The Supertall: A New Kind of Skyscraper

Manhattan, New York

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Executive Summary

The Client:
Gale Brewer,
Manhattan Borough President

Over the past decade, New York City has experienced a booming luxury condominium market. According to the United States Department of Housing and Urban Development (HUD), during the three-year forecast period of 2015-2018 there were 2,975 condominium units under construction in the Borough of Manhattan. Of these units, 57% were all expected to arrive on the market at a price of $1 million and above. Additionally, HUD reported a total of 40,550 “other vacant units that might return to the market” during this same time. While the majority of all new condominium construction is made up of properties worth over $1 million, a significant minority of 7% were expected to be listed at a value exceeding $4 million. One of these buildings set a new nationwide record for the most expensive residential property in the history of the United States of America. On January 23rd, the penthouse of 220 Central Park South was sold to hedge fund manager, Kenneth C. Griffin, for $238 million.

This report, with its focus on a comprehensive documentation of the landscape of post-2010 luxury supertall residential development, seeks to provide an overview of how these properties have been developed and how our client, the Office of the Borough President of Manhattan, can promote significant changes to the existing regulatory framework.

New York City is no stranger to tall buildings. Supertall buildings like the Empire State and the Chrysler Building are celebrated members of the iconic New York City skyline. However, with the proliferation of a new generation of super slender, tall and luxury residential buildings, it is our role as urban planners to assess the economic, environmental and urban design impacts that they produce.

We analyzed twelve residential buildings clustered in four different neighborhoods across Manhattan: the Upper West Side, Central Park South, Lower Manhattan and Two Bridges. Our goal was to provide an in-depth overview of the various impacts these structures have on the local community, economic development, zoning mechanisms and the surrounding environment. Based on our research, we present several key reforms which can be pursued by local and statewide officials to mitigate the issues that these supertall buildings may impose on the Borough of Manhattan.

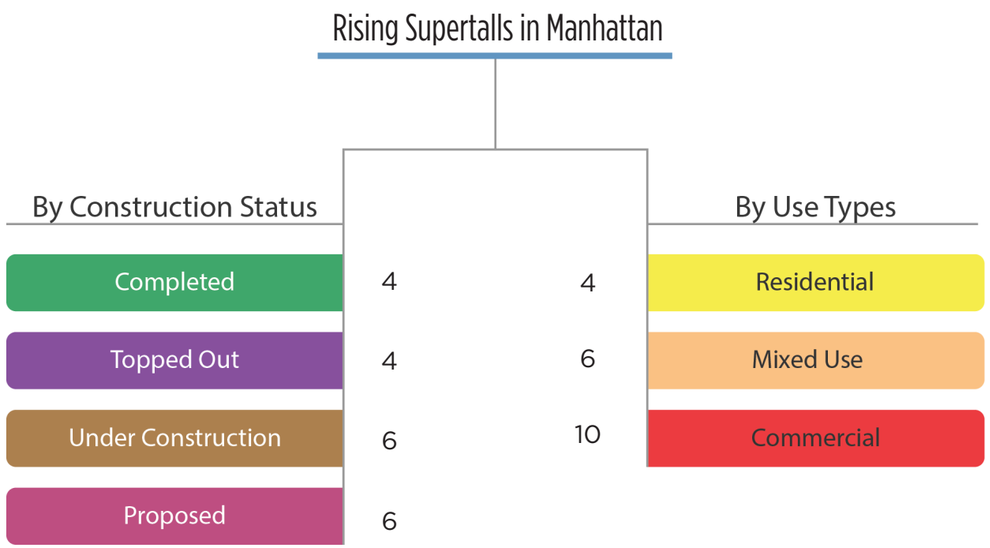
The planning process is an inclusive endeavour, so before producing final conclusions and recommendations we made a concerted effort to analyze the arguments from pro-development advocates like the Real Estate Board of New York (REBNY) as well as the preservationists, such as the Municipal Art Society (MAS). Our final conclusion does not demand a moratorium on these buildings or advocate for the continued as-of-right development framework that the majority of these structures use to their advantage. Instead, we advocate for well balanced and justified reforms which are incremental and necessary in order to enhance transparency, public participation, and more effective planning for the borough and the city.

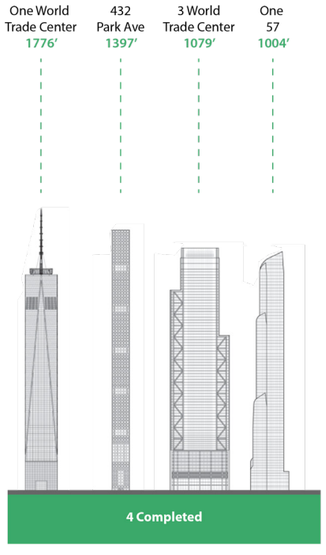
Therefore, our final recommendations provide an actionable pathway to sound policies which, if enacted, can provide a more comprehensive regulatory framework and promote an urban fabric which is evenly developed and informed by inclusive public review.

1. Introduction

1.1 The Supertalls Changing Manhattan’s Skyline

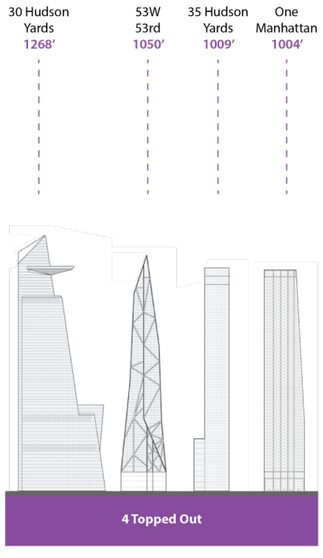
The classification of a supertall building, based on the Council of Tall Buildings and Urban Habitat (CTBUH) is a height threshold of 984 feet (300 meters). By the year 2022, it is expected that twenty new commercial, residential, and mixed use supertalls will be completed throughout Manhattan. However, the scope of our analysis includes buildings from 650 feet and above, as we believed the height classification is ineffective since buildings below that height exhibit similar characteristics, such as a high slenderness ratio , a luxury residential market and advance engineering design technologies that enable their heights. The mapped buildings in Figures 1 and 2 include commercial and residential buildings that meet the 984’ threshold. Buildings of this height are typically located in areas where zoning permits the height.





Completed Supertalls

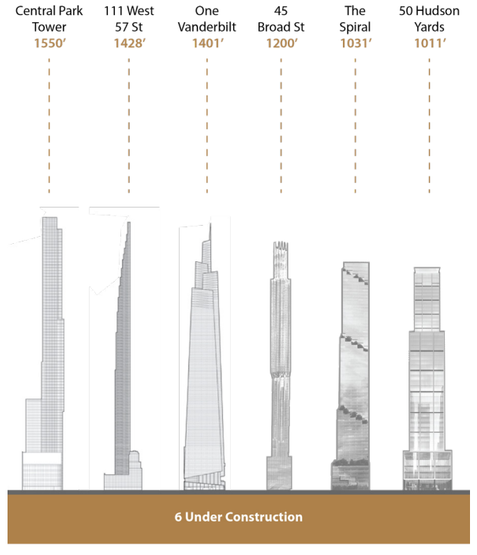
The first post-2010 supertall building was the newly redeveloped One World Trade Center (285 Fulton St.), which topped out in 2013. It was soon followed by One57 (157 West 57th St.) which, completed in 2014, became the first supertall residential building in the history of New York City. As of today, One57 and 432 Park Avenue (completed in 2015) are the only occupied residential supertall buildings in Manhattan.



Topped Out Supertalls

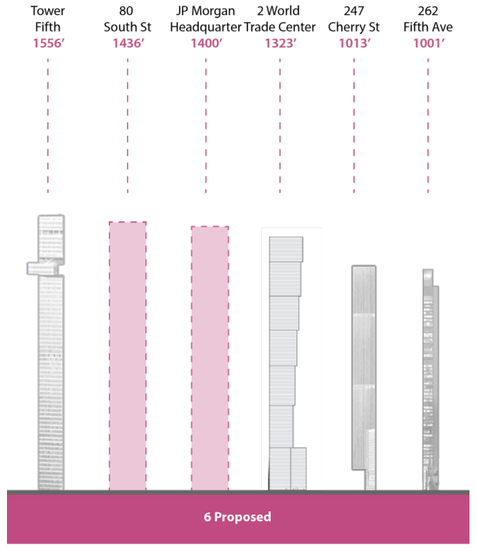
The four supertalls that are topped out but are not yet occupied include three buildings in the Special Hudson Yards District. This special district was part of a large scale plan which included a rezoning allowing for high density commercial and residential development. It also included a new subway line and open space as an integral part of the plan. Since this development is unlike the rest of residential supertalls, we excluded it from our overall analysis.

However, the MoMa Expansion Tower (53 West 53rd St.) is part of the Museum of Modern Art's (MoMa) expansion plan. It will provide 139 new luxury condominium units and an additional 50,000 square feet of publicly accessible gallery space on its ground floors.



Under Construction Supertalls

Two out of the three residential supertalls under construction will establish themselves as the highest in the entire borough of Manhattan. Steinway Tower (111 West 57th St.) which, through an adaptive reuse strategy, integrated the landmarked Steinway Hall as a podium for its base. It will rise to a total 1,428 feet in height and provide only 60 new condominium units. Central Park Tower (217 West 57th St.), once completed in 2019, will become New York City's tallest residential building at 1,550 feet. The first residential supertall in the history of Lower Manhattan, 45 Broad Street will top out at 1,200 feet. It will provide 150 new condominium units and a new Nobu Hotel.



Proposed Supertalls

In June 2017, following an extensive review through the city's Uniform Land Use Procedure (ULURP), the City Planning Commission officially approved the Greater East Midtown text amendment paving the way for an injection of new Class A office space to be developed within midtown. As a result, several supertall office buildings have been proposed in the area. The tallest tower currently proposed by Harry Macklowe (Macklowe Properties) is Tower Fifth. If built, this new commercial tower will be constructed directly across from St. Patrick's Cathedral and top out at 1,556 feet, cementing itself as the tallest building in the history of New York City (by roof height).

