	2.4%	Aug 2018	3.3%	4.2%	4.4%
Sep 2012	2.5%	2.0%	2.3%	Sep 2018	3.3%	4.4%	4.5%
Oct 2012	2.3%	1.6%	2.0%				
Nov 2012	2.4%	1.4%	1.9%				
Dec 2012	2.4%	1.4%	2.0%				
			Average		2.5%	3.2%	3.0%

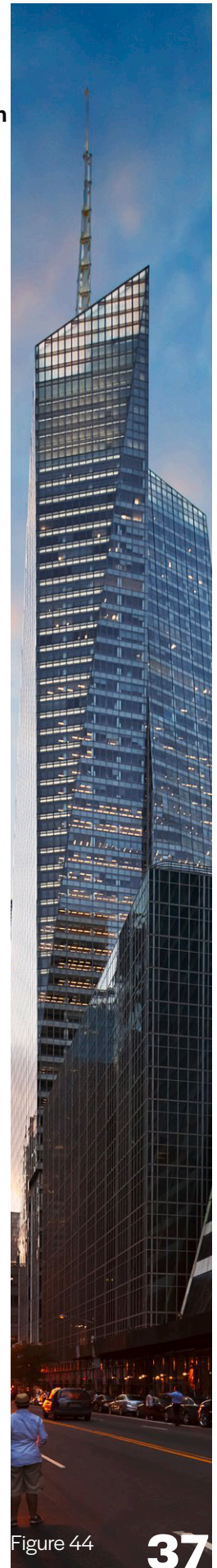


Figure 44

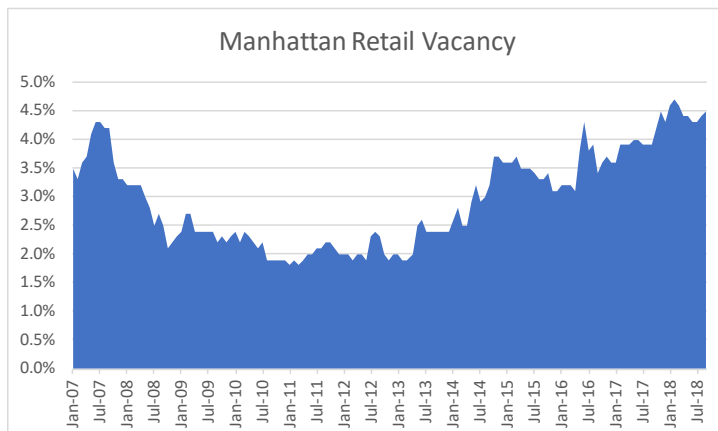
New York Available Retail Space (Thousands)

Date	Midtown	Midtown South	Manhattan	Date	Midtown	Midtown South	Manhattan
Feb 2006	130	250	480	Jul 2012	320	360	850
Mar 2006	130	260	510	Aug 2012	400	340	920
Apr 2006	130	300	580	Sep 2012	370	330	850
May 2006	160	280	610	Oct 2012	360	320	830
Jun 2006	160	350	630	Nov 2012	390	260	800
Jul 2006	140	400	680	Dec 2012	380	280	810
Aug 2006	130	440	710	Jan 2013	400	260	800
Sep 2006	130	430	700	Feb 2013	390	240	780
Oct 2006	150	410	710	Mar 2013	410	240	800
Nov 2006	180	410	740	Apr 2013	370	290	810
Dec 2006	170	460	770	May 2013	380	310	830
Jan 2007	170	320	630	Jun 2013	380	300	850
Feb 2007	170	340	640	Jul 2013	360	290	820
Mar 2007	180	360	690	Aug 2013	430	300	1,000
Apr 2007	140	540	810	Sep 2013	340	300	810
May 2007	120	650	900	Oct 2013	350	300	820
Jun 2007	170	650	970	Nov 2013	350	320	840
Jul 2007	190	670	1,000	Dec 2013	350	250	870
Aug 2007	190	670	980	Jan 2014	360	350	880
Sep 2007	220	660	1,000	Feb 2014	260	380	800
Oct 2007	190	710	1,100	Mar 2014	250	370	780
Nov 2007	220	700	990	Apr 2014	250	380	790
Dec 2007	210	750	1,030	May 2014	250	470	900
Jan 2008	220	770	1,060	Jun 2014	310	470	1,000
Feb 2008	230	730	1,050	Jul 2014	300	430	940
Mar 2008	250	720	1,070	Aug 2014	300	390	950
Apr 2008	240	760	1,120	Sep 2014	300	410	950
May 2008	230	720	1,090	Oct 2014	370	410	1,030
Jun 2008	240	740	1,100	Nov 2014	370	400	1,030
Jul 2008	260	760	1,110	Dec 2014	370	360	990
Aug 2008	250	760	1,110	Jan 2015	380	370	1,010
Sep 2008	250	720	1,070	Feb 2015	370	330	970
Oct 2008	250	610	1,010	Mar 2015	380	370	1,010
Nov 2008	280	580	990	Apr 2015	390	400	1,050
Dec 2008	280	610	1,030	May 2015	380	420	1,100
Jan 2009	320	640	1,110	Jun 2015	380	370	1,030
Feb 2009	300	680	1,140	Jul 2015	380	350	1,010
Mar 2009	270	710	1,140	Aug 2015	350	360	980
Apr 2009	290	600	1,050	Sep 2015	350	360	980
May 2009	290	630	1,070	Oct 2015	340	370	980
Jun 2009	280	630	1,050	Nov 2015	330	360	970
Jul 2009	280	630	1,040	Dec 2015	350	360	990
Aug 2009	250	630	1,010	Jan 2016	350	410	1,010
Sep 2009	240	600	980	Feb 2016	360	410	1,000
Oct 2009	230	610	1,000	Mar 2016	340	410	990
Nov 2009	290	580	1,020	Apr 2016	320	380	960
Dec 2009	290	620	1,070	May 2016	350	360	970
Jan 2010	290	650	1,090	Jun 2016	410	360	1,070
Feb 2010	320	610	1,070	Jul 2016	460	380	1,130
Mar 2010	360	610	1,140	Aug 2016	430	350	1,080
Apr 2010	330	630	1,080	Sep 2016	400	400	960
May 2010	330	600	1,040	Oct 2016	400	380	940
Jun 2010	270	580	980	Nov 2016	430	390	980
Jul 2010	290	560	1,000	Dec 2016	440	430	1,020
Aug 2010	220	530	870	Jan 2017	420	480	1,050
Sep 2010	250	490	850	Feb 2017	410	520	1,100
Oct 2010	280	500	880	Mar 2017	450	510	1,130
Nov 2010	240	500	870	Apr 2017	450	450	1,060
Dec 2010	240	500	860	May 2017	450	520	1,120
Jan 2011	250	460	820	Jun 2017	450	520	1,130
Feb 2011	230	500	830	Jul 2017	450	500	1,090
Mar 2011	220	490	810	Aug 2017	480	480	1,100
Apr 2011	240	490	840	Sep 2017	490	520	1,130
May 2011	310	500	930	Oct 2017	520	550	1,200
Jun 2011	310	520	950	Nov 2017	520	570	1,320
Jul 2011	310	500	940	Dec 2017	520	550	1,270
Aug 2011	330	520	970	Jan 2018	520	590	1,330
Sep 2011	320	470	1,010	Feb 2018	590	580	1,420
Oct 2011	310	50	970	Mar 2018	570	560	1,400
Nov 2011	350	420	990	Apr 2018	510	520	1,310
Dec 2011	350	410	950	May 2018	500	560	1,320
Jan 2012	290	420	900	Jun 2018	580	550	1,290
Feb 2012	290	390	860	Jul 2018	470	560	1,400
Mar 2012	310	380	880	Aug 2018	490	580	1,430
Apr 2012	310	380	890	Sep 2018	480	590	1,440
May 2012	280	360	840				
Jun 2012	290	350	810	Average	319	476	971

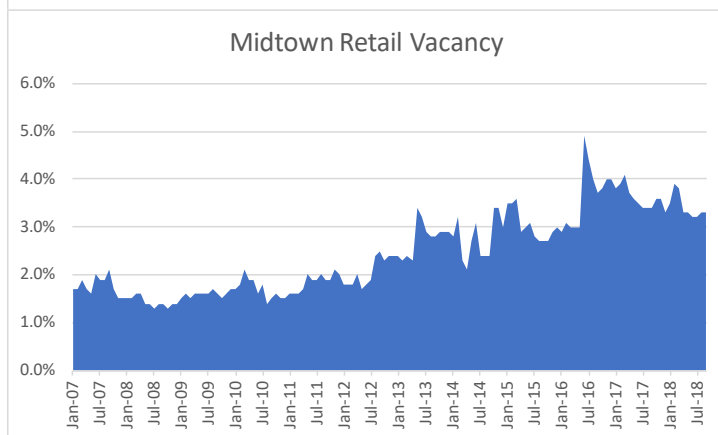


Figure 45

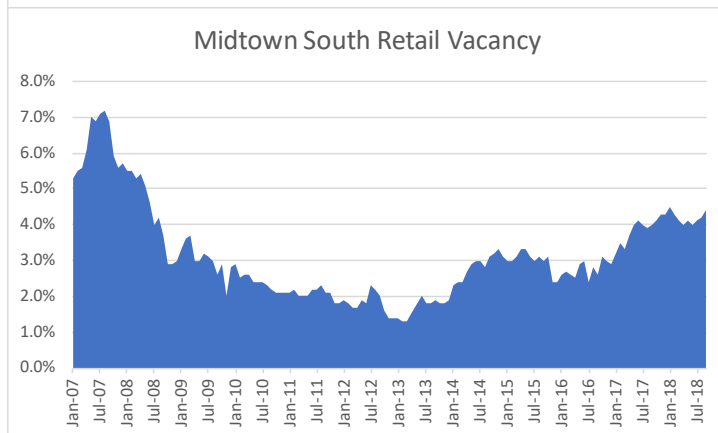
Retail Vacancy Charts



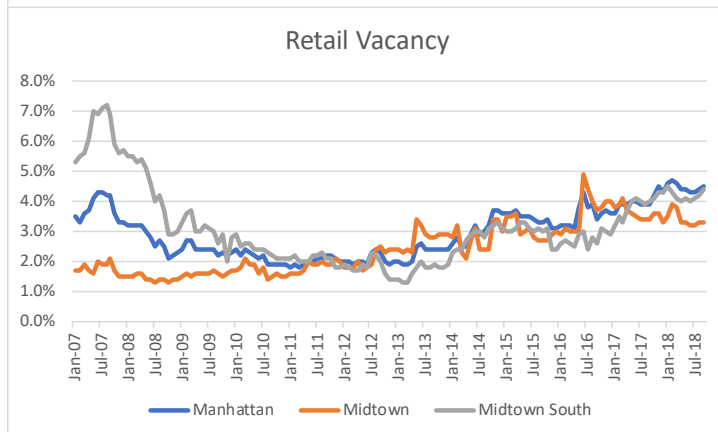
Manhattan has averaged a retail vacancy rate of 3.0%, lower than the current rates of 4.5%. Despite a major economic recession in 2008, Manhattan has maintained low vacancy rates which shows the district has a strong consumer demand.



According to data from the previous charts, retail vacancy rates are consistently low. Between 2007 and 2018, the Midtown district averaged a vacancy rate of 2.5%, the lowest of the three areas. Since 2007, vacancy rates have slowly increased, reaching a high point in June 2016. Despite rising figures, retail vacancy rates remain on the low side. With a low vacancy rate, the Midtown retail market can increase rent or increase it's supply in order reach an optimal rate. Park City could safely support a large amount of retail space.

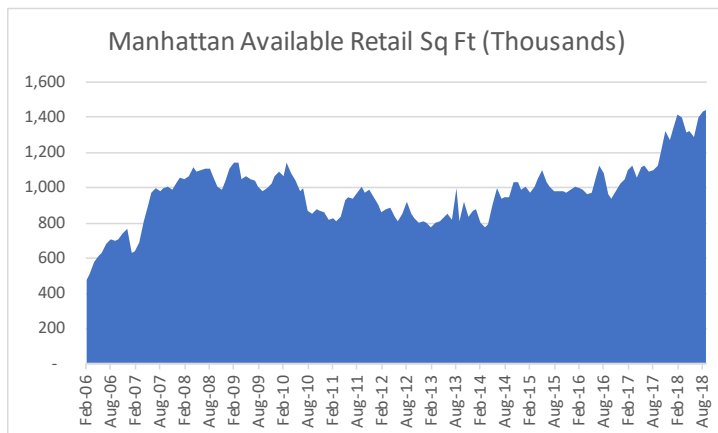


Midtown South maintains a low vacancy rate, averaging slightly higher than Midtown at 3.2%. Beginning the second quarter of 2007, the district experienced high vacancy rates (6.1%-7.2%) until 2008. These high vacancy rates reflect America's over-inflated real estate market pre-2008 recession. After the market correction, vacancy rates declined into exceedingly low territory until 2013 (reaching a low point of 1.3% in March). Since then, rates have risen and presently the retail market has reached a healthy level of vacancy.

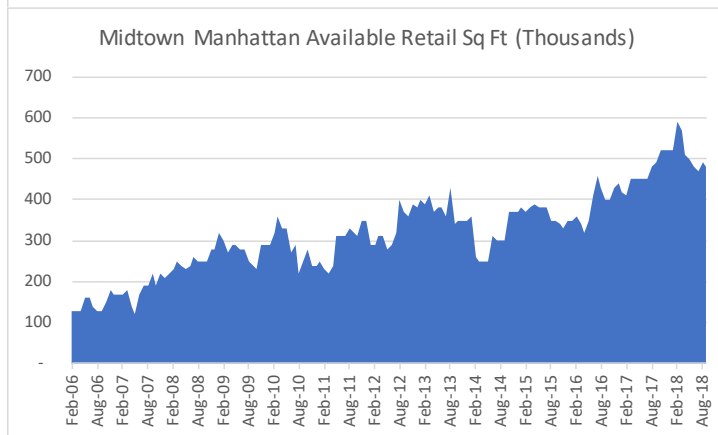


The chart above compares retail vacancy rates for the three different statistical areas. In 2007 there was a sizable difference between the states of each area. Over time that gap has decreased and for the most part each area has similar vacancy rates.

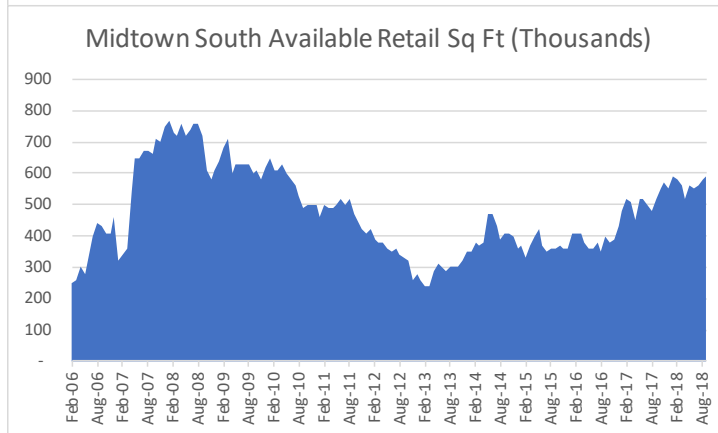
Available Retail Space Charts



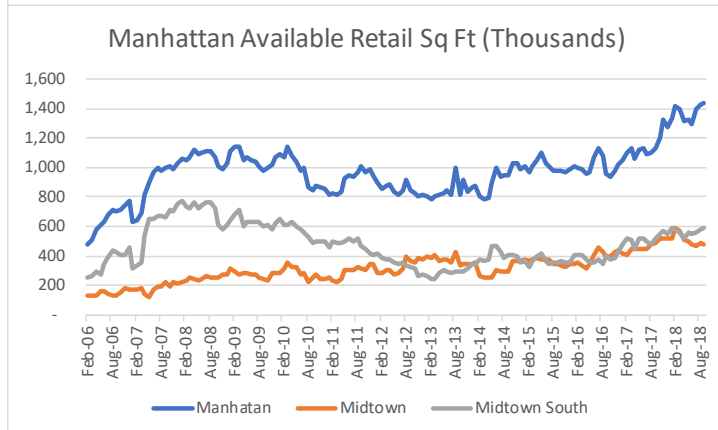
Since 2006, the amount of available retail space in Manhattan has tripled from 480 thousand to 1.44 million square feet. The largest increase in available space happened between 2006 and 2007, where values started reaching into the millions. Vacant retail inventory remained flat until rising rates starting in 2016. Over the time span covered, Manhattan averaged 971 thousand square feet of available space.



Trends show that the amount of vacant retail space in Midtown Manhattan keeps increasing. New York's most popular shopping district has a steady retail market and shows less fluctuation in vacant inventory compare to other districts.



Out of the three areas, the Midtown South district has the most dynamic vacant retail space inventory. The area reached its maximum vacant retail space square footage in 2008, which correlates with the high vacancy rates at the time. The supply dipped until 2013 when began to rise again. Currently vacancy rates are at healthy levels and the amount of available retail space are at optimal numbers.

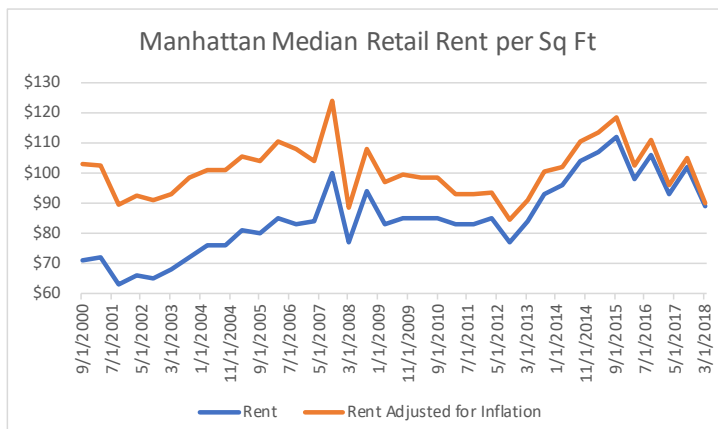


Trends in amount of available retail space are similar between Midtown South and Manhattan as a whole. Midtown Manhattan, the location of Park City, has a lot more stable retail market than the other parts of New York. Retail space in Park City would benefit from a stable market, even in the event of an economic downturn.

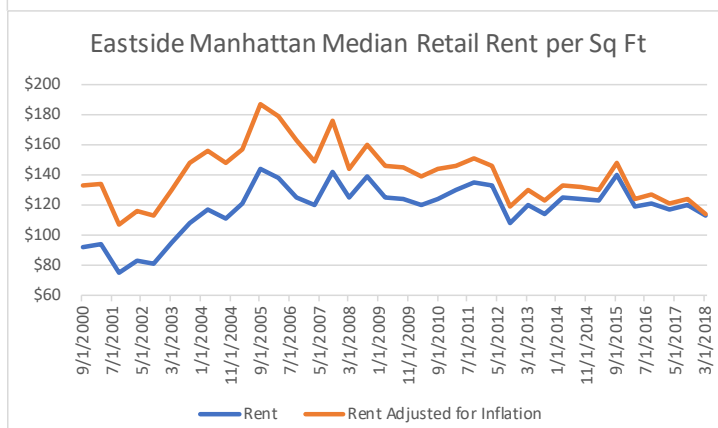
New York Median Retail Rent per Square Foot

Date	Manhattan	Percent Change	Manhattan (Inflation)	Percent Change
Quarter 3 2000	\$71		\$103	
Quarter 1 2001	\$72	2.1%	\$102	-0.7%
Quarter 3 2001	\$63	-14.3%	\$89	-12.5%
Quarter 1 2002	\$66	3.6%	\$92	3.3%
Quarter 3 2002	\$65	-2.3%	\$91	-1.5%
Quarter 1 2003	\$68	3.5%	\$93	2.4%
Quarter 3 2003	\$72	4.5%	\$99	5.9%
Quarter 1 2004	\$76	5.4%	\$101	2.5%
Quarter 3 2004	\$76	0%	\$101	0%
Quarter 1 2005	\$81	6.2%	\$105	4.2%
Quarter 3 2005	\$80	-1.0%	\$104	-1.2%
Quarter 1 2006	\$85	5.9%	\$111	6.3%
Quarter 3 2006	\$83	-1.9%	\$108	2.4%
Quarter 1 2007	\$84	0.9%	\$104	3.5%
Quarter 3 2007	\$100	19.0%	\$124	19.0%
Quarter 1 2008	\$77	-23.0%	\$89	-28.6%
Quarter 3 2008	\$94	22.1%	\$108	22.1%
Quarter 1 2009	\$83	-11.7%	\$97	-10.2%
Quarter 3 2009	\$85	2.4%	\$99	2.4%
Quarter 1 2010	\$85	0%	\$99	-0.9%
Quarter 3 2010	\$85	0%	\$99	0%
Quarter 1 2011	\$83	-2.4%	\$93	-5.7%
Quarter 3 2011	\$83	0%	\$93	0%
Quarter 1 2012	\$85	2.4%	\$94	0.6%
Quarter 3 2012	\$77	-9.4%	\$85	-9.4%
Quarter 1 2013	\$84	9.1%	\$91	7.1%
Quarter 3 2013	\$93	10.7%	\$100	10.7%
Quarter 1 2014	\$96	3.2%	\$102	1.3%
Quarter 3 2014	\$104	8.3%	\$110	8.3%
Quarter 1 2015	\$107	2.9%	\$113	2.9%
Quarter 3 2015	\$112	4.7%	\$119	4.7%
Quarter 1 2016	\$98	-12.5%	\$102	-13.7%
Quarter 3 2016	\$106	8.2%	\$111	8.2%
Quarter 1 2017	\$93	-12.3%	\$96	-13.5%
Quarter 3 2017	\$102	9.7%	\$105	9.7%
Quarter 1 2018	\$89	-12.7%	\$90	-14.3%
Average	\$85		\$101	

Date	Eastside	Percent Change	Eastside (Inflation)	Percent Change
Quarter 3 2000	\$92		\$133	
Quarter 1 2001	\$94	2.2%	\$133	0%
Quarter 3 2001	\$75	-25.4%	\$107	-20.2%
Quarter 1 2002	\$83	9.7%	\$116	9.1%
Quarter 3 2002	\$81	-1.8%	\$113	-2.4%
Quarter 1 2003	\$95	15.3%	\$130	14.8%
Quarter 3 2003	\$108	11.7%	\$148	13.7%
Quarter 1 2004	\$117	8.4%	\$156	5.2%
Quarter 3 2004	\$111	-4.5%	\$148	-5.1%
Quarter 1 2005	\$121	8.1%	\$157	6.6%
Quarter 3 2005	\$144	16.3%	\$187	19.0%
Quarter 1 2006	\$138	-4.3%	\$179	-4.2%
Quarter 3 2006	\$125	-9.6%	\$163	-9.4%
Quarter 1 2007	\$120	-3.7%	\$149	-8.4%
Quarter 3 2007	\$142	18.3%	\$176	18.3%
Quarter 1 2008	\$125	-12.0%	\$144	-18.4%
Quarter 3 2008	\$139	11.2%	\$160	11.2%
Quarter 1 2009	\$125	-10.1%	\$146	-8.5%
Quarter 3 2009	\$124	-0.8%	\$145	-0.8%
Quarter 1 2010	\$120	-3.2%	\$139	-4.1%
Quarter 3 2010	\$124	3.3%	\$144	3.3%
Quarter 1 2011	\$130	4.8%	\$146	1.2%
Quarter 3 2011	\$135	3.8%	\$151	3.8%
Quarter 1 2012	\$133	-1.5%	\$146	-3.2%
Quarter 3 2012	\$108	-18.8%	\$119	-18.8%
Quarter 1 2013	\$120	11.1%	\$130	9.1%
Quarter 3 2013	\$114	-5.0%	\$123	-5.0%
Quarter 1 2014	\$125	9.6%	\$133	7.6%
Quarter 3 2014	\$124	-0.8%	\$131	-0.8%
Quarter 1 2015	\$123	-0.8%	\$130	-0.8%
Quarter 3 2015	\$140	13.8%	\$148	13.8%
Quarter 1 2016	\$119	-15.0%	\$124	-16.2%
Quarter 3 2016	\$121	1.7%	\$126	1.7%
Quarter 1 2017	\$121	-3.3%	\$121	-4.7%
Quarter 3 2017	\$117	2.6%	\$124	2.6%
Quarter 1 2018	\$113	-5.8%	\$114	-7.8%
Average	\$118		\$140	



Median retail rents in Manhattan have risen 19.7% since Q3 2000, a relatively modest amount. Adjusted for inflation, rents are lower than the historical average. The price of rent started to climb in 2015 and in 2015 Manhattan retail rents peaked at \$112 a square foot. Currently the trend shows that rents are starting to decrease.

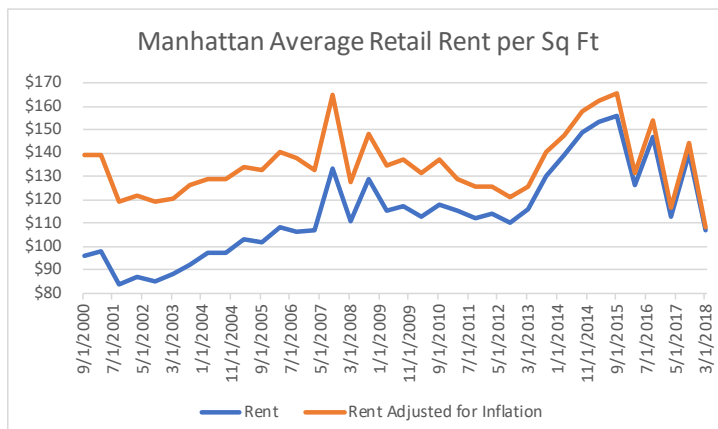


Both categories of rent prices show current rents are below their averages. Median retail rents in the East Side are amongst the highest in the city, averging a price of \$118 per square foot. Prices peaked in 2005, when median rent hit an astronomical \$144 per square foot.

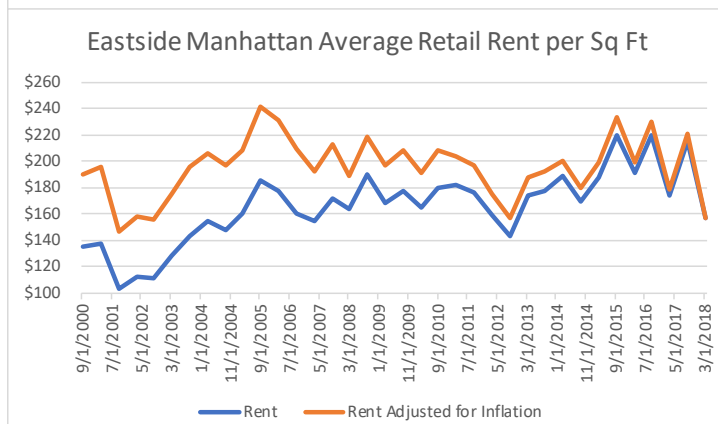
New York Average Retail Rent per Square Foot

Date	Manhattan	Percent Change	Manhattan (Inflation)	Percent Change
Quarter 3 2000	\$92		\$139	
Quarter 1 2001	\$94	2.1%	\$139	0.0%
Quarter 3 2001	\$84	-14.3%	\$119	-14.3%
Quarter 1 2002	\$87	3.6%	\$122	2.1%
Quarter 3 2002	\$85	-2.3%	\$119	-2.3%
Quarter 1 2003	\$88	3.5%	\$121	1.3%
Quarter 3 2003	\$92	4.5%	\$126	4.5%
Quarter 1 2004	\$97	5.4%	\$129	2.4%
Quarter 3 2004	\$97	0.0%	\$129	0.0%
Quarter 1 2005	\$103	6.2%	\$134	3.8%
Quarter 3 2005	\$102	-1.0%	\$133	-1.0%
Quarter 1 2006	\$108	5.9%	\$140	5.9%
Quarter 3 2006	\$106	-1.9%	\$138	-1.9%
Quarter 1 2007	\$107	0.9%	\$133	-3.7%
Quarter 3 2007	\$133	24.3%	\$165	24.3%
Quarter 1 2008	\$111	-16.5%	\$128	-22.6%
Quarter 3 2008	\$129	16.2%	\$148	16.2%
Quarter 1 2009	\$115	-10.9%	\$135	-9.3%
Quarter 3 2009	\$117	1.7%	\$137	1.7%
Quarter 1 2010	\$113	-3.4%	\$131	-4.2%
Quarter 3 2010	\$118	4.4%	\$137	4.4%
Quarter 1 2011	\$115	-2.5%	\$129	-5.9%
Quarter 3 2011	\$112	-2.6%	\$125	2.6%
Quarter 1 2012	\$114	1.8%	\$125	0.0%
Quarter 3 2012	\$110	-3.5%	\$121	-3.5%
Quarter 1 2013	\$116	5.5%	\$125	3.5%
Quarter 3 2013	\$130	12.1%	\$140	12.1%
Quarter 1 2014	\$139	6.9%	\$147	4.9%
Quarter 3 2014	\$149	7.2%	\$158	7.2%
Quarter 1 2015	\$153	2.7%	\$162	2.7%
Quarter 3 2015	\$156	2.0%	\$165	2.0%
Quarter 1 2016	\$126	-19.2%	\$132	-20.4%
Quarter 3 2016	\$147	16.7%	\$154	16.7%
Quarter 1 2017	\$113	-23.1%	\$116	-24.2%
Quarter 3 2017	\$140	23.9%	\$144	23.9%
Quarter 1 2018	\$107	-23.6%	\$108	-25.1%
Average	\$114		\$135	

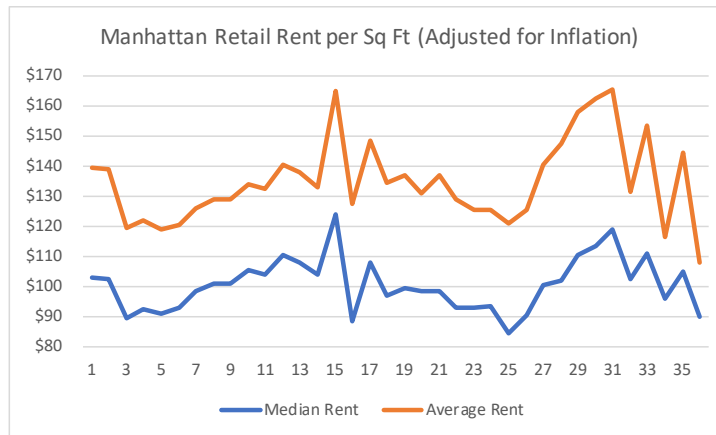
Date	Eastside	Percent Change	Eastside (Inflation)	Percent Change
Quarter 3 2000	\$135		\$190	
Quarter 1 2001	\$138	2.2%	\$196	2.9%
Quarter 3 2001	\$103	-25.4%	\$146	-25.4%
Quarter 1 2002	\$113	9.7%	\$158	8.2%
Quarter 3 2002	\$111	-1.8%	\$155	-1.8%
Quarter 1 2003	\$128	15.3%	\$175	12.8%
Quarter 3 2003	\$143	11.7%	\$196	11.7%
Quarter 1 2004	\$155	8.4%	\$206	5.2%
Quarter 3 2004	\$148	-4.5%	\$197	-4.5%
Quarter 1 2005	\$160	8.1%	\$208	5.7%
Quarter 3 2005	\$186	16.3%	\$242	16.3%
Quarter 1 2006	\$178	-4.3%	\$231	-4.3%
Quarter 3 2006	\$161	-9.6%	\$209	-9.6%
Quarter 1 2007	\$155	-3.7%	\$192	-8.2%
Quarter 3 2007	\$172	11.0%	\$213	11.0%
Quarter 1 2008	\$164	-4.7%	\$189	-11.6%
Quarter 3 2008	\$190	15.9%	\$219	15.9%
Quarter 1 2009	\$168	-11.6%	\$197	-10.0%
Quarter 3 2009	\$178	6.0%	\$208	6.0%
Quarter 1 2010	\$165	-7.3%	\$191	-8.1%
Quarter 3 2010	\$180	9.1%	\$209	9.1%
Quarter 1 2011	\$182	1.1%	\$204	-2.4%
Quarter 3 2011	\$176	-3.3%	\$197	-3.3%
Quarter 1 2012	\$159	-9.7%	\$175	-11.3%
Quarter 3 2012	\$143	-10.1%	\$157	-10.1%
Quarter 1 2013	\$174	21.7%	\$188	19.5%
Quarter 3 2013	\$178	2.3%	\$192	2.3%
Quarter 1 2014	\$189	6.2%	\$200	4.2%
Quarter 3 2014	\$170	-10.1%	\$180	-10.1%
Quarter 1 2015	\$188	10.6%	\$199	10.6%
Quarter 3 2015	\$220	17.0%	\$233	17.0%
Quarter 1 2016	\$191	13.2%	\$200	-14.4%
Quarter 3 2016	\$220	15.2%	\$230	15.2%
Quarter 1 2017	\$174	-20.9%	\$179	-22.0%
Quarter 3 2017	\$215	23.6%	\$221	23.6%
Quarter 1 2018	\$157	-27.0%	\$157	-29.1%
Average	\$166		\$196	



Manhattan's average rent is significantly higher than its median rent, which means there is a large price difference between a typical retail space and retail space in a premier location. Average rent prices remain below their historical averages. Prices peaked in 2015, but with inflation adjusted prices there was an additional peak right before the recession in 2007.

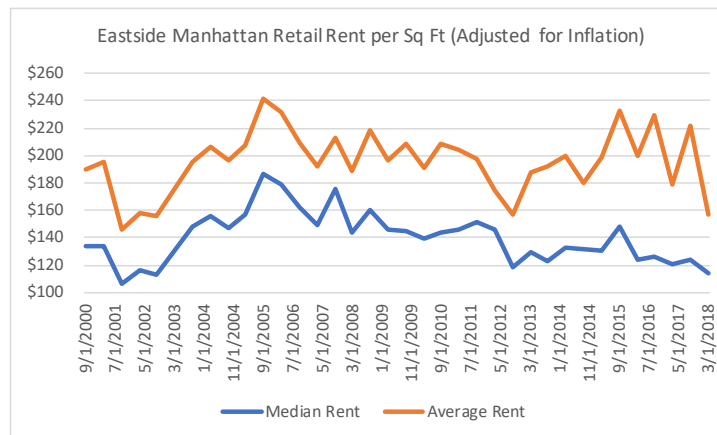


The Upper East Side contains the highest average rent prices in New York. Average retail prices in the Upper East Side have risen above \$200 a square foot three times since 2000. Prices peaked at \$220 per square feet in 2015 and 2016, while prices reached a high point in 2005 once numbers are adjusted for inflation. Currently rent prices are low compared to historical averages.



Retail statistics show that Manhattan has a big disparity between median and average retail rents. This is caused by astronomical rent prices on the premier shopping avenues, which are amongst the most expensive in the world. For example, one portion of 5th Ave charges up to \$3,000 per square foot for retail space. That price point is considerably higher than the current median rent of \$85.

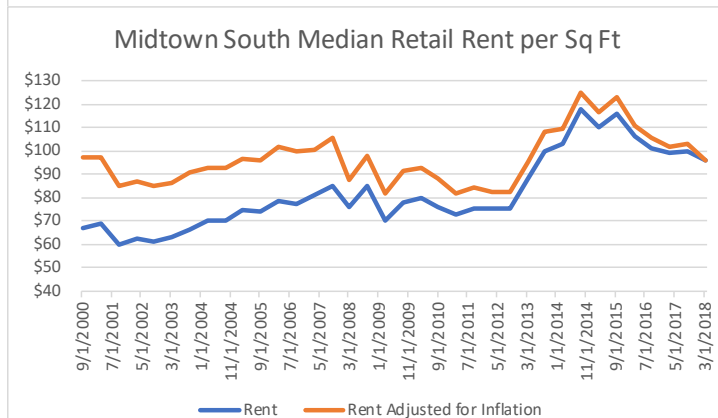
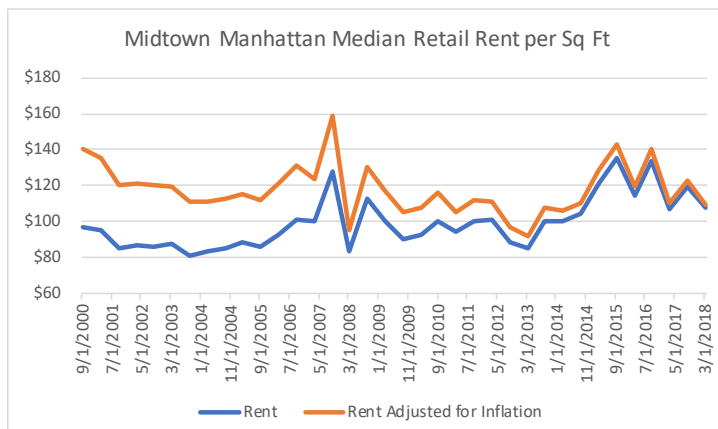
The chart above shows that Manhattan’s retail rent prices tend fluctuate often. This is a problem for developers in Manhattan, as rental income can vary over time. This will complicate the financial operations for any real estate investor, and will require careful planning. It is important to keep in mind that Manhattan is a large market and not all areas will have volatile rents. Gentrification could be the source of price fluctuation, as land lords attempt to charge the highest price possible, which may involve dropping prices until a lease is signed.



Like Manhattan, the East Side has a large gap between median and average retail rent. The district has some of the highest household incomes in the city, as well as renowned shopping locations such as Park Ave, Madison Ave, and 5th Ave. These prices greatly contrast the rental prices of a typical side street retail space. Rent prices are more volatile than Manhattan as a whole, as they tend to peak, while dropping dramatically the following year.