Figure 1: Ten Commercial Supertalls above 984 ft

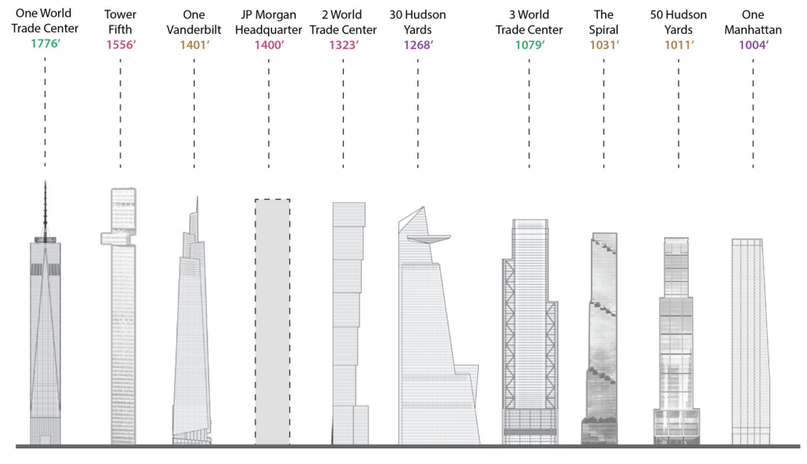
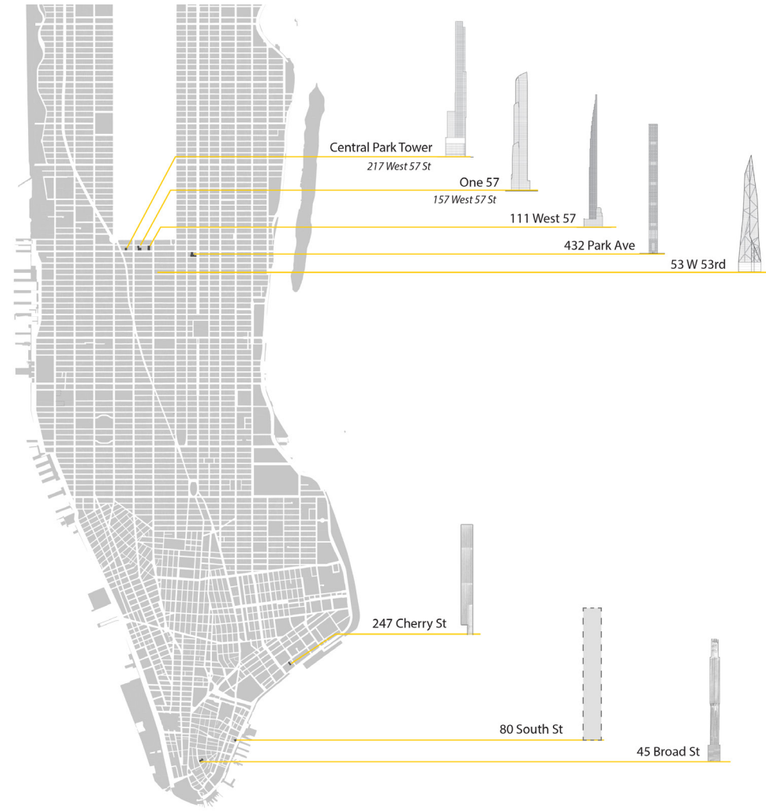
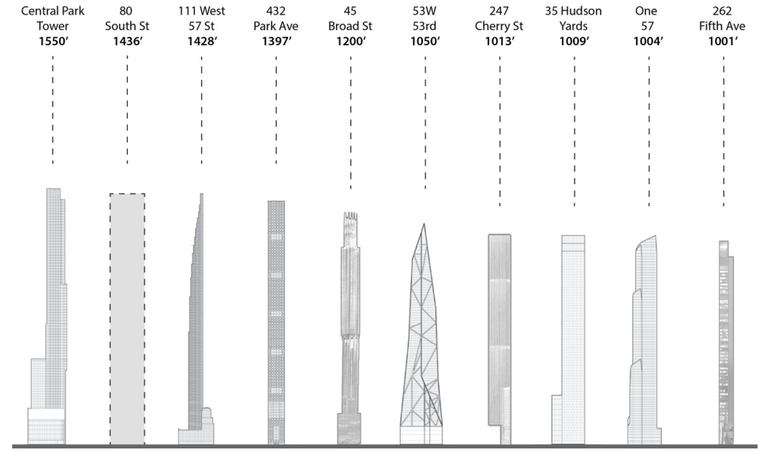


Figure 2: Ten Residential and Mixed-use Supertalls above 984 ft





2. The Range of Issues

2.1 Research Scope

From their height, to their form, to the ways in which they embed themselves or not into the New York City urban fabric - the supertall is a new building typology that is dominating the planning scene as both an innovative and obstructive structure. Supertall buildings have been the subject of much debate, from the shadows that they are casting on Central Park, to the ultra-luxurious market that they cater to. Their rise is, in some cases, attributed to global market demands and advances in engineering design. Over the past five years, various opinions and conclusions on the impacts of supertall developments in New York City have been offered. Our scope aims to produce a more focused analysis of specific supertalls through four lenses: regulatory mechanisms, property taxes, environmental and neighborhood impacts.

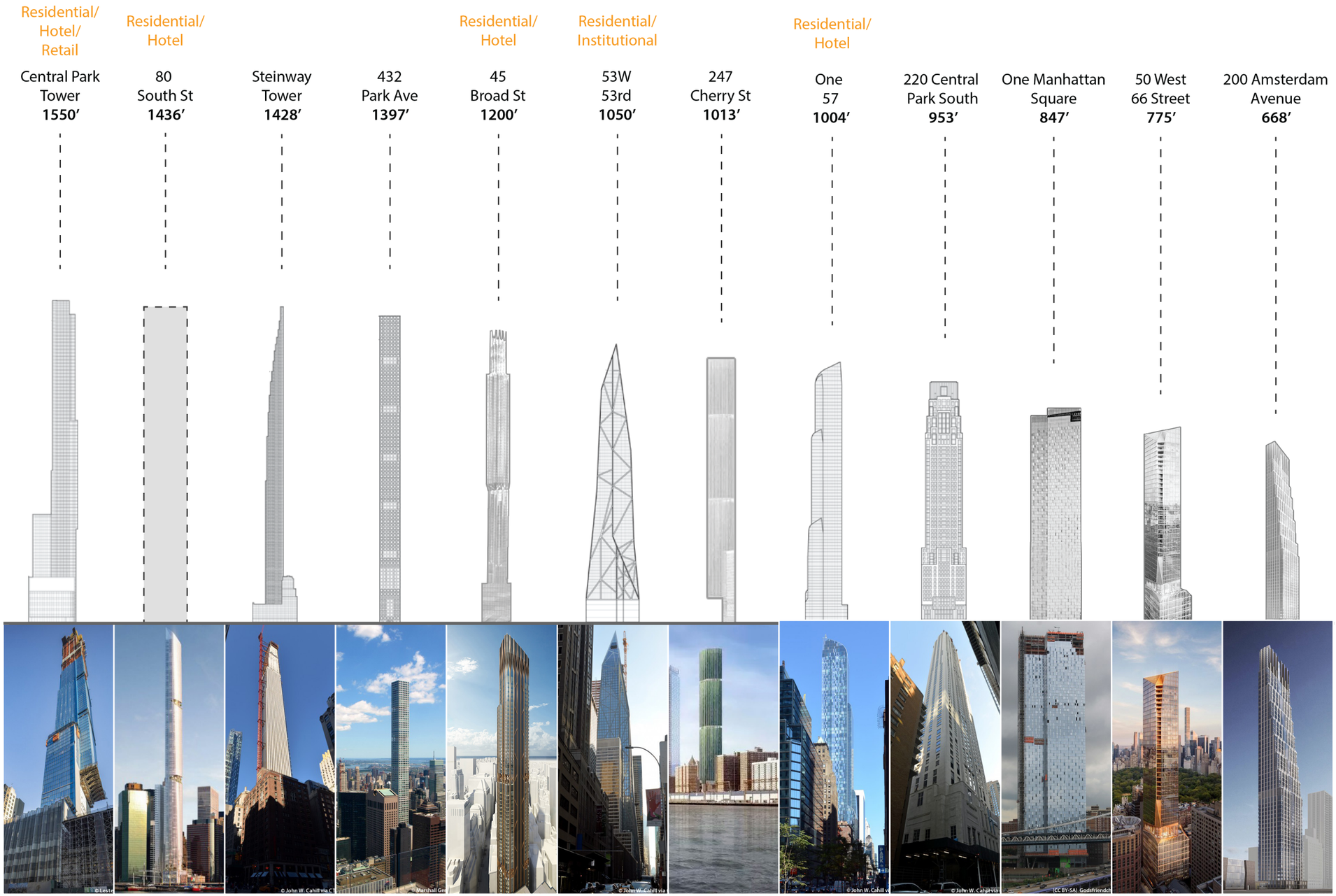
The majority of commercial supertalls are located in the newly established and planned Special Hudson Yards District, the newly rezoned East Midtown District and the Financial District. Meanwhile, residential supertalls are clustered around Central Park South, and new towers will soon be completed in Lower Manhattan. Additionally, 9 DeKalb Avenue, the first ever residential supertall in Brooklyn, was approved earlier this year.

Our research focuses on 12 residential and mixed use buildings in Manhattan, located on the Upper West Side, Central Park South, Lower Manhattan, and Two Bridges. We included 4 buildings below the height of 984 feet for a comparative analysis.

With our subject of study narrowed down, we analyzed the impact of supertalls on the environment and urban fabric. The study also included an analysis of the regulatory mechanisms of the development process and the property taxes paid by the buildings. These four lenses make up a holistic analysis of the twelve buildings, allowing us to provide an objective overview of their effects and find realistic opportunities for reform.

Our ultimate goal is to provide recommendations for a more inclusive and transparent process that ensures a livable built environment. These two priorities have guided our research and formed the foundation of our final recommendations.

Figure 3: 12 Residential and Mixed Use Buildings above 650'



The 12 buildings as subjects of our of study.

2.2 Supertall Characteristics

Supertalls development share the following characteristics:

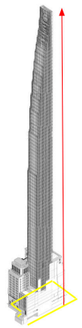
Height Threshold

984 feet

Used as a benchmark, our study included buildings above 650'.

High slenderness ratio

We've observed a high slenderness ratio that is exclusive to residential supertalls. The steinway tower, for example, has one of the highest slenderness ratios at 1:24.



Steinway Tower has a slenderness ratio of 1:24.

Architectural Features

Mechanical floors

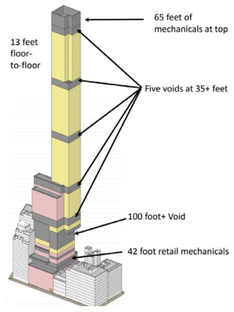
The use of mechanical floors to increase the height of a building has been identified as loophole since developments like Central Park Tower use them excessively. A zoning text amendment has passed in order to close this loophole.

Glass facades

Most of the 12 supertalls we've studied use glass facades, which creates a signature look amongst the towers but has negative environmental impacts.

High floor to ceiling heights

These luxury towers contain above average floor to ceiling heights. In 432 Park Ave, they are 12.5 feet whereas the average height is 9 feet.



Central Park Tower has more than six mechanical voids.

Construction Technology

Stiffer frames

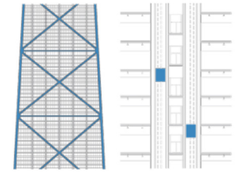
Stiffer frames are required to support their slender forms.

Special elevators and core design

A central core design enables a single elevator shaft within the building.

Fire safety

The buildings take extra safety precautions with steel structures that act as fire retardants.



Frame and structure design of supertalls.

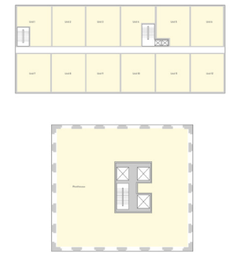
Pricing & Market

Geared towards a luxury market

The residential supertalls are built for the ultra-luxury market, with unit prices upwards of $120 million.

Fewer units

The buildings themselves have floor plans that consist of one to two units, contrary to the traditional floor plans



Fewer units in 432 Park Ave compared to traditional residential buildings.

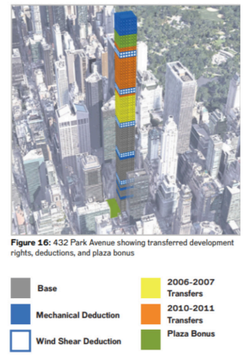
Regulatory Mechanism

Zoning Lot Mergers

The merging of tax lots in order to transfer development rights.

FAR Bonuses

An exchange where the developer provides public amenities in exchange for floor area.



FAR bonuses of 432 Park Ave.

2.3 Stakeholders

While the stakeholders involved in the development process of supertall buildings are more extensive than this diagram covers, we distinguished the specific people and organizations who have a direct stake in the process into three categories: the community and advocacy groups, the developers (the private sector), and the government (the public sector). These stakeholders have different roles and motivations in the development process, and in effect, varying perspectives and opinions on the buildings.

Through participant observation of local community board meetings, we gained insight into a wide variety of opinions on the current and future impact of supertall development. We observed contrasting views from the communities and the developpers on the impact of the buildings, but there was no direct engagement between the two parties in discussing their perspectives.

Lastly, the three branches of both the statewide and municipal governments are involved in creating legislation and enforcing the laws that impact the development process. In analyzing the roles and perspectives of these three categories of stakeholders, our final recommendations aim to make the development process more accessible to communities through the regulatory frameworks of city government.

Real Estate Developers

The three main developers of residential supertalls are:

1. Extell Development Company, developed the first residential Supertall in NYC and will now be completing the tallest residential supertall: Central Park Tower.
2. JDS Development Group is completing Steinway Tower and plans to begin construction of the first supertall residential development in the history of Brooklyn at 9 Dekalb Avenue.
3. Macklowe Properties developed 432 Park Avenue and the planned Tower Fifth which will become the tallest building in the history of NYC.

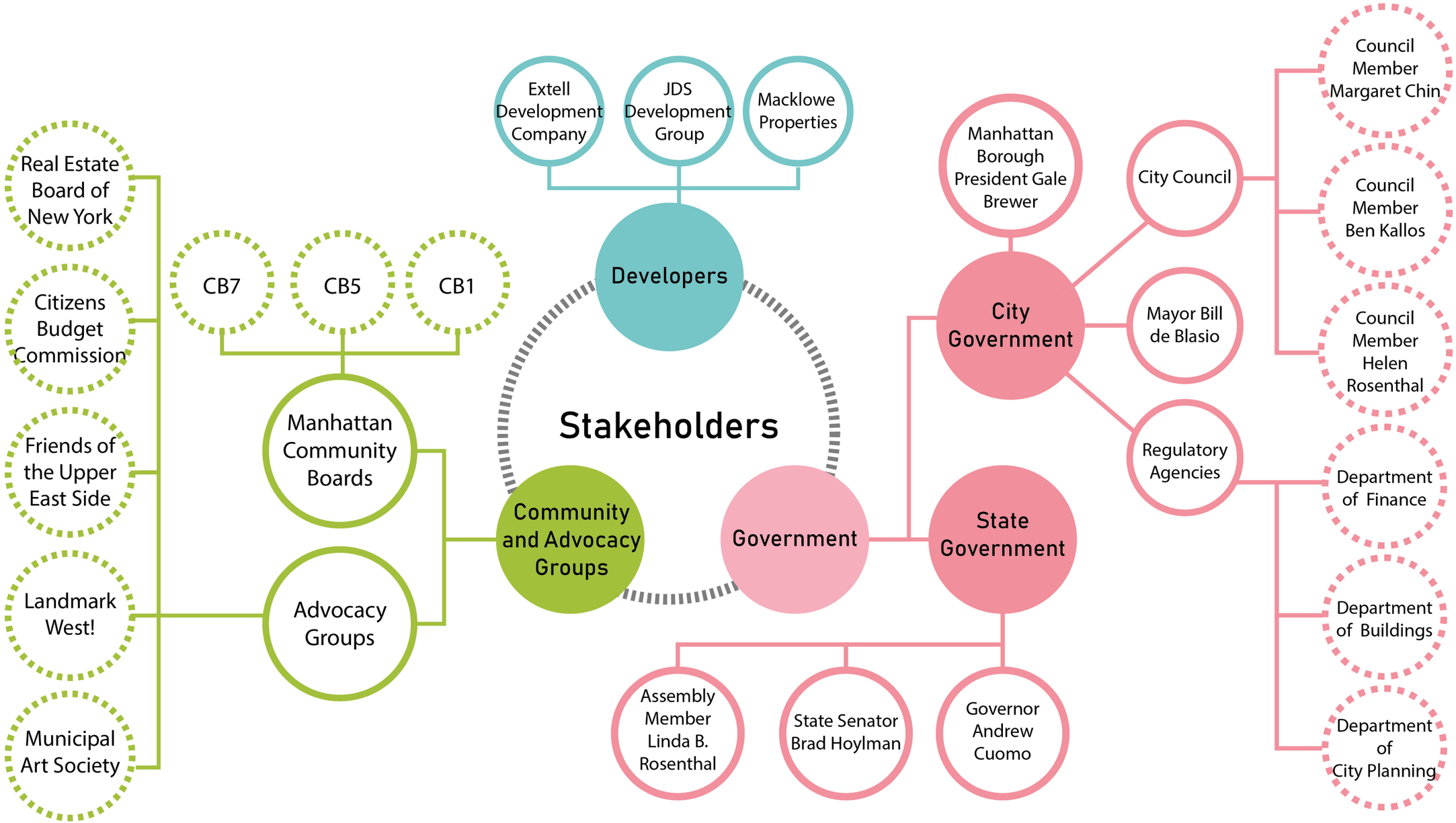
City and State Government

On the municipal level, we have emphasized the executive branch occupied by the Mayor, the legislative branch made up of 51 individual council members in charge of writing and passing new municipal laws and the advocate, our client, the Borough President of Manhattan, Gale Brewer. New York State Assemblymember Linda B. Rosenthal has a strong stance on further reforms pertaining to the regulation of mechanical space within buildings. New York State Senator Brad Hoylman has been highly involved in tax reform by enacting the 'Progressive Mansion Tax' included in the 2020 New York State Budget. Finally, Governor Andrew Cuomo has an interest in the legislation and fiscal effects of supertall developments.

Community Boards and Advocacy Groups

The community boards that represent the areas where the 12 residential supertalls are located are CB1, 5 and 7. Alongside the three Manhattan Community Boards, several local advocacy groups have commented directly on the developments. The Real Estate Board of New York has advocated for mechanical voids as necessary aspects of supertall development. The Citizens Budget Commission has had a major stake in advocating for certain taxes that the city and state can enforce on these properties in order to increase economic development and tax revenue. Finally, neighborhood associations and preservation activists have argued for further restriction and increased community involvement in order to limit supertall development.

Figure 4: Local Stakeholders



2.4 How Have Stakeholders Taken Action?

Mechanical Voids Text Amendment

The most contemporary issue, that was recently passed in a May 14th vote by the City Council is the Department of City Planning's zoning text amendment on the restriction and regulation of mechanical voids to 25 vertical feet within all future buildings within New York City. Prior to this amendment, many of the residential supertalls were including mechanical floors above the average heights in order to boost the overall height of the building.

We observed Community Board 5 and 7 meetings during their review of the text amendment. Residents expressed that the regulation does not go far enough to close the loophole. When pressing the DCP for more stringent regulations, the DCP responded that over-regulation will harm the NYC economy.

Developers argue that large mechanical spaces have been necessary components of the buildings. In the case of 432 Park Avenue, the mechanical voids mitigate the wind tunnel effect produced by high winds, and reduce sway. The DCP will conduct a study on the effect of the amendment.