New York Median Retail Rent per Square Foot

Date	Midtown	Percent Change	Midtown (Inflation)	Percent Change	Date	Midtown South	Percent Change	Midtown South (Inflation)	Percent Change
Quarter 3 2000	\$97		\$140		Quarter 3 2000	\$67		\$97	
Quarter 1 2001	\$95	1.7%	\$135	-3.7%	Quarter 1 2001	\$69	2.1%	\$97	0%
Quarter 3 2001	\$85	-12.3%	\$120	-10.9%	Quarter 3 2001	\$60	-14.3%	\$85	-12.5%
Quarter 1 2002	\$86	1.9%	\$121	0.5%	Quarter 1 2002	\$62	3.6%	\$87	2.2%
Quarter 3 2002	\$86	0.9%	\$120	-0.9%	Quarter 3 2002	\$61	-2.3%	\$85	-2.2%
Quarter 1 2003	\$87	1.8%	\$119	-0.3%	Quarter 1 2003	\$63	3.5%	\$86	1.4%
Quarter 3 2003	\$81	8.0%	\$111	-7.4%	Quarter 3 2003	\$66	4.5%	\$91	4.8%
Quarter 1 2004	\$83	3.3%	\$111	0.4%	Quarter 1 2004	\$70	5.4%	\$93	2.7%
Quarter 3 2004	\$85	1.6%	\$113	1.6%	Quarter 3 2004	\$70	0%	\$93	0%
Quarter 1 2005	\$88	3.9%	\$115	1.8%	Quarter 1 2005	\$74	6.2%	\$97	4.2%
Quarter 3 2005	\$86	-3.0%	\$111	-2.9%	Quarter 3 2005	\$74	0%	\$96	-1.0%
Quarter 1 2006	\$93	7.8%	\$121	8.5%	Quarter 1 2006	\$78	5.9%	\$102	6.3%
Quarter 3 2006	\$101	-0.7%	\$131	8.6%	Quarter 3 2006	\$77	-1.9%	\$100	-1.8%
Quarter 1 2007	\$100	-2.9%	\$124	-5.6%	Quarter 1 2007	\$81	5.0%	\$100	0.4%
Quarter 3 2007	\$128	28.0%	\$159	28.0%	Quarter 3 2007	\$85	4.9%	\$105	4.9%
Quarter 1 2008	\$83	-35.2%	\$95	-39.9%	Quarter 1 2008	\$76	-10.6%	\$87	-17.1%
Quarter 3 2008	\$113	36.1%	\$130	36.1%	Quarter 3 2008	\$85	11.8%	\$98	11.8%
Quarter 1 2009	\$100	-11.5%	\$117	-10.0%	Quarter 1 2009	\$70	-17.6%	\$82	-16.2%
Quarter 3 2009	\$90	-10.0%	\$105	-10.0%	Quarter 3 2009	\$78	-11.4%	\$91	11.4%
Quarter 1 2010	\$93	3.3%	\$108	2.5%	Quarter 1 2010	\$80	2.6%	\$93	1.7%
Quarter 3 2010	\$100	7.5%	\$116	7.5%	Quarter 3 2010	\$76	-5.0%	\$88	-5.0%
Quarter 1 2011	\$94	-6.0%	\$105	-9.2%	Quarter 1 2011	\$73	-3.9%	\$82	-7.3%
Quarter 3 2011	\$100	6.4%	\$112	6.4%	Quarter 3 2011	\$75	2.7%	\$84	2.7%
Quarter 1 2012	\$101	1.0%	\$111	-0.8%	Quarter 1 2012	\$75	0%	\$83	-1.8%
Quarter 3 2012	\$88	-12.9%	\$97	-12.9%	Quarter 3 2012	\$75	0%	\$83	0%
Quarter 1 2013	\$85	-3.4%	\$92	-5.2%	Quarter 1 2013	\$88	17.3%	\$95	15.2%
Quarter 3 2013	\$100	17.6%	\$108	17.6%	Quarter 3 2013	\$100	13.6%	\$108	13.6%
Quarter 1 2014	\$100	0%	\$106	-1.9%	Quarter 1 2014	\$103	3.0%	\$109	1.1%
Quarter 3 2014	\$104	4.0%	\$110	4.0%	Quarter 3 2014	\$118	14.6%	\$125	14.6%
Quarter 1 2015	\$121	16.3%	\$128	16.3%	Quarter 1 2015	\$110	-6.8%	\$117	-6.8%
Quarter 3 2015	\$135	11.6%	\$143	11.6%	Quarter 3 2015	\$116	5.5%	\$123	5.5%
Quarter 1 2016	\$114	-15.6%	\$119	-16.8%	Quarter 1 2016	\$106	-8.6%	\$111	-9.9%
Quarter 3 2016	\$134	17.5%	\$140	17.5%	Quarter 3 2016	\$101	-4.7%	\$106	-4.7%
Quarter 1 2017	\$107	-20.1%	\$110	-21.3%	Quarter 1 2017	\$99	-2.0%	\$102	-3.4%
Quarter 3 2017	\$119	11.2%	\$123	11.2%	Quarter 3 2017	\$100	1.0%	\$103	1.0%
Quarter 1 2018	\$108	-9.2%	\$109	-11.1%	Quarter 1 2018	\$96	-4.0%	\$96	-6.8%
Average	\$99		\$118		Average	\$82		\$97	

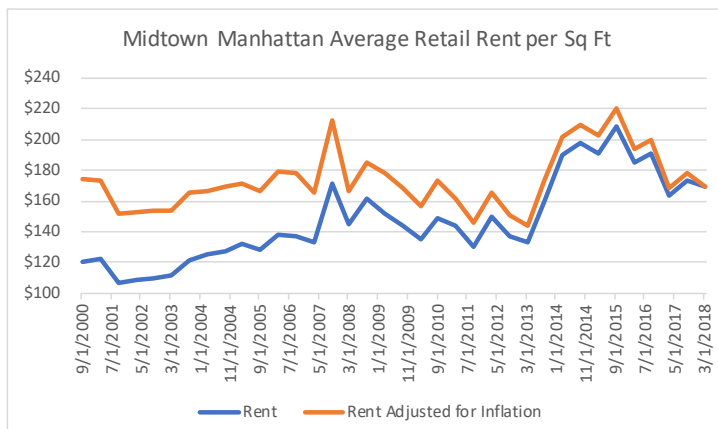


Median retail rents in Midtown have fluctuated quite consistently, with the most volatile periods around 2008 and 2015-present. While the highest median rent prices occurred in 2015, the inflation adjusted high point occurred before the recession in 2007, reaching a median price of \$157 per square foot. While rent prices remain above average, they're actually

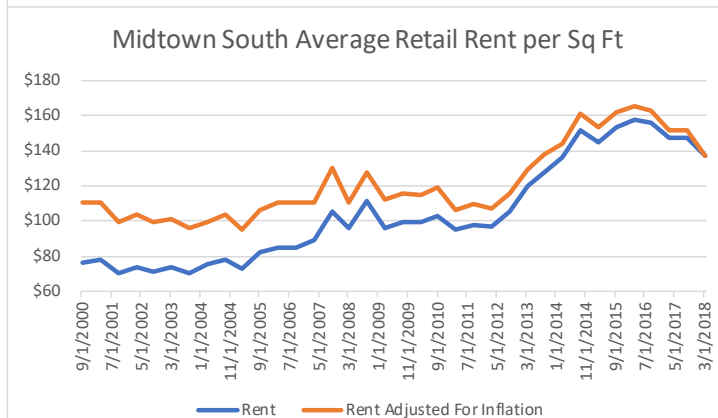
Midtown South contains the lowest median retail prices out of the four areas studied. Median rent prices remained relatively flat between 2000 and 2014, until prices jumped and peaked at \$135 per square foot in 2015. Ever since the peak, median rent has dropped towards prices more in line with the overall trend.

New York Average Retail Rent per Square Foot

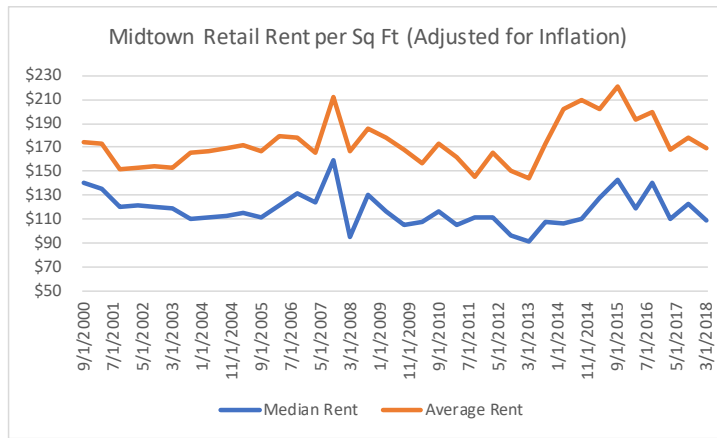
Date	Midtown	Percent Change	Midtown (Inflation)	Percent Change	Date	Midtown South	Percent Change	Midtown South (Inflation)	Percent Change
Quarter 3 2000	\$120		\$174		Quarter 3 2000	\$76		\$110	
Quarter 1 2001	\$122	1.7%	\$173	-0.4%	Quarter 1 2001	\$78	2.6%	\$111	0.5%
Quarter 3 2001	\$107	-12.3%	\$152	-12.3%	Quarter 3 2001	\$70	-10.3%	\$99	-10.3%
Quarter 1 2002	\$109	1.9%	\$153	0.4%	Quarter 1 2002	\$74	5.7%	\$104	4.2%
Quarter 3 2002	\$110	0.9%	\$154	0.9%	Quarter 3 2002	\$71	-4.1%	\$99	-4.1%
Quarter 1 2003	\$112	1.8%	\$153	-0.4%	Quarter 1 2003	\$74	4.2%	\$101	2.0%
Quarter 3 2003	\$121	8.0%	\$166	8.0%	Quarter 3 2003	\$70	-5.4%	\$96	-5.4%
Quarter 1 2004	\$125	3.3%	\$166	0.3%	Quarter 1 2004	\$75	7.1%	\$100	4.0%
Quarter 3 2004	\$127	1.6%	\$169	1.6%	Quarter 3 2004	\$78	4.0%	\$104	4.0%
Quarter 1 2005	\$132	3.9%	\$172	1.6%	Quarter 1 2005	\$73	-6.4%	\$95	-8.5%
Quarter 3 2005	\$128	-3.0%	\$166	-3.0%	Quarter 3 2005	\$82	12.3%	\$107	12.3%
Quarter 1 2006	\$138	7.8%	\$179	7.8%	Quarter 1 2006	\$85	3.7%	\$111	3.7%
Quarter 3 2006	\$137	-0.7%	\$178	-0.7%	Quarter 3 2006	\$85	0%	\$111	0%
Quarter 1 2007	\$133	-2.9%	\$165	-7.4%	Quarter 1 2007	\$89	4.7%	\$110	-0.1%
Quarter 3 2007	\$171	28.6%	\$212	28.6%	Quarter 3 2007	\$105	18.0%	\$130	18.0%
Quarter 1 2008	\$145	-15.2%	\$167	-21.4%	Quarter 1 2008	\$96	-8.6%	\$110	-15.2%
Quarter 3 2008	\$161	11.0%	\$185	11.0%	Quarter 3 2008	\$111	15.6%	\$128	15.6%
Quarter 1 2009	\$152	-5.6%	\$178	-3.9%	Quarter 1 2009	\$96	-13.5%	\$112	-12.0%
Quarter 3 2009	\$144	-5.3%	\$168	-5.3%	Quarter 3 2009	\$99	3.1%	\$116	3.1%
Quarter 1 2010	\$135	-6.3%	\$157	-7.1%	Quarter 1 2010	\$99	0%	\$115	-0.9%
Quarter 3 2010	\$149	10.4%	\$173	10.4%	Quarter 3 2010	\$103	4.0%	\$119	4.0%
Quarter 1 2011	\$144	-3.4%	\$161	-6.7%	Quarter 1 2011	\$95	-7.8%	\$106	-10.9%
Quarter 3 2011	\$130	-9.7%	\$146	-9.7%	Quarter 3 2011	\$98	3.2%	\$110	3.2%
Quarter 1 2012	\$150	15.4%	\$165	13.3%	Quarter 1 2012	\$97	-1.0%	\$107	-2.8%
Quarter 3 2012	\$137	-8.7%	\$151	-8.7%	Quarter 3 2012	\$105	8.2%	\$116	8.2%
Quarter 1 2013	\$133	-2.9%	\$144	-4.7%	Quarter 1 2013	\$120	14.3%	\$130	12.2%
Quarter 3 2013	\$160	20.3%	\$173	20.3%	Quarter 3 2013	\$128	6.7%	\$138	6.7%
Quarter 1 2014	\$190	18.8%	\$201	16.6%	Quarter 1 2014	\$136	6.3%	\$144	4.3%
Quarter 3 2014	\$198	4.2%	\$210	4.2%	Quarter 3 2014	\$152	11.8%	\$161	11.8%
Quarter 1 2015	\$191	-3.5%	\$202	-3.5%	Quarter 1 2015	\$145	-4.6%	\$154	-4.6%
Quarter 3 2015	\$208	8.9%	\$220	8.9%	Quarter 3 2015	\$153	5.5%	\$162	5.5%
Quarter 1 2016	\$185	-11.1%	\$193	-12.3%	Quarter 1 2016	\$158	3.3%	\$165	1.8%
Quarter 3 2016	\$191	3.2%	\$200	3.2%	Quarter 3 2016	\$156	-1.3%	\$163	-1.3%
Quarter 1 2017	\$163	-14.7%	\$168	-15.9%	Quarter 1 2017	\$147	-5.8%	\$151	-7.1%
Quarter 3 2017	\$173	6.1%	\$178	6.1%	Quarter 3 2017	\$147	0%	\$151	0%
Quarter 1 2018	\$169	-2.3%	\$169	-5.2%	Quarter 1 2018	\$137	-6.8%	\$137	-9.5%
Average	\$147		\$173		Average	\$105		\$122	



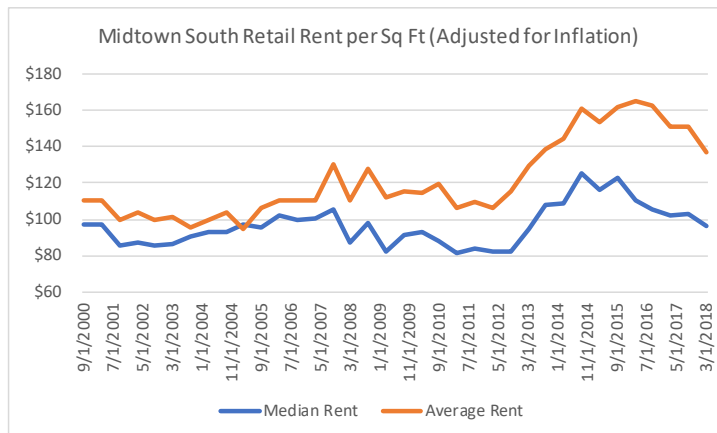
The average retail price in Midtown has fluctuated over time, but overall it has increased from \$120 per square foot to \$169. The biggest price increase happened between Q1 2013 and Q3 2015, which saw a \$75 price per square foot increase. Currently average Midtown prices are not much lower than the prices in the East Side, the most expensive neighborhood in the city.



Similar to median retail price statistics, Midtown South's average retail rent prices have remained mostly stable. Average rent prices greatly increased in 2012 and currently prices are standing at \$137 per square foot. Like most areas in the city, rent prices peaked in 2016 and currently rent prices are above average in both categories.



This chart shows the persistent separation between median and average rent in Midtown, similar to other areas of Manhattan. Shopping corridors such as 5th Avenue act as outliers which greatly increase the average rent figures. The most popular shopping avenues in the city run through the heart of Midtown, which can charge thousands of dollars a square foot. Over time this gap has increased, showing land lords are more confident in increasing in desirable areas.



Midtown South started with a smaller difference between median and average retail rent in the early 2000's. In 2005 median rent actually eclipsed average rent prices, suggesting that there was retail space with very low rent prices that decreased the average. Over time the gap between median and average rent increased gradually likely due to the success of retail centers such as Greenwich Village and SoHo.

Retail Summary

Statistical data on the retail market of Manhattan provides an insight into the condition of rent prices, available inventory, and vacancy rates. Data shows that the retail market of Manhattan is currently performing well for the most part. The market is characterized by low vacancy rates, low amount of available space, and low rent prices. Park City's location in Midtown means developers would benefit from low vacancy rates. Currently the Midtown retail market sits at an optimal retail vacancy rate of 4.5%, with a median retail rent price of \$108 per square foot. When adjusted for inflation, Midtown retail rents remain lower than the average, which is the common case across Manhattan. It should be noted that retail rental income may take several years before above average rent prices can be charged.

Since Park City will enter the market as one of the new premier retail locations in the city, retail rental prices will start at \$200 per square foot, with premier ground level spaces costing up to \$500 per square foot. Recent development projects such as the Hudson Yards charge between \$200 and \$300 per square foot for typical spaces, while ground level spaces charge between \$400 and \$700 per square foot. The Westfield Mall (AKA The Oculus) at the World Trade Center complex charges \$550 per square foot. While the Hudson Yards and the WTC benefit from a large amounts of visitors, Park City's abundant public spaces will attempt to attract millions of visitors a year. While expensive, the \$500 per square foot rent would sit below other premier shopping spaces, which tend to contain higher vacancy rates. Rent prices tend to be more volatile in expensive areas, so the \$500 price tag would act as a more balanced figure and should result in a sustainable vacancy rate. While secondary retail spaces would end up paying \$50 more than average Midtown retail prices, they will remain lower than other new construction projects in the city.

Due to a healthy retail market, it makes sense that Park City contains a good amount of retail space. Retail space would be very profitable for the developer, and end up as one of the safest commercial investments in the project. Having rent prices slightly lower than the new construction market rate will reduce vacancy issues. While market trends show falling retail rent prices, retail is still one of the most profitably commercial investments. In addition to new construction attractiveness, Park City is located in one of the wealthiest areas of Manhattan. Due to high household income, retail spending per individual is higher than the city average. The rent prices of East Side reflect this higher than normal consumer spending.



Figure 46: Midtown South Retail

Park City Retail Numbers

Park City Typical Retail Rent	\$200 SF/YR
Park City Premier Retail Rent	\$500 SF/YR
Midtown Manhattan Retail Space (2018)	14,550,000 sq ft
Percent of Midtown Commercial Space Dedicated to Retail (Average)	6.3%
Percent of Midtown Commercial Space Dedicated to Retail (2018)	6.9%
Percent of Park City's Commercial Space Dedicated to Retail	8.0%
Expected Vacancy Rate	~5.0%
Park City's Projected Total Rentable Retail Space	210,000 sq ft
Park City's Monthly Retail Income (75% Premium Space)	\$7,000,000
Park City's Monthly Retail Income (60% Premium Space)	\$6,300,000
Park City's Monthly Retail Income (50% Premium Space)	\$5,800,000

Office





New York Available Office Vacancy Rate

Date	Midtown	Midtown South	Manhattan	Date	Midtown	Midtown South	Manhattan
Feb 2006	6.2%	5.3%	6.3%	Jul 2012	8.2%	8.3%	8.8%
Mar 2006	6.3%	5.0%	6.4%	Aug 2012	9.0%	8.5%	8.9%
Apr 2006	6.2%	4.9%	6.3%	Sep 2012	9.2%	8.4%	8.9%
May 2006	6.0%	5.4%	6.1%	Oct 2012	9.3%	8.3%	8.9%
Jun 2006	5.8%	5.6%	6.6%	Nov 2012	9.4%	9.2%	8.9%
Jul 2006	5.6%	5.4%	6.3%	Dec 2012	9.3%	10.0%	8.7%
Aug 2006	5.4%	5.5%	6.4%	Jan 2013	9.1%	7.8%	8.7%
Sep 2006	5.3%	5.5%	6.4%	Feb 2013	9.1%	7.8%	8.7%
Oct 2006	5.1%	5.6%	5.8%	Mar 2013	9.0%	8.6%	8.7%
Nov 2006	4.9%	5.5%	5.6%	Apr 2013	8.9%	7.4%	8.7%
Dec 2006	4.8%	5.4%	5.5%	May 2013	8.8%	7.1%	8.6%
Jan 2007	5.1%	5.7%	5.7%	Jun 2013	8.9%	7.0%	8.5%
Feb 2007	5.4%	6.4%	6.6%	Jul 2013	8.7%	7.6%	8.5%
Mar 2007	5.0%	6.0%	6.1%	Aug 2013	8.4%	7.6%	8.2%
Apr 2007	4.6%	5.8%	5.5%	Sep 2013	8.4%	9.9%	8.3%
May 2007	4.6%	5.5%	5.3%	Oct 2013	9.3%	9.7%	9.7%
Jun 2007	4.6%	6.3%	5.4%	Nov 2013	9.3%	9.3%	9.6%
Jul 2007	4.6%	7.0%	5.4%	Dec 2013	9.2%	7.7%	9.7%
Aug 2007	5.2%	6.9%	5.7%	Jan 2014	9.2%	7.7%	10.4%
Sep 2007	5.2%	6.8%	5.5%	Feb 2014	9.0%	8.6%	9.9%
Oct 2007	5.1%	7.0%	5.4%	Mar 2014	8.8%	8.9%	9.8%
Nov 2007	5.3%	9.2%	5.6%	Apr 2014	8.7%	8.4%	9.8%
Dec 2007	5.0%	9.2%	5.3%	May 2014	8.6%	8.3%	10.0%
Jan 2008	4.8%	9.0%	5.1%	Jun 2014	8.7%	8.3%	10.0%
Feb 2008	5.9%	9.1%	5.8%	Jul 2014	8.7%	6.9%	9.9%
Mar 2008	5.0%	9.2%	5.3%	Aug 2014	8.7%	5.9%	9.8%
Apr 2008	5.1%	9.1%	5.2%	Sep 2014	8.6%	4.9%	9.6%
May 2008	5.4%	9.0%	5.6%	Oct 2014	8.3%	4.6%	9.0%
Jun 2008	5.3%	9.4%	5.6%	Nov 2014	8.3%	4.3%	8.8%
Jul 2008	5.4%	9.6%	5.7%	Dec 2014	8.2%	4.4%	9.1%
Aug 2008	5.6%	9.4%	5.8%	Jan 2015	8.6%	4.3%	9.4%
Sep 2008	5.9%	9.8%	6.0%	Feb 2015	9.1%	4.2%	9.9%
Oct 2008	5.9%	10.0%	6.0%	Mar 2015	8.7%	3.9%	9.5%
Nov 2008	6.1%	8.3%	6.2%	Apr 2015	9.0%	3.4%	9.7%
Dec 2008	6.5%	7.7%	6.4%	May 2015	8.7%	2.9%	9.5%
Jan 2009	6.3%	9.7%	6.4%	Jun 2015	8.6%	2.8%	9.3%
Feb 2009	7.3%	10.5%	7.2%	Jul 2015	8.5%	2.7%	9.3%
Mar 2009	7.4%	10.7%	7.3%	Aug 2015	8.7%	3.1%	9.4%
Apr 2009	7.6%	10.5%	7.4%	Sep 2015	8.7%	2.8%	9.3%
May 2009	8.0%	10.3%	7.6%	Oct 2015	8.8%	2.8%	9.0%
Jun 2009	8.1%	10.1%	7.6%	Nov 2015	8.8%	2.6%	9.3%
Jul 2009	8.1%	10.7%	7.8%	Dec 2015	8.7%	2.0%	9.0%
Aug 2009	8.6%	10.0%	8.1%	Jan 2016	8.5%	1.4%	8.8%
Sep 2009	8.7%	10.5%	8.1%	Feb 2016	8.5%	1.6%	8.8%
Oct 2009	8.5%	10.3%	8.2%	Mar 2016	8.6%	2.0%	8.9%
Nov 2009	8.5%	11.7%	8.4%	Apr 2016	8.6%	2.1%	8.8%
Dec 2009	8.8%	9.5%	8.3%	May 2016	8.6%	2.0%	8.8%
Jan 2010	8.9%	9.6%	8.5%	Jun 2016	9.1%	2.0%	8.9%
Feb 2010	9.1%	9.7%	8.7%	Jul 2016	9.1%	2.5%	8.9%
Mar 2010	9.2%	7.7%	8.7%	Aug 2016	9.0%	2.4%	8.8%
Apr 2010	9.2%	9.6%	8.8%	Sep 2016	9.3%	2.2%	9.1%
May 2010	9.1%	10.5%	8.8%	Oct 2016	9.7%	3.0%	9.5%
Jun 2010	9.0%	10.3%	9.1%	Nov 2016	9.4%	2.2%	9.2%
Jul 2010	9.2%	10.2%	9.2%	Dec 2016	9.4%	2.3%	9.2%
Aug 2010	9.7%	10.2%	9.6%	Jan 2017	9.3%	2.4%	9.1%
Sep 2010	9.7%	10.3%	9.5%	Feb 2017	9.1%	4.6%	9.1%
Oct 2010	9.6%	11.6%	9.5%	Mar 2017	9.7%	4.8%	9.5%
Nov 2010	9.4%	11.4%	9.3%	Apr 2017	9.6%	5.0%	9.4%
Dec 2010	9.2%	11.4%	9.0%	May 2017	9.8%	5.1%	9.6%
Jan 2011	9.1%	11.2%	8.9%	Jun 2017	9.0%	5.0%	9.0%
Feb 2011	8.8%	10.8%	8.9%	Jul 2017	9.5%	4.6%	9.4%
Mar 2011	9.0%	11.0%	9.1%	Aug 2017	9.2%	4.6%	9.1%
Apr 2011	8.9%	11.0%	9.1%	Sep 2017	9.3%	3.7%	8.9%
May 2011	9.1%	10.9%	9.3%	Oct 2017	9.3%	3.9%	9.2%
Jun 2011	9.0%	9.5%	9.1%	Nov 2017	9.4%	3.8%	9.3%
Jul 2011	9.0%	9.4%	9.0%	Dec 2017	8.8%	4.4%	8.9%
Aug 2011	9.1%	7.5%	9.2%	Jan 2018	9.0%	4.2%	9.5%
Sep 2011	8.5%	7.4%	8.7%	Feb 2018	8.5%	4.4%	8.6%
Oct 2011	8.7%	6.1%	8.9%	Mar 2018	9.0%	5.2%	8.9%
Nov 2011	8.7%	5.9%	8.9%	Apr 2018	8.8%	6.7%	8.9%
Dec 2011	8.6%	8.8%	8.8%	May 2018	8.8%	4.8%	8.8%
Jan 2012	8.4%	8.7%	8.5%	Jun 2018	8.6%	4.2%	8.7%
Feb 2012	8.6%	8.5%	8.5%	Jul 2018	8.7%	5.0%	9.3%
Mar 2012	8.4%	8.5%	8.3%	Aug 2018	8.5%	3.4%	8.9%
Apr 2012	8.5%	8.4%	8.5%	Sep 2018	8.4%	5.4%	9.0%
May 2012	8.3%	8.5%	8.3%				
Jun 2012	8.2%	8.5%	8.2%	Average	8.0%	6.9%	8.2%

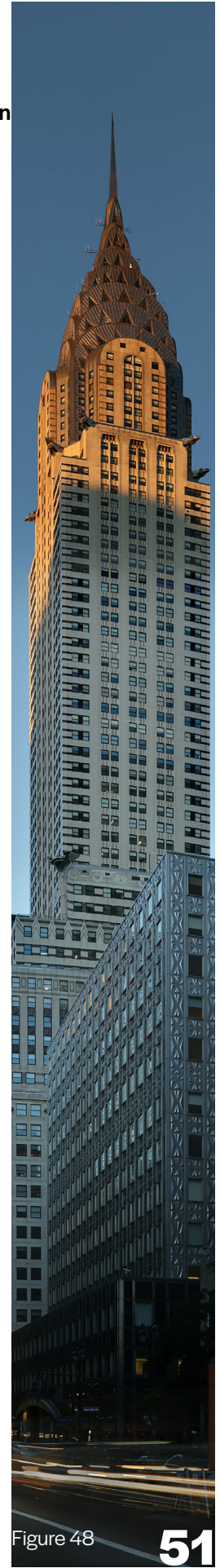


Figure 48

New York Available Office Space (Millions)

Date	Midtown	Midtown South	Manhattan	Date	Midtown	Midtown South	Manhattan
Feb 2006	11.2	0.6	16.8	Jul 2012	15.8	0.9	20.7
Mar 2006	11.4	0.5	17.2	Aug 2012	15.6	0.7	21.1
Apr 2006	11.2	0.5	16.8	Sep 2012	15.9	0.7	21.9
May 2006	10.8	0.6	16.2	Oct 2012	15.9	0.7	21.9
Jun 2006	10.4	0.6	17.4	Nov 2012	15.4	0.6	20.3
Jul 2006	10.0	0.6	16.7	Dec 2012	15.6	0.5	20.6
Aug 2006	9.7	0.6	17.0	Jan 2013	15.7	0.5	20.9
Sep 2006	9.5	0.6	17.0	Feb 2013	15.4	0.5	20.5
Oct 2006	9.1	0.6	15.2	Mar 2013	16.0	0.5	21.5
Nov 2006	8.7	0.6	14.6	Apr 2013	16.2	0.5	21.9
Dec 2006	8.6	0.6	14.2	May 2013	16.1	0.6	22.0
Jan 2007	9.1	0.6	14.7	Jun 2013	16.0	0.6	21.9
Feb 2007	8.9	0.6	14.0	Jul 2013	15.7	0.6	21.5
Mar 2007	8.5	0.6	13.1	Aug 2013	15.8	0.5	21.4
Apr 2007	8.3	0.5	12.7	Sep 2013	15.6	0.9	21.5
May 2007	8.1	0.5	12.5	Oct 2013	17.4	1.0	25.8
Jun 2007	8.0	0.1	12.2	Nov 2013	17.1	1.0	25.3
Jul 2007	7.7	0.1	11.8	Dec 2013	17.0	1.0	26.3
Aug 2007	8.1	0.1	12.2	Jan 2014	17.3	0.9	26.8
Sep 2007	8.0	0.1	11.6	Feb 2014	16.4	0.9	25.4
Oct 2007	7.7	0.1	11.2	Mar 2014	16.2	0.9	24.9
Nov 2007	7.9	0.1	11.4	Apr 2014	16.5	0.9	25.5
Dec 2007	7.4	0.1	10.8	May 2014	15.9	0.9	25.1
Jan 2008	8.7	0.1	11.9	Jun 2014	16.2	0.9	24.9
Feb 2008	8.2	0.1	11.4	Jul 2014	16.0	0.9	24.1
Mar 2008	8.3	0.1	11.5	Aug 2014	16.4	0.7	23.9
Apr 2008	8.4	0.1	11.4	Sep 2014	15.4	0.5	22.6
May 2008	8.7	0.1	12.5	Oct 2014	15.6	0.6	22.7
Jun 2008	8.8	0.1	12.5	Nov 2014	15.6	0.5	22.2
Jul 2008	8.6	0.2	12.5	Dec 2014	14.7	0.5	22.2
Aug 2008	8.7	0.1	12.4	Jan 2015	16.3	0.5	24.6
Sep 2008	9.4	0.2	13.7	Feb 2015	15.5	0.5	24.6
Oct 2008	10.3	0.2	14.0	Mar 2015	15.1	0.4	23.5
Nov 2008	11.0	0.6	15.4	Apr 2015	15.1	0.4	23.6
Dec 2008	12.0	0.6	16.3	May 2015	14.7	0.4	23.1
Jan 2009	14.1	1.0	19.0	Jun 2015	14.0	0.4	22.3
Feb 2009	14.0	1.1	19.0	Jul 2015	14.5	0.3	22.8
Mar 2009	14.2	1.1	18.9	Aug 2015	14.4	0.4	22.5
Apr 2009	14.4	0.8	18.9	Sep 2015	14.4	0.4	22.6
May 2009	14.8	0.8	19.2	Oct 2015	14.8	0.3	22.7
Jun 2009	14.7	0.7	18.9	Nov 2015	14.7	0.3	22.9
Jul 2009	15.1	0.8	19.7	Dec 2015	15.3	0.2	23.2
Aug 2009	16.1	0.7	20.5	Jan 2016	15.1	0.2	23.3
Sep 2009	15.9	0.8	20.5	Feb 2016	15.6	0.2	23.6
Oct 2009	15.8	0.8	20.9	Mar 2016	15.9	0.2	23.8
Nov 2009	16.0	1.0	21.5	Apr 2016	16.4	0.2	24.3
Dec 2009	16.4	1.0	21.8	May 2016	15.3	0.2	23.1
Jan 2010	16.6	1.0	21.8	Jun 2016	16.9	0.2	24.5
Feb 2010	16.8	1.0	22.4	Jul 2016	16.8	0.2	24.6
Mar 2010	16.8	1.1	22.7	Aug 2016	16.3	0.2	23.6
Apr 2010	16.9	1.0	22.8	Sep 2016	17.2	0.2	24.7
May 2010	16.5	1.1	22.3	Oct 2016	17.4	0.3	25.0
Jun 2010	15.9	0.9	22.8	Nov 2016	17.6	0.2	25.1
Jul 2010	16.7	0.9	23.5	Dec 2016	17.5	0.2	25.2
Aug 2010	16.9	0.9	23.8	Jan 2017	17.2	0.3	24.8
Sep 2010	16.9	0.9	23.7	Feb 2017	17.1	0.5	25.0
Oct 2010	17.3	1.1	24.2	Mar 2017	18.0	0.6	25.1
Nov 2010	16.3	1.0	23.1	Apr 2017	17.9	0.7	25.1
Dec 2010	16.1	1.0	22.8	May 2017	18.6	0.6	25.8
Jan 2011	15.7	0.9	22.1	Jun 2017	18.2	0.6	25.3
Feb 2011	15.7	0.9	22.8	Jul 2017	17.5	0.5	24.4
Mar 2011	15.7	0.9	22.9	Aug 2017	16.9	0.5	23.7
Apr 2011	15.6	0.9	22.9	Sep 2017	17.2	0.5	24.0
May 2011	16.1	0.8	23.0	Oct 2017	16.9	0.5	23.2
Jun 2011	15.6	0.8	22.5	Nov 2017	17.3	0.5	23.8
Jul 2011	14.7	0.9	21.0	Dec 2017	16.0	0.5	22.7
Aug 2011	14.9	0.6	20.6	Jan 2018	16.9	0.5	23.4
Sep 2011	14.0	0.6	20.0	Feb 2018	16.3	0.6	22.6
Oct 2011	14.4	0.5	20.3	Mar 2018	16.5	0.6	23.1
Nov 2011	15.0	0.5	20.9	Apr 2018	16.3	0.6	22.8
Dec 2011	14.9	0.5	20.8	May 2018	16.1	0.6	22.9
Jan 2012	14.3	0.5	19.7	Jun 2018	15.9	0.5	22.5
Feb 2012	14.5	0.5	19.8	Jul 2018	15.6	0.6	23.8
Mar 2012	14.5	0.5	19.7	Aug 2018	15.3	0.5	23.6
Apr 2012	14.5	0.5	19.7	Sep 2018	15.2	0.5	23.6
May 2012	14.7	0.5	19.6				
Jun 2012	14.8	0.5	19.8	Average	14.3	0.6	20.6

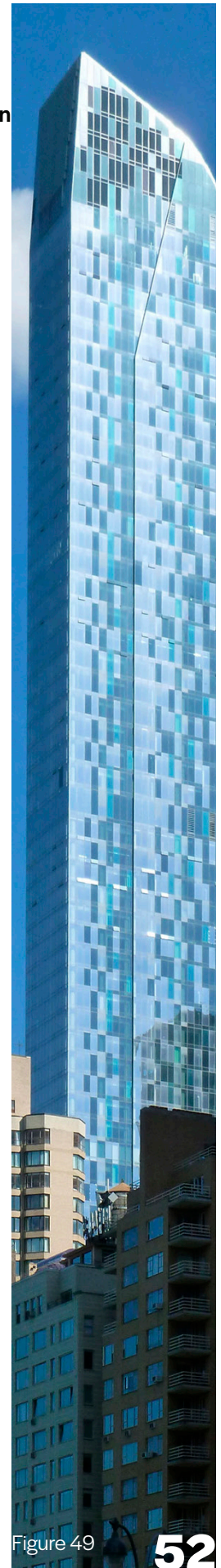
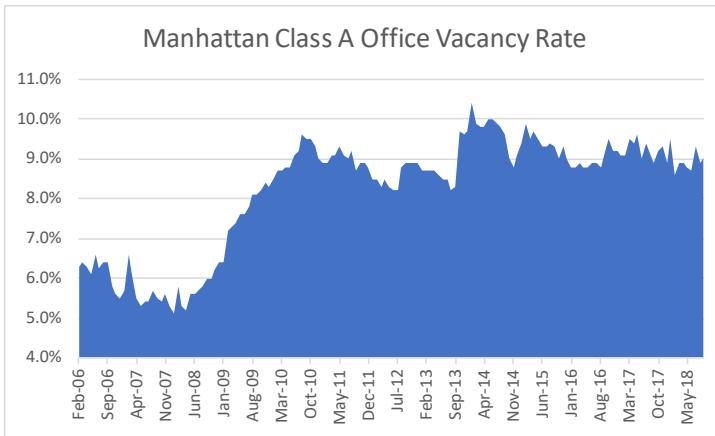
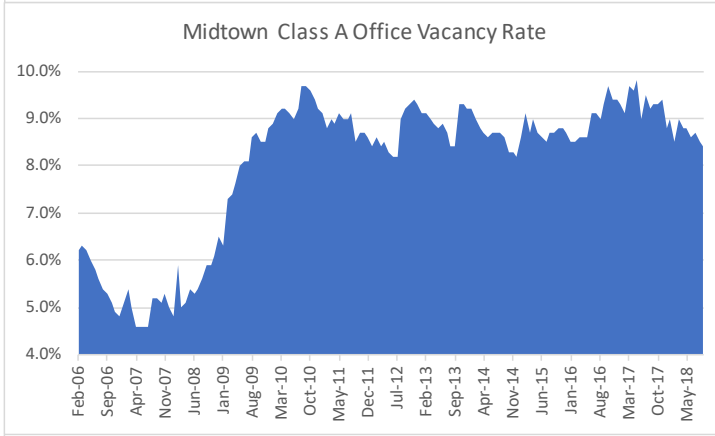


Figure 49

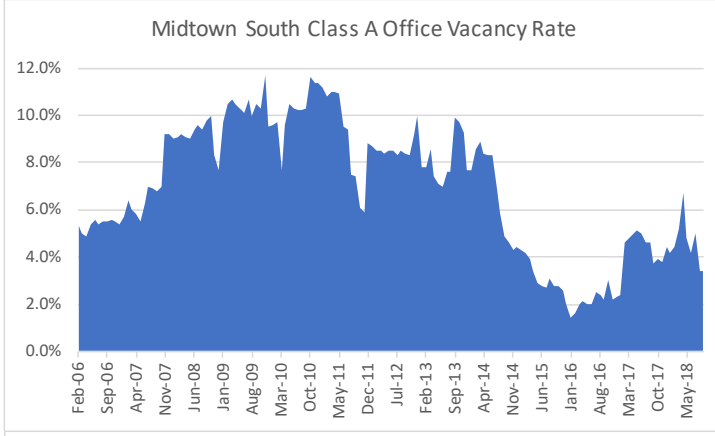
Class A Office Vacancy Charts



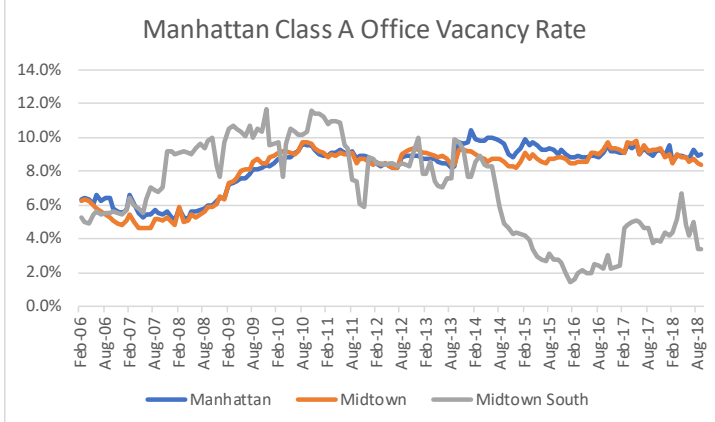
Before the financial crash of 2008, Manhattan office vacancy rates were sitting at optimal rates between 4% and 5%. After the recession, vacancy rates rose into 8%-9% territory and have stayed there ever since. Manhattan maintains the highest vacancy rate average at 8.2% and has periodically reached above 10%.



Like the overall trends in Manhattan, Midtown went from healthy vacancy rates to 8%-9% in 2008. Currently vacancy rates sit at 8.4%, which is slightly lower than Manhattan's but higher than Midtown South's. Over the period studied, Midtown averaged 8.0% vacancy, which is a problem Park City will have to address.