City and State Government

"Artificially tall mechanical spaces that serve no purpose but to boost views of top-floor apartments violate the spirit of our zoning regulations."
-Mayor Bill de Blasio

Community Boards and Advocacy Groups

"From what we understand of what's been assembled, we don't see how a 775-foot building is legal."
-Sean Khorsandi, Landmark West!

Real Estate Developers

"Every mechanical floor, has equipment necessary for the building to function."
-Harry Macklowe

"There is one void and everything else is truly necessary mechanical space, amenity space and high-ceiling retail space for the first Nordstrom in New York City."
-Gary Barnett

Shift from the Pied-à-Terre Tax to the Progressive Mansion Tax

Taxation and real estate tax reform is an issue which has been outlined as a priority by all members of the political spectrum. Both the pro-development REBNY and non-partisan CBC have advocated for the city and state to address this issue in a swift and productive manner. The issue of property tax reform has also been embraced by local lawmakers. With the Mayor and City Council Speaker Corey Johnson establishing the NYC Advisory Commission on Property Tax Reform. Established in May of last year this public body has yet to hold a single of its 10 public meetings. Along with transparency of zoning tools, we hope that the Borough President can be informed from our analysis on this issue and press the local government to act expeditiously in addressing this concern.

Community Boards and Advocacy Groups

"We are appreciative that State leaders did not move forward with a misguided recurring pied-a-terre tax that was not well-thought out and had the potential to have significant adverse impacts on job creation and property tax revenues. An overhaul of the property tax system must be done thoughtfully."
-Real Estate Board of New York

"It is true many of the homes that would be subject to a pied-à-terre tax are undertaxed due to New York City's flawed property tax structure; however, the extensive disparities in that system should be addressed through comprehensive reform, not another piecemeal approach."
-Citizens Budget Commissions

City and State Government

"To be the fairest big city, you need a fair tax system. For too long, New York City taxpayers have had to grapple with a property tax system that is too opaque, too complex, and just feels unfair. New Yorkers need property tax reform, and this advisory commission will put us on the road to achieve it."
-Mayor Bill de Blasio

Environmental Impacts:
Intermittent Shadow Effects

The main environmental impact highlighted by local community boards is the Shadow impact of new luxury supertall residential development. This topic was a key and hotly contested debate of the ongoing "Accidental Skyline" report authored by the Municipal Art Society. Developers have a differing opinion and have made it clear that due to the high slenderness ratios of their new developments, the shadows cast may be longer they are skinnier and their narrow stature actually helps alleviate the severity of residential supertall shadow impacts.

Community Boards and Advocacy Groups

"Megatowers will wall off Central Park"; "Central Park is a front yard, not a backyard."
-Clayton Smith, Vice Chair of Community Board 5

Primary Real Estate Developers

"...the building (One 57)'s slender frame and seasonal changes wouldn't make the shadows a serious problem."; "[The shadow] will only be for a few minutes."
-Gary Barnett,
Extell Development

Urban Fabric:
Neighborhood Impacts

Local community board members have argued that they feel disconnected from the development process and do not have a stake in determining what types of buildings are developed within their neighborhoods. This sentiment was a major foundation of our analysis into the planning process and zoning tools which allow for maximization of building height.
In recent news, it was Landmark West! who raised concerns over the permits at 200 Amsterdam Ave. and drew attention to the issue of mechanical voids. Another lawsuit was raised by community groups (LES Organized Neighbors, Chinese Staff & Workers Association) that oppose developments in Two Bridges, including 247 Cherry St. citing a violation of a deed restriction. In both cases, the community was responding to a lack of transparency in the process and responding to the exclusion by drawing attention to the issues these buildings create for residents.

Community Boards and Advocacy Groups

"Across from a very beautiful cathedral that we very much cherish. Just imagine all of a sudden, you're going to have an enormous glass tower that is going to be perched over there."

- Layla Law-Gisiko, Chair of Community Board 5

Primary Real Estate Developers

"The existing building was obsolete and had many maintenance problems. The bigger issue is how to deal with obsolete buildings in the city. It would be replaced with a tower that was twice the height and 25 percent larger, with two glass-walled apartments on most floors, almost all with park views."

-Veronica W. Hackett Managing Partner of the Clarett Group

3. Our Findings

3.1 The Regulatory Framework

A. Zoning Mechanisms

All buildings in NYC go through mandatory multi-agency regulatory reviews. The supertall developments were developed as-of-right, which means that while they went through the regulatory procedures, **most of them were not required to go through a public review.** This pro-development process enables the city to increase its commercial and residential housing stock to satisfy demand.

The buildings in our study conform to the city's strict and complex Zoning Resolution which governs land use and development. They go through the as-of-right process by submitting an application to the Department of Buildings for property development and include a ZD1 Zoning Diagram to show that the building is in compliance with applicable zoning codes. It is usually the developer's architect that submits the ZD1 and it is a DOB Plan Examiner, usually an architect, engineer, or urban planner, who approves the analysis. This process is mandatory but interpretations are discretionary. The documents are made available on the DOB website after they are approved and filed.

In our study, we noticed that supertalls occasionally use mechanisms differently than their intended use. We identified two of these mechanisms that are most commonly used and have the potential for reform.

Development Process

To study how the 12 buildings complied with the zoning regulations, we analyzed their ZD1 Zoning Diagrams and Zoning Lot Descriptions from the Department of Finance. These two sets of documents provided details about the size of the zoning tax lot and the zoning lot mergers. In combination with other sources, such as news reports that were cross checked with official documents, we compiled the details of the processes the 12 buildings used in acquiring additional floor area. The acquisition of floor area is the main factor which enables these buildings to maximize their height therefore, this process played a guiding role in our attempts to recommend comprehensive reforms to existing zoning regulations .

The most common mechanisms used in supertall development in order to achieve additional floor area are Zoning Lot Mergers and FAR Bonuses in exchange for public amenities.

ACRIS became a primary source for information regarding property documents.

BISWEB provided an overview of the property profile, including zoning lot mergers.

We utilized ZoLa to get official details about the buildings.

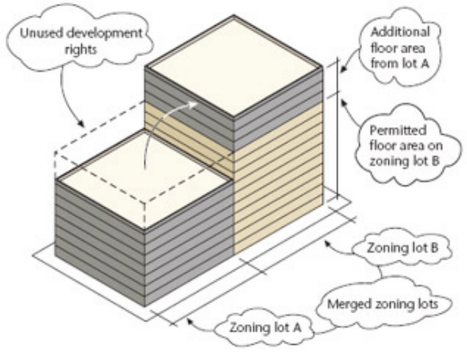
B. Zoning Lot Mergers

Zoning Lot Mergers combine contiguous tax lots within a block and allow for the free movement of floor area within the merged lot. ZLMs are filed with the DOB once two parties that own the two tax lots come to an agreement amongst themselves. ZLMs were introduced in the 1990's, and were intended to preserve open space and landmarks. They were typically used for small transfers where one building was not using all of its allotted FAR and could transfer that floor area to an adjacent lot. We observed that some of the most controversial supertalls, such as Central Park Tower, Steinway Tower, and One57 utilized this mechanism to assemble larger zoning tax lots, and in effect, gain more floor area.

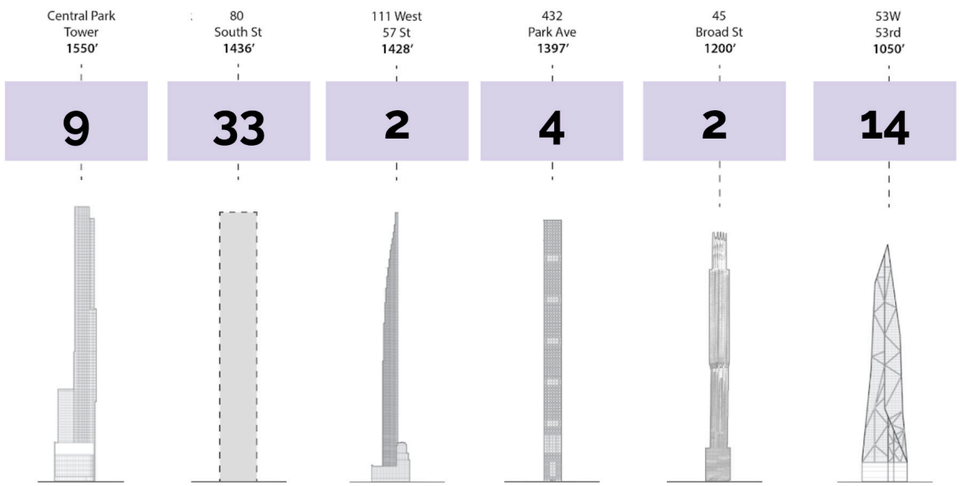
It is also important to note that while the size of the zoning lot for the building has increased, the actual floor plate remains small in order to make use of the floor area and maximize height.

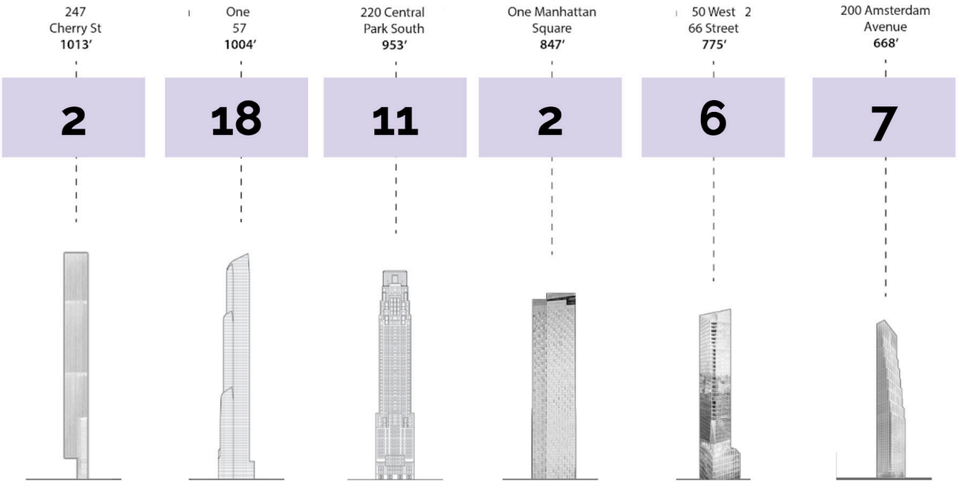
The diagrams on the next page show the number of zoning lots that were merged in order to increase the building's floor area. Out of the twelve buildings we studied, *e***ight utilized more than two ZLMs and four merged more than ten lots.** Some argue that the mechanism preserves the buildings in the zoning lots that were merged, but this also means that only a single developer has gathered the development rights for that entire zoning lot.