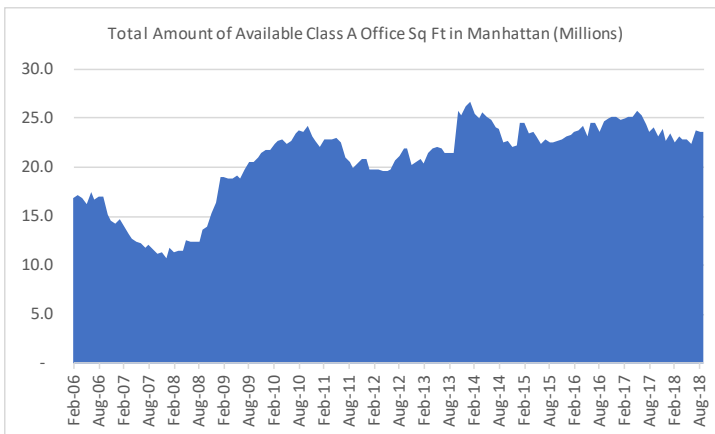


Midtown South's office retail market has acted in an opposite manor compared other parts of the city. Initially vacancy rates were high and went as high as 11% at times, reaching a maximum at 11.7%. In 2014 vacancy rates started to drop and currently the office vacancy rate sits at 5.4%. Midtown South's rates have fluctuated a good amount throughout the range of years studied.

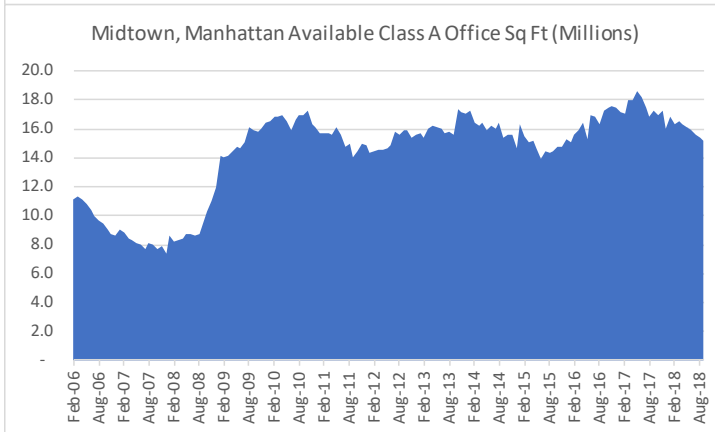


This chart shows the contrast of trends between Midtown South and Manhattan/Midtown. While Midtown South has more volatile trends, vacancy rates have remained lower than the other two areas since 2014. Based off vacancy rates, Park City should model it's office program on Midtown South's recent success.

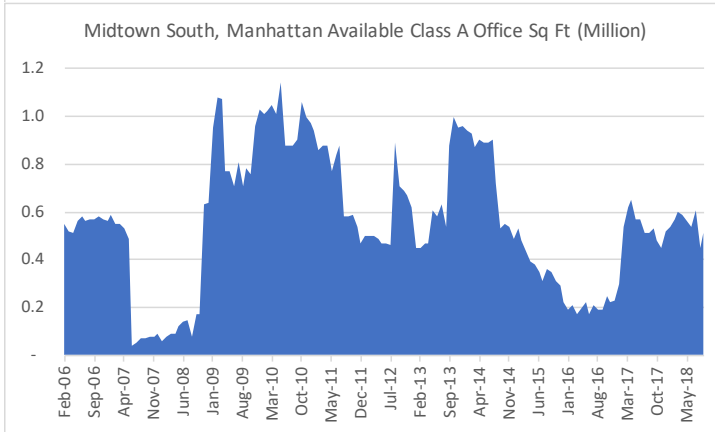
Available Class A Office Space Charts



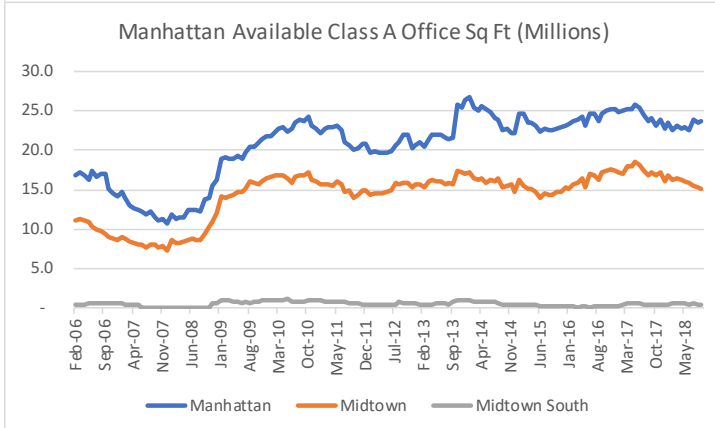
Manhattan’s available office space inventory parallel’s the borough’s own office vacancy rate. Currently there are closet to 24 million square feet of vacant Class A office space in the city, well above its figures in the mid-2000’s. Manhattan saw its vacant inventory peak in May of 2017 at 25.8 million square feet.



Midtown contains close to 2/3 of the Class A office space in Manhattan, which makes sense since it is the city’s central business district. Like Manhattan, the available inventory has very similar trends compared to its vacancy rates. Available Space in Midtown peaked in March of 2017 at 18 million square feet of Class A office space.



Midtown South typically contains only around 3% of the available Class A office space in Manhattan. The inventory amounts have varied considerably over the range of time studied, granted the difference between low and high amounts is only 1 million square feet. While inventories currently remain below average, it would be difficult to predict future market trends.



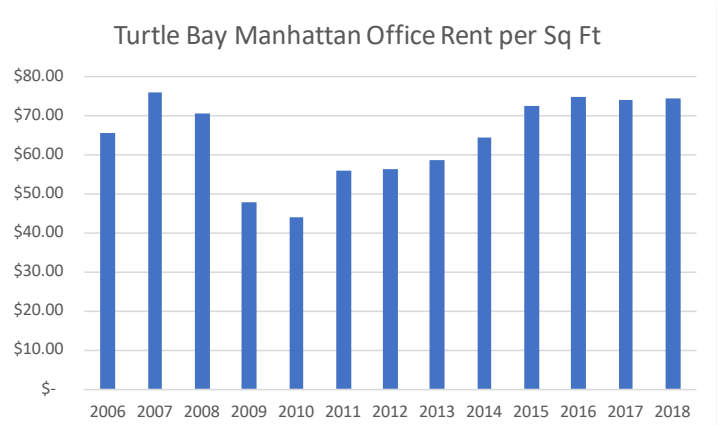
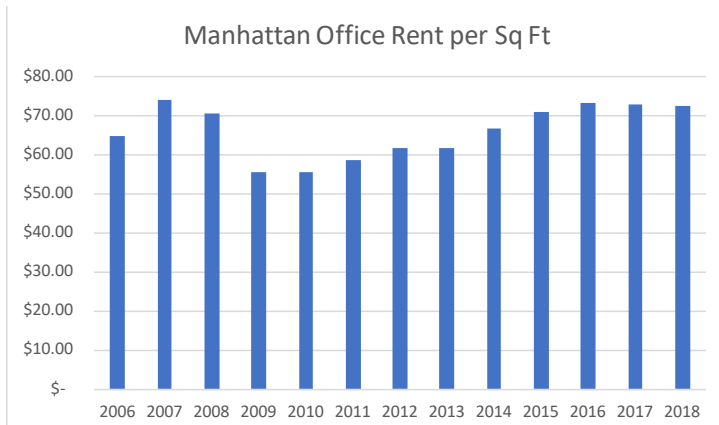
Comparing the three areas in one graph shows how massive and important Midtown is as a central business district. This chart also shows how insignificant the fluctuations in Midtown South’s office market are compared to the overall one. Most of the remaining available Class A office space is in the Financial District.

New York Average Class A Office Rent per Square Foot

Year	Turtle Bay	Midtown	Midtown South	Manhattan
2006	\$65.51	\$82.17	\$81.32	\$64.58
2007	\$75.96	\$96.49	\$89.64	\$73.96
2008	\$70.36	\$85.44	\$91.21	\$70.67
2009	\$47.75	\$51.30	\$73.54	\$55.54
2010	\$44.10	\$47.14	\$73.49	\$55.61
2011	\$55.84	\$62.53	\$74.76	\$58.52
2012	\$56.40	\$63.24	\$76.92	\$61.64
2013	\$58.50	\$64.53	\$78.11	\$61.62
2014	\$64.48	\$71.22	\$81.71	\$66.51
2015	\$72.29	\$80.56	\$85.62	\$70.86
2016	\$74.74	\$81.45	\$85.12	\$73.35
2017	\$74.17	\$84.00	\$85.07	\$72.72
2018	\$74.31	\$83.67	\$83.76	\$72.40
Average	\$64.18	\$73.36	\$81.56	\$66.00

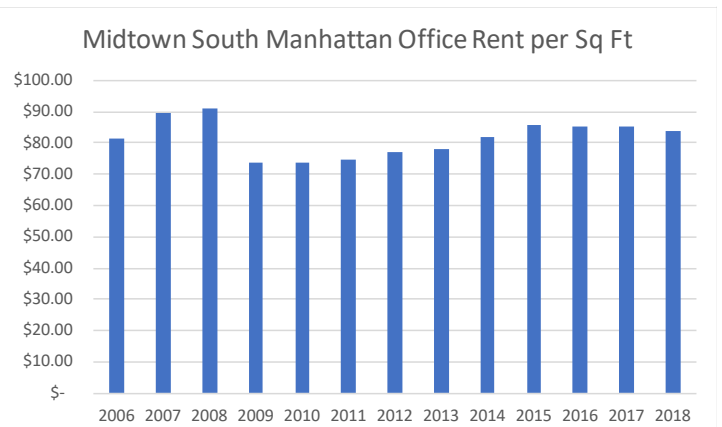
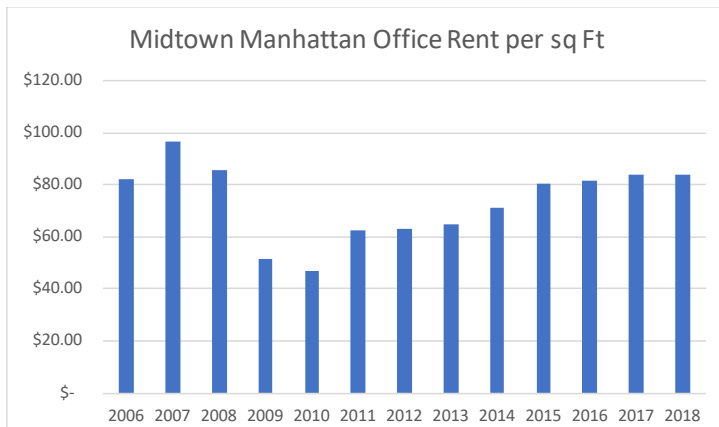


Figure 50: Example of Class A Office Space



Over the past few years Class A office rents in Manhattan have remained mostly flat. Rent prices over the past year have slightly dipped, most likely because of the high vacancy rates.

Turtle Bay, the local neighborhood in which Park City is located in, has Class A office rents slightly higher than Manhattan's. Rent prices have remained mostly flat except for 2009/2010.



Midtown's rent prices are about \$10 per square foot higher than prices in Manhattan and Turtle Bay. This is likely due to its importance in the international economy. While the Turtle Bay neighborhood is apart of Midtown, it is mostly residential and is located on the fringe of Midtown.

Midtown South's Class A office space rent is roughly \$10 higher than Manhattan's average. This is caused by the neighborhood's strong vacancy rates and a limited available space inventory.

Office Summary

As noted in the page titles, the type of office space studied consists of Class A office space. Class A office space is considered the highest quality out of the three classes (A, B, & C). It is characterized by its above average rents, high quality finishes, exceptional accessibility, and a strong market presence. Class A office space will be implemented in Park City's commercial space since it is the most common type of office space in Manhattan & Midtown. Nearly all new construction projects in Manhattan consist of Class A office space, so it is rational for Park City to develop this class of space.

Ever since the 2008 Recession, the Class A office real estate market has struggled with high vacancy rates and millions of square feet of vacant space. Despite higher vacancy rates than the retail sector, office space construction continues to add millions of square feet to the total office inventory each year. For example, the Hudson Yards will add a total of 6 million square feet of Class A office space by the time the project is completed. Other examples of large office construction projects in Manhattan include the World Trade Center complex, One Vanderbilt, and the Bank of America Tower.

While investing in office space is not as profitable as other commercial uses, it is always in high demand in Manhattan due to its importance in the interantional business world. While the numbers aren't as optimal as the retail sector, the office market has improved drastically since the recession of 2008. Rent prices are currently around pre-recession levels, and vacancy rates have at least been stable for the past10 years.

Park City would benefit from its position as one of the new premier business developments in Manhattan once completed. New development projects tend to attract tenants (based on the success of other new Manhattan commercial developments) at a greater rate than older buildings. Overall the Class A office real estate market has its benefits and its negatives. Based on the greater success of the retail and hotel sectors, it is rational for Park City to have Class A office space take up a smaller share of its total commercial square footage compared to Midtown's Class A office space share.

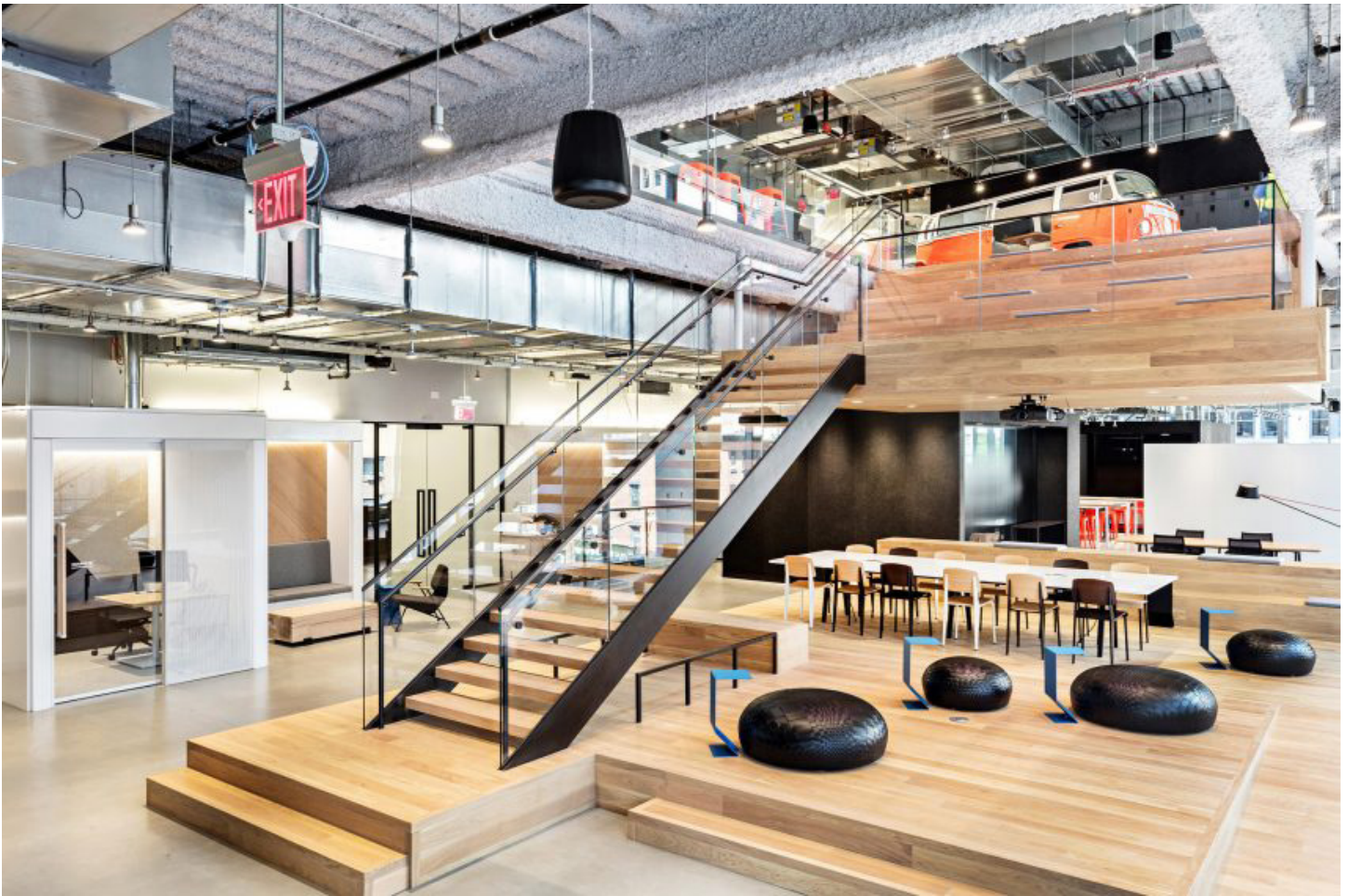


Figure 51: Nike Corporate Office

Park City Class A Office Numbers

Park City Typical Retail Rent	\$80 SF/YR
Midtown Manhattan Retail Space (2018)	181,000,000 sq ft
Percent of Midtown Commercial Space Dedicated to Retail (Average)	88.0%
Percent of Midtown Commercial Space Dedicated to Retail (2018)	86.1%
Percent of Park City's Commercial Space Dedicated to Retail	84.0%
Expected Vacancy Rate	~7.5%
Park City's Projected Total Rentable Retail Space	2,225,000 sq ft
Park City's Monthly Office Income	\$13,870,000

Hotel



New York Hotel Room Supply

Date	Number of Hotels	Number of Rooms	Percent Change	Number of Hotels in Manhattan	Number of Rooms in Manhattan	Number of Hotels in Midtown	Number of Rooms in Midtown
2007	357	73,692		303	62,638	182	34,590
2008	381	76,821	6.7%	324	65,298	194	36,915
2009	412	81,629	8.1%	350	69,385	210	39,919
2010	453	88,408	10.0%	385	75,147	231	43,892
2011	472	90,969	4.2%	401	77,324	241	45,733
2012	494	93,250	4.7%	420	79,263	252	47,864
2013	526	98,682	6.5%	447	83,880	268	50,965
2014	556	103,570	5.7%	473	88,035	284	53,871
2015	594	108,441	6.8%	505	92,175	303	57,553
2016	623	113,908	4.9%	530	96,822	318	60,363
2017	632	115,532	1.4%	537	98,202	322	61,235
Average	500	94,991	4.6%	425	80,742	255	48,445

New York Visitors (Millions)

Date	Domestic	Percent Change	International	Percent Change	Total	Percent Change
2010	39.1		9.7		48.8	
2011	40.3	3.1%	10.6	9.3%	50.9	4.3%
2012	41.8	3.7%	10.9	2.8%	52.7	3.5%
2013	42.8	2.4%	11.5	5.5%	54.3	3.0%
2014	44.5	4.0%	12.0	4.3%	56.5	4.1%
2015	46.2	3.8%	12.3	2.5%	58.5	3.5%
2016	47.6	3.0%	12.7	3.3%	60.3	3.1%
2017	49.2	3.4%	13.3	4.7%	62.5	3.6%
Average	43.9	3.3%	11.6	4.6%	55.6	3.6%

New York Hotel Case Studies

Hotel Name	Rooms	Room Size (sq ft)	Total Hotel Size (sq ft)
Sheraton Tribeca	369	300	132,840
Mandarin Oriental	344	425	175,440
Loews Regency	379	250	113,700
Trump Internation Hotel & Tower	176	440	92,928
The New York EDITION	273	220	72,072
Night Theater District	208	185	46,176
Average	292	303	105,526

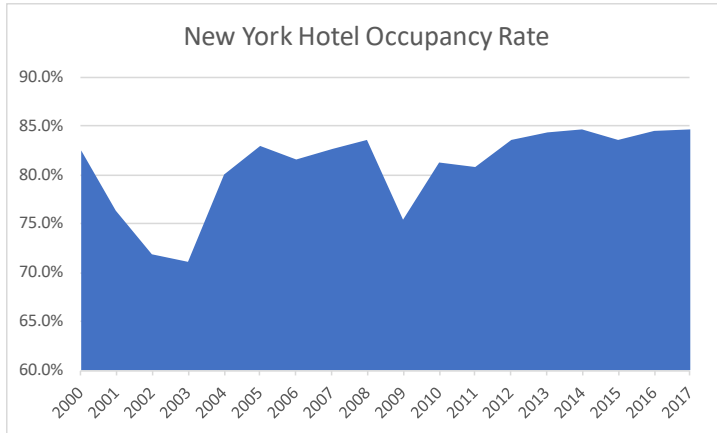
New York Hotel Occupancy

Date	Occupancy Rate	Percent Change
2000	82.5%	
2001	76.4%	-7.4%
2002	71.9%	-5.9%
2003	71.1%	-1.1%
2004	80.1%	12.7%
2005	83.0%	3.6%
2006	81.6%	-1.7%
2007	82.7%	1.3%
2008	83.6%	1.1%
2009	75.5%	-9.7%
2010	81.3%	7.7%
2011	80.8%	-0.6%
2012	83.6%	3.5%
2013	84.4%	1.0%
2014	84.7%	0.4%
2015	83.6%	-1.3%
2016	84.6%	1.2%
2017	84.7%	0.1%
Average	80.9%	0.3%

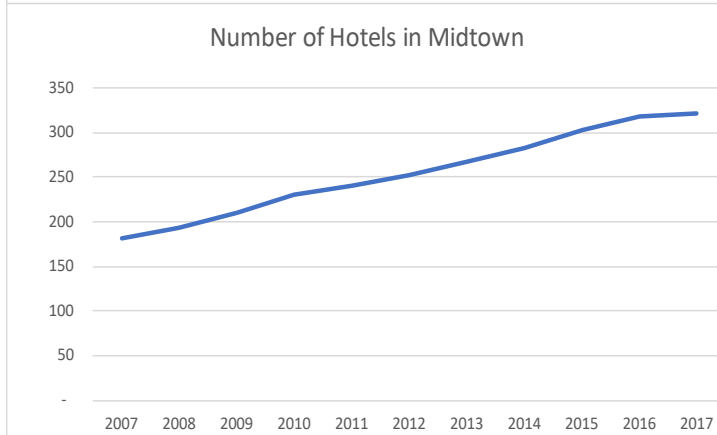
Large New York Hotel Case Studies

Hotel Name	Rooms	Room Size (sq ft)	Total Hotel Size (sq ft)
InterContinental Times Square	607	350	254,940
The London NYC	562	500	337,200
West New York at Times Square	873	350	366,660
JW Marriott Essex House	511	330	202,356
The New Yorker	1,083	200	359,920
W New York - Times Square	552	288	190,771
Average	698	336	268,641

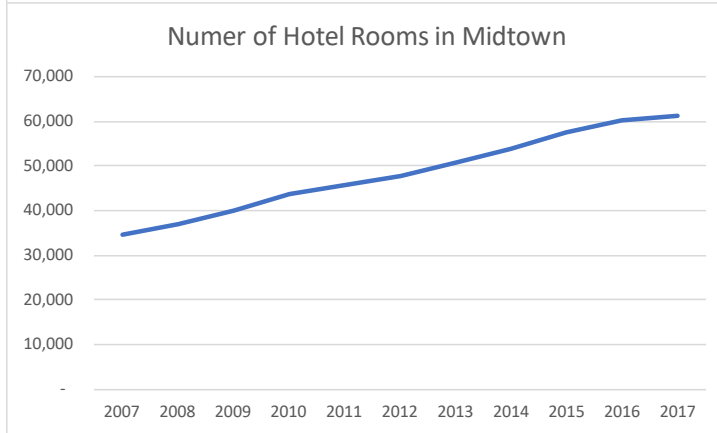
New York Hotel Statistics



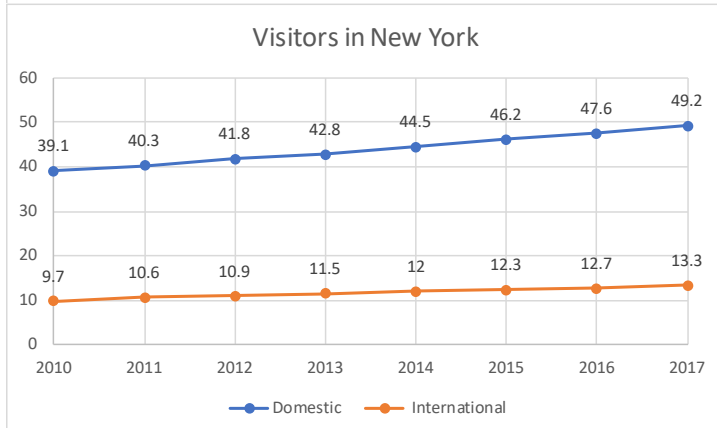
Hotel room occupancy rates have averaged 80.9% since 2000. Rates dropped in the early 2000's and in 2009, but otherwise they have remained strong (national average is ~60%). The recession only hurt rates for a single year, which showcases the strength of New York's tourist sector.



Since 2007, the number of hotels located in Midtown has increased each year. Currently there are 140 more hotels in Midtown than there were in 2007, an average increase of 4.6% per year. Midtown contains roughly half the number of hotels in New York because of its proximity to tourist attractions and corporate offices.



The amount of hotel rooms located in Midtown parallels the number of hotels. The average hotel in Midtown contains 190 rooms. The amount of hotel rooms has increased by several thousand each year and the number of hotel rooms has roughly doubled since 2007.



New York has seen steady growth in the number of visitors each year. A visitor is considered an individual who lives outside the city and spends at least one night. Most visitors come from within the United States, and international visitors consist of a quarter of that amount. Many of these visitors end up spending time in Midtown which would benefit Park City.

Hotel Summary

The hotel real estate market has been performing well due to New York's strong tourism industry. The steady year by year growth in the number of tourists has prompted the construction of dozens of new hotels each year. Based on the data presented, there is no reason to believe that the hospitality industry will reverse trends and decline.

A short list of hotel case studies is included in the research in order to understand how large a typical New York hotel is in size. The hotels listed were chosen randomly in order to get a more accurate picture. Most hotels in New York consist of between 200-300 rooms and roughly average around 100,000 square feet in size. The popular tourist destinations in Manhattan typically have large 500+ room hotels nearby in order to meet the immense tourist demand. Most of these massive hotels are located in Midtown and average 700 rooms per hotel and 270,000 square feet in size. The downside of building a large hotel is finding enough guests to occupy the rooms, which means location is critical in a large hotel's success.

Over time the amount of commercial space dedicated towards the hotel sector has increased from an average of 5.7% of the total commercial space to 7.0% today. Since the hotel market shows no signs of slowing down and has historically performed better than the office sector, it makes sense for Park City to dedicate more than 7.0% of its total commercial space towards hotel. Due to Park City's proximity to the United Nations and Midtown, the chances of finding a tenant is high due to the locations desirability. Park City has the capacity to contain two typical sized hotels (200-300 rooms) or one large hotel (500+ rooms).

It is typical in New York for hotel companies to purchase the space instead of rent it from a landlord. In recent years the price per room varies between \$600,000 and \$1.1 million, depending on the location and prestige of the hotel. Developing hotel space would give Park City's developer instant capital which would help with financing the project.

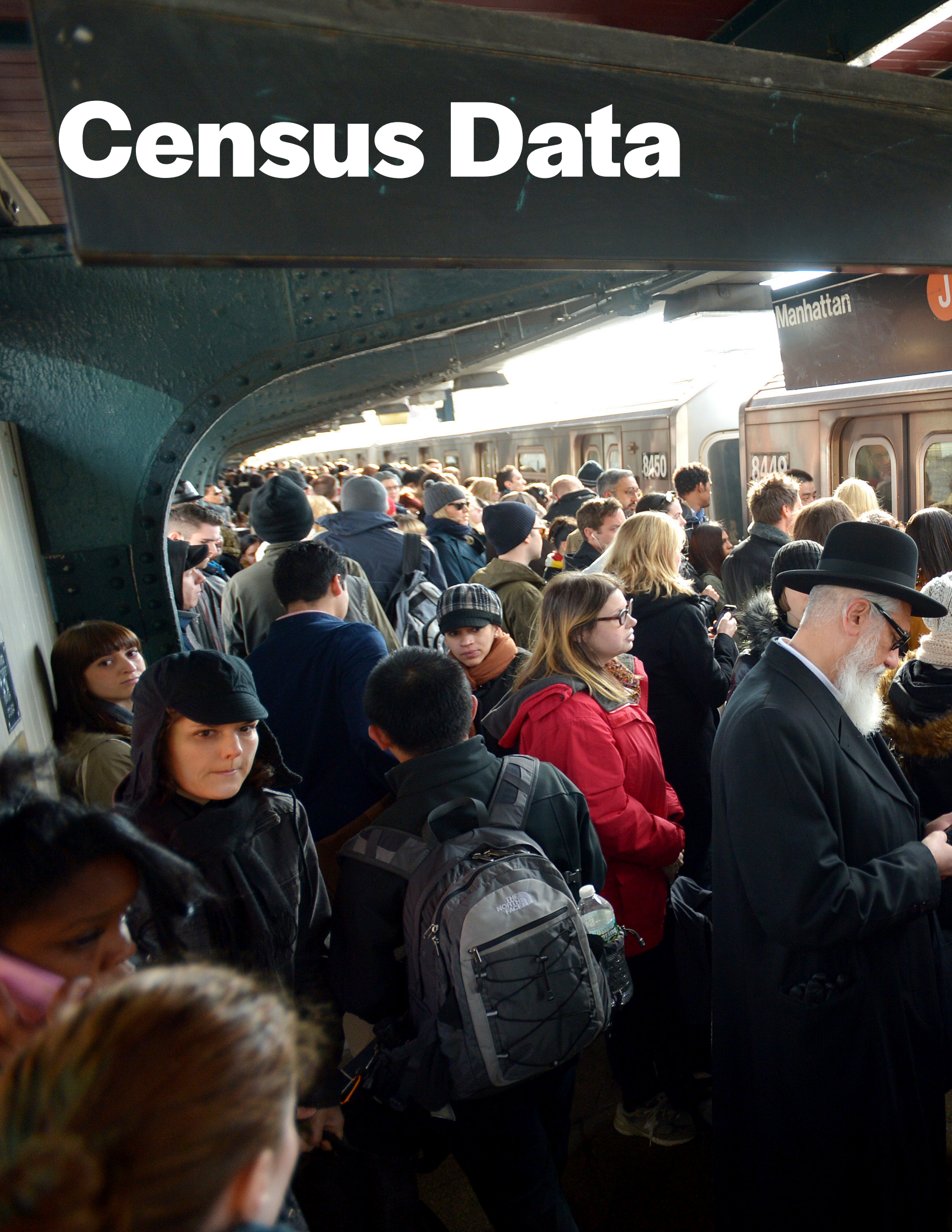


Figure 53: Four Seasons New York

Park City Hotel Numbers

Park City Typical Hotel Rent	\$80 SF/YR
Midtown Manhattan Hotel Space (2018)	11,650,000 sq ft
Percent of Midtown Commercial Space Dedicated to Hotel (Average)	5.7%
Percent of Midtown Commercial Space Dedicated to Hotel (2018)	7.0%
Percent of Park City's Commercial Space Dedicated to Hotel	8.0%
Park City's Projected Total Rentable Space (Two Average Size Hotels)	210,000 sq ft
Park City's Estimated Number of Hotel Rooms (300 Sq Ft)	560 Rooms
Park City's Estimated Sale Price (Two Average Size Hotels)	\$480,000,000
Park City's Estimated Sale Price (One Large Hotel)	\$560,000,000

Census Data



via Nassau St
Weekends to Chambers St
Weekday mornings take **M**



To Fore
via 6 Av
weekda



M 6 Av 125 St



Population

Site	Turtle Bay	Murray Hill- Kips Bay	Midtown Midtown South	Lennox Hill Roosevelt Island	Upper East Side Carnegie Hill	Manhattan	New York	
Population	2,826	47,774	49,628	27,811	82,051	58,593	1,633,224	8,461,961
Male	1,539	22,112	22,825	13,456	36,408	25,816	771,683	4,033,736
Female	1,289	25,662	26,803	14,355	45,643	32,777	861,541	4,428,225
Median Age	33.9	24.2	42.3	35.1	37.7	47.9	36.9	35.9
Under 18 Years Old	320	4,582	4,199	1,966	11,976	10,017	239,349	1,768,111
65 Years or Older	243	7,071	11,385	4,193	13,644	16,305	235,006	1,099,330
Under 5 Years	192	2,046	2,308	713	5,189	3,003	82,023	555,383
5-9 Years	67	924	962	524	3,288	2,785	62,932	487,643
10-14 Years	39	1,087	481	376	2,137	2,843	59,514	466,493
15-19 Years	22	1,366	909	1,353	1,657	1,862	72,477	479,928
20-24 Years	321	3,980	2,403	2,965	3,714	1,718	120,332	620,742
25-29 Years	525	8,997	7,591	4,152	8,863	3,933	198,280	782,039
30-34 Years	320	6,546	4,581	3,782	11,191	3,668	172,131	715,712
25-39 Years	259	2,793	3,873	2,196	9,019	3,636	127,644	608,591
40-44 Years	163	2,339	3,719	1,908	5,285	3,634	112,041	566,214
45-49 Years	202	2,393	2,713	1,557	4,279	3,797	105,131	556,670
50-54 Years	118	3,050	3,077	1,383	4,819	3,801	100,958	555,020
55-59 Years	206	2,869	2,816	1,705	4,208	3,700	93,016	511,012
60-64 Years	151	2,314	2,810	1,004	4,758	3,908	91,739	457,184
65-69 Years	113	1,971	2,479	1,283	4,447	4,570	73,121	355,400
70-74 Years	83	2,092	2,444	1,070	3,120	3,772	56,751	257,414
75-79 Years	13	997	2,115	681	2,256	2,809	39,594	189,311
80-84 Years	14	958	1,710	762	1,590	2,782	29,869	140,432
85 Years and Older	20	1,052	2,637	397	2,231	2,372	35,671	156,773
Total Population	2,826	47,774	49,628	27,811	82,051	58,593	1,633,224	8,461,961
Born in US	1,945	35,782	37,798	18,085	58,789	45,997	1,161,081	5,005,364
Born in New York State	966	20,325	21,043	8,356	35,852	30,229	698,071	4,094,128
Born Outside New York State	979	15,457	16,755	9,729	22,937	15,768	463,010	911,236
Foreign Born	883	11,992	11,830	9,726	23,262	12,596	472,143	3,456,597
Percent Foreign Born	31.2%	25.1%	23.8%	35.0%	28.4%	21.5%	28.9%	40.8%
Born in Europe	274	3,340	4,060	2,491	7,108	5,196	88,947	465,600
Born in Asia	452	6,595	5,254	4,670	8,132	3,225	142,037	900,483
Born in Africa	56	217	467	347	1,582	358	21,579	141,198
Born in Oceania	0	1,481	226	301	419	341	6,855	10,849
Born in the Americas	101	359	1,823	1,917	6,021	3,476	212,725	1,938,467
Population 25+ Years	2,187	38,371	42,565	21,880	66,066	46,382	1,235,946	5,851,772
Education - High School	132	5,033	2,893	2,546	6,880	3,201	314,815	2,527,195
Education - Some College	106	3,624	3,829	1,741	5,282	3,046	125,732	829,201
Education - Associate's	103	1,382	1,144	464	2,167	943	47,549	375,851
Education - Bachelor's	1,002	16,217	18,300	8,285	25,198	17,099	393,433	1,246,538
Education - Graduate or Professional	844	12,115	16,399	8,844	26,539	22,093	354,417	872,987

Income

	Site	Turtle Bay	Murray Hill- Kips Bay	Midtown Midtown South	Lennox Hill Roosevelt Island	Upper East Side Carnegie Hill	Manhattan	New York
Workers 16+	2,056	29,935	33,268	17,108	50,015	30,269	892,641	3,991,617
Private Wage & Salary	1,781	26,158	28,634	14,859	42,891	25,130	747,264	3,206,496
Government	188	1,947	2,083	753	3,883	1,614	73,881	523,348
Self-Employed	87	1,830	2,551	1,496	3,241	3,525	71,496	261,773
Total Households	1,326	26,059	28,991	15,507	43,924	28,854	753,385	3,128,426
Less than \$10,000	6	1,662	1,284	1,458	2,216	1,231	70,385	318,712
\$10,000 to \$14,999	23	1,050	490	723	1,271	317	39,354	186,560
\$15,000 to \$24,999	27	1,233	1,395	908	1,966	961	60,098	317,605
\$25,000 to \$34,999	51	1,143	865	582	2,205	1,072	49,157	273,198
\$35,000 to \$49,999	34	2,056	1,987	1,019	2,967	1,182	60,822	347,658
\$50,000 to \$74,999	64	3,657	3,250	1,156	5,803	2,549	90,432	479,924
\$75,000 to \$99,999	154	2,691	3,076	1,107	4,581	2,872	73,110	342,454
\$100,000 to \$149,000	305	4,395	4,930	2,303	6,799	3,910	102,917	410,434
\$150,000 to \$199,999	213	2,917	3,174	1,529	4,111	2,877	60,184	191,106
More than \$200,000	449	5,255	8,540	4,722	12,005	11,883	146,477	260,775
Median Household Income	\$149,907	\$95,701	\$119,688	\$116,456	\$105,539	\$155,786	\$75,614	\$55,191
Mean Household Income	\$191,290	\$134,337	\$202,545	\$181,291	\$170,988	\$302,939	\$138,748	\$88,437
Median Worker Income	\$89,655	\$79,076	\$90,289	\$89,782	\$80,929	\$93,707	\$74,796	\$35,990
Median Income for Male Full-Time Worker	\$126,250	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$85,481	\$51,003
Median Income for Female Full-Time Worker	\$80,000	\$85,614	\$89,061	\$92,173	\$86,211	\$93,219	\$68,391	\$47,416
Income Below Poverty Line	0	543	174	224	616	545	42,625	317,884

Labor

	Site	Turtle Bay	Murray Hill- Kips Bay	Midtown Midtown South	Lennox Hill Roosevelt Island	Upper East Side Carnegie Hill	Manhattan	New York
Population 16+	2,521	43,655	45,690	26,120	71,047	49,438	1,417,213	6,859,795
In Labor Force	2,093	31,166	34,232	18,054	51,868	31,325	958,793	4,369,307
Employed	2,056	29,935	33,268	17,108	50,015	30,269	892,641	3,991,617
Unemployed	37	1,231	1,055	946	1,853	1,056	66,152	377,690
Unemployment Rate	1.8%	3.9%	3.1%	5.2%	3.6%	3.4%	6.9%	8.6%
Workers 16+	2,056	29,935	33,268	17,108	50,015	30,269	892,641	3,991,617
Commute-Drive	199	1,065	2,861	741	4,648	2,951	68,645	1,037,311
Commute-Public Transportation	719	12,555	12,522	6,460	24,481	14,325	518,435	2,305,425
Commute-Walk	830	12,535	12,733	7,281	13,394	5,566	180,196	391,365
Commute-Other	213	1,858	2,215	985	4,741	3,620	65,324	99,552
Work at Home	95	1,922	2,937	1,641	2,751	3,807	60,041	157,964
Mean Travel Time	24.0	35.4	27.2	23.6	30.5	27.4	31.4	40.3
Workers 16+	2,056	29,935	33,268	17,108	50,015	30,269	892,641	3,991,617
Employment-Agriculture, Forestry, Mining	0	16	0	0	0	14	497	4,286
Employment-Construction	53	137	322	252	577	263	15,990	196,634
Employment-Manufacturing	55	835	882	684	1,585	697	26,186	143,497
Employment-Wholesale Trade	78	621	1,115	278	1,891	1,071	19,370	88,712
Employment-Retail Trade	83	1,684	2,548	1,052	3,686	1,709	70,232	389,932
Employment-Transportation, Warehousing, & Utilities	0	414	449	189	593	365	21,989	239,903
Employment-Information	164	2,223	2,251	1,147	2,797	1,470	56,794	152,521
Employment-Finance, Real Estate, & Insurance	581	6,638	7,994	5,187	10,813	8,763	147,868	386,147
Employment-Professional, Scientific, Mangement, & Administration	404	7,464	8,484	4,371	9,671	7,009	177,497	539,998
Employment-Education, Healthcare, & Social Services	332	5,686	4,938	2,028	12,020	5,599	200,881	1,055,535
Employment-Arts, Entertainment, Recreation, Accomodation, & Food Service	106	1,777	2,139	1,269	3,675	1,615	96,083	437,325
Employment-Other Services	44	1,405	861	417	913	1,079	36,629	218,051
Employment-Public Administration	156	1,035	1,285	234	1,794	615	22,625	149,076

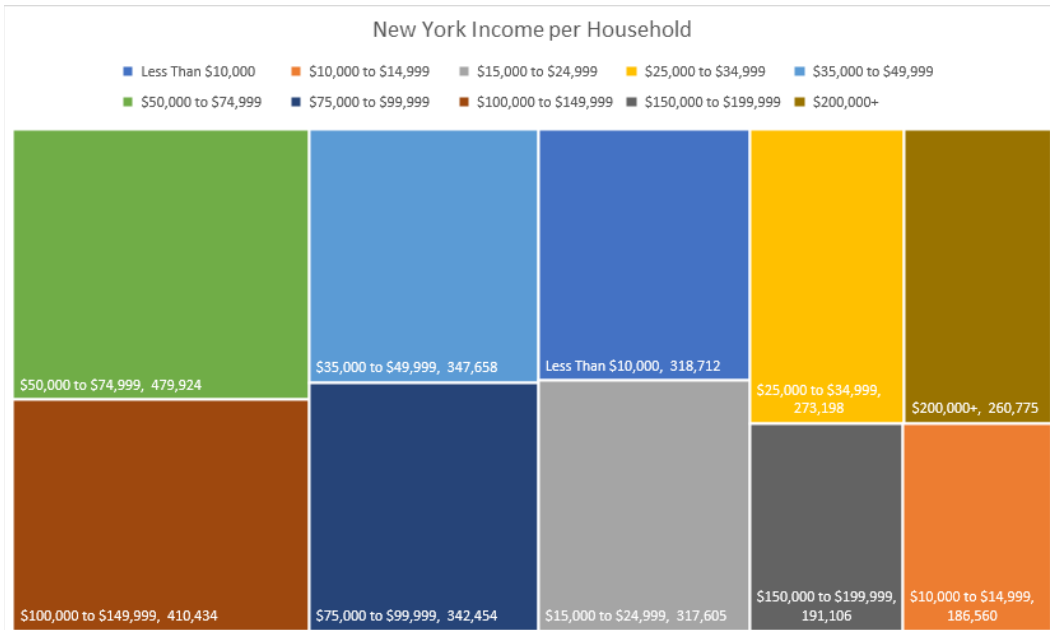
Households

Site	Turtle Bay	Murray Hill- Kips Bay	Midtown Midtown South	Lennox Hill Roosevelt Island	Upper East Side Carnegie Hill	Manhattan	New York	
Total Households	1,553	31,192	37,350	22,461	51,154	37,352	866,644	3,436,084
Occupied Households	1,326	26,059	28,991	15,507	43,924	28,854	753,385	3,128,426
Vacant Households	227	5,133	8,359	6,954	7,230	8,498	113,259	307,658
Household Vacancy	14.6%	16.5%	22.4%	31.0%	14.1%	22.8%	13.1%	9.0%
Owned Occupied Housing Units	398	7,442	12,936	3,326	12,020	16,940	174,361	1,000,242
Percent Owner Occupied	30.0%	28.6%	44.6%	21.4%	27.4%	58.7%	23.1%	32.0%
Renter Occupied Housing Units	928	18,617	16,055	12,181	31,904	11,914	579,024	2,128,184
Percent Renter Occupied	70.0%	71.4%	55.4%	78.6%	72.6%	41.3%	76.9%	68.0%
Average Household Size- Owned Households	1.88	1.64	1.66	1.73	1.91	2.13	2.00	2.75
Average Household Size- Rented Households	1.81	1.77	1.70	1.67	1.91	1.85	2.12	2.49
Pop. Resideing in Household for 1+ Years	2,794	47,260	49,038	27,596	80,239	58,593	1,614,289	8,354,926
Residence 1 Year Ago- Same House	2,096	38,171	41,432	19,696	65,732	51,225	1,364,289	7,487,266
Residence 1 Year Ago- Different Household	698	9,089	7,606	7,900	26,539	6,789	250,594	867,660
Total Households	1,553	31,192	37,350	22,461	51,154	37,352	866,644	3,436,084
Building - 1 Unit Detached	0	273	332	167	381	517	8,929	320,429
Building - 2 Unit Detached	0	125	150	168	266	776	6,150	235,683
Building - 2 Units	14	230	273	49	370	306	9,192	454,924
Building - 3 or 4 Units	11	392	222	291	547	615	19,230	345,361
Building - 5 to 9 Units	17	1,413	937	876	1,484	2,197	46,637	227,392
Building - 10 to 19 Units	3	1,848	1,594	1,030	5,675	3,814	97,324	217,613
Building - 20+ Units	1,508	26,911	33,842	19,880	42,431	29,127	679,182	1,634,682
Total Households	1,553	31,192	37,350	22,461	51,154	37,352	866,644	3,436,084
Households Built 2010 or Later	4	125	66	875	216	9	11,923	43,381
Households Built 2000 - 2009	4	2,037	1,911	3,425	3,847	660	62,503	208,616
Households Built 1990 - 1999	128	1,330	1,123	1,729	1,549	704	32,863	123,563
Households Built 1980 - 1989	1,121	3,463	5,028	2,111	5,082	1,905	55,651	160,116
Households Built 1970 to 1979	227	5,209	3,940	1,356	6,813	2,105	70,690	247,036
Households Built 1960 to 1969	35	6,767	7,421	2,004	12,034	5,222	108,887	430,352
Households Built 1950 to 1959	17	4,166	4,962	630	5,709	4,331	93,736	461,352
Households Built 1940 to 1949	0	1,678	1,848	1,146	3,300	2,965	63,188	359,650
Households Built 1939 or Earlier	17	6,4174	11,051	9,185	12,604	19,451	377,203	1,402,018
Total Households	1,553	31,192	37,350	22,461	51,154	37,352	866,644	3,436,084
Households with 1 Room	45	5,955	6,108	4,669	6,944	1,887	107,981	238,478
Households with 2 Rooms	137	5,013	5,006	3,755	7,748	2,793	106,679	211,477
Households with 3 Rooms	606	11,142	13,080	7,660	19,150	8,745	269,747	859,623
Households with 4 Rooms	506	5,079	6,794	3,768	8,861	6,227	202,909	892,139
Households with 5 Rooms	160	2,288	3,279	1,539	4,518	6,451	102,097	580,924
Households with 6 Rooms	64	1,061	1,495	543	2,191	4,086	40,299	324,606
Households with 7 Rooms	35	223	745	186	802	2,914	17,195	138,411
Households with 8 Rooms	0	265	296	88	160	1,576	7,591	77,700
Households with 9+ Rooms	0	166	547	253	780	2,673	12,146	112,726
Median Rooms in Household	3.5	2.9	3.1	2.9	3.1	4.3	3.3	4.0
Total Owned Households	398	7,442	12,936	3,326	12,020	16,940	174,361	1,000,242
Household Value - Less than \$50,000	15	53	84	66	235	243	5,585	35,533
Household Value - \$50,000 to \$99,999	0	15	47	61	149	60	2,531	17,011
Household Value - \$100,000 to \$149,999	0	26	95	38	163	40	1,687	22,433
Household Value - \$150,000 to \$199,999	0	0	68	22	0	0	1,104	30,674
Household Value - \$200,000 to \$299,999	0	69	538	78	111	130	6,260	85,641
Household Value - \$300,000 to \$499,999	30	2,062	2,279	328	2,009	701	24,613	299,608
Household Value - \$500,000 to \$999,999	151	3,425	5,123	1,035	4,565	3,201	57,578	371,059
Household Value - \$1,000,000+	202	1,792	4,702	1,698	4,788	12,565	75,003	138,293
Median Household Value	\$921,700	\$682,795	\$799,590	\$1,031,079	\$731,316	\$2,000,000	\$871,535	\$508,900
Total Occupied Households	1,326	26,059	28,991	15,507	43,924	28,854	753,385	3,128,426
No Vehicle	815	21,295	21,984	12,999	32,214	18,674	582,100	1,716,231
1 Vehicle	502	4,212	6,326	2,196	10,436	8,846	151,340	988,389
2 Vehicles	9	552	586	259	1,153	1,043	16,850	335,178
3 or More Vehicles	0	0	95	53	121	291	3,095	88,628

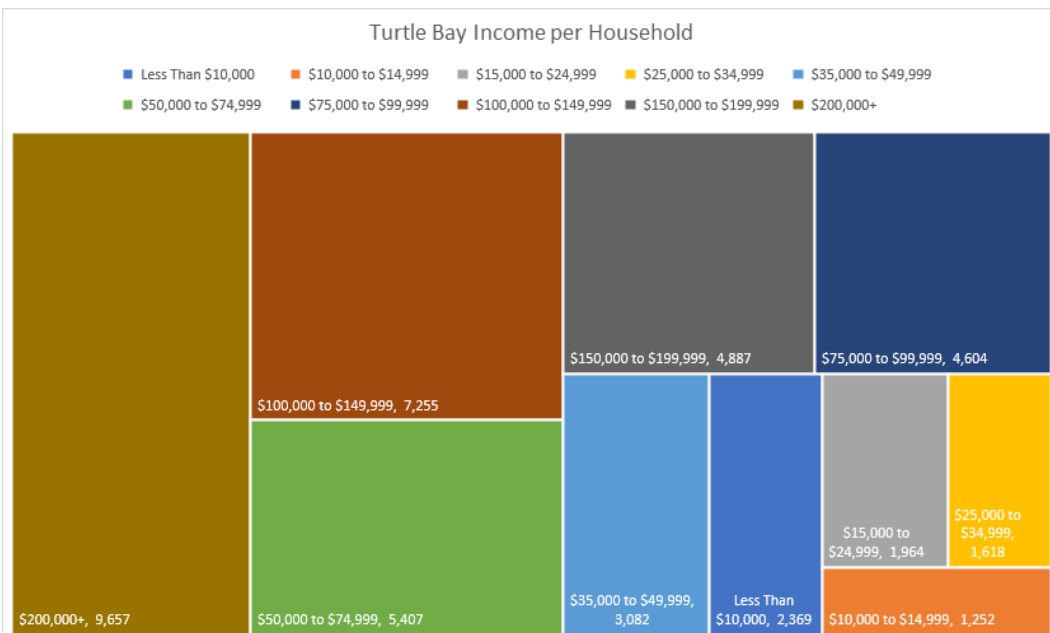
Households

Site	Turtle Bay	Murray Hill- Kips Bay	Midtown Midtown South	Lennox Hill Roosevelt Island	Upper East Side Carnegie Hill	Manhattan	New York	
Owner-Occupied Housing Units	398	7,442	12,936	3,326	12,020	16,940	174,361	1,000,242
Households with a Mortgage	173	4,366	5,538	1,681	6,512	6,937	91,128	607,421
Households without a Mortgage	225	3,076	7,398	1,645	5,508	10,003	83,233	392,821
Housing Units with a Mortgage	173	4,366	5,538	1,681	6,512	6,937	91,128	607,421
Mortgage Costs less than 20% of Household Income	37	1,956	2,783	858	3,518	4,038	48,816	189,756
Mortgage Costs 20% - 25% of Household Income	15	786	806	197	884	513	10,796	71,736
Mortgage Costs 25% to 30% of Household Income	26	171	393	135	518	312	6,759	59,278
Mortgage Costs 30% - 35% of Household Income	0	320	344	86	524	437	5,449	48,338
Mortgage Costs More than 35% of Household Income	95	1,133	1,212	405	1,068	1,637	19,308	238,313
Occupied Housing Units Paying Rent	928	18,617	16,055	12,181	31,904	11,914	579,024	2,128,184
Rent Less than \$499	0	1,566	315	1,137	796	266	66,181	232,588
Rent \$500 to \$999	0	1,524	751	1,150	2,141	683	102,020	389,645
Rent \$1,000 to \$1,499	27	1,830	1,527	775	4,253	1,246	102,885	680,490
Rent \$1,500 to \$1,999	29	2,341	2,801	931	7,584	2,241	83,186	398,358
Rent \$2,000 to \$2,499	30	3,200	2,980	1,191	6,070	2,188	69,878	168,188
Rent \$2,500 to \$2,999	69	3,010	2,244	5,177	4,054	2,262	54,210	85,314
Rent \$3,000 or More	773	5,146	5,437	1,820	7,006	3,028	100,664	173,601
Median Rent	\$3,391	\$2,299	\$2,415	\$2,497	\$2,061	\$2,251	\$1,575	\$1,294
Occupied Housing Units Paying Rent	928	18,617	16,055	12,181	31,904	11,914	579,024	2,128,184
Rent Costs less than 15% of Household Income	131	3,077	3,416	2,597	6,637	2,899	102,667	263,651
Rent Costs 15% to 20% of Household Income	222	1,920	2,031	1,446	3,868	1,571	65,283	217,541
Rent Costs 20% - 25% of Household Income	107	2,826	1,901	1,266	3,604	1,207	67,474	230,352
Rent Costs 25% - 30% of Household Income	92	2,423	1,308	1,197	3,053	982	60,232	217,585
Rent Costs 30% - 35% of Household Income	106	1,535	1,966	1,155	3,019	971	52,690	188,383
Rent Costs More than 35% of Household Income	270	6,836	5,433	4,520	11,723	4,284	230,678	1,010,672
Rent Costs More than 50% of Household Income	151	3,765	3,188	2,527	6,392	2,030	25,309	597,565

Income Charts



New York’s largest household income demographic are ones making between 50K and 75K a year. There is a big difference between median household income (55K) and average income (88K), which means there is a high degree of income inequality in the city.



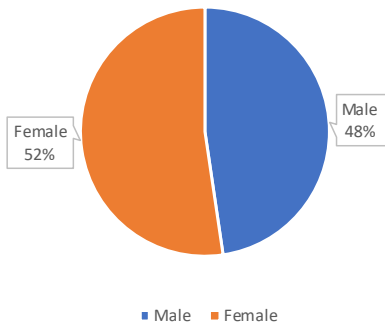
Turtle Bay has a high percentage of high income households, with a median household income of 96K and an average of 134K. Most of the “low income” households likely consist of high wealth individuals who don’t have to work.



Figure 55

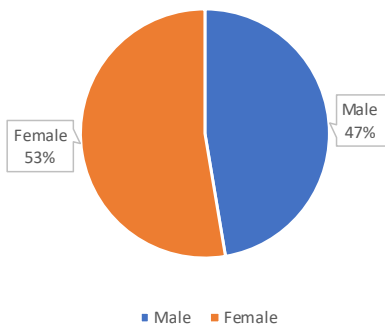
Population Charts

New York Male / Female Ratio



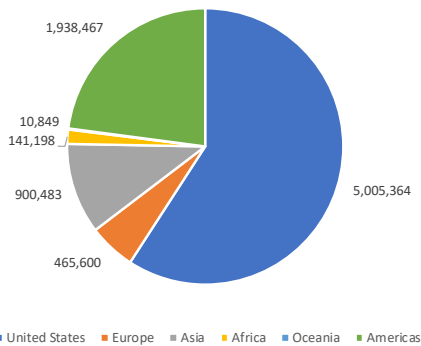
New York has 4% more females than males, which is a slightly smaller majority than Manhattan as a whole (53% female majority)

Turtle Bay Male/Female Ratio



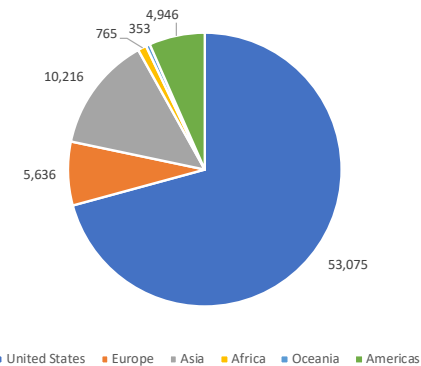
The Turtle Bay neighborhood has the same demographics as Manhattan. All of the surrounding neighborhoods also maintain a female majority. The data suggests that commercial establishments in Park City will cater more to the female population.

New York Birthplace Demographics



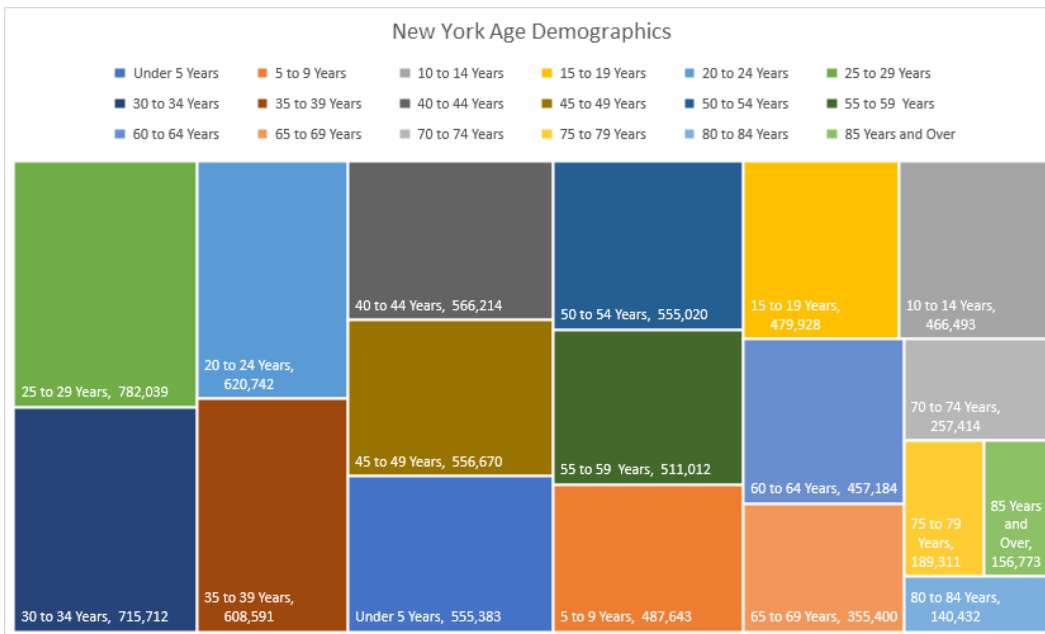
Close to 2/3 of the population in New York was born in the US, with the second largest demographic coming from Central and South America. New York is one of the most diverse cities in the US, and during the work week hours Manhattan will contain a more diverse working population.

Turtle Bay Birthplace Demographics

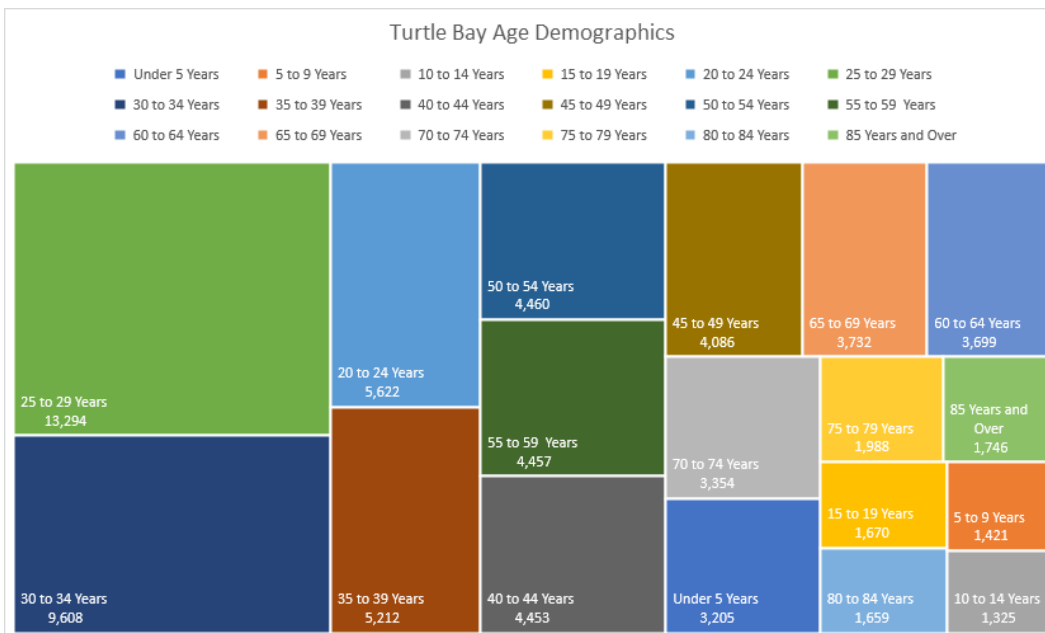


Turtle Bay is less diverse than New York as whole, with 3/4 of it's population born within the US. This is possibly due the high cost of living in the neighborhood, which may be too high for immigrants coming from developing countries. The second highest demographic consists of individuals from Asia, which differs from New York's demographics.

Population Charts



Close to a third of the population in New York is between the ages of 20 and 39. The chart shows that young children make up most of the pre-Adult population, meaning families tend to move out of the city as their children get older. New York does not have many people living there in their retirement years, as it is the smallest segment by far.



Close to half of the population in Turtle Bay consists of people ages 20-39, suggesting people move out after establishing families later in life. Unlike New York, Turtle Bay has more retirees than children. The statistics show Park City will cater to working professionals who likely don't have kids.

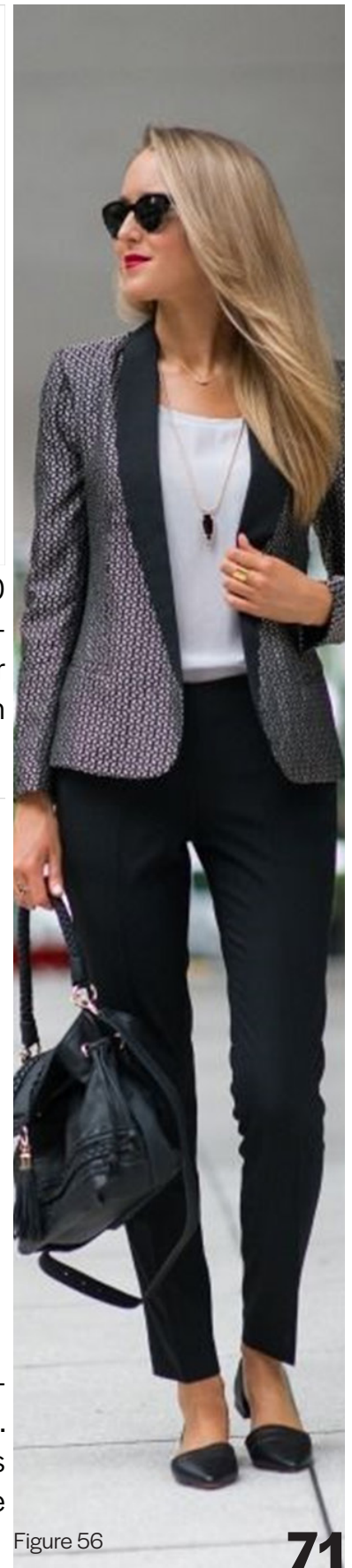
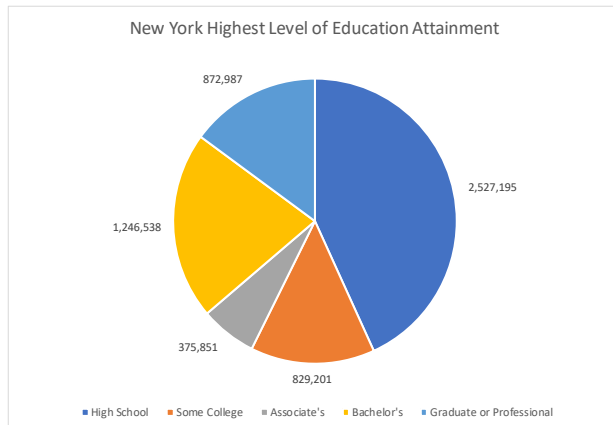
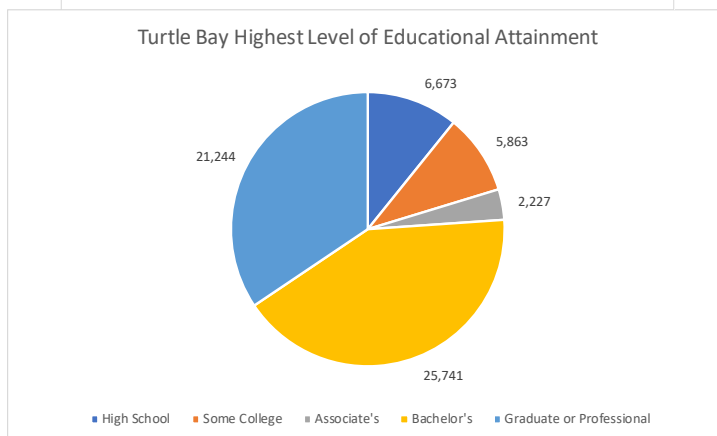


Figure 56

Population Charts



Most of New York's population over the age of 19 hasn't gone on to achieve a higher education degree. Close to a third of the population has obtained at least a Bachelor's degree, which is in line with the national average.



More than 3/4 of the 19+ population has obtained a Bachelor's degree, with a third of the residents possessing a graduate degree. Turtle Bay has an extremely well educated population, which means residents are employed in high-skilled jobs that pay more than the average income in New York.

Population Summary

Compared to New York, the Turtle Bay neighborhood contains a higher percentage of young adults and adults with a collegiate degree. The data suggests that people tend to move out of Manhattan once they start having kids or want to retire. Turtle Bay is less diverse compared to New York, therefore commercial tenants such as restaurants and shops cater more towards the domestic population instead of ethnic demographics.

Park City will have to focus on a project that caters towards young working professionals who likely don't have kids. A majority of the apartments will be either studios or one bedroom. Most of the restaurants and shops will be trendy, similar to other areas of the city such as SoHo and DUMBO in Brooklyn.



Figure 57: Upper East Side Home

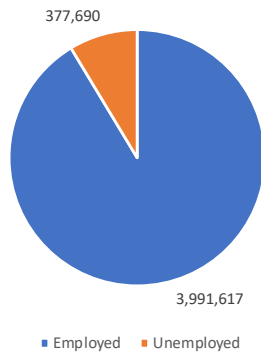
Income Summary

Unlike most of the US, Turtle Bay's largest income demographic are households making more than 200K+ a year, who take up a quarter of the neighborhood's population. Half of the households earn more than \$100,000 a year, making Turtle Bay exceedingly wealthier than New York as a whole. The surrounding neighborhoods have similar high-income demographics, so Park City will develop its program around high-income households.

Apartments in Park City will contain high quality materials, appliances, and amenities and cater to the upper middle class/ upper class since they dominate the population in Turtle Bay and the surrounding neighborhoods. Shops and restaurants will also cater to middle/upper class individuals.

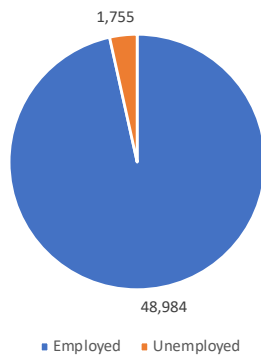
Labor Charts

New York Employment vs Unemployment



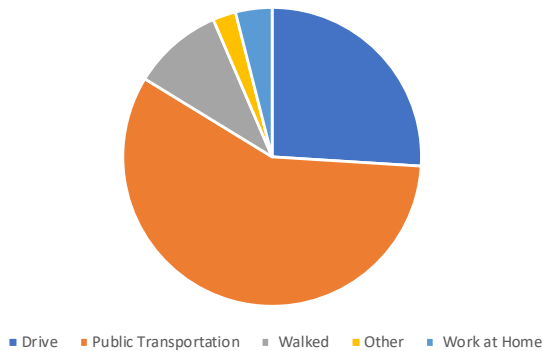
New York's unemployment rate stood at 9.5% in 2014 (year of census data), well above the national average. Since then the unemployment rate has dropped drastically and it currently sits at 4.7%, which is a big improvement and considered healthy.

Turtle Bay Employment vs Unemployment



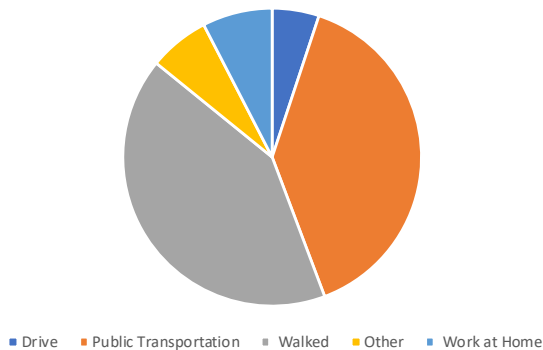
Unemployment rates have improved greatly in New York, but in 2014 Turtle Bay had a drastically lower unemployment rate of 3.9%. All the surrounding high-income neighborhoods have similar rates, which means Park City's demographics tend to be economically protected during tough times.

New York Transportation Means



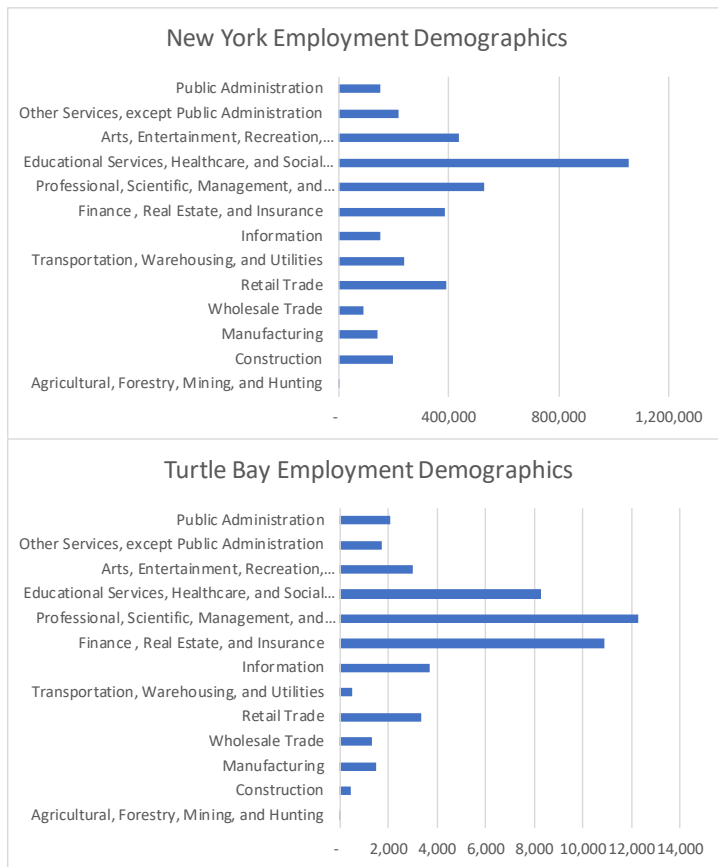
New York is known around the world for their famous subway system, and demographics show that New Yorker's overwhelmingly take public transportation in order to get to work. Only a quarter of the population drives to work, which means Park City should accommodate multiple forms of public transportation for incoming workers living outside of Manhattan.

Turtle Bay Transportation Means



Locally, over 75% of the population either takes public transportation or walks to work, only a small percentage of people drive to work (most likely commuting outside of Manhattan). Compared to New York, a greater share of the population works from home or takes an alternative form of transportation such as Lyft.

Labor Charts



Most of New York’s population overwhelmingly works in the “education, healthcare, and social services” sector. Other large employment groups include management, retail, and the arts & entertainment sector. Blue collar jobs only make up a small fraction of the total employment.

Most of Turtle Bay’s population tends to work white collar jobs in the financial sector as well as hold management positions. Like New York, many individuals work in “education, healthcare, and social services,” which makes sense due to the local concentration of hospitals and schools. It is expected that most of the office space will be occupied by companies working in these fields.

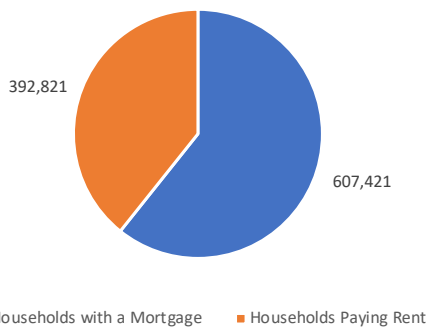
Labor Summary

Park City will benefit strong labor force statistics by comparing Turtle Bay to the rest of the city, characterized by a low unemployment rate and lots of participation in white collar career fields. Most of the office tenants will likely be financial, healthcare, and other large corporations or high-income firms. Park City would benefit from including a school on its site due to the concentration of people in the local neighborhood working in the educational field.

The two largest types of commutes are walking to work and taking public transportation. It is crucial that Park City accommodates both types of transportation. For walkability it is important to have an easy to navigate site and easy access to the surrounding streets. Park City will contain access to the subway systems and contain bus stations. Fortunately, subway lines run in close proximity to the site so adding an extra station is possible.

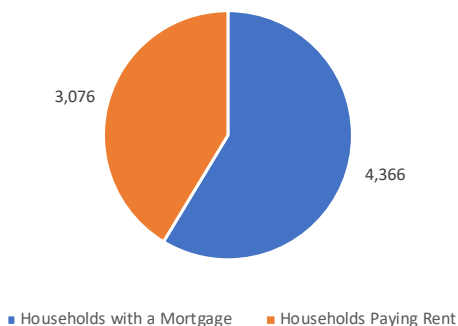
Households Charts

New York Rented vs Owned Households



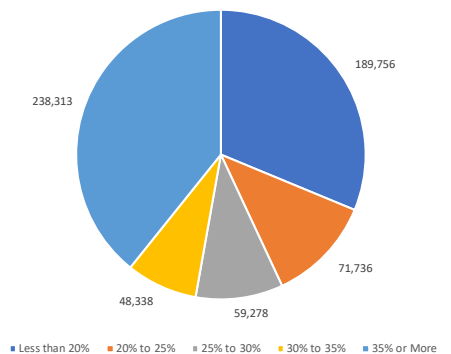
Close to 2/3 of New York’s population choose purchasing their residence over renting it. It is typically assumed that most New Yorkers rent their homes, but the data suggests otherwise. According to the real estate website Zillow, the median home price in New York is \$379,000.

Turtle Bay Rented vs Owned Households



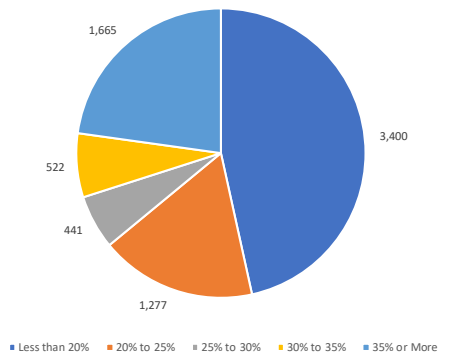
Most Turtle Bay residents still mortgage their homes, but to a lesser extent compared to New York as a whole. This is likely due to the high home prices in the area, which has a median home price of just over \$1 million.

New York Mortgaged Household Ownership Costs as Percent of Income



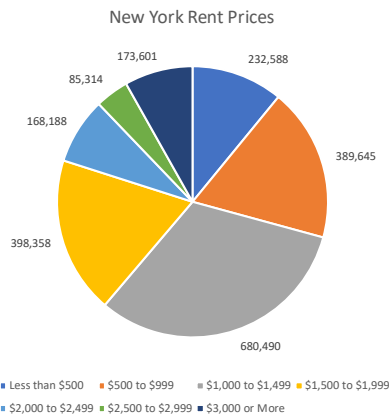
Most New Yorkers put over 35% of their incomes towards their mortgage if they have one. New York is one of the most expensive cities in the world, and one of the cities biggest problems is the financial burden that low income individuals deal with. The second largest demographic are households whose mortgages cost less than 20% of their annual income. This means there is a lot of financial disparity that occurs in the city.

Turtle Bay Mortgaged Household Ownership Costs as Percent of Income

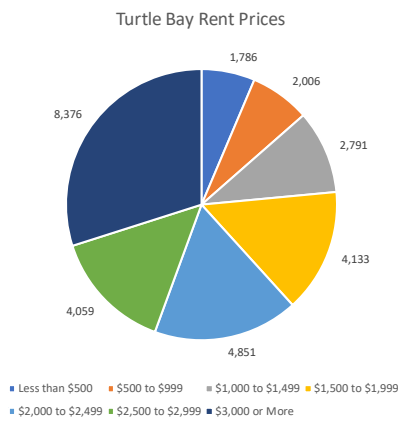


Most owned households in Turtle Bay put less than 20% of their income towards their mortgage, reflecting the financial success of residents. It's also important to note that a lot of residents stretch their budgets and put more than 35% of their income in mortgages, which is higher than the recommended 30%. Despite this, Turtle Bay residents are in a better financial situation compared to the city as a whole.

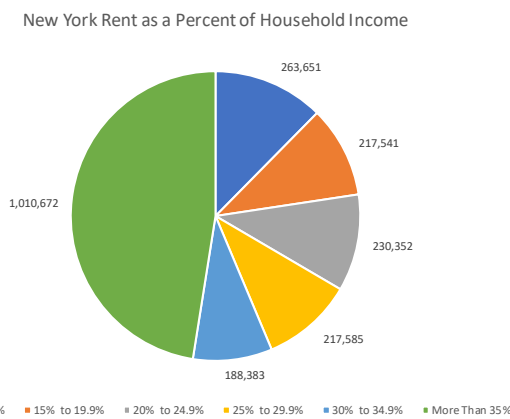
Households Charts



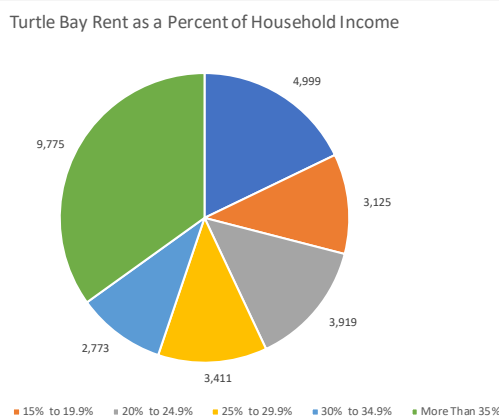
Most New Yorkers pay between \$1,000 and \$1,499 per month for rent, with the median rent for the city being \$1,294 a month. The over 600,000 people paying less than \$1,000 per month in rent most likely live in the Bronx and Queens, which are the most affordable parts of the city.



The median rent for Turtle Bay is \$2,299 per month, considerably more expensive than New York's median. The largest category in the neighborhood are rents costing more than \$3,000 a month, which is the case in several surrounding neighborhoods. Roughly 1/8 of the households have a rent below \$999, which suggests that there are micro apartments in the neighborhoods.