In the future, the cost of the unused development rights from that developer will be purchased at market rate, yielding them a significant profit. For example, in 2013 Vornado Realty Trust (who constructed 220 Central Park South) paid Extell Development Company $194 million for a parcel on 225 Central Park South that Extell Development purchased in 2009 for significantly less.



Zoning Lot Merger





Total Lot Mergers Per Tower

C. FAR Bonuses

The city has adopted mechanisms that allow real estate developer's to gain additional floor area by providing public amenities in exchange. This is a tradeoff which allows the city to gain necessary resources that the developer can provide out of pocket. Of the 12 supertalls, three utilized this mechanism to obtain additional floor area.

Steinway Tower / 111 West 57th. St.
JDS Development Group contributed **$9 million** to an affordable housing building at 211 West 28th Street **in exchange for 20,002 sq. ft. of floor area.** Together with The Witkoff Group, they subsidized 23 of the 37 units in the building. For JDS Development Group, the cost of additional square footage gained was $445 per square foot.

432 Park Ave.
Macklowe Properties and CIM Group gained an additional **68,940 sq. ft. of floor area in exchange for a Privately Owned Public Space with a size of 6,134 sq. ft**. While the public space is much needed in midtown, the building received eleven times the floor area it had provided as a park.

Affordable Housing at 211 West 28th. Street

45 Broad St.
In exchange for two elevators at the Wall Street and Broad Street subway stops, **45 Broad Street will receive an additional 70,000 sq. ft. of floor area.**

The two elevators will ensure that the subway stops are ADA (Americans with Disabilities Act) compliant. With only a quarter of the city's subway stops adhering to ADA accessibility, the MTA is struggling to make improvements to approximately 472 stations.

D. Recommendations for Increased Transparency and Accessibility of Regulatory Processes

1. Increase DOB Procedural Transparency:
Community boards have expressed their need to have a greater influence on the form of a building in theid district. One way to achieve this is to push for greater transparency in the ZLM process. We recommend if a zoning lot gains in excess of 50% of its area from zoning lot mergers that the information on the cost, location and entities involved is made public for local community board review immediately, and not after the process of development begins. This will allow Community Board members to collaborate with local zoning experts and uncover any violations or mistakes that may exist. If significant violations are present they can immediately petition the Department of Buildings to reject an as-of-right zoning analysis with comments.

Requesting that information be made available real time and online can produce a system of checks and balances. Regulating the procedure will not accomplish the change that communities actually want to see, so the mechanism itself doesn't need to be altered. Instead, we encourage the Manhattan Borough President to push for greater resource allocation for the Department of Buildings so that they can release this information in real time and in a user friendly format. Since the DOB already has this information, the gap exists in making it more accessible to the public. Communities that are seeing supertall development such as North of Madison Square Park (NoMad) and Lower Manhattan may be more interested in this kind of information, so prioritizing their district boundaries could be a productive first step.

2. Expand on FAR Bonuses:
While the value of the exchange in an FAR Bonus is up for debate, amenities such as subway improvements and public spaces are crucial city enhancements. Expanding on them to align with city goals that are outlined in One NYC 2050 can contribute to the overall vision. Since transit bonuses are already an option, they can be expanded to include developer contribution to bike lanes or dedicated bus lanes. This is directly related to NYC's vision for an increase of more sustainable and environmentally friendly modes of transportation. Finding more opportunities like these in the exchange can expand on the benefits that the city, and its residents, gain from developments. A consideration of the cost to the developer should also be up for discussion. The city should increase the cost of the bonuses to an amount that still benefits both parties.

E. Property Taxes and Economic Development

The second sector in need of regulatory reform is New York City's municipal property tax formula. Significant reforms have not taken place since 1993 and our research has indicated that the city needs to act quickly in promoting a more robust property tax formula in order to maximize economic development.

432 Park Ave.

Our research began by analyzing the economic development that these new structures promote on an individual unit basis, we then expanded this analysis to all six residential supertall's located south of Central Park, and then provided an in depth analysis of how each local and statewide stakeholder has responded to these issues, concluding on how the Manhattan Borough President can press local officials to act in an expeditious manner.

F. Economic Output of 432 Park Avenue Penthouse

In 2015, the penthouse of 432 Park Avenue was purchased by Saudi Arabian Prince Fawaz Alhokair for $95 million. The building and unit are not subscribed to any individual tax abatement or financial incentive. That being said, if the unit was taxed at the statewide average rate of 1.65% or even the citywide average rate of 0.8% it would produce an annual tax revenue of $15.675

$95 million Penthouse

State Average
$15.675 Million

City Average
$7.6 Million

Final Property Tax
$79,000

million and $7.6 million respectively. However, after accessing its 2018 final property tax bill through the New York City Department of Finance's (DOF) public records, we uncovered that it only produces $179,000 of annual tax revenue for the city. **Therefore, it is taxed at an effective rate of only 0.00188%, a dimunation of approximately 538 times it original market value.** This final rate is 425 times less than the average property tax rate of the four combined New York City property tax classes.

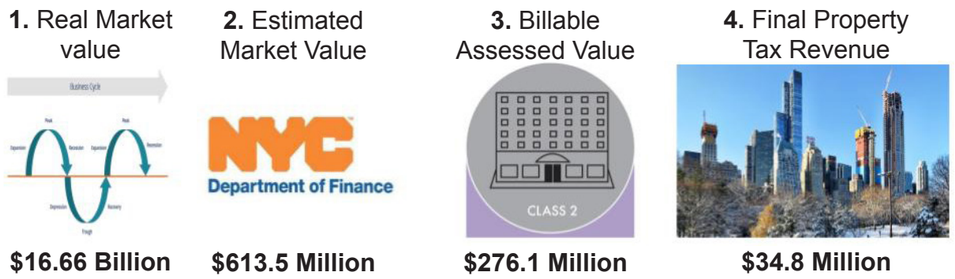
G. Billionaires' Row Total Economic Development

In order to examine total economic output and development on a larger scale, we expanded our study area to all six luxury residential buildings which occupy Billionaires' Row (432 Park Avenue, 157 West 57th Street, 111 West 57th Street, 217 West 57th Street, 220 Central Park South and 53rd West 53rd Street). The current four pronged tax structure spreads the tax burden unevenly along all properties in the Department of Finance's #2 Tax Class. It groups income producing properties (apartments which are rented and whose annual revenue is taxed) in the same tax class as non-income producing properties such as condominiums.

Our analysis which included all 6 supertall residential buildings south of Central Park South, concluded that while the real market value for all six buildings is $16.66 billion the final aggregated property revenue in terms of annual economic development is limited to just $34.8 million.

Our conclusions and the need for significant reform are echoed by all sides of the political, social and economic spectrum. Industry professionals which include the current President of REBNY, John Banks have argued that property tax reform is necessary and "an overhaul of the property tax system must be done thoughtfully." While the non-partisan Citizens Budget Commission (CBC) have voiced their displeasure in the past for the push for a pied-a-terre tax they were quoted as saying that "the extensive disparities in [the tax] system should be addressed through comprehensive reform, not another piecemeal approach." Finally, even the Mayor and City Council Speaker Corey Johnson are on board for a property tax overhaul. In May of 2018, they introduced the NYC Advisory Commission on Property Tax Reform with the Mayor stating that "for too long, New York City taxpayers have had to grapple with a property tax system that is too opaque, too complex, and just feels unfair." However, while the commission was established over a year ago they have yet to hold a single of their 10 public meetings. We strongly encourage the Manhattan Borough President to push the commission to begin the public meeting process immediately, so that local stakeholders and the community can approach the need for comprehensive property tax reform in a timely

Three determining factors of property tax rate



H.Recommendations for Economic Development

1. Track Effectiveness of Mansion Tax:
The Department of Finance should track the effectiveness of the new Progressive Mansion Tax by producing an end of year analysis and determine if it meets the revenue target of $365 Million. This will require that the DOF is granted additional funding and resources in order to complete this analysis in a timely manner and provide a fully published report for public review.

2. Comprehensive Property Tax Reform:
Remain dedicated to the establishment of equitable property tax reform by urging the Mayor's advisory commission to complete a path towards a new tax code. This would require that the Mayor's Advisory Commission on Property Tax Reform is held accountable for the ten public meetings it promised as part of its mandate when it was established in May, 2018. At this time, not a single public meeting has been held and it is of paramount importance that the Manhattan Borough President hold this advisory commission accountable and transparent manner.

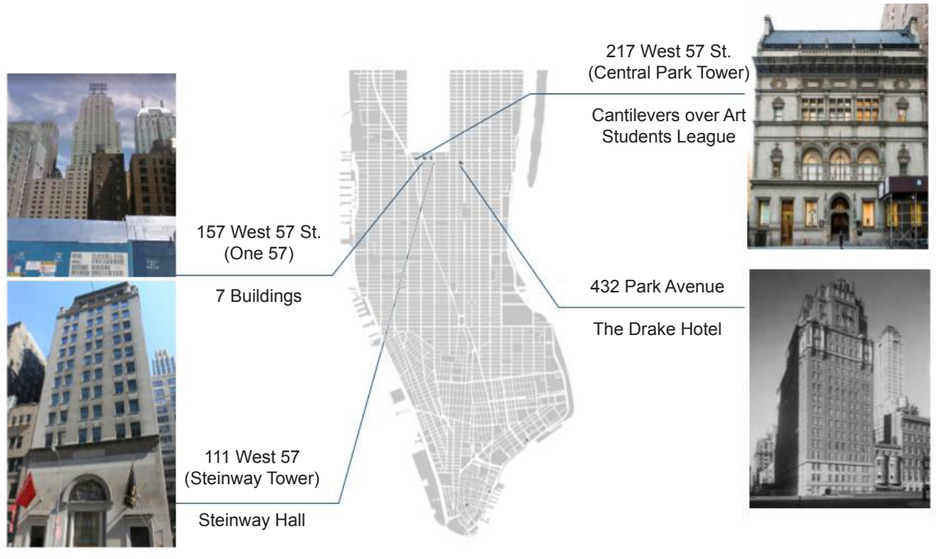
3.2 Urban Fabric and Built Environment

A. Impacts of demolition and new construction

Characterized by a process of demolition and construction, supertalls are formed through replacement and alteration of old building structures. In our study, over 20 buildings were demolished which had served a variety of diverse uses to make way for 12 new residential buildings which included luxury hotels and ground floor retail at their base. The first supertall residential development in the history of New York City, One57 (157 West 57th Street) was completed in 2014 by Extell Development Company and had demolished over seven buildings with mixed uses in order to make way for a large building site. The new structure (whose penthouse was sold to Michael Dell of Dell Computers for $100.5 million) has a gross floor area of over 800,000 square feet, but only houses 94 condominium units as well as a 210 room Park Hyatt Hotel on its lower levels. The second residential supertall (432 Park Avenue) completed in 2015 owes its current building site to the historic Drake Hotel, which was purchased in 2006 for $440 million and demolished in 2007. Although the hotel only consisted of 21 floors, it provided a significant number of rooms for its guests (495). The hotel was never landmarked, but over the years it played host to several celebrities which included Jimi Hendrix, Muhammad Ali, Led Zeppelin, Frank Sinatra and Judy Garland. Although 432 Park Avenue consists of a total of 88 floors (more than four times the Drake Hotel) it only provides 125 condominium apartments (four times fewer than the 495 rooms which were located at the previous hotel).

While it was difficult to assemble the lot mergers necessary to maximize the height of these buildings, but because their demolition practices did not impede on any local landmarks it was relatively easy for demolition to take place in a cost effective and timely manner. However, two other developments within our analysis had the difficult task of either promoting the preservation of adjacent landmarked structures through adaptive reuse or by purchasing their air rights. Both of these actions significantly altered landmarked structures but neither of them required any special permit to be procured by local developers as they were not landmark transfers. For example, in 2013 the Landmark Preservation Commission (LPC) approved that Extell Development Company construct a cantilever over the adjacent landmarked Art Students League building on 57th street. While the regulatory framework requires that significant alterations require a vote by the LPC this process does not include a formal vote or consultation with the local community board. Voicing her opposition, Community Board 5 Chair Layla Law-Gisiko was quoted at the meeting that "all of our beloved buildings are going to be overshadowed by cantilevers." A major factor which contributed to the Art Students League accepting the terms of the cantilever was the $31.8 million dollars Extell provided them in exchange for the right to cantilever over the building as well as purchasing over 6,000 square feet of their development rights through a zoning lot merger. The preservation of landmarks is not just limited to adjusting the environment around them (i.e. cantilever above their roof). Earlier that same month the LPC held a vote on a neighboring building now known as Steinway Tower (111 West 57th Street). Designed by SHoP Architects and developed by JDS Development Group, the Steinway Tower which will be the second tallest and slimmest residential building in the history of New York City was granted permission to incorporate the historic landmarked Steinway & Sons piano shop into its base entrance. Once again the local community voiced their frustration that they did not have a say in the confirmation process arguing that "it is not appropriate to turn this landmark into a doorway for another building." Additionally, there are concerns about the new building which will top out at 1,438 but will only consist of 60 luxury residential condominiums.

Another major concern of demolition and new construction is the growing concern of food deserts throughout Manhattan. According to the New York Times, "between 2005 and 2015, the city lost around 8 percent of its greengrocers… about 300 such stores closed during that time, about a third of them in Manhattan." In 2012 Extell Development Company purchased a local Pathmark Grocery store in the Two Bridges neighborhood of Manhattan for approximately $150 million. While the national affordable grocer filed for bankruptcy in 2015, Extell had completed demolition of the site in 2014, with a promise to the



Buildings that were demolished or altered

local community board that once development was complete of both the new 847 foot tall One Manhattan Square and off-site affordable housing development 249 Cherry Street, that a new affordable grocer would be established in the ground floor of the new affordable housing complex. However, as closings now begin at the luxury development located at 250 South Street (One Manhattan Square) no new affordable grocer has yet to be established. This new grocery store is necessary for the livability and affordability of the local neighborhood.

As it is located directly adjacent to several NYCHA public housing superblocks, neighborhood residents require a nearby grocer to meet the needs of the local community. However, One Manhattan Square does not just affect the local physical makeup of the urban fabric, but it also promotes a new wave of luxury development in an area where most residents live below the national poverty level. This area of study was the subject of our case study into the urban design principles of the local Two Bridges neighborhood.

B. Urban Design Principles

The urban design of a city weaves together elements of the buildings, public space, streets, transportation, and landscape into a coherent organized structure. It plays a critical role in shaping the public realm which encompasses the social and public experience of a city. However, urban design is sensitive to change and can raise contentious issues of equity and livability.

With each new supertall development, the social, economic, and cultural dynamics of the built environment undergo immense transformations and reconfigure existing spatial relationships. Given the controversy of supertall developments in New York City, there is a growing concern for quality ground level urbanism. Questions of “value” and the change of space that a supertall development imposes on the neighborhood arise and should be analyzed through the lens of urban design principles set forth by New York City’s Department of City Planning (DCP).

According to the DCP, good urban design should have “a concern for the livability of the neighborhood.” They include principles of:

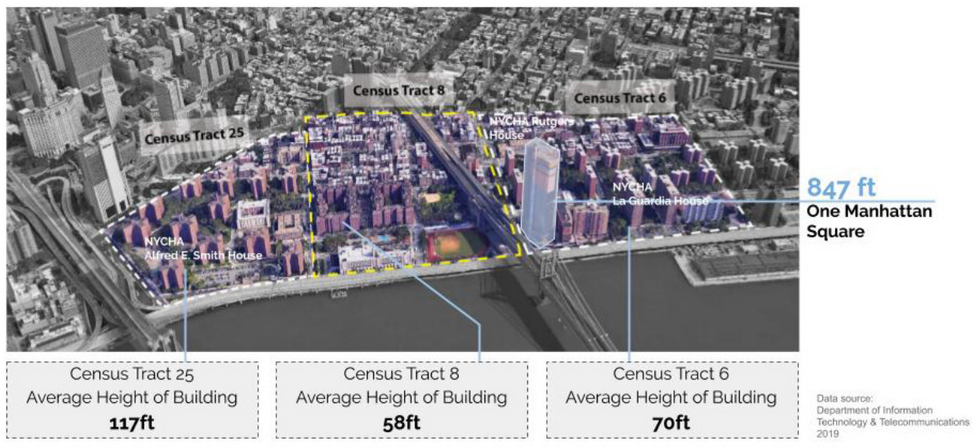
- Place: create and reinforce a sense of place
- Equity: open and accessible to everyone
- Detail: pays attention to the details
- Comfort: makes people feel good

To study whether a proposed or constructed supertall meets the DCP’s urban design principles would require a case by case study on each neighborhood undergoing transformation from a new supertall development. In this report, the newly constructed supertall, One Manhattan Square in the neighborhood of Two Bridges (with Census Tracts 25, 6, and 8 taken into consideration) will be used as the case study to examine if the development embraces these principles.

C. Two Bridges Neighborhood:
A Case Study of Urban Design Principles and Supertall Developments

1. Overview

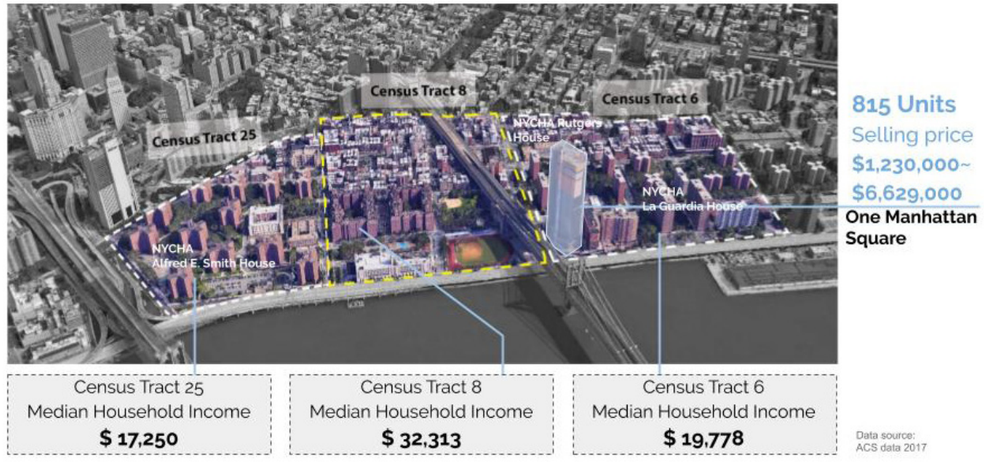
The neighborhood of Two Bridges is situated in the Lower East Side of Manhattan, overlooking the East River towards Brooklyn and is nested between the Brooklyn Bridge and Manhattan Bridge. It is largely composed of NYCHA public housing projects with a community median income below the national poverty line. Equity, affordability, and accessibility of public amenities is especially crucial for urban vitality in this neighborhood. With the newly constructed One Manhattan Square northeast of Manhattan Bridge at the intersection of Cherry St. and Pike Slip, the towering 847 feet residential supertall overlooks its surrounding NYCHA developments which rise at a comparatively low average height of 99 feet. The striking difference in building height puts One Manhattan Square at a different scale with the neighborhood and explicitly redefines the neighborhood character. It also challenges the equity of waterfront and cityscape views for residents in the surrounding NYCHA developments.