Close to half of New Yorker's put more than 35% of their income towards their rent, which means many people are struggling financially. The second largest demographic are people paying less than 15% of their income towards rent, which again highlights the disparity between wealthy and low-income households.



Like the city, most Turtle Bay residents put more than 35% of their income towards rent, but to a lesser extent than New York as whole. Almost 1/3 of the population puts less than 20% of their income towards rent. Overall Turtle Bay residents have more financial freedom than the typical New Yorker, which would guarantee that most Park City rental residents could afford to live there.

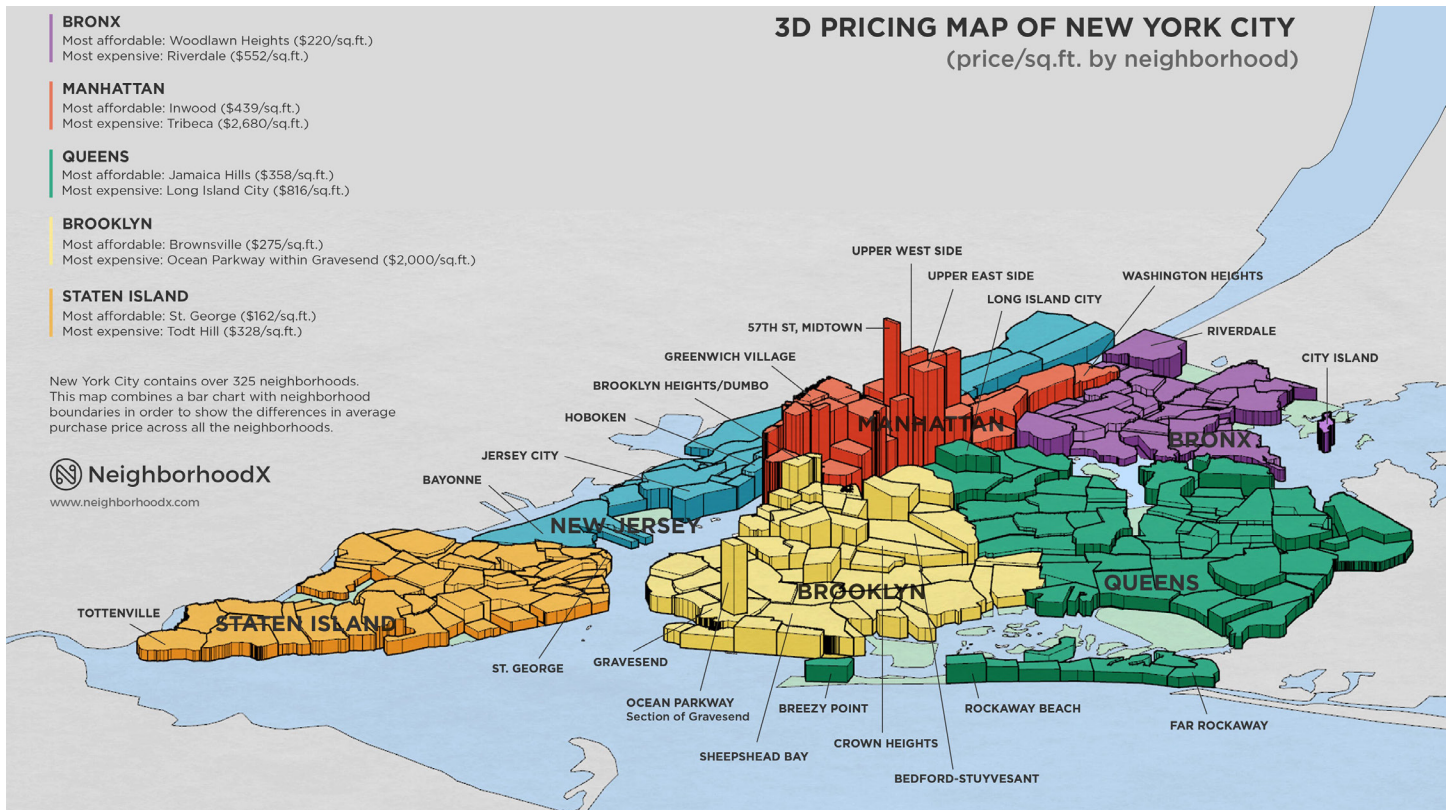


Figure 58: Upper East Side Home

Household Summary

Typically Turtle Bay residents are home owners and most people can more easily afford their rent/mortgage compared to the New York as a whole. Park City will be located in one of the most expensive neighborhoods in one of the most expensive cities in the world, but the data shows that local residents can afford it.

The residential space in Park City will consist of at least 2/3 condos based off local and citywide demographics. It wouldn't be optimal for Park City to consist of entirely condominium units since a lot of Turtle Bay residents want to rent for the short term. Many young adults in New York tend to leave the city as they grow older and so they aren't looking to make a long-term investment. It is expected that most unit rents will go between \$2,000 a month for a small studio to \$4,500 for a large two bedroom. A small studio apartment will likely sell for \$350,000, with 2-bedroom apartments selling for \$700,000. It is important to note that apartments at higher floors will fetch higher prices due to their views. It is realistic to charge tens of thousands of dollars a month or sell a large apartment for \$40,000,000 if it is located on a high floor.

Based on local demographics, 1/3 of Park City's residential units will consist of studio apartments, another third will be one-bedroom apartments, and the other third will be divided between two, three, and four bedroom apartments.

Income per Capita

Year	Income per Capita Northeast Region	Income per Capita Manhattan	Percent Change	Inflation Adjusted (Manhattan)	Percent Change
1986-1987	\$24,913	\$27,776		\$62,981	
1987 - 1988	\$26,454	\$29,494	6.2%	\$64,275	2.1%
1988 - 1989	\$29,214	\$32,571	10.4%	\$67,815	5.5%
1989 - 1990	\$31,702	\$35,345	8.5%	\$69,954	3.2%
1990 - 1991	\$32,809	\$36,579	3.5%	\$68,523	-2.0%
1991 - 1992	\$33,281	\$37,105	1.4%	\$67,746	-1.1%
1992 - 1993	\$33,812	\$37,697	1.6%	\$66,656	-1.6%
1993 - 1994	\$35,239	\$39,288	4.2%	\$67,760	1.7%
1994 - 1995	\$36,275	\$40,443	2.9%	\$67,847	0.1%
1995 - 1996	\$36,893	\$41,132	1.7%	\$67,173	-1.0%
1996 - 1997	\$38,887	\$43,355	5.4%	\$68,709	2.3%
1997 - 1998	\$41,080	\$45,800	5.6%	\$71,462	4.0%
1998 - 1999	\$43,242	\$48,211	5.3%	\$73,989	3.5%
1999 - 2000	\$44,472	\$49,582	2.8%	\$74,065	0.1%
2000 - 2001	\$46,336	\$51,660	4.2%	\$74,390	0.4%
2001 - 2002	\$49,830	\$55,555	7.5%	\$79,094	6.3%
2002 - 2003	\$52,930	\$59,102	6.2%	\$81,890	3.5%
2003 - 2004	\$56,885	\$63,421	7.5%	\$86,348	5.4%
2004 - 2005	\$59,741	\$66,605	5.0%	\$88,065	2.0%
2005 - 2006	\$61,341	\$68,389	2.7%	\$87,206	-1.0%
2006 - 2007	\$64,579	\$71,999	5.3%	\$89,689	2.8%
2007 - 2008	\$67,809	\$75,600	5.0%	\$84,631	-5.6%
2008 - 2009	\$68,583	\$76,463	1.1%	\$85,594	1.1%
2009 - 2010	\$67,583	\$75,348	-1.5%	\$84,116	-1.7%
2010 - 2011	\$67,762	\$75,548	0.3%	\$84,198	0.1%
2011 - 2012	\$69,312	\$77,276	2.3%	\$85,872	2.0%
2012 - 2013	\$65,585	\$73,121	-5.4%	\$81,127	-5.5%
2013 - 2014	\$63,257	\$70,525	-3.5%	\$78,127	-3.7%
2014 - 2015	\$65,940	\$73,517	4.2%	\$81,448	4.3%
2015 - 2016	\$67,086	\$74,794	1.7%	\$79,603	-2.3%
2016 - 2017	\$68,643	\$76,530	2.3%	\$84,476	6.1%
2017 - 2018	\$71,046	\$79,209	3.5%	\$80,580	-4.6%

Consumer Expenditures per Capita

Year	Expenditures Northeast Region	Expenditures Manhattan	Percent Change	Disposable Income Manhattan	Inflation Adjusted (Manhattan)	Percent Change
1986-1987	\$26,020	\$29,010		(\$4,097)	\$65,779	
1987 - 1988	\$26,246	\$29,262	0.9%	(\$2,808)	\$63,770	-3.1%
1988 - 1989	\$28,226	\$31,469	7.5%	(\$2,255)	\$65,522	2.7%
1989 - 1990	\$30,113	\$33,573	6.7%	(\$1,871)	\$66,448	1.4%
1990 - 1991	\$31,646	\$35,282	5.1%	(\$2,473)	\$66,094	-0.5%
1991 - 1992	\$32,249	\$35,954	1.9%	(\$2,673)	\$65,646	-0.7%
1992 - 1993	\$32,650	\$36,401	1.2%	(\$2,589)	\$64,365	-2.0%
1993 - 1994	\$33,486	\$37,334	2.6%	(\$2,095)	\$64,389	0.0%
1994 - 1995	\$34,447	\$38,405	2.9%	(\$2,130)	\$64,428	0.1%
1995 - 1996	\$35,361	\$39,424	2.7%	(\$2,531)	\$64,383	-0.1%
1996 - 1997	\$36,814	\$41,044	4.1%	(\$2,157)	\$65,046	1.0%
1997 - 1998	\$38,488	\$42,910	4.5%	(\$1,830)	\$66,953	2.9%
1998 - 1999	\$39,881	\$44,463	3.6%	(\$1,221)	\$68,238	1.9%
1999 - 2000	\$40,819	\$45,509	2.4%	(\$1,037)	\$67,981	-0.4%
2000 - 2001	\$41,929	\$46,747	2.7%	(\$411)	\$67,315	-1.0%
2001 - 2002	\$43,395	\$48,381	3.5%	\$1,449	\$68,880	2.3%
2002 - 2003	\$44,474	\$49,584	2.5%	\$3,346	\$68,808	-0.1%
2003 - 2004	\$45,430	\$50,650	2.1%	\$6,235	\$68,960	0.2%
2004 - 2005	\$47,005	\$52,406	3.5%	\$7,335	\$69,291	0.5%
2005 - 2006	\$48,564	\$54,144	3.3%	\$7,197	\$69,042	-0.4%
2006 - 2007	\$50,703	\$56,529	4.4%	\$8,050	\$70,418	2.0%
2007 - 2008	\$53,268	\$59,388	5.1%	\$8,421	\$66,483	-5.6%
2008 - 2009	\$54,399	\$60,649	2.1%	\$7,934	\$67,892	2.1%
2009 - 2010	\$53,336	\$59,464	-2.0%	\$8,119	\$66,384	-2.2%
2010 - 2011	\$53,695	\$59,865	0.7%	\$7,897	\$66,719	0.5%
2011 - 2012	\$55,215	\$61,559	2.8%	\$7,753	\$68,407	2.5%
2012 - 2013	\$56,484	\$62,974	2.3%	\$6,611	\$69,870	2.1%
2013 - 2014	\$58,122	\$64,800	2.9%	(\$1,543)	\$71,785	2.7%
2014 - 2015	\$59,115	\$65,907	1.7%	\$33	\$73,018	1.7%
2015 - 2016	\$59,876	\$66,756	1.3%	\$330	\$71,048	-2.7%
2016 - 2017	\$62,391	\$69,560	4.2%	(\$917)	\$76,782	8.1%
2017 - 2018	\$64,137	\$71,506	2.8%	(\$460)	\$72,743	-5.3%

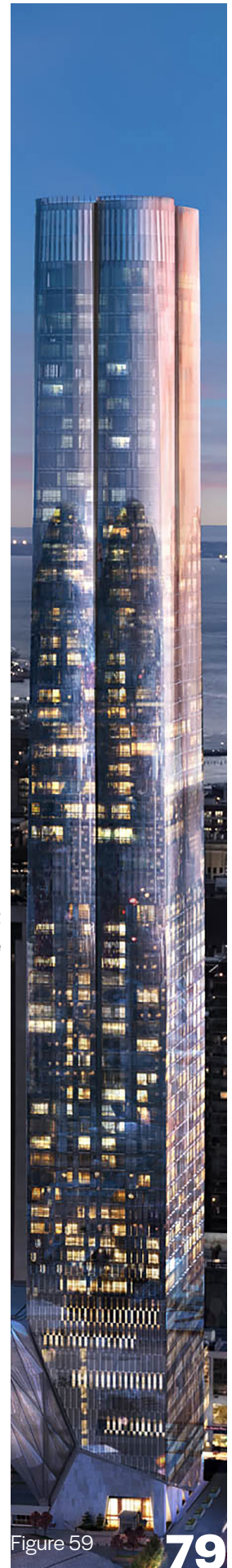


Figure 59

Dining In Expenses per Capita

Year	Dining In Northeast Region	Dining In Manhattan	Percent Change	Inflation Adjusted (Manhattan)	Percent Change
1986-1987	\$2,299	\$2,529		\$5,734	
1987-1988	\$2,304	\$2,534	0.2%	\$5,523	-3.7%
1988-1989	\$2,404	\$2,644	4.3%	\$5,506	-0.3%
1989-1990	\$2,582	\$2,840	7.4%	\$5,621	2.1%
1990-1991	\$2,746	\$3,021	6.4%	\$5,658	0.7%
1991-1992	\$2,835	\$3,119	3.2%	\$5,694	0.6%
1992-1993	\$2,982	\$3,280	5.2%	\$5,800	1.9%
1993-1994	\$3,063	\$3,369	2.7%	\$5,811	0.2%
1994-1995	\$3,150	\$3,465	2.8%	\$5,813	0.0%
1995-1996	\$3,248	\$3,573	3.1%	\$5,835	0.4%
1996-1997	\$3,153	\$3,468	-2.9%	\$5,497	-5.8%
1997-1998	\$3,091	\$3,400	-2.0%	\$5,305	-3.5%
1998-1999	\$3,204	\$3,524	3.7%	\$5,409	2.0%
1999-2000	\$3,367	\$3,704	5.1%	\$5,533	2.3%
2000-2001	\$3,500	\$3,850	4.0%	\$5,544	0.2%
2001-2002	\$3,494	\$3,843	-0.2%	\$5,472	-1.3%
2002-2003	\$3,425	\$3,768	-2.0%	\$5,228	-4.5%
2003-2004	\$3,553	\$3,908	3.7%	\$5,321	1.8%
2004-2005	\$3,640	\$4,004	2.4%	\$5,294	-0.5%
2005-2006	\$3,554	\$3,909	-2.4%	\$4,985	-5.8%
2006-2007	\$3,529	\$3,882	-0.7%	\$4,836	-3.0%
2007-2008	\$3,806	\$4,187	7.8%	\$4,687	-3.1%
2008-2009	\$4,032	\$4,435	5.9%	\$4,965	5.9%
2009-2010	\$3,977	\$4,375	-1.4%	\$4,884	-1.6%
2010-2011	\$4,005	\$4,406	0.7%	\$4,910	0.5%
2011-2012	\$4,077	\$4,485	1.8%	\$4,984	1.5%
2012-2013	\$4,139	\$4,553	1.5%	\$5,051	1.4%
2013-2014	\$4,156	\$4,572	0.4%	\$5,064	0.3%
2014-2015	\$4,014	\$4,415	-3.4%	\$4,892	-3.4%
2015-2016	\$4,031	\$4,434	0.4%	\$4,719	-3.5%
2016-2017	\$4,418	\$4,860	9.6%	\$5,364	13.7%
2017-2018	\$4,520	\$4,972	2.3%	\$5,058	-5.7%

Dining Out Expenditures per Capita

Year	Dining Out Northeast Region	Dining Out Manhattan	Percent Change	Inflation Adjusted (Manhattan)	Percent Change
1986-1987	\$1,699	\$1,869		\$4,238	
1987-1988	\$1,762	\$1,938	3.7%	\$4,224	-0.3%
1988-1989	\$1,923	\$2,115	9.1%	\$4,404	4.3%
1989-1990	\$2,052	\$2,257	6.7%	\$4,467	1.4%
1990-1991	\$1,976	\$2,174	-3.7%	\$4,072	-8.9%
1991-1992	\$1,834	\$2,017	-7.2%	\$3,683	-9.5%
1992-1993	\$1,818	\$2,000	-0.9%	\$3,536	-4.0%
1993-1994	\$1,878	\$2,066	3.3%	\$3,563	0.8%
1994-1995	\$1,869	\$2,056	-0.5%	\$3,449	-3.2%
1995-1996	\$1,937	\$2,131	3.6%	\$3,480	0.9%
1996-1997	\$2,173	\$2,390	12.2%	\$3,788	8.9%
1997-1998	\$2,361	\$2,597	8.7%	\$4,052	7.0%
1998-1999	\$2,450	\$2,695	3.8%	\$4,136	2.1%
1999-2000	\$2,409	\$2,650	-1.7%	\$3,958	-4.3%
2000-2001	\$2,413	\$2,654	0.2%	\$3,822	-3.4%
2001-2002	\$2,528	\$2,781	4.8%	\$3,959	3.6%
2002-2003	\$2,599	\$2,859	2.8%	\$3,967	0.2%
2003-2004	\$2,683	\$2,951	3.2%	\$4,018	1.3%
2004-2005	\$2,790	\$3,069	4.0%	\$4,058	1.0%
2005-2006	\$2,803	\$3,083	0.5%	\$3,932	-3.1%
2006-2007	\$2,791	\$3,070	-0.4%	\$3,824	-2.7%
2007-2008	\$2,881	\$3,169	3.2%	\$3,548	-7.2%
2008-2009	\$2,935	\$3,229	1.9%	\$3,614	1.9%
2009-2010	\$2,889	\$3,178	-1.6%	\$3,548	-1.8%
2010-2011	\$2,772	\$3,049	-4.0%	\$3,398	-4.2%
2011-2012	\$2,804	\$3,084	1.2%	\$3,428	0.9%
2012-2013	\$2,858	\$3,144	1.9%	\$3,488	1.8%
2013-2014	\$2,789	\$3,068	-2.4%	\$3,399	-2.6%
2014-2015	\$2,853	\$3,138	2.3%	\$3,477	2.3%
2015-2016	\$2,986	\$3,285	4.7%	\$3,496	0.5%
2016-2017	\$3,193	\$3,512	6.9%	\$3,877	10.9%
2017-2018	\$3,263	\$3,589	2.2%	\$3,651	-5.8%



Figure 60

Entertainment Expenditures per Capita

Year	Entertainment Northeast Region	Entertainment Manhattan	Percent Change	Inflation Adjusted (Manhattan)	Percent Change
1986-1987	\$1,231	\$1,563		\$3,545	
1987-1988	\$1,227	\$1,558	-0.3%	\$3,396	-4.2%
1988-1989	\$1,446	\$1,836	17.8%	\$3,824	12.6%
1989-1990	\$1,506	\$1,913	4.1%	\$3,785	-1.0%
1990-1991	\$1,471	\$1,868	-2.3%	\$3,500	-7.6%
1991-1992	\$1,544	\$1,961	5.0%	\$3,580	2.3%
1992-1993	\$1,581	\$2,008	2.4%	\$3,550	-0.8%
1993-1994	\$1,587	\$2,015	0.4%	\$3,476	-2.1%
1994-1995	\$1,635	\$2,076	3.0%	\$3,483	0.2%
1995-1996	\$1,764	\$2,240	7.9%	\$3,659	5.0%
1996-1997	\$1,818	\$2,309	3.1%	\$3,659	0.0%
1997-1998	\$1,810	\$2,299	-0.4%	\$3,587	-2.0%
1998-1999	\$1,867	\$2,371	3.1%	\$3,639	1.5%
1999-2000	\$1,957	\$2,485	4.8%	\$3,713	2.0%
2000-2001	\$1,938	\$2,461	-1.0%	\$3,544	-4.5%
2001-2002	\$2,133	\$2,709	10.1%	\$3,857	8.8%
2002-2003	\$2,320	\$2,946	8.8%	\$4,089	6.0%
2003-2004	\$2,131	\$2,706	-8.1%	\$3,685	-9.9%
2004-2005	\$2,137	\$2,714	0.3%	\$3,588	-2.6%
2005-2006	\$2,305	\$2,927	7.9%	\$3,733	4.0%
2006-2007	\$2,666	\$3,386	15.7%	\$4,218	13.0%
2007-2008	\$2,885	\$3,664	8.2%	\$4,102	-2.8%
2008-2009	\$2,863	\$3,636	-0.8%	\$4,070	-0.8%
2009-2010	\$2,728	\$3,465	-4.7%	\$3,868	-5.0%
2010-2011	\$2,677	\$3,400	-1.9%	\$3,789	-2.0%
2011-2012	\$2,678	\$3,401	0.0%	\$3,779	-0.3%
2012-2013	\$2,675	\$3,397	-0.1%	\$3,769	-0.3%
2013-2014	\$2,679	\$3,402	0.1%	\$3,769	0.0%
2014-2015	\$2,748	\$3,490	2.6%	\$3,866	2.6%
2015-2016	\$2,768	\$3,515	0.7%	\$3,741	-3.2%
2016-2017	\$2,952	\$3,749	6.6%	\$4,138	10.6%
2017-2018	\$3,044	\$3,866	3.1%	\$3,933	-5.0%

Transportation Expenditures per Capita

Year	Transport Costs Northeast Region	Transportation Manhattan	Percent Change	Inflation Adjusted (Manhattan)	Percent Change
1986-1987	\$4,706	\$4,381		\$9,933	
1987-1988	\$4,604	\$4,286	-2.2%	\$9,340	-6.0%
1988-1989	\$4,890	\$4,552	6.2%	\$9,478	1.5%
1989-1990	\$4,954	\$4,612	1.3%	\$9,127	-3.7%
1990-1991	\$5,028	\$4,708	2.1%	\$8,820	-3.4%
1991-1992	\$4,852	\$4,517	-4.1%	\$8,247	-6.5%
1992-1993	\$4,851	\$4,516	0.0%	\$7,985	-3.2%
1993-1994	\$5,169	\$4,812	6.6%	\$8,299	3.9%
1994-1995	\$5,533	\$5,151	7.0%	\$8,641	4.1%
1995-1996	\$5,739	\$5,361	4.1%	\$8,755	1.3%
1996-1997	\$5,860	\$5,455	1.8%	\$8,645	-1.3%
1997-1998	\$6,326	\$5,889	8.0%	\$9,188	6.3%
1998-1999	\$6,506	\$6,056	2.8%	\$9,295	1.2%
1999-2000	\$6,611	\$6,154	1.6%	\$9,193	-1.1%
2000-2001	\$7,084	\$6,594	7.2%	\$9,496	3.3%
2001-2002	\$7,350	\$6,842	3.8%	\$9,741	2.6%
2002-2003	\$7,315	\$6,810	-0.5%	\$9,450	-3.0%
2003-2004	\$7,422	\$6,909	1.5%	\$9,407	-0.5%
2004-2005	\$7,646	\$7,118	3.0%	\$9,411	0.0%
2005-2006	\$7,776	\$7,239	1.7%	\$9,230	-1.9%
2006-2007	\$8,107	\$7,547	4.3%	\$9,401	1.8%
2007-2008	\$8,455	\$7,871	4.3%	\$8,811	-6.3%
2008-2009	\$8,510	\$7,922	0.7%	\$8,868	0.6%
2009-2010	\$7,932	\$7,384	-6.8%	\$8,243	-7.0%
2010-2011	\$8,097	\$7,537	2.1%	\$8,401	1.9%
2011-2012	\$8,645	\$8,048	6.8%	\$8,943	6.5%
2012-2013	\$9,107	\$8,478	5.3%	\$9,406	5.2%
2013-2014	\$9,337	\$8,692	2.5%	\$9,629	2.4%
2014-2015	\$9,177	\$8,543	-1.7%	\$9,465	-1.7%
2015-2016	\$8,574	\$7,982	-6.6%	\$8,495	-10.2%
2016-2017	\$8,494	\$7,907	-0.9%	\$8,728	2.7%
2017-2018	\$8,672	\$8,073	2.1%	\$8,212	-5.9%



Figure 61

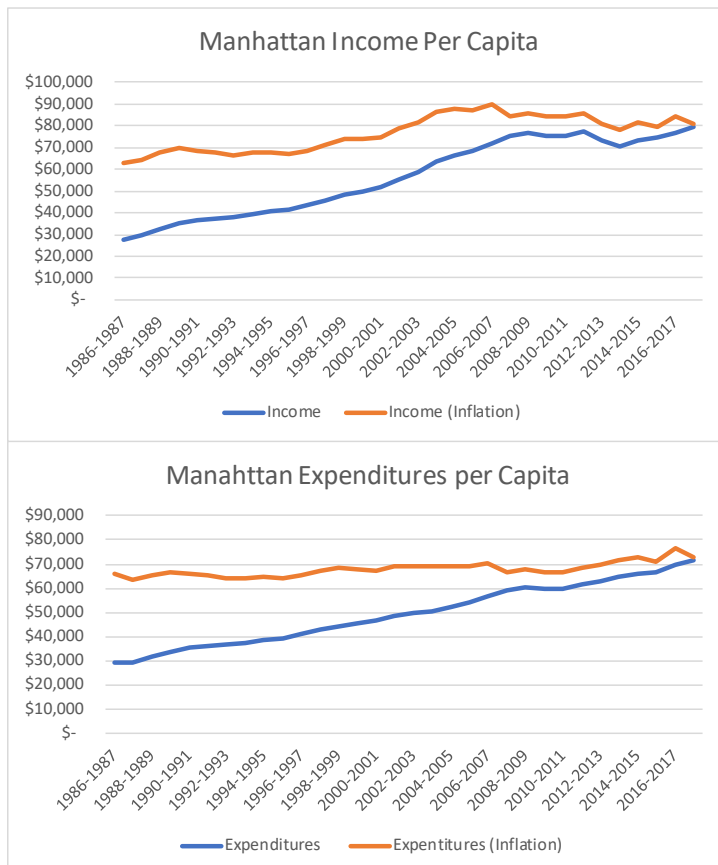
Apparel Expenditures per Capita

Year	Apparel Expenses	Percent Change	Inflation Adjusted	Percent Change
1986-1987	\$24,913		\$27,776	
1987-1988	\$26,454	2.1%	\$29,494	6.2%
1988-1989	\$29,214	5.5%	\$32,571	10.4%
1989-1990	\$31,702	3.2%	\$35,345	8.5%
1990-1991	\$32,809	-2.0%	\$36,579	3.5%
1991-1992	\$33,281	-1.1%	\$37,105	1.4%
1992-1993	\$33,812	-1.6%	\$37,697	1.6%
1993-1994	\$35,239	1.7%	\$39,288	4.2%
1994-1995	\$36,275	0.1%	\$40,443	2.9%
1995-1996	\$36,893	-1.0%	\$41,132	1.7%
1996-1997	\$38,887	2.3%	\$43,355	5.4%
1997-1998	\$41,080	4.0%	\$45,800	5.6%
1998-1999	\$43,242	3.5%	\$48,211	5.3%
1999-2000	\$44,472	0.1%	\$49,582	2.8%
2000-2001	\$46,336	0.4%	\$51,660	4.2%
2001-2002	\$49,830	6.3%	\$55,555	7.5%
2002-2003	\$52,930	3.5%	\$59,102	6.2%
2003-2004	\$56,885	5.4%	\$63,421	7.5%
2004-2005	\$59,741	2.0%	\$66,605	5.0%
2005-2006	\$61,341	-1.0%	\$68,389	2.7%
2006-2007	\$64,579	2.8%	\$71,999	5.3%
2007-2008	\$67,809	-5.6%	\$75,600	5.0%
2008-2009	\$68,583	1.1%	\$76,463	1.1%
2009-2010	\$67,583	-1.7%	\$75,348	-1.5%
2010-2011	\$67,762	0.1%	\$75,548	0.3%
2011-2012	\$69,312	2.0%	\$77,276	2.3%
2012-2013	\$65,585	-5.5%	\$73,121	-5.4%
2013-2014	\$63,257	-3.7%	70,525	-3.5%
2014-2015	\$65,940	4.3%	\$73,517	4.2%
2015-2016	\$67,086	-2.3%	\$74,794	1.7%
2016-2017	\$68,643	6.1%	\$76,530	2.3%
2017-2018	\$71,046	-4.6%	\$79,209	3.5%



Figure 62: Trump World Tower

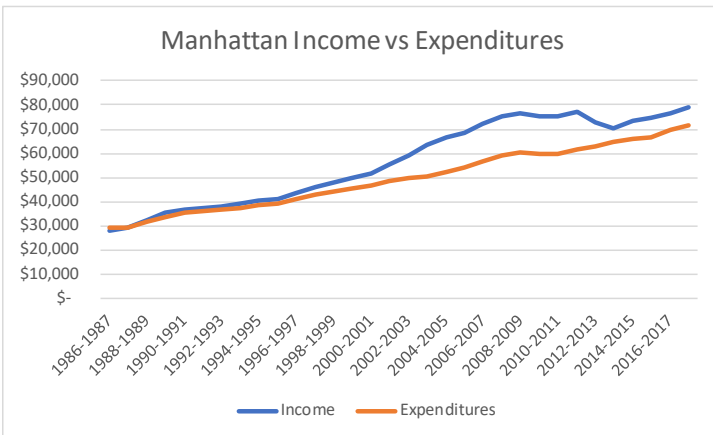
Expenditure Charts



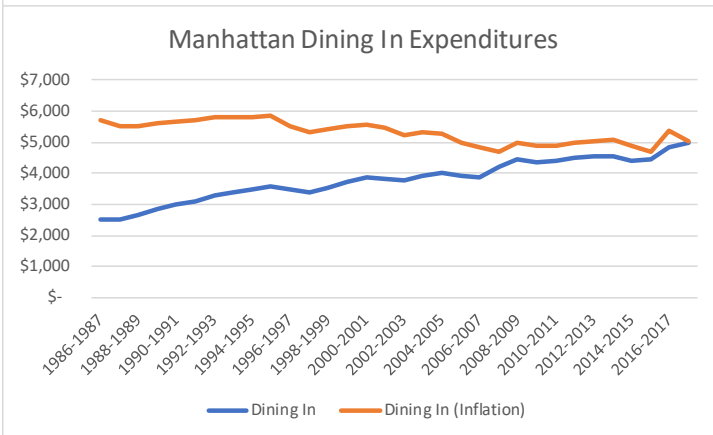
Income has steadily grown since the mid-1980's, the only major decrease in income resulted from the financial crash of 2008, but it has since recovered. Purchasing power has increased from roughly \$60,000 a year in 1986 to \$80,000 today. It is important to note that these numbers are an average, and income inequality skews values to higher than a median value.

Expenditure per capita has steadily grown throughout the years and once adjusted for inflation, annual expenditures appear mostly flat. Adjusted for purchasing power, the people today spend roughly \$7,000 more per year than people did in the 80's.

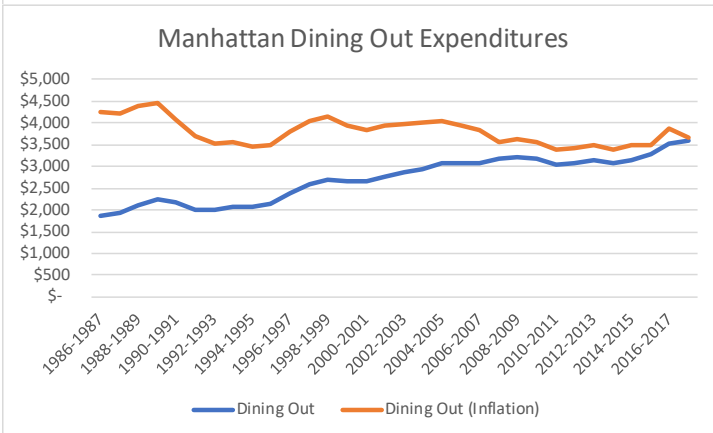
Apparel Expenditures per Capita



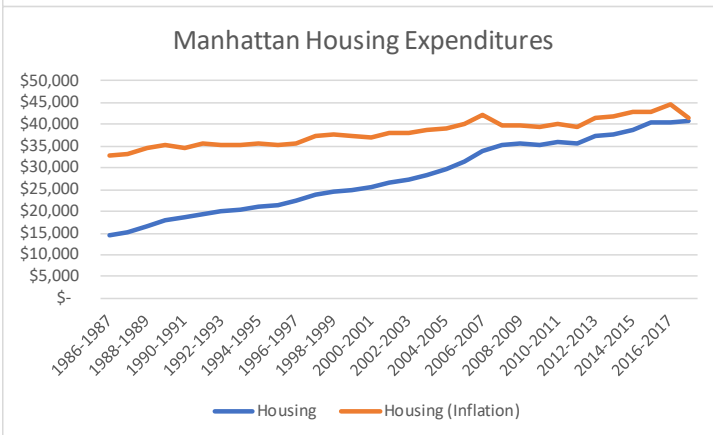
In the 80's and a majority of the 90's people spent most of their income, which is a problem when it comes to saving money. Since the early 2000's incomes started to break away from expenditures and ever since then there has been a \$5,000-\$10,000 difference between the two values.



While dining in expenses have been increasing each year, it appears people are spending less on food from a market compared to the 80's.

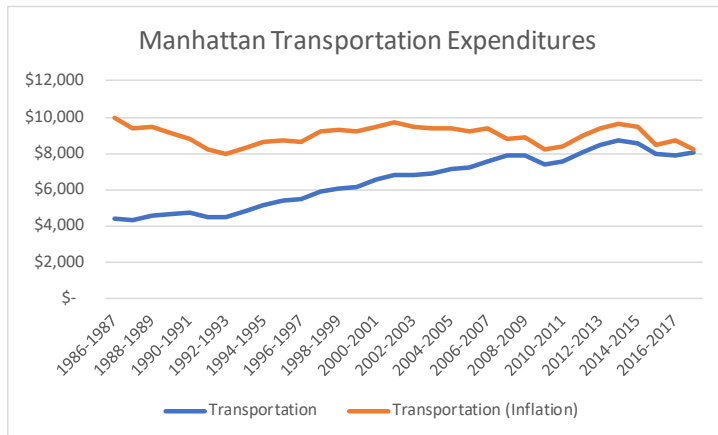


While dining out expenses have increased each year, people are spending less money at restaurants compared to the 80's and late 90's.

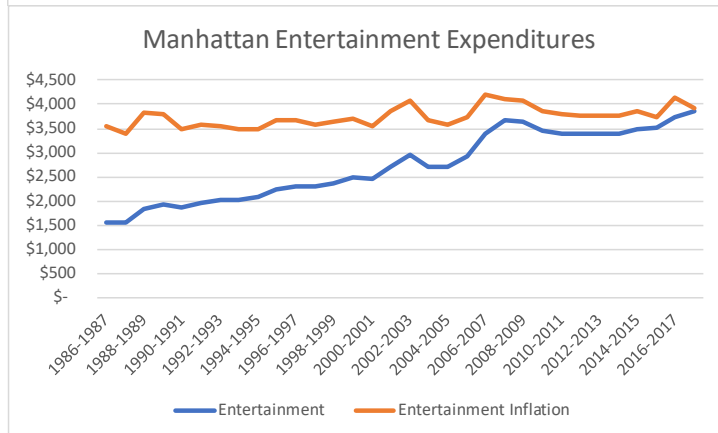


It is common to find articles criticizing the rising cost of housing in the city, and the data does show annual increases in the cost of housing, including expenditures if they're adjusting for inflation. New York does appear to become more and more unaffordable each year, which is a problem for low income individuals.

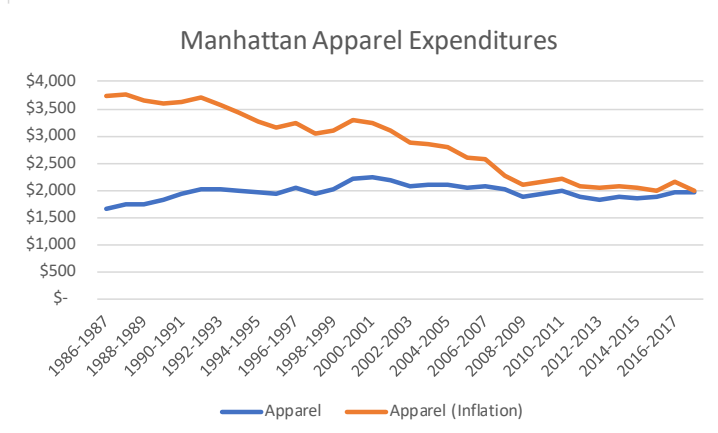
Apparel Expenditures per Capita



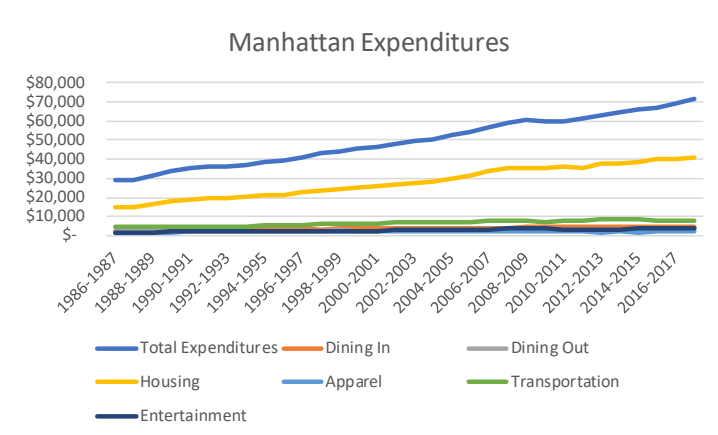
Data gathered from the census reflects the Northeastern region of the US, adjusting expenditures to fit Manhattan was difficult because it varies depending on mode of transportation. Owning a car in New York is very expensive due to parking spot rentals, taxes, and gas prices. Many New Yorkers take public transportation or walk so a person could realistically spend way less than the average.



People in Manhattan have curbed their entertainment spending (concerts, movies, etc.) since the recession in 2008 and it hasn't really picked up since then. Annual spending used to increase at a more stable rate before the early 2000's.



Manhattan residents have cut back on their clothes shopping, apparel expenditures have remained mostly flat since the 80's. This could reflect the trends in work dress codes, most while collar jobs don't require you to dress formal anymore and business casual has become the norm. Since people don't need two different wardrobes, clothes expenditures will decrease.



When comparing all the expenses in one chart, housing costs really stand by themselves and make up most of a Manhattanite's expenditures. All the other expenditure categories are roughly the same in terms of cost.

Program Formulas





Program Formulas

The following formulas were devised in order to create and predict the building program for Park City. These formulas are based on the previously listed data and will be used to estimate different aspects of the commercial and residential portions of Park City. All equations reflect values from the Park City neighborhood, since it will be the location of the Park City Project.

Parameter: Male / Female Ratio

Description: Calculates the percentage of retail space dedicated towards a specific sex. Calculations were based off Census statistics.