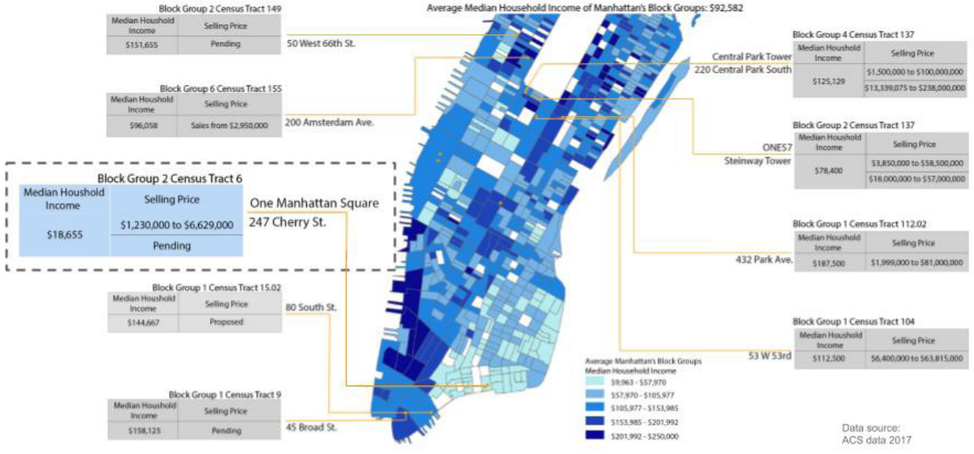
Neighborhood Character: Height of Buildings

2. Public and Private Amenities

Currently, the neighborhood offers many public amenities including playgrounds, parks, green space, community centers, and public schools. In comparison to a typical residential tower development, many supertall developments bring about their own, privatized amenities to the site. As part of its marketing strategy for luxury, supertall developments capitalize on the privilege of on site resources. In the case of One Manhattan Square, the private amenities offered to its residents include an underground parking garage, a fitness center, and a residents lounge. While the privatization of amenities may not take away from what is existing, the design of these amenities are redefining the streetscape. They are spatially designed to corner off the streetscape scene so exclusivity and luxury is reserved. An outdoor terrace that capture vantage point views in One Manhattan Square are purposely elevated above ground level. The bordering walls disconnect residents from interacting with the bordering streets and disincentivize residents from interaction with the larger neighborhood. Furthermore, to give way for the construction of One Manhattan Square, a neighborhood grocery store was demolished. Although the developer promised to bring back a grocery store once construction was completed, there are still no definite plans for its return.



Neighborhood Demographics: Household Income



Neighborhood Demographics: Household income

Public Amenities

3. Street Design and Connectivity

The street design between NYCHA developments are painted with green space and interwoven with paved pedestrian pathways that connects each development unit into small scale communities. Such pedestrian pathways allow for increased connectivity and offer a human scale street design. Vehicular access running on the outer frameworks of the pedestrian path ease the safety and help mitigate the risk of accidents with dedicated pedestrian walkways.

Transit access is on average a 5-6 block walk in the neighborhood. Current subway lines connect the neighborhood with the Borough of Brooklyn through the F line which increases circulatory access across the East River and between boroughs. With the new development of One Manhattan Square providing an underground parking garage for its residents, the potential increase in car ownership threatens disruption of current traffic flow as well as demand for public transit accessibility in the area.

Looking at the ground level movement at all four corners of the block which One Manhattan Square is developed on, there is a bike path running alongside vehicular pathways on Pike Slip drive that ultimately ends at the intersection of Pike Slip and South Street due to perpendicular traffic flow. Around the corners of Cherry Street, Frank T. Modica Way, and South Street, the sidewalks are protected with streetside parking that acts as a buffer between the pedestrian path and vehicular path. However, there is no connection or designated path for bikes along these three streets. To increase circulatory access and connectivity, bike paths are recommended to develop alongside sidewalks and between streetside parking so that there is an increase in transit options around the neighborhood for cyclists.

Transit Access

Connectivity

Connectivity: One Manhattan Square

D. Sustainable Supertalls?

We studied the environmental impacts of supertalls to determine how they affect their direct surroundings. Our research findings shaped some of our final recommendations that guide supertalls to ensure a livable built environment.

Why are Environmental Impact Assessments (EIA) and Environmental Impact Statements (EIS) important for supertalls in NYC?

Most of the developments in NYC such as the ones on Billionaires' Row were approved as-of-right. However, an Environmental Impact Assessment is vital for many reasons. An Environmental Assessment (EA) determines whether or not a new project will potentially cause significant environmental effects. The issuing of an Environmental Impact Statement is decided by the National Environmental Policy Act of 1969 (NEPA) and its regulatory requirements are "more detailed and rigorous than the requirements for an Environmental Assessment."[1]

The technical analysis is based on the City Environmental Quality Review (CEQR) and considers three conditional categories:
- Existing conditions
- The No-Action scenario or the future conditions without the proposed projects
- The With-Action scenario or future conditions with the proposed projects[2]

Some of the major concerns related to tall buildings that are addressed in the EIS are:

1. Wind Impacts
2. Shadow Impacts
3. Building Envelope Concerns
4. Sustainability Standards

1 "National Environmental Policy Act Review Process." Retrieved from: https://www.epa.gov/nepa/national-environmental-policy-act-review-process

2 Lago,a Marisa, (November 23, 2018), "Notice of Completion of The Final Environmental Impact Statement, Two Bridges LSRD", Department of City Planning

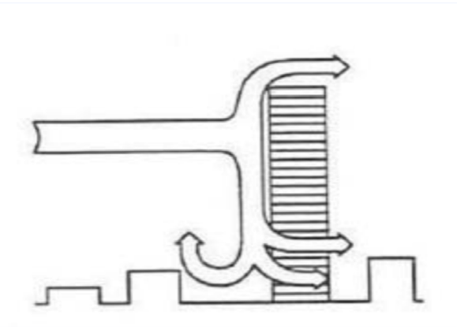
1. Wind Analysis

The impact of tall buildings on wind patterns is a common concern. The diagrams show three types of wind discomfort at the pedestrian level.

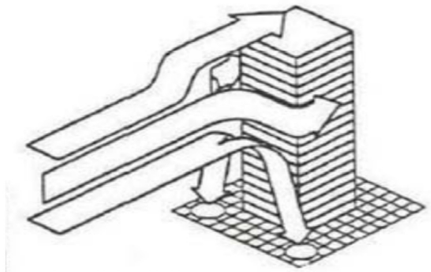
A new project involving multiple tall buildings close to waterfront sites could lead to an increased 'channelization' or 'downwash' effect affecting pedestrian comfort and safety.

Factors requiring special attention in developments with multiple tall buildings are the exp osure of the location to high wind conditions, the size of the project, the number of buildings proposed, their size and orientation, and the surrounding pedestrian conditions.[1]

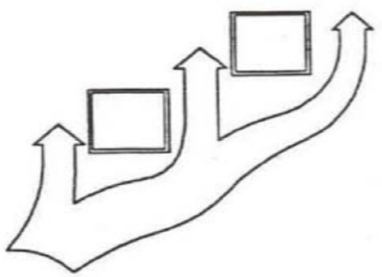
Wind concentration at ground level



Wind downwash at the corner



Accelerated flows between adjacent buildings



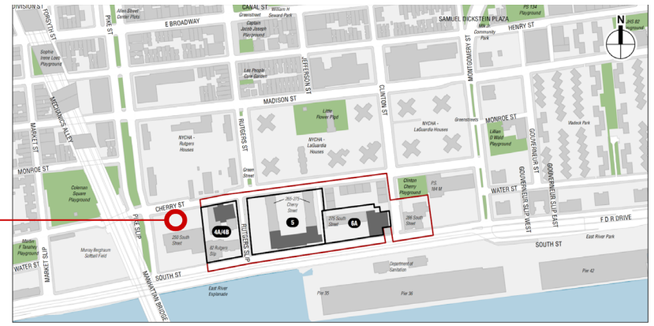
1 NYC.gov. (March 2014), "Chapter 10: Urban Design and Visual Resources, Pedestrian Wind Conditions", CEQR Technical Manual

We conducted a wind analysis on the Two Bridges Large Scale Residential Development (LSRD) and its immediate context including the One Manhattan Square building. The Two Bridges LSRD has three newly proposed (recently approved but currently contested in court) developments.
We compared the wind conditions between two scenarios:
a- Without One Manhattan Square and the three new developments (Figure 5)
b- With One Manhattan Square and the three new developments (Figure 6)

In the winter season, the wind speed could reach up to 10m/s at pedestrian level in the areas around One Manhattan Square and the three new tall developments. Figure X shows no red spots as opposed to Figure Y where many red regions indicating high-speed wind are visible. This is an indication that the tall buildings, when completed, may cause wind tunnel effects around the Two Bridges LSRD site. This corroborates the importance of highlighting these effects in an EIS for similar developments.

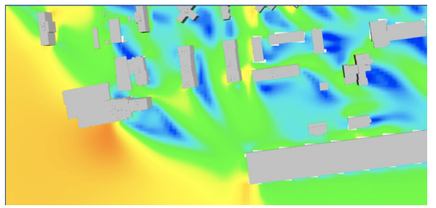
In the summer season, we can observe more blue regions around the tall buildings when comparing between Figures 5 and 6. A blue region indicates very low wind speed leading to a stagnant air effect. With the tall buildings completed, the Two Bridges LSRD site will experience a stagnant air effect around these developments. This effect would lead to a bad air quality around this area. Since the EIS does not take into account this effect in its section describing wind impacts, we recommend incorporating it there and requiring a wind analysis determining both potential conditions of wind tunnel effects and stagnant air effects from new tall developments.