Sex Population Percentage x Total Number of Retail Sq Ft = Sq Ft of Retail Dedicated for Sex

Male: $.474 \times 210,000 \text{ sq ft} = 99,540 \text{ sq ft}$ of Male Orientated Retail

Female: $.526 \times 210,000 \text{ sq ft} = 110,460 \text{ sq ft}$ of Female Orientated Retail

Parameter: Age Demographic

Description: Calculates the percentage of residential space which would contain the following age groups. Calculations were based off Census statistics.

$(\text{Amount of People in Age Demographic} / \text{Total Adult Population}) \times \text{Total Rentable Residential Square Footage} = \text{Amount of Residential Sq Ft Expected to be Rented by Age Demographic}$

18-64 Year Olds: $(36,121 / 43,192) \times 2,649,600 \text{ sq ft} = 2,215,832 \text{ Sq Ft}$ Residential Sq Ft Expected to be Rented by Age Demographic

65+ Year Olds: $(7,071 / 43,192) \times 2,649,600 \text{ sq ft} = 433,768 \text{ Sq Ft}$ Residential Sq Ft Expected to be Rented by Age Demographic

Parameter: Birthplace Demographics

Description: Calculates the percentage of retail space dedicated towards a foreign group. Calculations were based off Census statistics.

$(\text{Foreign Population Group} / \text{Total Population}) \times \text{Amount of Retail Space} = \text{Amount of Retail Space Dedicated Towards Group}$

Europeans: $(3,340 / 47,774) \times 210,000 \text{ Sq Ft} = 14,681 \text{ Sq Ft}$ Dedicated Towards Europeans

Asia: $(6,595 / 47,774) \times 210,000 \text{ Sq Ft} = 28,990 \text{ Sq Ft}$ Dedicated Towards Asians

Africa: $(217 / 47,774) \times 210,000 \text{ Sq Ft} = 95 \text{ Sq Ft}$ Dedicated Towards Africans

Oceania: $(1,481 / 47,774) \times 210,000 \text{ Sq Ft} = 6,510 \text{ Sq Ft}$ Dedicated Towards Australians

Americas: $(359 / 47,774) \times 210,000 \text{ Sq Ft} = 1,578 \text{ Sq Ft}$ Dedicated Towards Latin Americans

Program Formulas

Parameter: Employment Industry

Description: Calculates the percentage of residents who work in each major employment field. Calculations were based off Census statistics.

$(\text{Number of People Working in Industry} / \text{Total Worker Population}) \times \text{Amount of Commercial Space} = \text{Amount of Commercial Space Dedicated Towards Industry}$

Agriculture/Forestry/Mining/Hunting: $(16 / 29,935) \times 1,810,000 \text{ Sq Ft} = \text{No Sq Ft Dedicated}$

Construction: $(137 / 29,935) \times 1,810,000 \text{ Sq Ft} = 8,284 \text{ Sq Ft Dedicated}$

Manufacturing: $(835 / 29,935) \times 1,810,000 \text{ Sq Ft} = 50,487 \text{ Sq Ft Dedicated}$

Wholesale Trade: $(621 / 29,935) \times 1,810,000 \text{ Sq Ft} = 37,548 \text{ Sq Ft Dedicated}$

Retail Trade: $(1,684 / 29,935) \times 1,810,000 \text{ Sq Ft} = 101,822 \text{ Sq Ft Dedicated}$

Transportation/Warehousing/Utilities: $(414 / 29,935) \times 1,810,000 \text{ Sq Ft} = 2,503,224 \text{ Sq Ft Dedicated}$

Information: $(2,223 / 29,935) \times 1,810,000 \text{ Sq Ft} = 134,412 \text{ Sq Ft Dedicated}$

Finance/Real Estate/Insurance: $(6,638 / 29,935) \times 1,810,000 \text{ Sq Ft} = 401,362 \text{ Sq Ft Dedicated}$

Management/Administration: $(7,464 / 29,935) \times 1,810,000 \text{ Sq Ft} = 451,306 \text{ Sq Ft Dedicated}$

Education/Healthcare/Social Administration: $(5,686 / 29,935) \times 1,810,000 \text{ Sq Ft} = 343,800 \text{ Sq Ft Dedicated}$

Arts/Entertainment/Recreation/Accommodation/Food: $(1,777 / 29,935) \times 1,810,000 \text{ Sq Ft} = 107,445 \text{ Sq Ft Dedicated}$

Other Services: $(1,405 / 29,935) \times 1,810,000 \text{ Sq Ft} = 84,952 \text{ Sq Ft Dedicated}$

Public Administration: $(1,035 / 29,935) \times 1,810,000 \text{ Sq Ft} = 63,548 \text{ Sq Ft Dedicated}$

Parameter: Wages

Description: Calculates the percentage of Park City residents based on their economic class. Calculations were based off Census statistics.

$(\text{Number of Households in Wage Category} / \text{Total Number of Households}) \times \text{Total Residential Space} = \text{Amount of Residential Space Dedicated Towards Wage Demographic}$

\$50,000 to \$74,999: $(3,657 / 18,915) \times 2,649,600 = 512,270 \text{ Sq Ft Dedicated Towards Wage Demographic}$

\$75,000 to \$99,999: $(2,691 / 18,915) \times 2,649,600 = 376,953 \text{ Sq Ft Dedicated Towards Wage Demographic}$

\$100,000 to \$149,999: $(4,395 / 18,915) \times 2,649,600 = 615,648 \text{ Sq Ft Dedicated Towards Wage Demographic}$

\$150,000 to \$199,999: $(2,917 / 18,915) \times 2,649,600 = 408,611 \text{ Sq Ft Dedicated Towards Wage Demographic}$

\$200,000+: $(5,255 / 18,915) \times 2,649,600 = 736,117 \text{ Sq Ft Dedicated Towards Wage Demographic}$

Parameter: Apartment Type

Description: Calculates how much space will be dedicated towards a particular apartment type within Park City.

$(\text{Number of Households in Typology} / \text{Total Population}) \times \text{Total Residential Square Footage} = \text{Amount of Residential Square Footage Dedicated Towards Apartment Type}$

Studio: $(10,968 / 31,192) \times 2,649,600 = 908,740 \text{ Sq Ft of Studio Apartments}$

1 Bedroom: $(11,142 / 31,192) \times 2,649,600 = 946,456 \text{ Sq Ft of 1 Bedroom Apartments}$

2 Bedroom: $(5,079 / 31,192) \times 2,649,600 = 431,435 \text{ Sq Ft of 2 Bedroom Apartments}$

3 Bedroom: $(3,349 / 31,192) \times 2,649,600 = 284,480 \text{ Sq Ft of 3 Bedroom Apartments}$

4+ Bedroom: $(654 / 31,192) \times 2,649,600 = 55,553 \text{ Sq Ft of 4+ Bedroom Apartments}$

Program Formulas

Parameter: Number of Apartment Types

Description: Calculates the number of apartment units within each typology

Total Sq Ft of Apartment Type / Typical Size of Apartment Type = Amount of Apartment Types in Project

Studio: $908,740 / 500 = 1,817$ Studio Apartments

1 Bedroom: $946,456 / 650 = 1,456$ 1 Bedroom Apartments

2 Bedroom: $431,435 / 900 = 479$ 2 Bedroom Apartments

3 Bedroom: $284,480 / 1,600 = 177$ 3 Bedroom Apartments

4 Bedroom: $55,553 / 3,000 = 18$ 4 Bedroom Apartments

Parameter: Rented vs Owned Households

Description: Calculates the percentage of households within Park City which will be sold or rented. Calculations were based off Census statistics.

Total Number of Households in Project x (Owned Households / Total Number of Households) = Number of Owner Households in Project

Owned: $3,947 \times (7,442 / 26,059) = 1,127$ Owned Apartments

Rented: $3,947 - 1,127 = 2,820$ Rented Apartments

Parameter: Vacant Households

Description: Calculates the rent missed from vacant households in the surrounding neighborhood. Calculations were based off Census statistics.

(Total Households in Area x Area Vacancy Rate) x Median Rent in Area = Monetary Value of Vacant Households

Turtle Bay: $(31,192 \times .165) \times \$2,299 = \$11,832,217$ Monetary Value of Vacant Households

Parameter: Vehicles per Household

Description: Calculates the estimated amount of parking spaces residents will require. Calculations were based off Census statistics.

(Number of Vehicles in Demographic x Number of Apartment Households in Vehicle Demographic) + (...) = Total Number of Residential Park Spaces Required

Note: (Number of Households in Vehicle Demographic / Total Households) x Total Number of Apartments in Project = Number of Apartments in Project in Car Demographic

$(1 \times 638) + (2 \times 84) = 806$ Total Residential Parking Spaces

Program Formulas

Parameter: Household Income

Description: Calculates the amount of money each economic class should put towards rent (based on 30% of personal income). Calculations were based off Census statistics.

$(\text{Income} \times 30\%) / 12 \text{ Months} = \text{Optimal Monthly Rent for Income}$

\$50,000: $(\$50,000 / 0.3) / 12 = \$1,250$ per Month

\$75,000: $(\$75,000 / 0.3) / 12 = \$1,875$ per Month

\$100,000: $(\$100,000 / 0.3) / 12 = \$2,500$ per Month

\$150,000: $(\$150,000 / 0.3) / 12 = \$3,750$ per Month

\$200,000: $(\$200,000 / 0.3) / 12 = \$5,000$ per Month

Parameter: Project Rent as Percentage of Median Income

Description: Calculates percentage of the median household income for the area based on the studio apartment rent. Calculations were based off Census statistics.

$\text{Rent Price} / (\text{Median Household Income} / 12 \text{ Months}) = \text{Rent as Percent of Income}$

Note: Using 1 Bedroom apartment in example since it is the most common apartment type in Manhattan

$\$2,800 / (\$134,337 / 12) = 25\%$ of Rent is Dedicated towards Income

Parameter: Mortgage Prices too High/Low

Description: Calculates how much more expensive a studio apartment could be based off 30% of typical household income in the area. Calculations were based off Census statistics.

$(\text{Average 1 Bedroom Apartment Rent} / (\text{Median Income per Household} / 12 \text{ Months}) + 30\% = \text{Percent how High or Low Rent is Compared to Healthy Rent}$

$0.3 - (\$2,800 / (\$134,337 / 12)) = 0.05$ Rent Prices Could be 5% Higher

Parameter: Expected Rent Growth Prices

Description: Calculates the estimated rents for Park City next year. Calculations were based off market research reports.

$(\text{Rent Price} * \text{Average Rent Growth Rate}) + \text{Rent Price} = \text{Expected Rent Next Year}$

Studio: $(\$2,800 \times 0.021) + \$2,800 = \$2,859$ Studio Rent Next Year

1 Bedroom: $(\$3,500 \times 0.021) + \$3,500 = \$3,574$ 1 Bedroom Rent Next Year

2 Bedroom: $(\$5,400 \times 0.021) + \$5,400 = \$5,513$ 2 Bedroom Rent Next Year

3 Bedroom: $(\$6,600 \times 0.021) + \$6,600 = \$6,737$ 3 Bedroom Rent Next Year

4: Bedroom: $(\$40,200 \times 0.021) + \$40,200 = 41,044$ 4 Bedroom Rent Next Year

Program Formulas

Parameter: Dining In Expenditures as Part of Income

Description: Calculates the percentage of income a typical household puts towards buying groceries. Calculations were based off Census statistics.

Annual Dining In Expenses per Capita / Average Income = Dining In Expenses Percentage as part of Income

$\$4,972 / \$89,076 = 5.6\%$ of Income Dedicated Towards Dining In Expenses

Parameter: Dining Out Expenditures as Part of Income

Description: Calculates the percentage of income a typical household puts towards eating out. Calculations were based off Census statistics.

Annual Dining Out Expenses per Capita / Average Income = Dining Out Expense Percentage as part of Income

$\$3,589 / \$89,076 = 4.0\%$ of Income Dedicated Towards Dining In Expenses

Parameter: Housing Expenditures as Part of Income

Description: Calculates the percentage of income a typical household puts towards housing expenses (rent, mortgage, taxes, improvements, etc). Calculations were based off Census statistics.

Annual Housing Expenses per Capita / Average Income = Housing Expense Percentage as part of Income

$\$40,716 / \$89,076 = 45.7\%$ of Income Dedicated Towards Housing Expenses

Parameter: Apparel Expenditures as Part of Income

Description: Calculates the percentage of income a typical household puts towards clothing expenses. Calculations were based off Census statistics.

Annual Apparel Expenses per Capita / Average Income = Apparel Expense Percentage as part of Income

$\$1,962 / \$89,076 = 2.2\%$ of Income Dedicated Towards Apparel Expenses

Parameter: Transportation Expenditures as Part of Income

Description: Calculates the percentage of income a typical household puts towards transportation. Calculations were based off Census statistics.

Annual Transportation Expenses per Capita / Average Income = Transportation Expense Percentage as part of Income

$\$8,032 / \$89,076 = 9.0\%$ of Income Dedicated Towards Transportation Expenses

Program Formulas

Parameter: Entertainment Expenditures as Part of Income

Description: Calculates the percentage of income a typical household puts towards entertainment. Calculations were based off Census statistics.

Annual Entertainment Expenses per Capita / Average Income = Entertainment Expense Percentage as part of Income

$\$3,866 / \$89,076 = 4.3\%$ of Income Dedicated Towards Entertainment Expenses

Parameter: Annual Expenditures per Capita

Description: Calculates the percentage of income a typical household puts towards all categories of expenses. Calculations were based off Census statistics.

Dining In Expenditures + Dining Out Expenditures + Housing Expenditures + Apparel Expenditures + Transportation Expenses + Entertainment Expenses + Misc. Expenses = Total Annual Expenditure Per Capita

$\$4,972 + \$3,589 + \$40,716 + \$1,962 + \$8,032 + \$3,866 + \$8,399 = \$71,506$

Parameter: Amount of Available Retail Space

Description: Calculates the amount of expected vacant retail space within Park City. Calculations were based off market research statistics.

Total Rentable Retail Space x Expected Retail Vacancy Rate = Expected Amount of Vacant Retail Space

$210,000 \times 5.0\% = 10,500$ Sq Ft Expected Amount of Vacant Retail Space

Parameter: Value of Available Retail Space

Description: Calculates the value of expected vacant retail space within Park City. Calculations were based off market research statistics.

(Total Rentable Retail Space x Expected Retail Vacancy Rate) x Retail Rent = Value of Available Retail Space

$(210,000 \times 5.0\%) \times \$360 = \$3,780,000$ Annual Value of Available Retail Space

Parameter: Amount of Available Office Space

Description: Calculates the amount of expected vacant office space within Park City. Calculations were based off market research statistics.

Total Rentable Office Space x Expected Office Vacancy Rate = Expected Amount of Vacant Office Space

$2,225,000 \times 7.5\% = 166,875$ Sq Ft Expected Amount of Office Space

Program Formulas

Parameter: Value of Available Office Space

Description: Calculates the value of expected vacant office space within Park City. Calculations were based off market research statistics.

$(\text{Total Rentable Office Space} \times \text{Expected Office Vacancy Rate}) \times \text{Office Rent} = \text{Value of Available Office Space}$

$(2,225,000 \times 7.5\%) \times \$80 = \$13,350,000$ Annual Value of Available Office Space

Parameter: Expected Number of Visitors to New York Next Year

Description: Calculates the expected amount of visitors to New York next year. Calculations were based off market research statistics.

$(\text{Total Amount of Visitors} \times (1 + \text{Average Annual Visitor Growth Rate})) = \text{Expected Number of Visitors to New York Next Year}$

$(62,500,000 \times (1 + 3.6\%)) = 64,750,000$ Expected Visitors Next Year

Parameter: Expected Number of New Hotel Rooms in Midtown Next Year

Description: Calculates the expected amount of new hotel rooms to be constructed in Midtown next year. Calculations were based off market research statistics.

$(\text{Total Amount of Hotel Rooms} \times (1 + \text{Average Annual Hotel Room Growth Rate})) = \text{Expected of New Hotel Rooms to be Constructed in New York Next Year}$

$(61,235 \times (1 + 4.6\%)) - 61,235 = 2,817$ Expected Number of New Hotel Rooms in Midtown Next Year

Parameter: Amount of Vacant Hotel Rooms in Project on any Given Day

Description: Calculates the expected amount of vacant hotel rooms in the Park City project on any given day. Calculations were based off market research statistics.

$\text{Amount of Hotel Rooms in Project} \times (1 - \text{Average Hotel Occupancy Rate}) = \text{Amount of Hotel Rooms Vacant on any Given Day}$

$560 \times (1 - .809) = 107$ Hotel Rooms Vacant on any Given Day

Program Formulas

Parameter: Income From Apartment Rent

Description: Calculates the amount of rent collected each month from each apartment typology. Overall 71.4% of residential units will be leased within Park City. The figure was derived from the percentage of rented units in Manhattan as a whole. Estimates show the total revenue from rented apartments is \$8,750,000 per month.

$((\text{Percent of Project Dedicated Towards Rentable Units} \times \text{Amount of Apartment Type}) \times (1 - \text{Area Vacancy Rate})) \times \text{Typical Rent} = \text{Monthly Income From Apartment Type}$

Studio: $((0.714 \times 1,817) \times (1 - 16.5\%)) \times \$2,800 = \$3,032,400$ Per Month Rental Income

1 Bedroom: $((0.714 \times 1,456) \times (1 - 16.5\%)) \times \$3,500 = \$3,038,000$ Per Month Rental Income

2 Bedroom: $((0.714 \times 479) \times (1 - 16.5\%)) \times \$5,400 = \$1,544,400$ Per Month Rental Income

3 Bedroom: $((0.714 \times 177) \times (1 - 16.5\%)) \times \$6,600 = \$693,000$ Per Month Rental Income

4 Bedroom: $((0.714 \times 18) \times (1 - 16.5\%)) \times \$40,200 = \$442,200$ Per Month Rental Income

Parameter: Income From Apartment Sales

Description: Calculates the revenue from condo sales for each apartment typology. Overall 28.6% of residential units will be sold within Park City. The figure was derived from the percentage of owned apartments in Manhattan as a whole. Estimates show the total revenue from sold apartments is \$1,570,000,000.

$(\text{Percent of Project Dedicated Towards Buyable Units} \times \text{Amount of Apartment Type}) \times \text{Typical Selling Price} = \text{Expected Income From Apartment Type}$

Studio: $(0.286 \times 1,817) \times \$850,000 = \$442,000,000$ Worth of Studio Apartments

1 Bedroom: $(0.286 \times 1,456) \times \$1,150,000 = \$478,400,000$ Worth of 1 Bedroom Apartments

2 Bedroom: $(0.286 \times 479) \times \$2,300,000 = \$315,100,000$ Worth of 2 Bedroom Apartments

3 Bedroom: $(0.286 \times 177) \times \$5,500,000 = \$280,500,000$ Worth of 3 Bedroom Apartments

4 Bedroom: $(0.286 \times 18) \times \$10,800,000 = \$54,000,000$ Worth of 4 Bedroom Apartments

Parameter: 20 Year Apartment Rental Income Projection

Description: Calculates the amount of rent collected from each apartment typology over a 20 year span. The figure compares long term revenue for a 20 year loan. Estimates show the total revenue from rented apartments over a 20 year span is \$2,577,135,333.

$((\text{Rent for Studio Apartment} \times (\text{Number of Studio Apartments Types} - \text{Number of Vacant Apartments})) \times 12 \text{ Months}) + ((\text{Rent for Studio Apartment Previous Year} + (\text{Average Neighborhood Rent Price Increase} \times \text{Rent for Studio Apartment Previous Year})) \times (\text{Number of Studio Apartments Types} - \text{Number of Vacant Apartments})) \times 12 \text{ Months} + \dots = 20 \text{ Year Projected Apartment Rental Income}$

Studio Apartments: $[((\$2,800 \times (1,083 - (1 - 16.5\%)) \times 12)] + [((\$2,800 + (\$2,800 \times 2.1\%) \times (1,083 - (1 - 16.5\%)) \times 12)] + \dots = \$893,009,898$ of Rental Income Over 20 Years from Studio Apartments.

1 Bedroom Apartments: $[((\$3,500 \times (868 - (1 - 16.5\%)) \times 12)] + [((\$3,500 + (\$3,500 \times 2.1\%) \times (868 - (1 - 16.5\%)) \times 12)] + \dots = \$894,659,039$ of Rental Income Over 20 Years from 1 Bedroom Apartments.

2 Bedroom Apartments: $[((\$5,400 \times (285 - (1 - 16.5\%)) \times 12)] + [((\$5,400 + (\$5,400 \times 2.1\%) \times (285 - (1 - 16.5\%)) \times 12)] + \dots = \$453,219,309$ of Rental Income Over 20 Years from 2 Bedroom Apartments.

3 Bedroom Apartments: $[((\$6,600 \times (106 - (1 - 16.5\%)) \times 12)] + [((\$6,600 + (\$6,600 \times 2.1\%) \times (106 - (1 - 16.5\%)) \times 12)] + \dots = \$206,024,840$ of Rental Income Over 20 Years from 3 Bedroom Apartments.

4 Bedroom Apartments: $[((\$40,200 \times (11 - (1 - 16.5\%)) \times 12)] + [((\$40,200 + (\$40,200 \times 2.1\%) \times (11 - (1 - 16.5\%)) \times 12)] + \dots = \$130,223,248$ of Rental Income Over 20 Years from 4 Bedroom Apartments.

Program Formulas

Parameter: 20 Year Retail Lease Income Projection

Description: Calculates the amount of rent collected from retail leases over a 20 year span. The figure compares long term revenue for a 20 year loan. Estimates show the total revenue from retail space over a 20 year span is \$1,512,000,000.

$(\text{Yearly Rent for One Sq Ft of Retail Space} \times \text{Estimated Sq Ft of Rented Retail Space}) + ((\text{Yearly Rent for One Sq Ft of Retail Space} + (\text{Average Neighborhood Rent Price Increase} \times \text{Rent for Retail Space from Previous Year})) \times \text{Estimated Sq Ft of Rented Retail Space}) + \dots = 20 \text{ Year Projected Retail Lease Income}$

Note: Total Retail Lease Income for 20 years is \$1,512,000,000

$[(\$360 \times 210,000)] + [((\$360 + (\$360 \times 1.4\%)) \times 210,000)] + \dots = \$1,512,000,000 \text{ of Rental Income Over 20 Years from Retail Leases.}$

Parameter: 20 Year Office Lease Income Projection

Description: Calculates the amount of rent collected from office leases over a 20 year span. The figure compares long term revenue for a 20 year loan. Estimates show the total revenue from office space over a 20 year span is \$3,806,985,630.

$(\text{Yearly Rent for One Sq Ft of Office Space} \times \text{Estimated Sq Ft of Rented Office Space}) + ((\text{Yearly Rent for One Sq Ft of Office Space} + (\text{Average Neighborhood Rent Price Increase} \times \text{Rent for Office Space from Previous Year})) \times \text{Estimated Sq Ft of Rented Office Space}) + \dots = 20 \text{ Year Projected Office Lease Income}$

Note: Total Office Lease Income for 20 years is \$3,806,985,630

$[(\$80 \times 2,225,000)] + [((\$80 + (\$80 \times 0.7\%)) \times 2,225,000)] + \dots = \$3,806,985,630 \text{ of Rental Income Over 20 Years from Office Leases.}$

Parameter: 20 Year Total Income Projection

Description: Calculates the amount of revenue collected from from all sources over a 20 year span. The figure compares long term revenue for a 20 year loan. Hotel space value was based of recent hotel market transactions within Manhattan. Estimates show the total revenue for the project over a 20 year span is \$9,946,120,963.

$20 \text{ Year Total Apartment Rental Income} + \text{Total Apartment Sales Income} + 20 \text{ Year Total Office Rental Income} + 20 \text{ Year Total Retail Rental Income} + \text{Total Hotel Sales Income} = \text{Total Project Income over 20 Years}$

$\$2,577,135,333 + \$1,570,000,000 + \$3,806,985,630 + \$1,512,000,000 + \$480,000,000 = \$9,946,120,963 \text{ 20 Year Project Income}$



Figure 64: Vinegar Hill Neighborhood in Brooklyn



Figure 65: High Line Park

Project Justification

Park City is an important project for the Midtown community because it will involve the transformation of a vacant pit into a new development that integrates green space into public spaces and the buildings forms. This will be important to not only residents, but also the surrounding community and visitors from all over New York. As described previously in the book, Manhattan is a city which contains millions of residents but not very many public green spaces. Plants and trees have been proven to improve a person's quality of life. By implementing them heavily into the project's design will bring nature to the man-made urban environments of Turtle Bay and Murray Hill. People passing through the site on their commute to work would benefit psychologically by experiencing nature amidst the dense urban environment. Similar project's such as the High Line Park have already proved successful and remain popular in amongst residents. Park City's design would also serve as a benchmark for future development projects. Over time this improve Manhattan's quality of life and cement the city as an example of sustainable design.

I personally justify this project since it will open an opportunity to design an entire community based on balancing the urban and natural environment. Whether it is enjoying the beach in California or hiking in the mountains of New Hampshire, I have always enjoyed spending time in nature. Large cities have also played a significant role in my life, as I have lived in Toronto and the Twin Cities. After visiting New York in the summer of 2018, I noticed how the city was a continuous grid of high-rise buildings and very few natural features were seen. It is healthy for everyone to experience the natural environment every now and then. By integrating trees and plants into a development project would give residents the opportunity experience nature. Discovering the future site of Park City gave me the perfect site. The scale and complex balance in which the project centers around proves challenging but rewarding final thesis project.



Figure 66: Tuttle Bay in the early 1700s

Historical, Social, & Cultural Context

New York City was established by Dutch settlers as New Amsterdam in 1624. It was eventually seized by the British 40 years later in 1664. The city's name changed to New York after it was captured and named after the Duke of York. The land around the project site remained unused until 1762 when it was purchased by a wealthy merchant named Robert Murray, who established a farm with a large estate on the site. The Murray family played an important role in the Revolutionary War when they invited the British Generals over for tea. The tea party delayed the British Troops pursuit of American Militia, which allowed them to retreat safely. As New York continued to grow, the farm land was then divided into smaller residential homesteads.



Figure 67: Typical 1800's Brownstone Tenement

In 1863 during the Civil War, the New York Draft Riots erupted with violence and destruction. The riot burned down most of the homes in the area and the area was effectively leveled. A few days later the army marched into the city and put an end to the riot. After the Civil War the area was then saw the development of many brownstone townhomes. The neighborhood also saw the construction of many industrial factories, slaughterhouses, breweries, laundries, and the Con-Edison Coal Power Plant (located at 666 1st Avenue). Turtle Bay and Murray Hill contained some of the most polluted air in the city during this time period. During this era many poor immigrants moved into the brownstone tenements and the area became synonymous with poverty and crime.



Figure 68: UN Construction 1948

The neighborhood remained a poor and dangerous area until the 1920's, when many brownstones started to be renovated. Between 1927 and 1932 the Tudor City development was built just west of the project site. These luxury apartments brought an influx of wealth into the area and conditions improved greatly. In 1948 the United Nations Headquarters complex began construction, resulting in the demolition of many of the industrial buildings in the area. The removal of the local elevated train during this time period opened space for many city blocks in the area, allowing the construction of high-rise buildings in the neighborhood. The coal power plant was finally sold to real estate developer Sheldon Solow in the mid 90's and the current site of Park City was excavated and cleaned up shortly after the purchase. Currently the project site remains in the same state as it did in the 90's.

Site Analysis

The site for the Park City project is in the New York City borough of Manhattan, one of the most densely populated places in the United States. Manhattan serves as an international center for finance, business, media, and culture. Manhattan has a population of 1.6 million people with a density of 73,000 people per square mile. The city of New York has a total population of 8.6 million people, with over 20 million people living in the city's metropolitan area. Park City will be mostly in the Manhattan neighborhood of Turtle Bay, which is located on the eastern portion of the borough along the East River. A portion of the site will be in the bordering neighborhood of Murray Hill, a quiet residential Midtown community. Part of New York's central business district, Turtle Bay is home to The United Nations Headquarters, the Chrysler Building, and the historic Tudor City complex. Since the UN is located here, dozens of countries have consulates located in the neighborhood.

The main site for the Park City project is located at 666 1st Avenue, it was chosen for its location and unique circumstances which make it one of the most coveted pieces of vacant real estate in the world. Due to Manhattan's population and density, vacant land is almost impossible to come by since most of the borough has been developed. The project's site contains three empty blocks of land, covering a total of 276,025 sq ft. Currently there is no other vacant plot of land close in size to 666 1st Avenue, therefore it is a unique opportunity to design a large development project in one of the most coveted real estate markets in the world.

Park City's site will also involve redesigning the nearby Robert Moses Playground and the East River Esplanade park. These parks are being redesigned because they're underutilized public spaces. Improving them will not only benefit the quality of life for residents and workers in Park City, but also the population in the surrounding community. Robert Moses Playground was built in the 1950's and has aged over time, showing wear and tear in many areas. The Esplanade park sits on the East River, a prime and scenic location. Unfortunately, the site consists of a barren concrete block that doesn't have any clear entrance, therefore it is not used by many people.

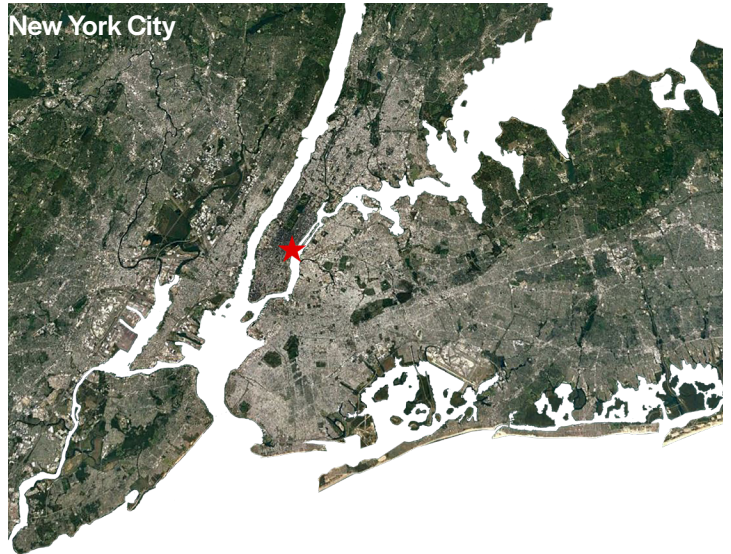
The combination of a vacant lot and a location in the world's largest central business district makes 666 1st Avenue one of the most coveted pieces of urban land in the world. The wealth and attractiveness of Manhattan also allows developers to finance projects that aren't as restricted in design. Park City will become one of the premier residential, commercial, and cultural districts in Manhattan once completed. Its scenic, convenient, and central location will play a big part in its success.

Site Maps

New York



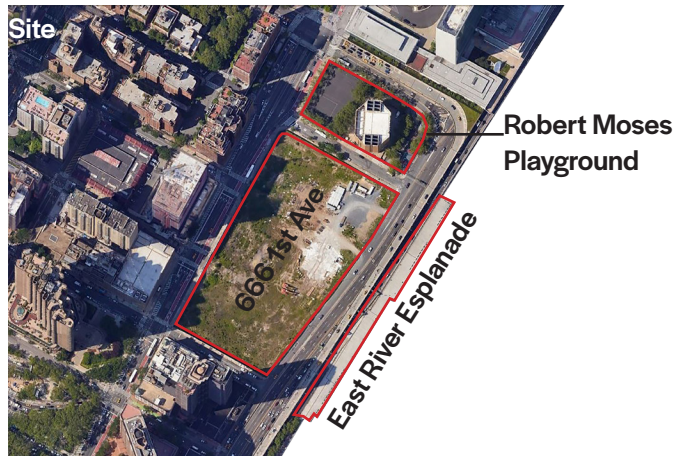
New York City



Midtown



Site



Light Quality

Due to the size and emptiness of the site and its proximity to the East River, natural light is abundant on clear days. While sun intensity can be strong in the summer, the winter and spring months tend to have many cloudy days and the light quality at the site is gloomy. Due to the abundance of glass high rises surrounding the site, reflections off the buildings during mornings and evenings reflect colorful and warm lighting onto the site.

Turtle Bay & Murray Hill Site Map



1. 666 1st Ave Site
2. East River Esplanade
3. Robert Moses Playground
4. 34th St Ferry
5. Queens-Midtown Tunnel Entrance
6. Consulate of South Africa
7. Tudor City
8. United Nations
9. Consulate of Switzerland
10. Pfizer Headquarters
11. Consulate of Nigeria
12. United States Consulate
13. Trump World Tower
14. Vietnam & Iraq Consulate
15. Chrysler Tower
16. Consulate of Belgium
17. Grand Central Station & Metlife Building
18. Waldorf Astoria Hotel
19. St. Barthomew's Church
20. CitiGroup Center
21. J.P. Morgan Headquarters
22. St. Patrick's Cathedral
23. 432 Park Avenue
24. Bloomberg Headquarters
25. Trump Tower

Vegetation & Plant Cover

Currently Robert Moses Playground contains the only abundant vegetation since the main site is an empty pit filled with grass and gravel. While most of the Robert Moses playground is covered in concrete surfaces, American Sycamore trees are found spread out through the site.

New York City is having dozens of native trees and plants which will be implemented in its design. Below is a list of the native plants in New York.

American Mountain Ash



American Sycamore



American Beech



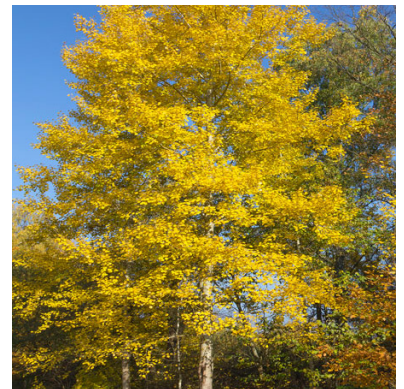
Black Walnut



Black Willow



Aspen



Red Maple



Red Oak



Sassafras



Sugar Maple



American Elderberry



Speckled Alder



Little Bluestem



White Ash



Bayberry



Broad-Leaf Sedge



Northern Prairie Dropseed



White Poplar



Smooth Sumac



Cinnamon Fern



Switch Grass

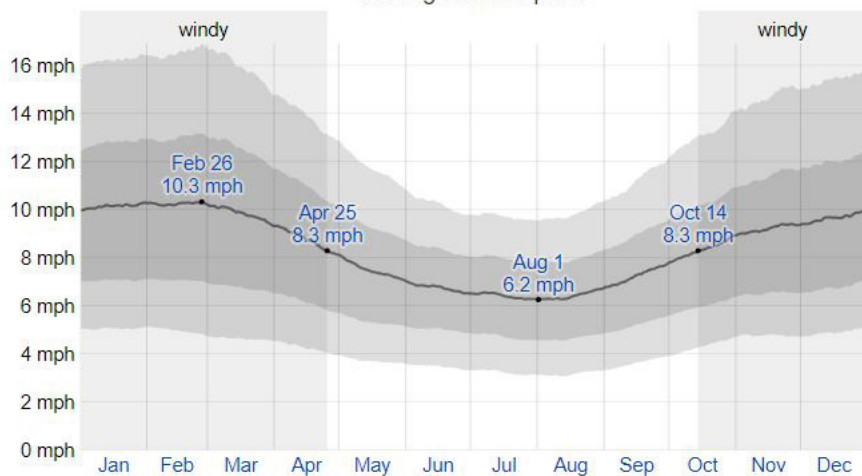
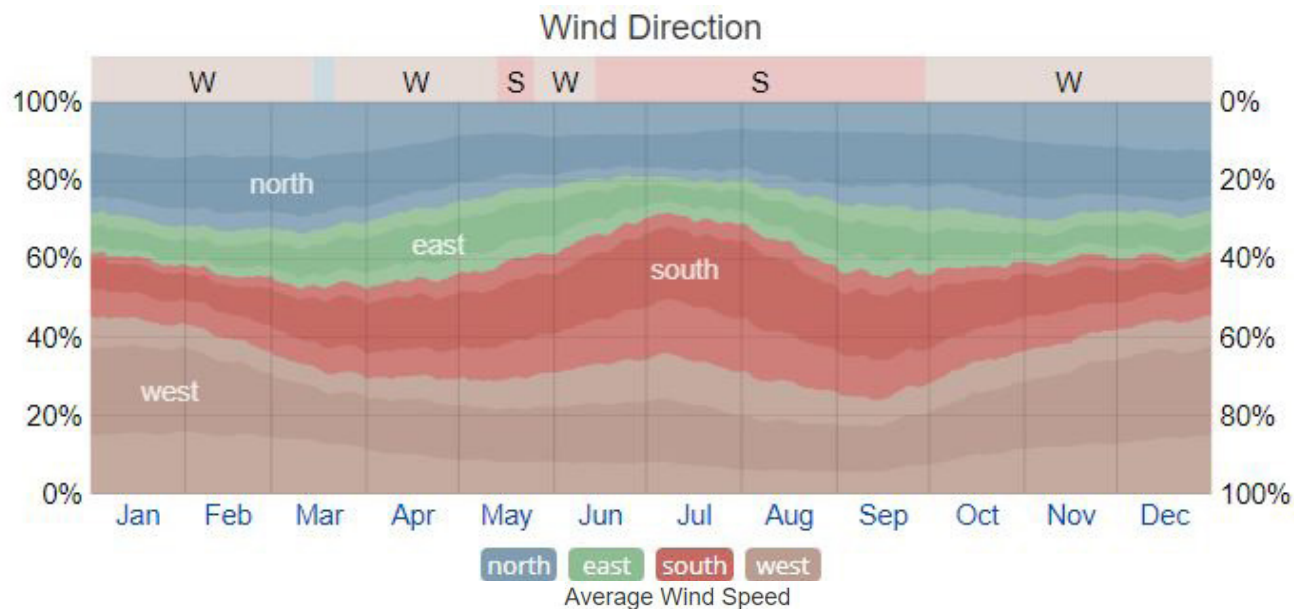




Figure 90: East River on West Side of Roosevelt Island

Water

The East River borders the eastern edge of the site, the Esplanade park being the only portion of the site which has direct access to the river. While water quality has improved over the past few decades, the East River remains polluted enough that swimming is discouraged. It is also advised that people should not consume fish from the river. The river is a long and narrow body of water which connects the Long Island Sound to the north to the Upper Bay at the tip of Manhattan. The East River consists of salt water as it is part of the Atlantic Ocean.



The average of mean hourly wind speeds (dark gray line), with 25th to 75th and 10th to 90th percentile bands.

Winds

During the winter months winds typically come from the north and the west, with an average wind speed around 10 mph. In the spring winds typically come from the south and the west, with winds slowing down to around 8 mph. In the summer months most of the wind comes from the Atlantic Ocean to the south, as well as the west. In the summer, wind speeds are at their lowest point and average 6 mph. During the fall winds mostly come from the west and north, and wind speed picks up to an average of 8 mph.

Due to the high concentration of high-rise buildings in Midtown Manhattan, pedestrians may either be protected from the wind, or experience much harsher winds than other parts of the city since winds strengthen in the narrow spaces between buildings. Occasionally hurricanes reach New York that have hazardous wind speeds. Hurricane Sandy hit New York in 2012 and ravaged many ocean front communities on Long Island and New Jersey.



Figure 93: Con Edison Coal Power Plant in the 1940's

Human Characteristics

Manhattan has been shaped by humans since the 1600's when the Dutch landed and established New Amsterdam. Today every corner of the borough has been altered by humans. Before the 1990's, 666 1st Ave was the location of a Con Edison coal power plant complex. After the completion of the nearby United Nations Headquarters in 1953, the coal power plant was active until the mid-90's when billionaire real estate developer Sheldon Solow purchased the site from Con Edison for \$630 million dollars. After buying the site, Sheldon spent \$100 million dollars demolishing the old power plant and cleaning up the site. Ever since the site was cleaned, it has remained an empty pit as development plans have fallen through multiple times throughout the years.

Robert Moses Playground and the Embarcadero were built in the 1950's during the time the United Nations Headquarters was being constructed. Prior to being converted into parks, the sites were part of the coal power plant complex.

Distress

The main site at 666 1st Avenue is an empty excavated pit which sits ~20 feet deeper than the surrounding roads. This has caused the site to accumulate rain water and runoff from its surroundings and remains muddy most of the year. Robert Moses Playground was constructed in the 1950's just after the completion of the United Nations Headquarters. Due to its age and minimal maintenance, much of the basketball courts are worn out. The Esplanade Park is composed of concrete and is currently in good shape, evading erosion from the East River.

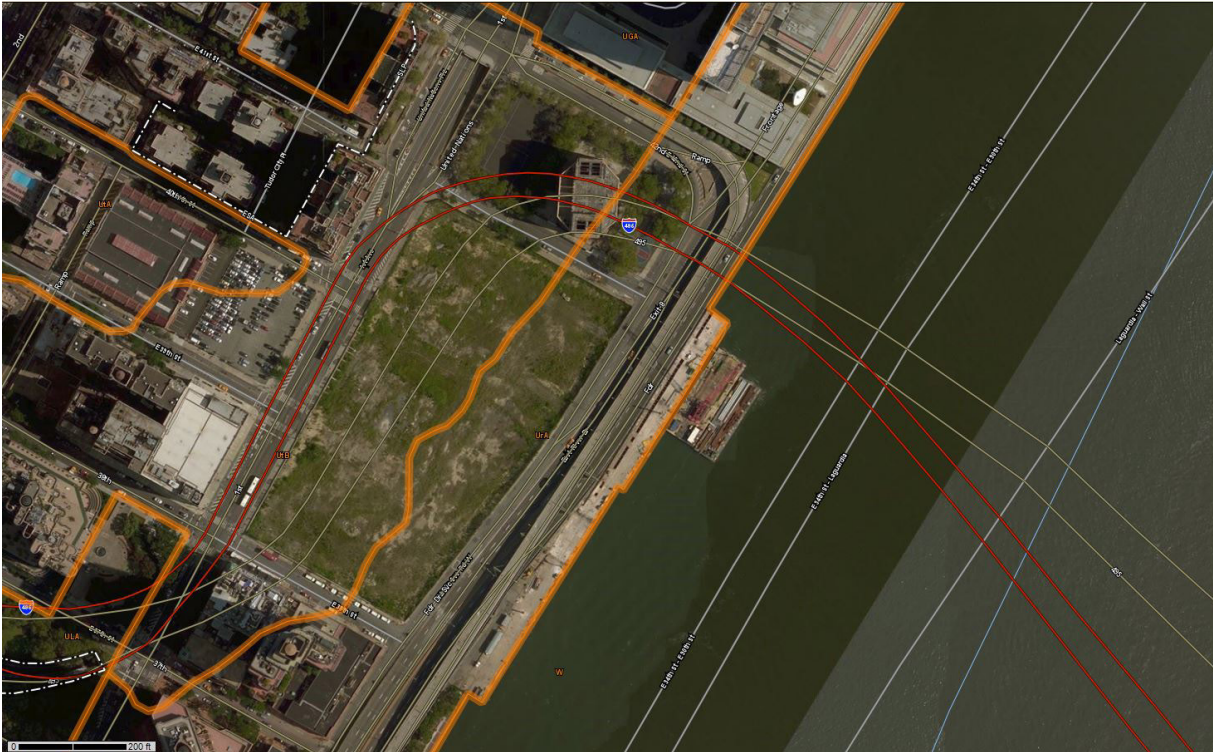


Figure 94: USDA Soil Map of Site

Soils

Approximately 75% of 666 1st Avenue and Robert Moses Playground consists of Urban Land Greenbelt complex soil (UGA). UGA's soil profile has 0" to 30" of loam and 30" to 75" of sandy loam. It is characterized by its ability to easily drain, can hold up to 8.4" of water, and is not prone to flooding.

The remaining 25% of 666 1st Avenue and Robert Moses Playground and the entirety of the Embarcadero consist of Urban Land Reclaimed Substratum soil (UrA). UrA's soil profile has 0" to 15" of cemented material and 15" to 79" of gravelly sandy loam. It is characterized by very high runoff, and very low capacity to hold water.

Water Table

Park City's proximity to the East River is the site's only source of concern for water issues. Bedrock lies less than 20' below the surface in Midtown, therefore water tables aren't a problem for Midtown construction. While viewing the site it is easy to see the composition of the soil through section since the site is excavated, exposing 20' of earth. Even though the East River is in proximity, a perimeter concrete barrier prevents water from seeping into the site.



Figure 95: Queens-Midtown Tunnel Ventilation Building

Utilities

Robert Moses Playground has a large utility building in the middle of the site. The building provides ventilation for the Queens-Midtown Tunnel which runs beneath the site. The tunnel is over a mile in length, which explains the massive size of the structure. Rebuilding Robert Moses Playground would require a tunnel ventilation system.



Figure 96: FDR Drive at Night

Vehicular Traffic

FDR Drive is one of the busiest and most congested roads in New York City. FDR Drive forms the eastern half of the city's perimeter road system, starting at the tip of Manhattan in the Financial District and running north up to Robert F Kennedy Bridge in East Harlem. The perimeter road system is used to by many drivers entering and leaving Manhattan, as well as travel between different parts of Manhattan. Drivers choose FDR Drive because using the avenues and streets means running into many stop lights and therefore driving in the city usually takes longer than driving around it. On weekday's it is typical for FDR Drive to experience stop and go traffic.

The second busiest road near Park City's site is 1st Avenue, which is one of the major north-south corridors in Manhattan. 1st Avenue becomes congested during the long commute hours, which is common with most avenues in Manhattan. The M15 and the M42 buses have stops along 1st Avenue, giving the site access to public transportation.

Pedestrian Traffic

Pedestrian traffic is concentrated on 1st Avenue since it is the only major road bordering the site that contains businesses. 38th Street and 41st Street contain sidewalks, but the lack of buildings connected to those streets and the fact that they're practically dead ends means very little people use them. Pedestrians can only enter the Esplanade park through an entrance near 37th Street

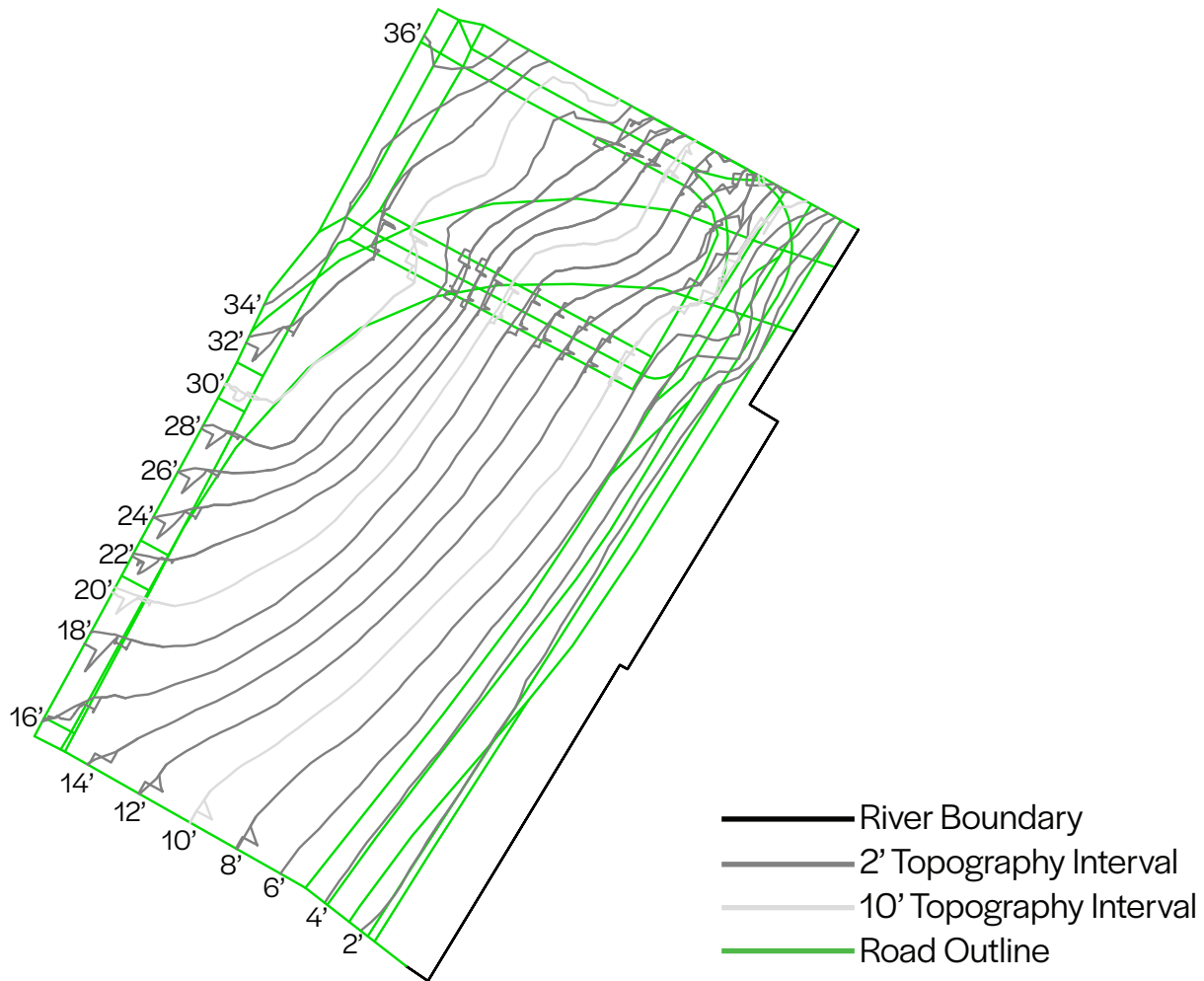


Figure 97: Topographical Map of Site

Topography

Robert Moses Playground has the highest slope at approximately 8%. The main site has a slope of 7.5% at the northern end and slope of 4% at the southern end. The Esplanade was constructed to allow controlled drainage, despite appearing flat. The slopes on the site are optimal since they allow water to easily flow, yet they're shallow enough for heavy commercial vehicles to use..



Figure 98: United Nations Headquarter (Left) & 42nd Street Exit (Right)

Visual Form

The most dominant aspect visually from the site is the seemingly endless number of high rises that surround the site and the East River. Midtown is home to some of the tallest buildings in New York and nearby landmarks include the Chrysler Tower, The Trump Tower, and the Empire State Building. The East River has seen a lot of high-rise construction over the past decade and the waterfront skylines of Queens and Brooklyn continue to climb. The United Nations Headquarters is one of the most iconic buildings in the world, and its form dominates the northern skyline from anywhere on the site.

The East River is another strong visual form which can be seen from anywhere on the site. Its presence gives Park City's site a sense of openness, which is lacking in most of Manhattan. The river is roughly half a mile wide near the site, which gives people visiting the site the ability to see way more of the city than most other places in Manhattan.

Unfortunately, one of the most visible features on the site is the exit ramp from FDR Drive to 42nd Street. The ramp is a quarter mile long and is elevated 20' above the highway below. The elevated exit ramp blocks views of the river from most of the street elevations as it is elevated for the entire length of the site. Altering the ramp and moving it underground would greatly enhance the quality of the view from the site.



Figure 99: Construction Equipment at the Project Site

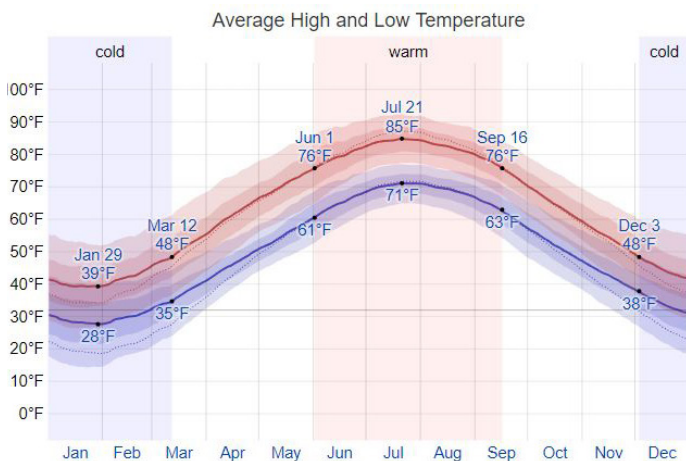
Site Character

For the past 20+ years the main site has had the character of a construction project that is about to start but hasn't. The perimeter of the site is surrounded by construction fencing, construction equipment and trailers are found in the site, yet little has happened since the clean up in the 90's. Homeless people have started to camp in the southeast corner of the site since it is usually empty and there is cover underneath the sidewalks of 38th Street. The Esplanade Park provides great views to whomever visits, but it lacks character and it is essentially an empty piece of concrete with some benches.

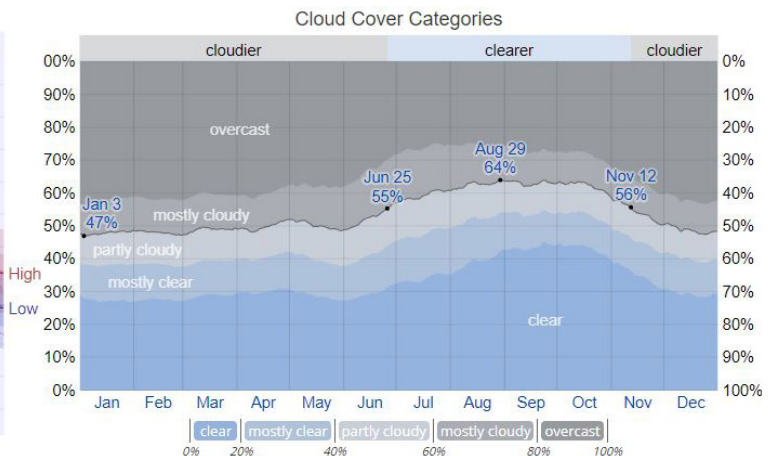
Climate

Manhattan experiences a humid subtropical climate due to its location on the Atlantic Ocean, which brings in warm water from the tropics. New York lies on the border between the humid subtropical and the humid continental climate zones, making it the most northern major humid subtropical city. New York remains warmer compared to inland cities due to the moderating effects of the Atlantic Ocean and the Appalachian Mountains holding back cold air from the west. New York has a plant hardiness zone of 7b, which means the coldest it gets is between 0(F) and 10(F) degrees.

January is the city's coldest month, with an average high of 38.3(F) degrees. July is New York's hottest month, with an average temperature of 84.1(F) degrees. Due to the abundance of concrete and asphalt, Manhattan displays the urban heat island effect. In the summer months the sun heats up these surfaces, which in turn radiate heat and cause the city to be several degrees hotter compared to the rural areas surrounding the metropolitan area. The urban heat island effect also causes nighttime temperatures in the city to remain high, since concrete is effective at storing heat for long periods of time.



Temperature Chart



Cloud Cover Chart

Roughly 30% of the days in New York have clear skies, the months of September and October having the highest percentage for a chance of clear skies. Usually 40% of the days each month have overcast skies, with the winter months being the cloudiest.

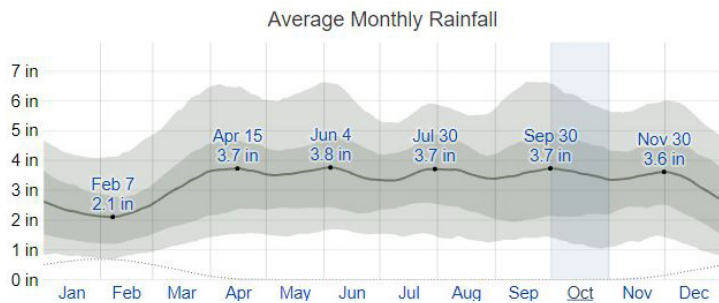


Figure 100: Average Monthly Rainfall Chart

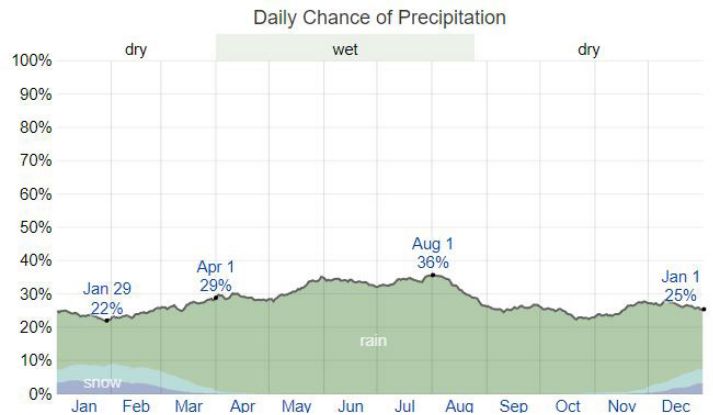


Figure 101: Precipitation Chart

Between the months of April and November the city experiences the highest amounts of monthly rainfall. During the winter months precipitation decreases from 3.6” in November to 2.1” in February. In terms of snowfall, Manhattan receives 26” of snow per year. The chance of precipitation is highest during the summer months, peaking at 36% chance in August. January has the lowest chance of precipitation, with 22% chance on January 29th.

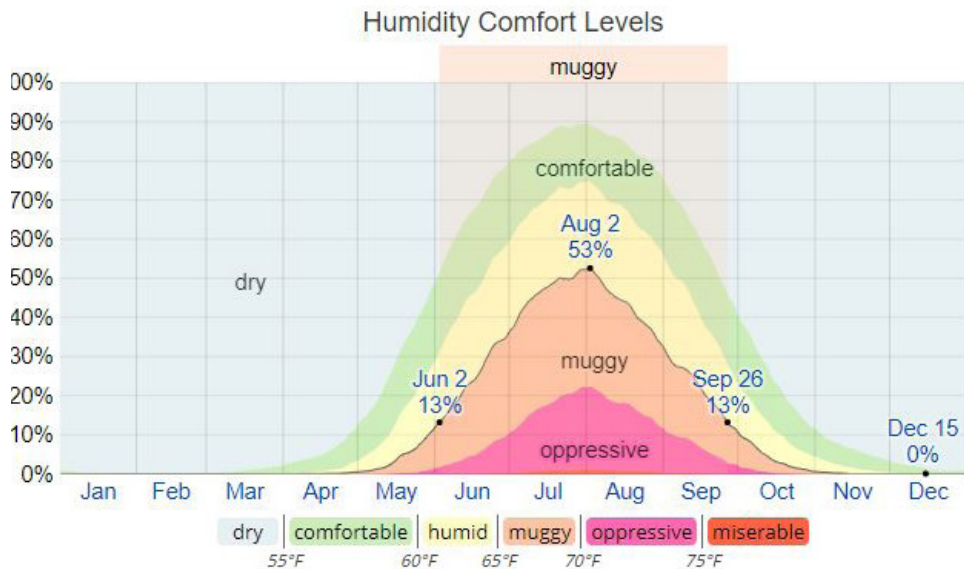


Figure 102: Humidity Chart

The East Coast is nationally known for its muggy summers and high humidity, New York being no exception to that. While most of the year is relatively dry and comfortable, June through September are considered muggy. In August roughly 25% of the days have “oppressive” humidity.

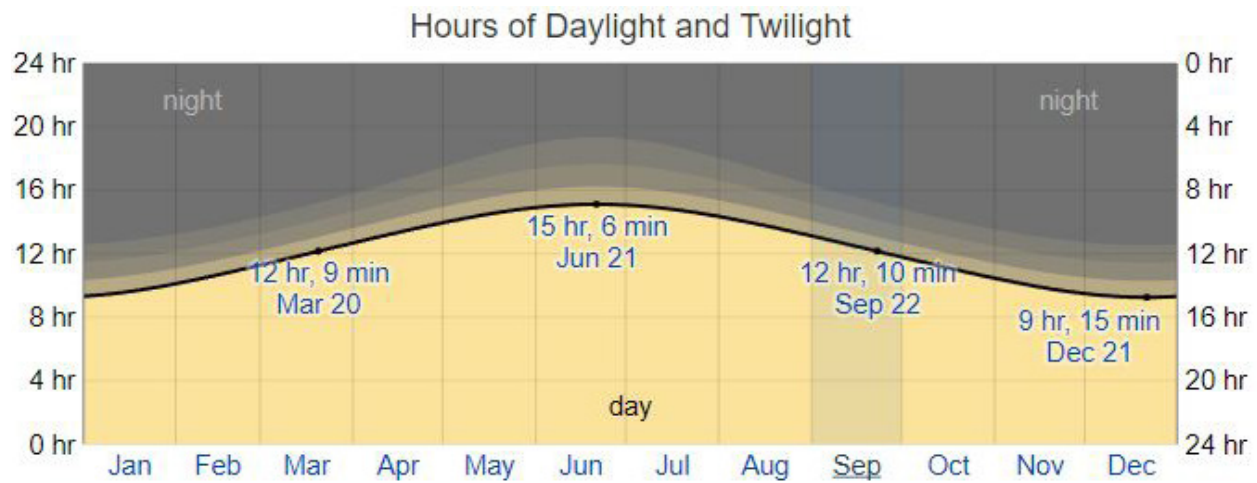


Figure 103: Daylight & Twilight Chart

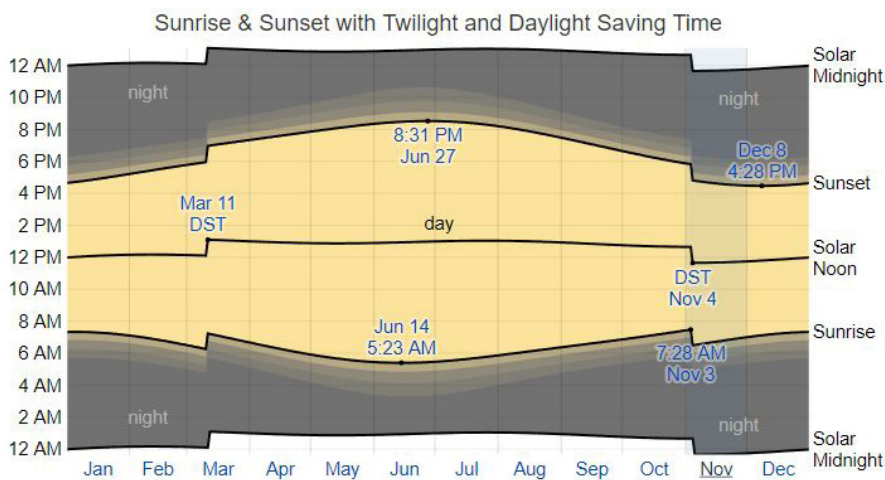


Figure 104: Sunrise & Sunset Chart

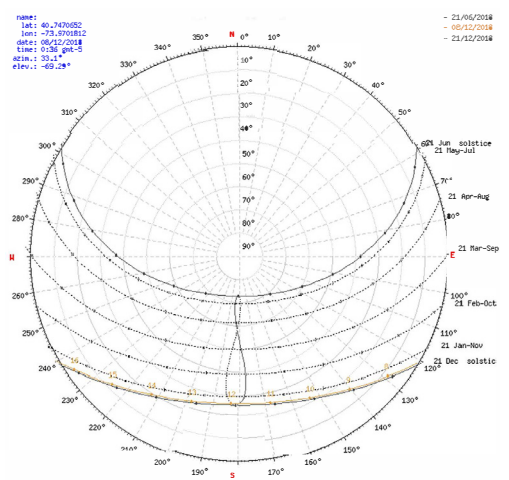
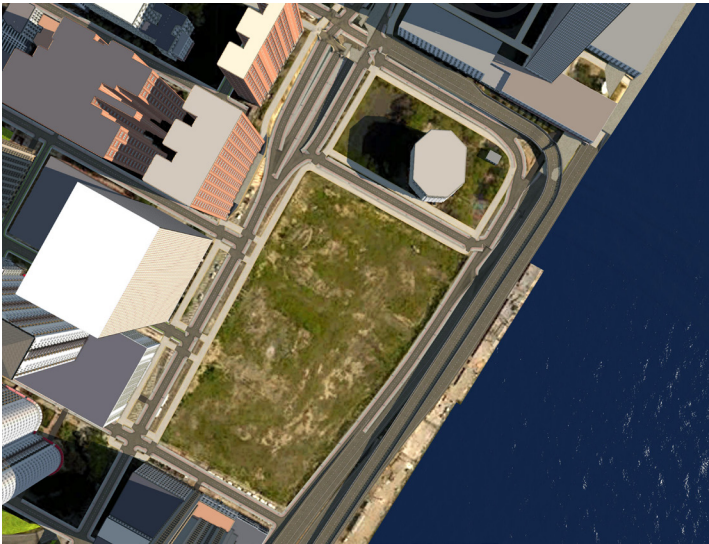


Figure 105: Sun Path Chart

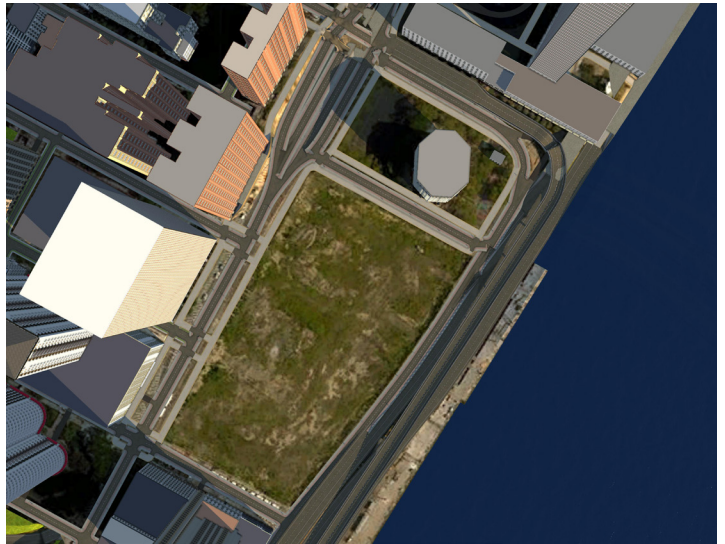
The earliest sunrise in New York occurs on June 14th at 5:23 AM, the latest one occurring on November 3rd at 7:28 AM. The earliest sunset occurs on December 8th at 4:28 PM, the latest sunset occurring at 8:31 PM on June 27th. The month of June has nearly 15 hours of daylight per day, while December has only 9 hours of sunlight.

Since the site is open to the east, sunlight reaches the site most easily between sunrise and noon. Due to the tall surrounding buildings to the west and south, sunlight is blocked during most afternoons. When the sun sits in a lower angle during the winter months, the buildings to the south and west will block sunlight effectively. In the winter, mornings are the only time of the day when sunlight is abundant on the site.

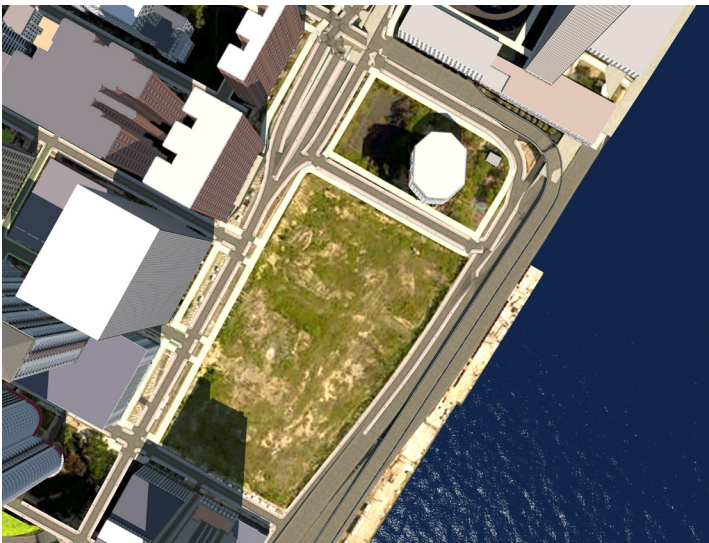
Summer Morning



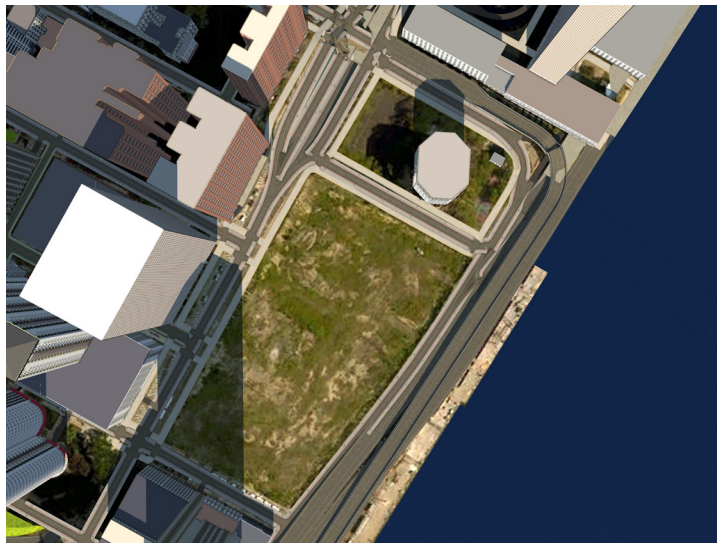
Winter Morning



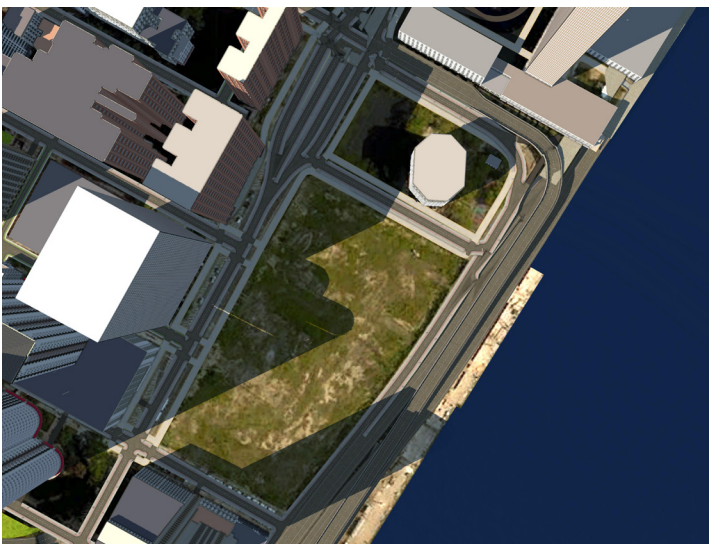
Summer Midday



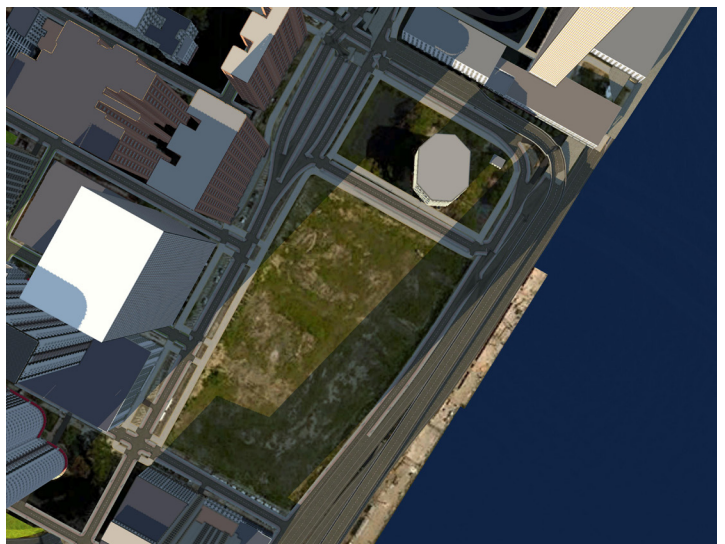
Winter Midday



Summer Evening



Winter Evening



Site Visit Photos



685 1st Ave



The Corinthian, Southwest of Site



1st Avenue Looking North



1st Avenue Looking South



Horizon Condominium, South of Site



Southwest Corner of the Site



South End of Site Looking North Towards UN



Construction Materials on Site



South East Corner of Site Looking West



Easter Border of Site Along Frontage Road



Northeast Corner of Site Facing South



Northern Border of Main Site



Site Panorama



Basketball Courts at Rober Moses Playground



Queens-Midtown Tunnel Ventilation Building



Service Alley

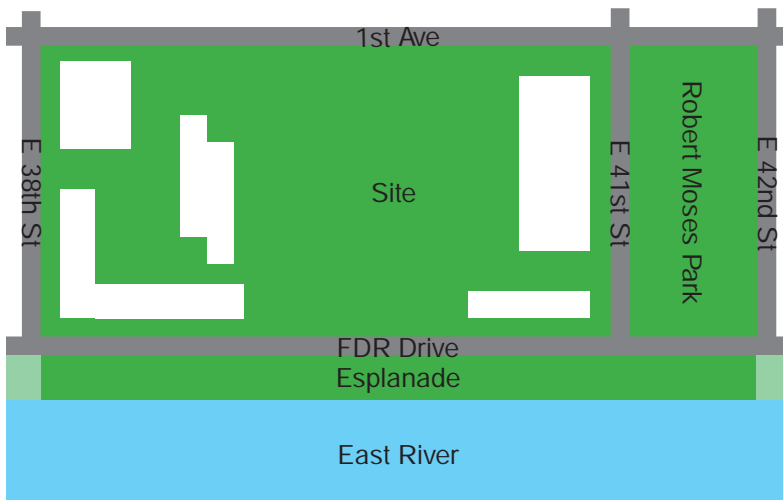


Tennis Courts

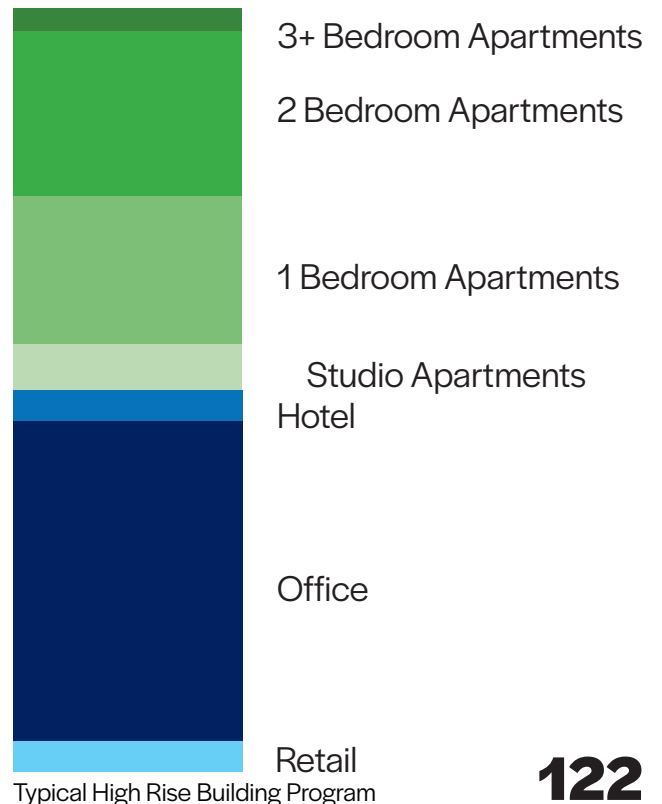
Performance Criteria

The performance criteria for the Park City project has several parameters based on the research completed, and the overall concept for which the project is based on. The research report section of this book highlights the appropriate program for the project, and all the data and conclusions can be found there. The performance criteria goals for the project’s concept involves the inclusion of ample public green space, as well as the integration of plants and trees within the project. The performance criteria for the Park City project consists of:

- The buildings in the project will accommodate the program which the research for this project was based on. This includes integrating the appropriate amount of space highlighted for all categories of commercial and residential typology.
- The project should include as much of the allowable square footage as possible in order to maximize profit for the developer.
- At least 50% of the square footage of the site will be dedicated towards public green space.
- At least 50% of residential units and all commercial spaces shall have exterior space for plants and trees. They provide both an aesthetic character as well as use practical passive system techniques that allow the buildings to lessen their carbon footprint.



Spatial Diagram Example



Typical High Rise Building Program

Plan for Preceeding

- Visit the project site in New York, making observation notes and take a lot of photographs.
- Collect data on New York's commercial and residential real estate market. Dozens of statistics on New York's population will be gathered to help determine the project's building program. Data will put into graphs and charts to more efficiently analyze the data.
- The data sets collected will be converted into an equation that will be able to compute a fitting building program for not just the Park City site, but in theory any type of development project.

Dates

September 13th	1st Draft of Thesis Proposal Due
October 11th	Thesis Proposal Due
December 12th	Final Thesis Proposal Due
<hr/>	
March 4th-8th	Mid-Semester Reviews
April 19th	Thesis Project Final Exhibits in Digital Form due to Thesis Advisors
April 22nd	All Physical Exhibits for Thesis Project Due
April 23rd-26th	Annual Thesis Exhibit
April 29th- May 2nd	Final Thesis Reviews
May 3rd	Awards Ceremony
May 6th	Digital Copy of Final Thesis Documentation due to Thesis Instructors
May 10th	Final Thesis Document due in the Institutional Repository

Design Solution





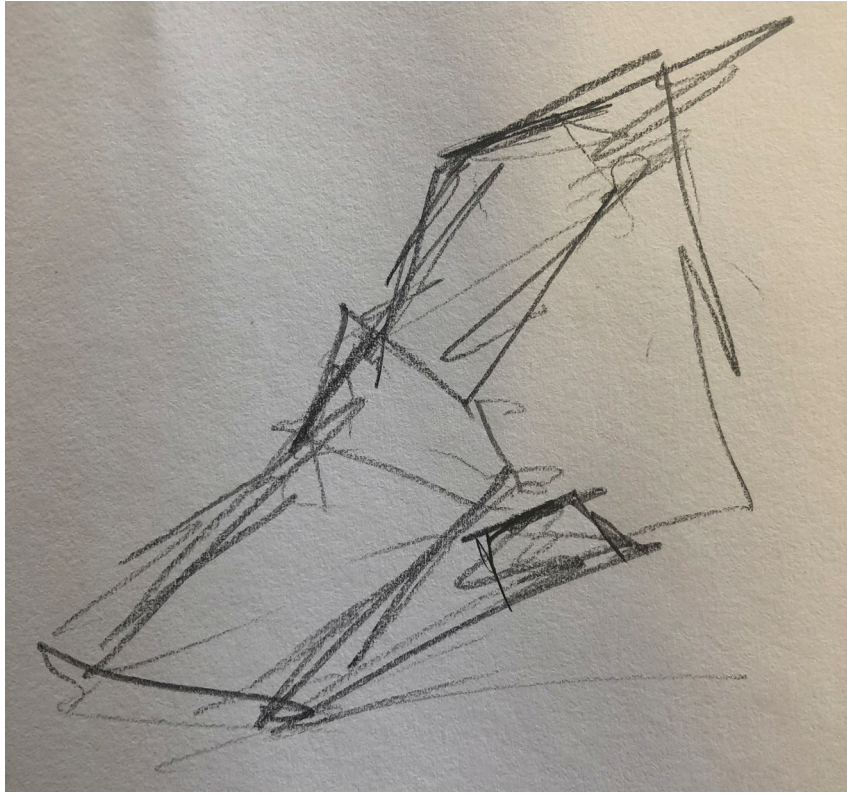


Figure 106: Process Sketch

Process

Most of the process for this project involved sketching drawings and concepts before creating them in a digital model (Revit or SketchUp). All of the major design decisions were made through examining multiple sketch iterations of each building and greenspace.

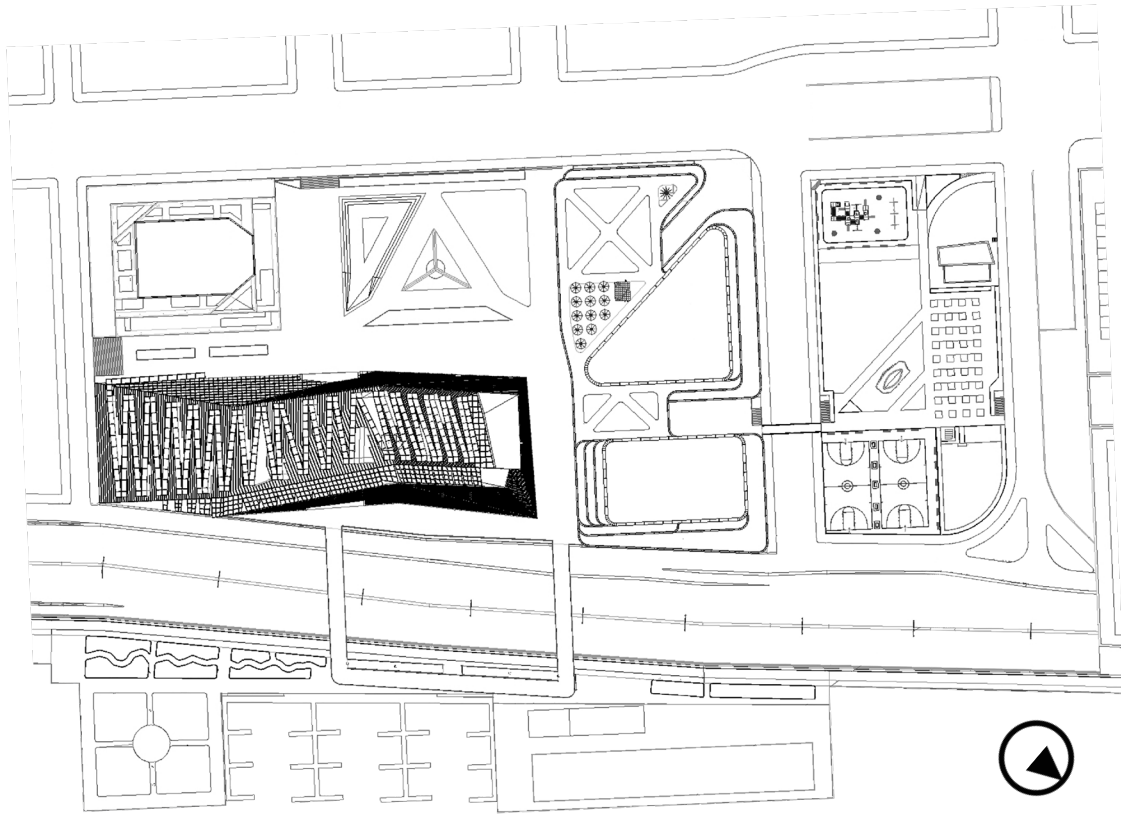


Figure 107: Site Plan

Performance Analysis: Site

Park City's site has several major environmental factors which influenced its design and layout. The first of these influences is the surrounding man-made urban environment. Park City is in Midtown Manhattan, which is famous for its dense and tall skyline. Park City's site is no different than other properties in Midtown, surrounding buildings block sunlight access and views due to their height. In response to the high-rises surrounding Park City, buildings were placed in way which would allow sunlight to reach building occupants for at least part of the day. The unique shape of 411 FDR Drive creates a gap in the project skyline which enables buildings to the west to still have some views of the East River.

Building footprints and greenspace layouts were designed to optimize pedestrian traffic on ground level. This is especially clear when looking at the floor plans for 404, 424, and 444 E 41st St. Most of the foot traffic in the area is currently concentrated on First Avenue, so pedestrian pathways on the site were designed to effectively invite people in and provide them with efficient circulation paths.

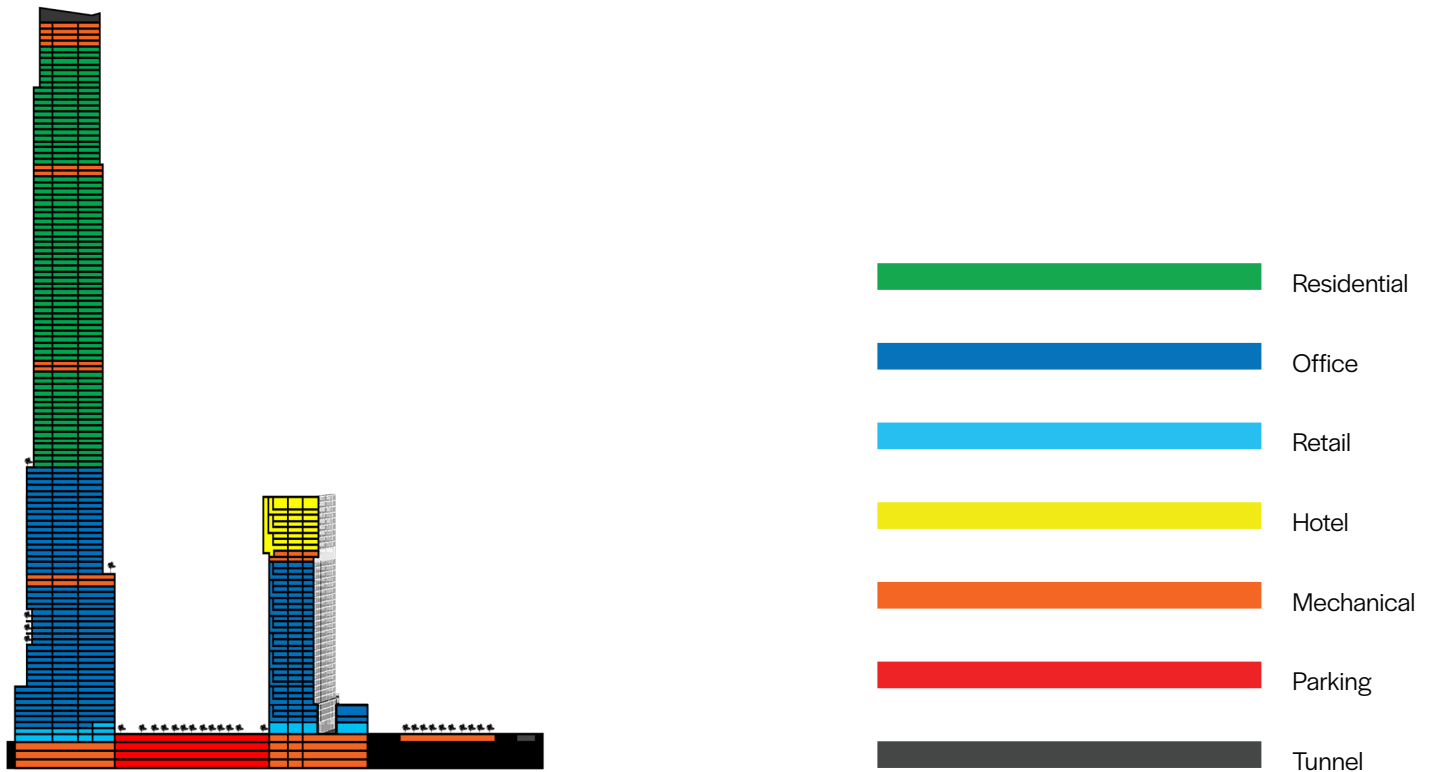


Figure 108: Section Cut

Performance Analysis: Typology

Park City's project program was formed through research that was completed in the previous semester. The amount of retail, office, and hotel space within Park City was adjusted based current and historical statistics of Manhattan's real estate market. The final project program involved increasing retail space since it has historically performed well. Park City's retail space comprises of 12% of the total commercial space compared to the Manhattan's 8% retail space as percentage of total commercial space. Hotel space takes up a larger share of the commercial space in Park City compared to Manhattan (20% compared to 12%). Since retail and hotel space commands a higher share of total commercial space in Park City compared to Manhattan as a whole, the share of office space decreased to 67% of total commercial space. This was done because the office sector is characterized by high vacancy rates, which means it is not as profitable.

The composition of residential unit types was also based on current and historical market statistics. Most of the residential rental units are composed of studio and one-bedroom units, while condominium units comprise of mostly one and two bedroom units.



Figure 109: Site Perspective

Performance Analysis: Project Goals

While the research for Park City revolved around creating a project program, the overall goal of Park City is to incorporate abundant, well designed, and easily accessible greenspace within the highly urbanized environment of Midtown Manhattan. Providing this greenspace increases the wellbeing of not only those who live and work within Park City, but also the surrounding community.

Every building within Park City has their own unique way of providing greenspace access to both building occupants and the public. Greenspace was incorporated within the building designs in the form of terraces (666 1st Ave), rooftop park (411 FDR Drive, 404 E 41st St), and indoor greenhouse terraces (404, 424, & 444 E 41st Ave).

Two neighboring parks were renovated in order to increase and diversify the recreational options within the neighborhood. The main project site contained a public plaza in order to increase the amount of open space at ground level.

Site Plan

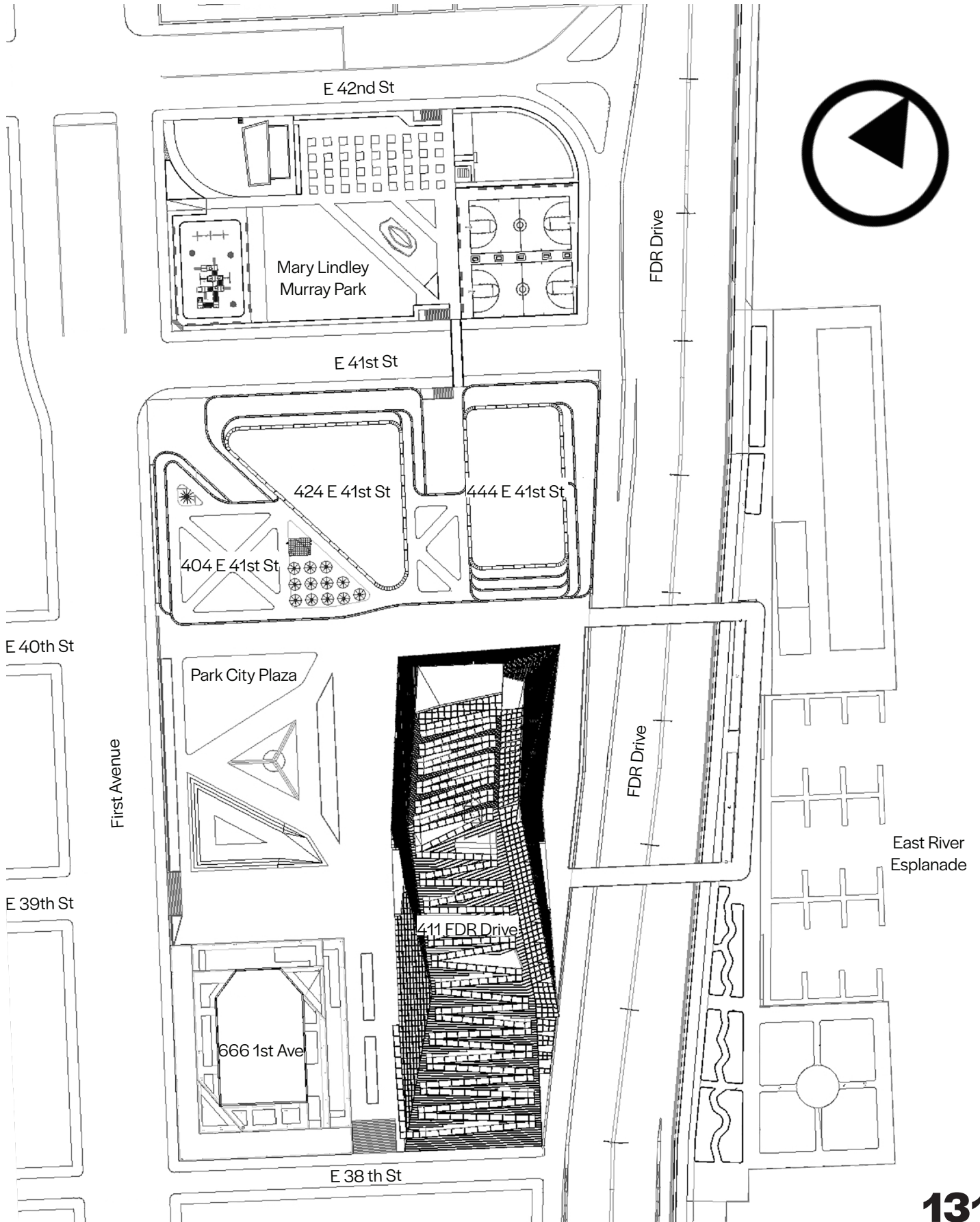




Figure 110: 666 1st Ave

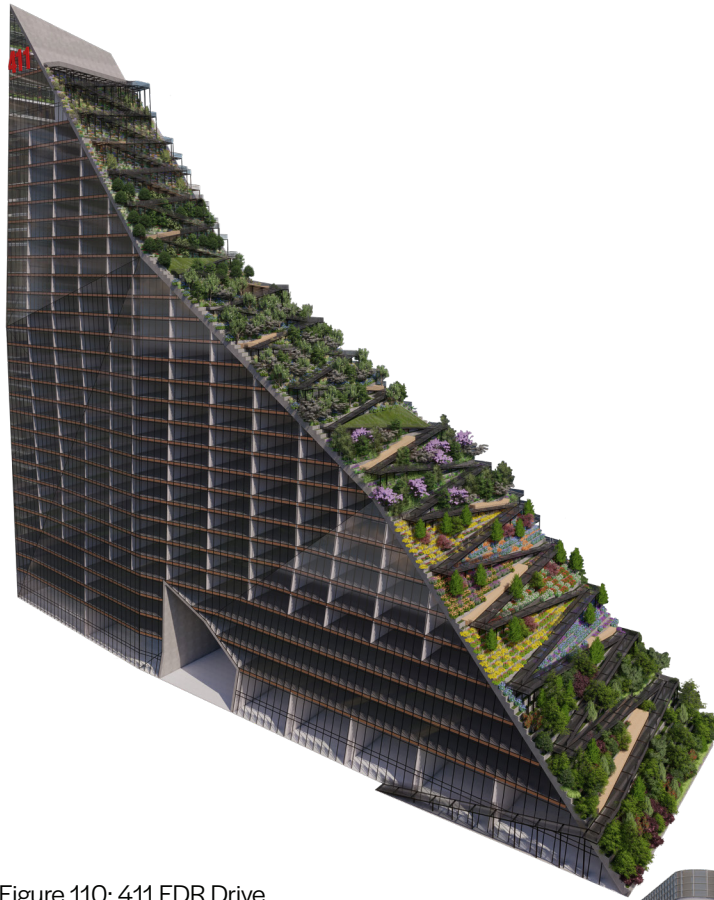


Figure 110: 411 FDR Drive

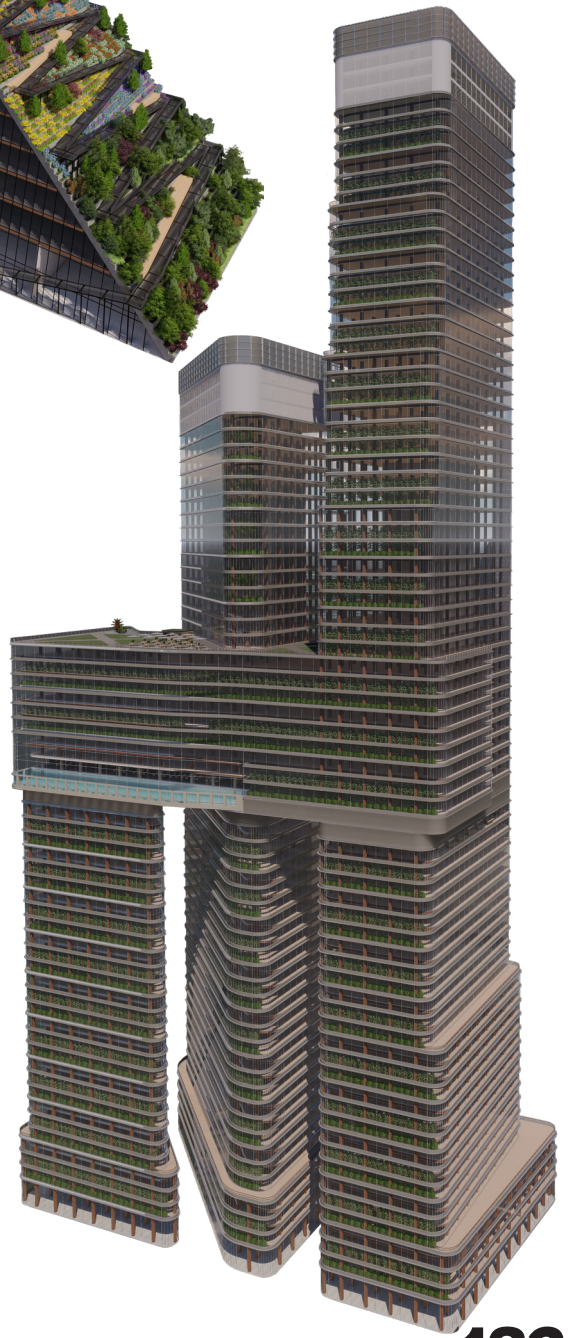


Figure 111: 404, 424, & 444 E 41st St















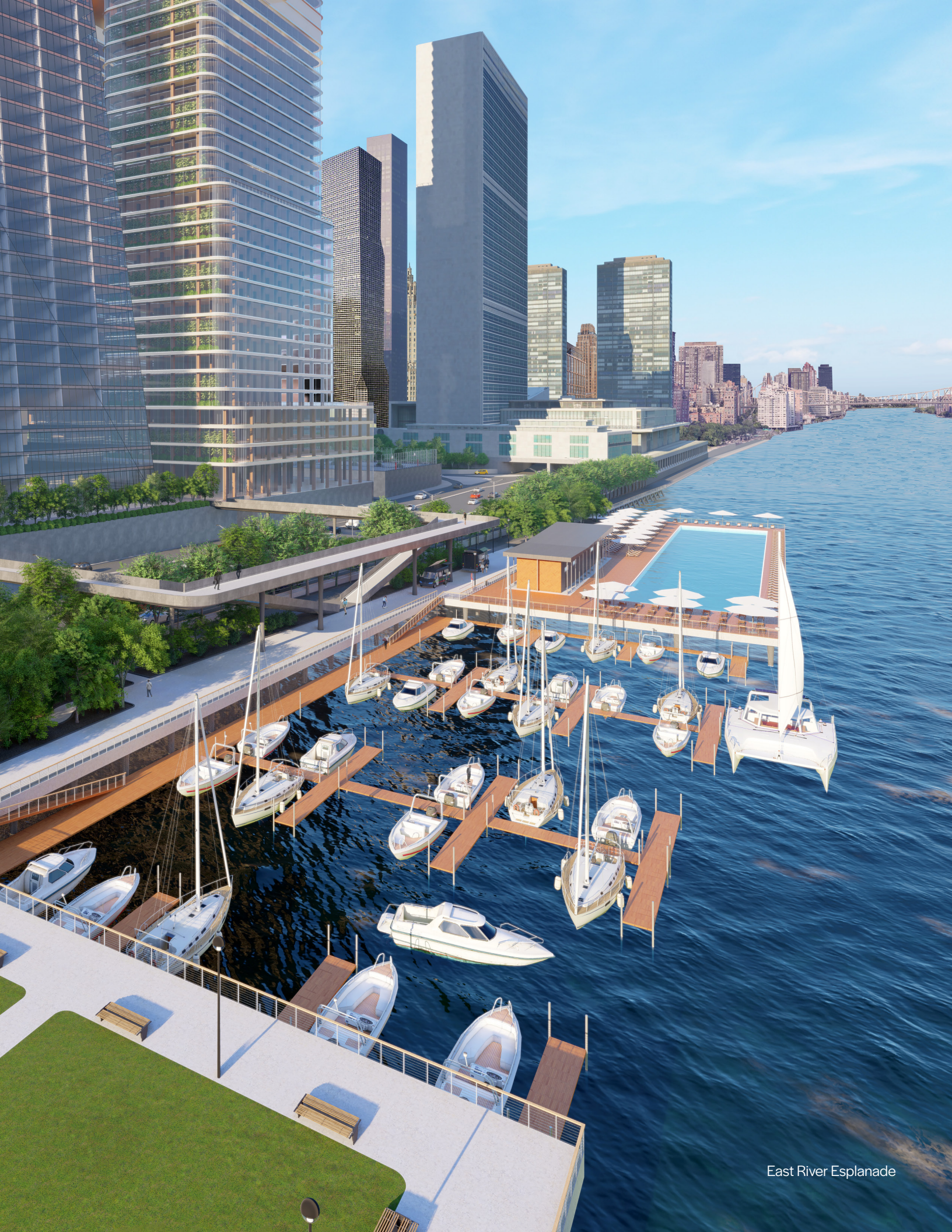


444 E 41st St Office









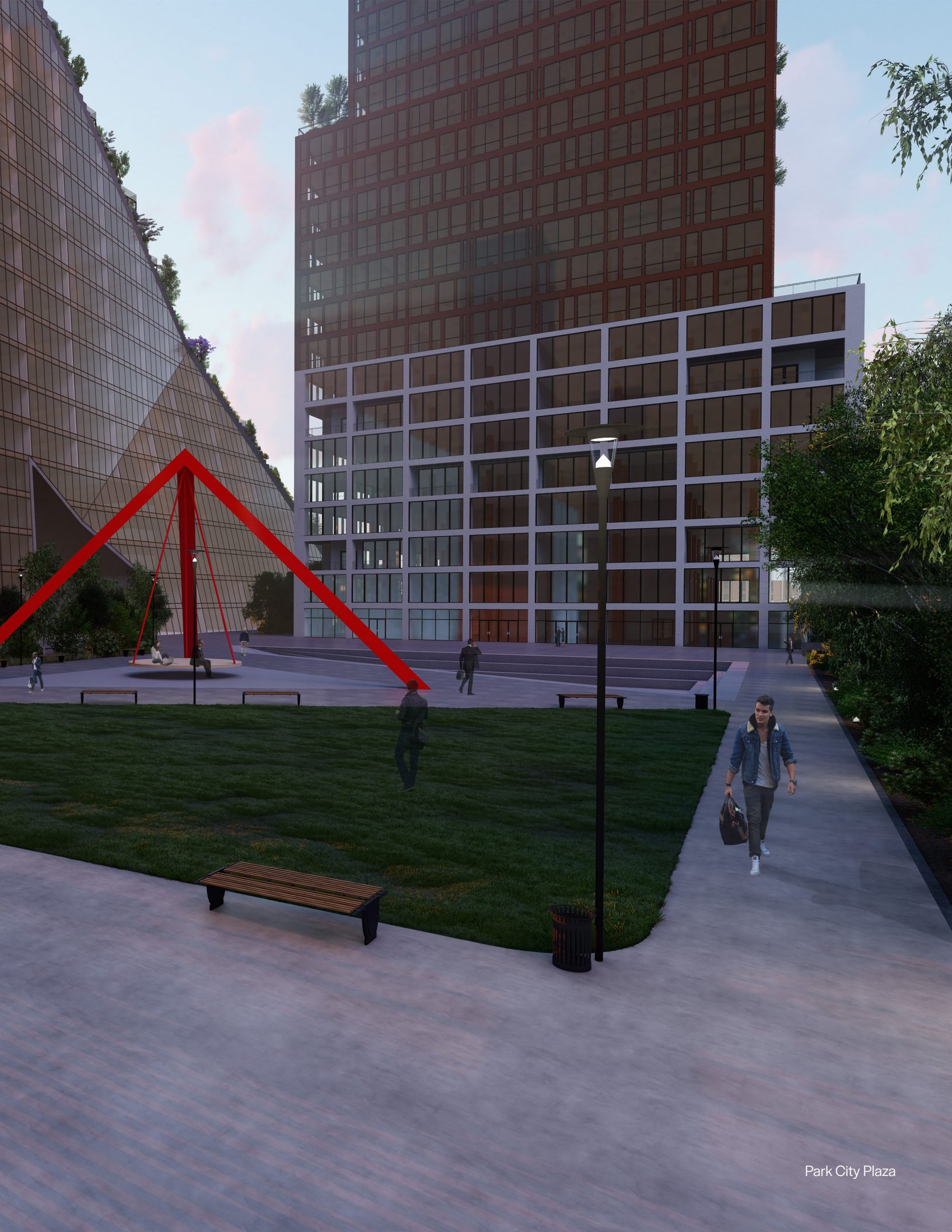
East River Esplanade



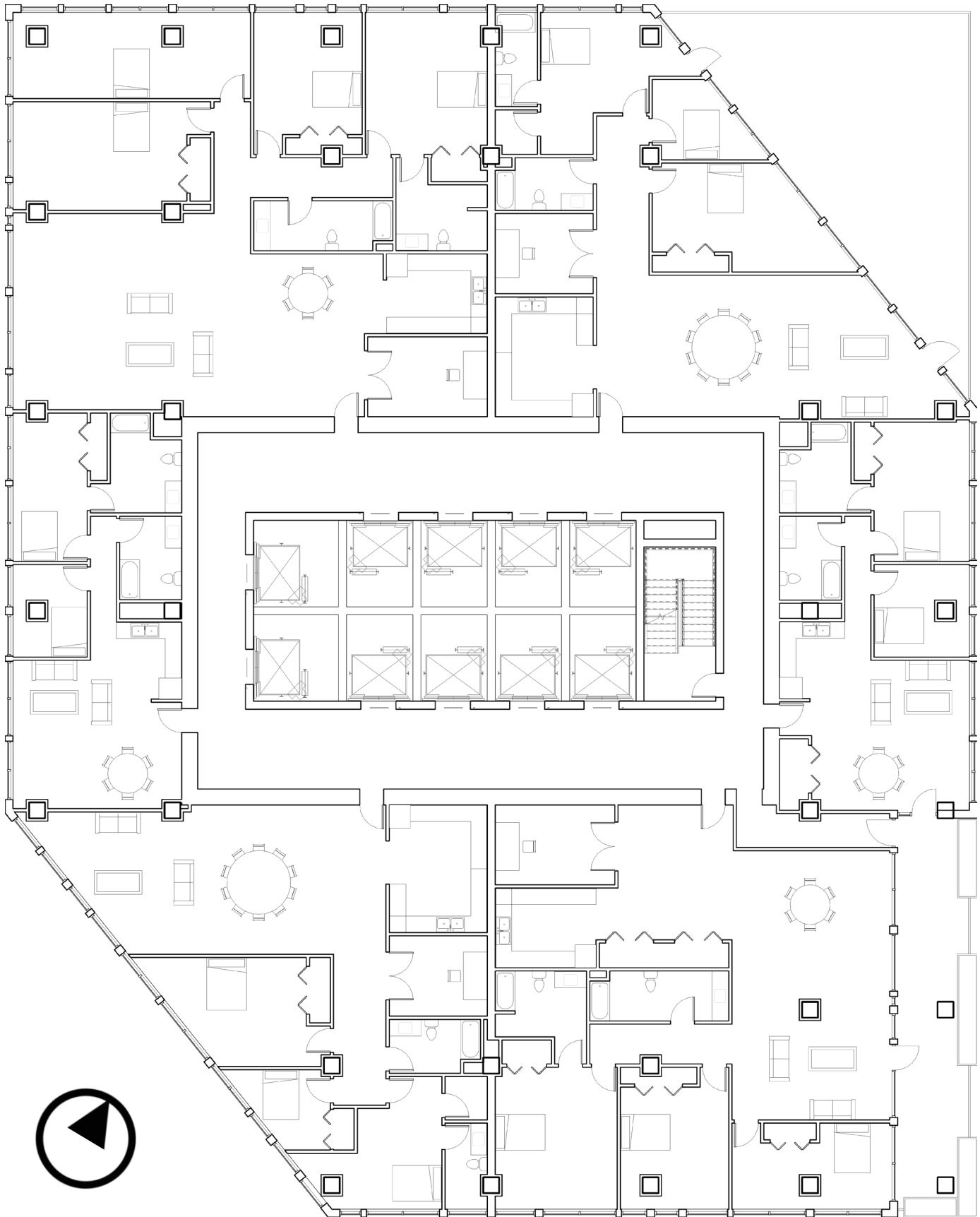


Mary Lindly Murray Park



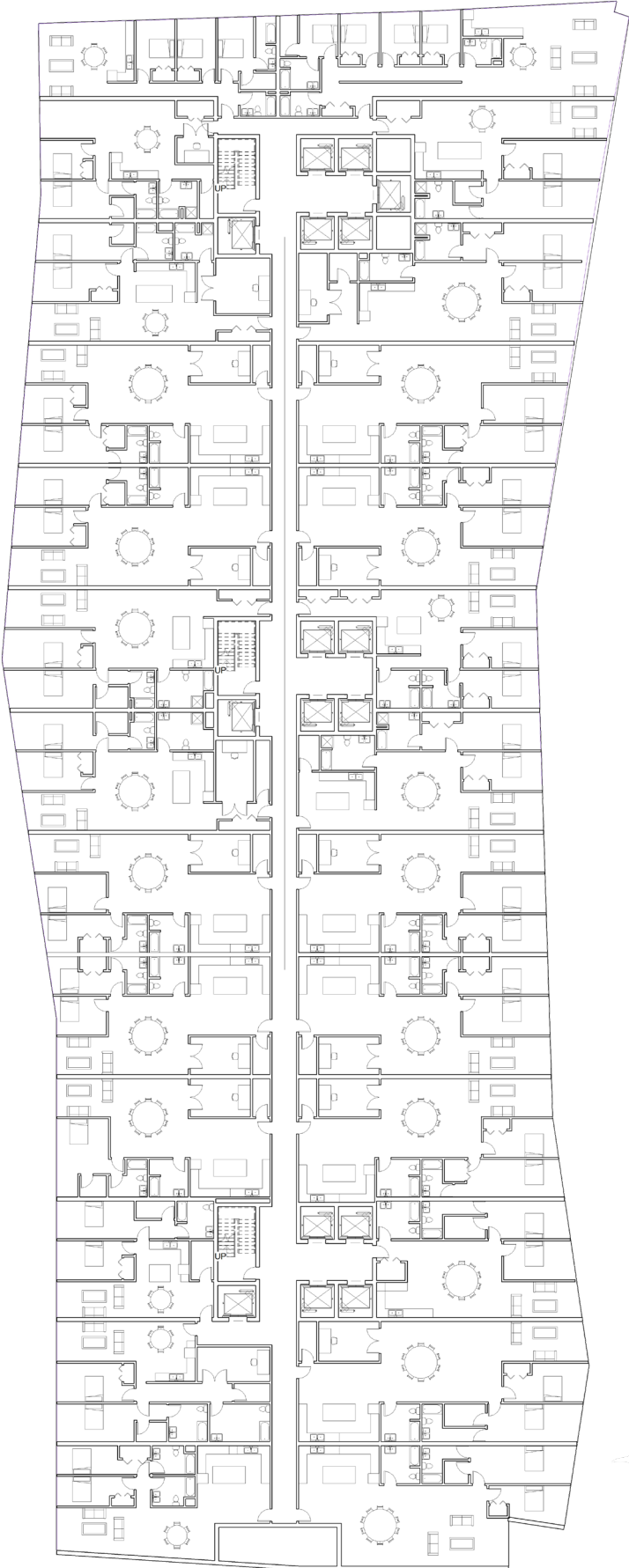


666 1st Ave Typical Floor Plan



20'

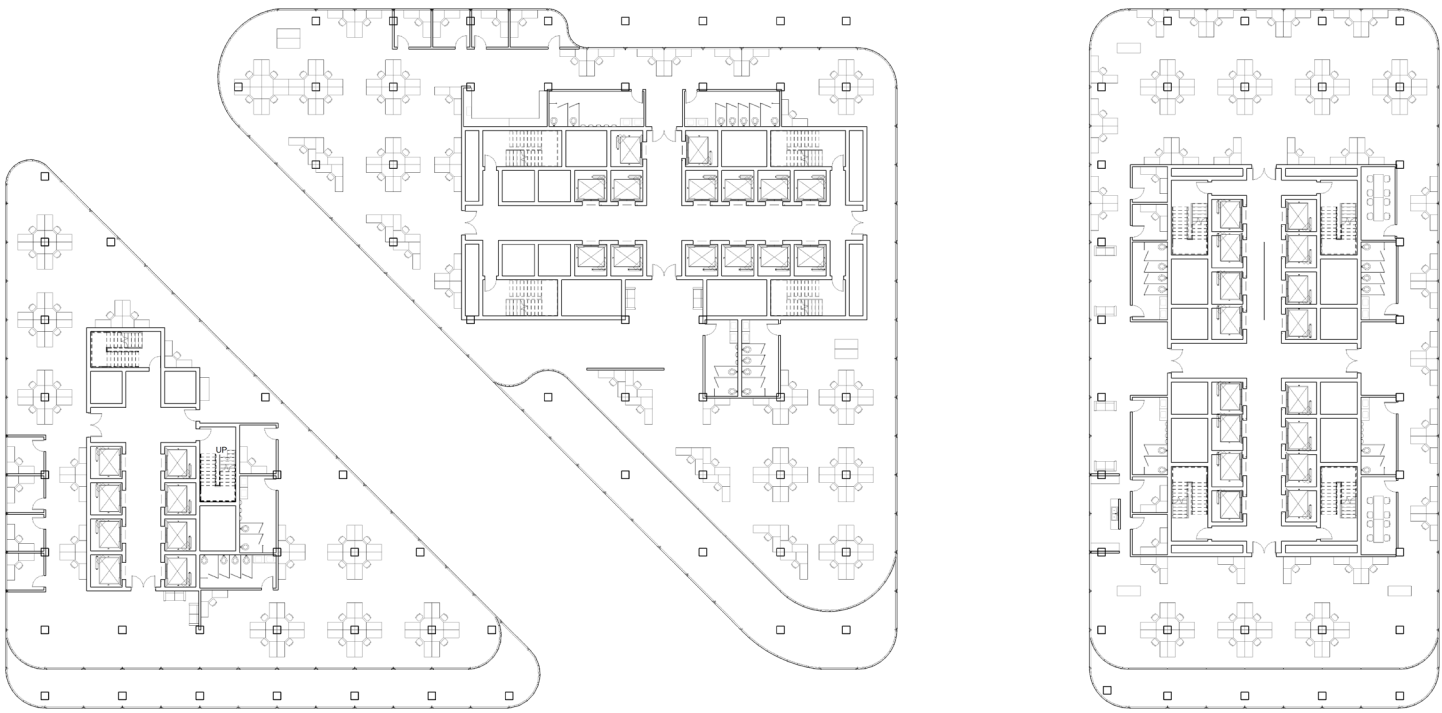
411 FDR Drive Typical Floor Plan



20'

40'

404, 424, & 444 E 41st St Typical Floor Plan



20' 40'



Project Boards



Image Sources

Note: Images not sourced are original photos.

Book Cover: Palisades http://images.huffingtonpost.com/2014-03-14-Palisades_midrez_nogulls.jpg Huffington Post

Book Cover: Midtown <https://www.hotelboutiqueatgrandcentral.com/wp-content/uploads/sites/7/2017/07/Midtown-Manhattan-Skyline-001-1920x1556.jpg> Hotel Boutique at Grand Central

Book Cover: Brooklyn Street https://static01.nyt.com/images/2014/11/16/realestate/20141116_LIVING-slide-9IYQ/20141116_LIVING-slide-9IYQ-videoSixteenByNine3000.jpg New York Times

Book Cover: Central Park <https://vastphotos.com/files/uploads/photos/10143/central-park-nyc-skyline-l.jpg> Vast Photos

Project Title: Chrysler Building http://www.bunboyeatsnyc.com/wp-content/uploads/2016/07/IMG_6683.jpg Bun Boy Eats NYC

Table of Contents: Midtown https://upload.wikimedia.org/wikipedia/commons/2/26/Midtown_Manhattan_and_Times_Square_district_2015.jpg Wikimedia

Figure 2: Rural NY <https://dutchessland.org/assets/Shekomeko-general-scenic.jpg> The Dutchess Land Conservancy

Figure 3: Broadway /Houston St https://www.cruisebe.com/sites/default/files/portofcallobject/Broadway_Crowds_%285896264776%29_crop.jpg Cruise Be

Figure 4: Times Square <https://isorepublic.com/times-square-new-york-city/> Iso Republic

Figure 5: Belfast Maine https://upload.wikimedia.org/wikipedia/commons/thumb/3/3e/Belfast%2C_Maine.jpg/1200px-Belfast%2C_Maine.jpg Wikimedia

Figure 6: Boulder CO <https://www.thebradleyboulder.com/pearl-street-mall-original-15174/> The Bradley Boulder

Figure 7: Grant Park <http://www.chicagorealestateforum.com/wp-content/uploads/2010/10/ErieparkDSC00646.jpg> Chicago Real Estate Forum

Figure 8: Nashville <https://www.gannett-cdn.com/-mm-/79fee0725b512ed0c7026f059583b5c8b2b4455e/c=0-59-1600-963/local/-/media/2015/11/10/Nashville/Nashville/635827568244253898-broadway4.jpg?width=3200&height=1680&fit=crop> Gannett

Figure 9: Hudson Yards Main Rendering <https://structuretone.com/hudson-yards-new-city-rising/> Structure Tone

Figure 11: The Vessel <https://www.nytimes.com/2016/09/15/arts/design/hudson-yards-own-social-climbing-stairway.html> New York Times

Figure 12: Project Render <https://www.kpf.com/projects/hudson-yards> KPF

Figure 13: Hudson Yards Site Plan <https://www.hudsonyardsnewyork.com/content/uploads/2016/08/Master-Plan-February2017-960x540.jpg> Hudson Yards New York

Figure 14: Hudson Yards Section Cut <https://cdn.archpaper.com/wp-content/uploads/2015/07/hudson-yards-plaza-01.jpg> Arch Paper

Figure 15: King Street Main Render <https://www.archdaily.com/902156/big-king-street-west-condo-community-approved-for-development-in-toronto> Arch Daily

Figure 16: KSW Pedestrian Rendering <https://www.arch2o.com/king-street-west-big-bjarke-ingels/> Arch20

Figure 17: Main Site Rendering <https://metro.co.uk/2014/10/31/this-is-what-battersea-power-station-will-look-like-in-2025-4929324/> Metro UK

Figure 18 & 19: King Street West Renderings <http://urbantoronto.ca/news/2016/04/bjarke-ingels-groups-king-street-vision-detailed-consultation> Urban Toronto

Figure 20 & 21: King Street West Diagrams <https://m.big.dk/getslideshow/273/2/#projects> Bjarke Ingels Group

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