One Manhattan Square

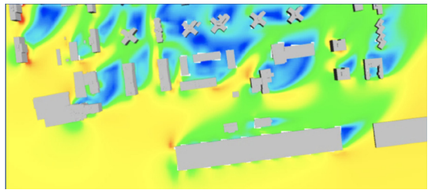


Source : nyc.gov

Figure 5 - Wind Conditions Without the Tall Buildings



Winter Season



Summer Season

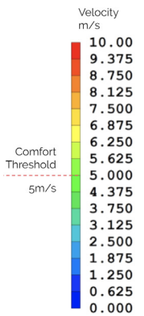
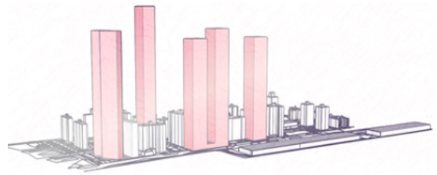
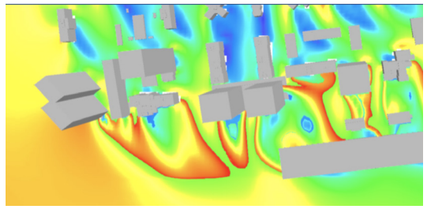
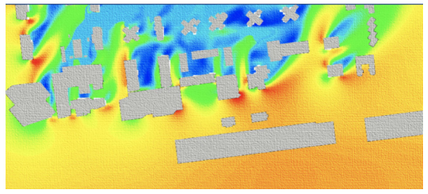


Figure 6 - Wind Conditions With the Tall Buildings





Winter Season



Summer Season

The tall buildings increase the wind tunnel effects in the winter season and the stagnant air effects in the summer season at the pedestrian level around the Two Bridges Large Scale Residential Development site.

2. Shadow Analysis

Why Regulate Shadows?

Sunlight and shadows affect people and their use of open space, with varying effects in different seasons. Sunlight can entice outdoor activities, support vegetation, and enhance architectural features.
After a close study on New York City's climate data, we observed that during summer months, regardless of whether there is direct solar radiation, the temperature is above the comfort threshold. During the winter season, the temperature is below the comfort threshold in regions inside or outside shadow area. Therefore, our shadow analysis mainly focuses on the shoulder months: March, April, and November. During these months, the shadows have the largest negative impact on human comfort.

Enticing Outdoor Activities

Support Vegetation Growth

Enhance Architectural Features

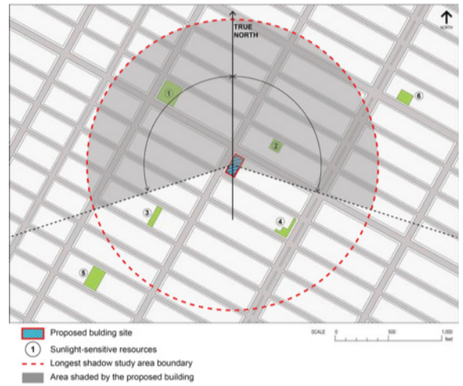
How To Evaluate Shadows?

New York City's City Environment Quality Review (CEQR) includes a chapter on shadow analysis, providing detailed guidelines to assess whether new structures will cast incremental shadows on sunlight sensitive resources, the significance of their shadow impact, and to provide potential mitigation strategies.

The shadow evaluation takes into account:

- Incremental shadows: the additional shadows that a proposed building would cast on sunlight sensitive resources during the year.
- Sunlight sensitive resources of concern: public open spaces, green streets, natural resources, and historical and cultural architectural features.

To evaluate shadow, CEQR suggests to first determine the longest shadow study area. A circular buffer with a radius equal to 4.3 times the height of the proposed building is traced. The top part within +108 degrees and -108 degrees from the North axis (shown in gray) is the study area.



CEQR Tier 1 screening method

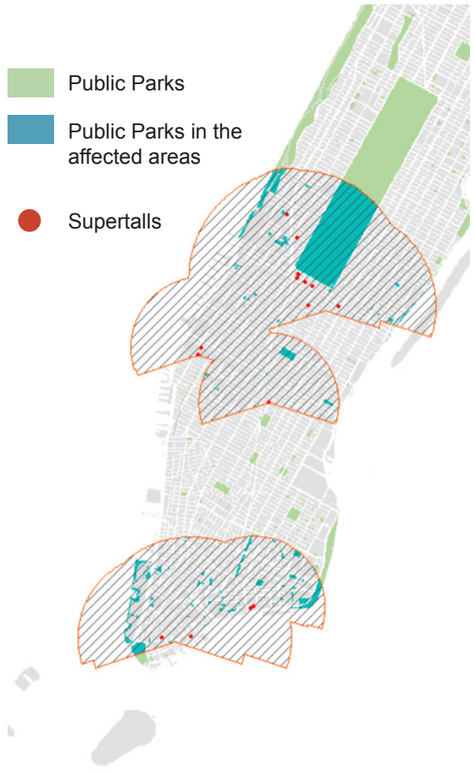
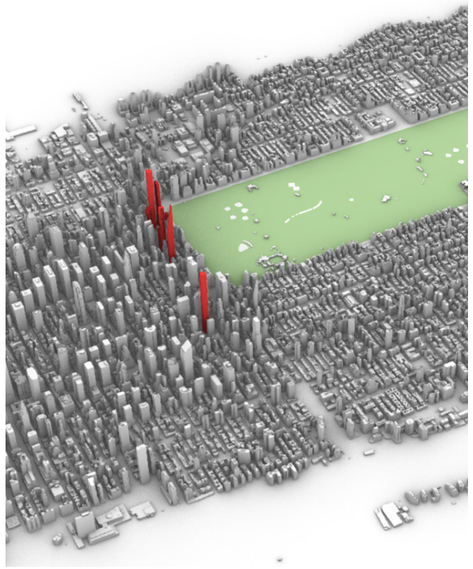


Figure 7- Shadow study area of supertalls following the CEQR Tier 1 screening method

Figure 5 shows the shadow study area of the supertalls based on the CEQR method. The affected public open spaces within the buffer area are identified in dark green. The supertalls on Billionaires' Row have the largest impact so we decided to focus our study on that.

The five supertalls selected for our case study are Central Park Tower, 220 Central Park South, One 57, 111 W 57th St., and 432 Park Avenue. Two of them are under construction (almost topped out), and three of them have already been completed. None of them have gone through a CEQR shadow review before they were built. So instead of assessing the incremental shadow, we applied a similar ideology to evaluate how much shadow can be reduced if these supertalls are removed.

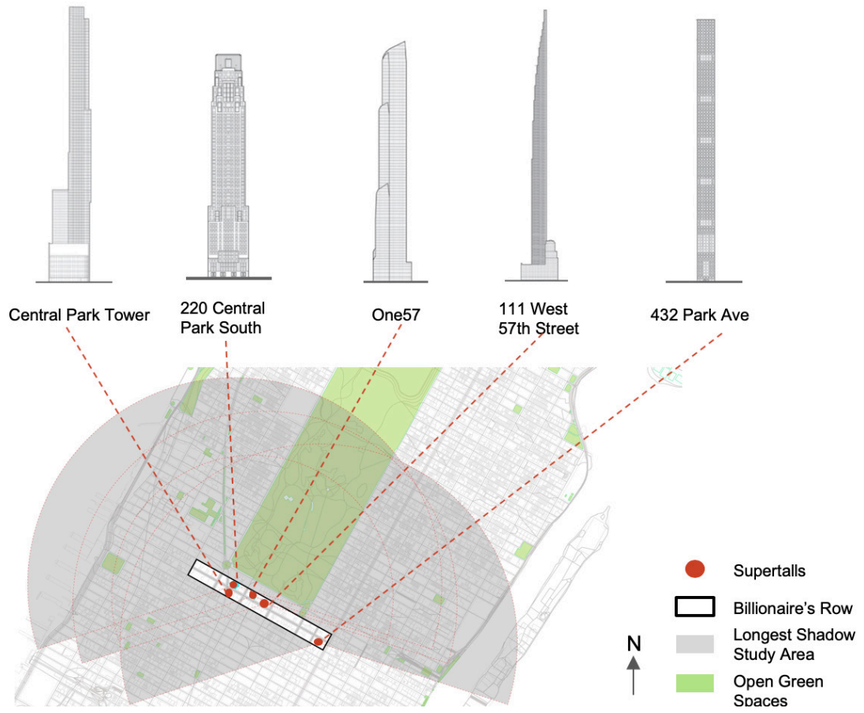
We applied computational simulation tools to conduct the analysis. The visualizations show the aggregated shadows for each individual building in the nine tested days (the 5th, 15th, and 25th of March, April, and November).

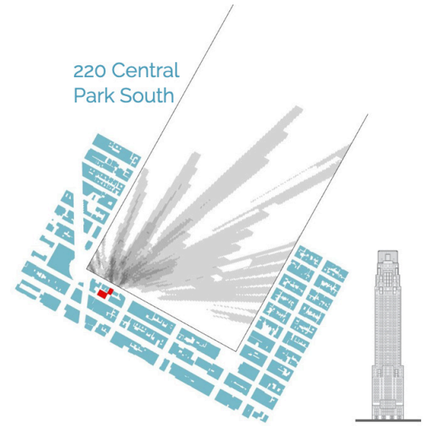


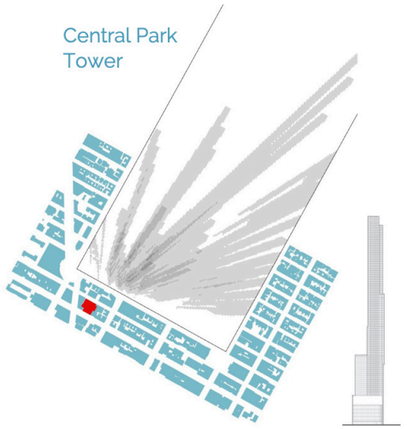
Supertalls at Central Park South

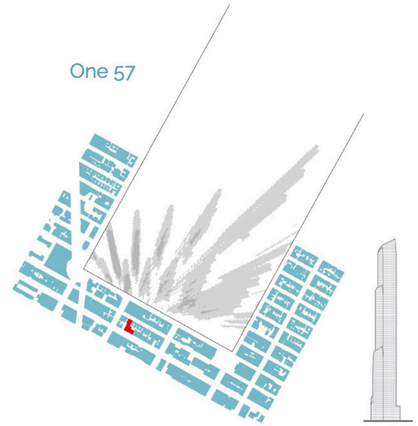
Supertalls are marked in red. The map shows the spatial proximity of the supertalls to the south of Central Park. In the detailed shadow analysis of each of the five buildings, the shades of gray indicate the average duration of shadows per day, measured in minutes.

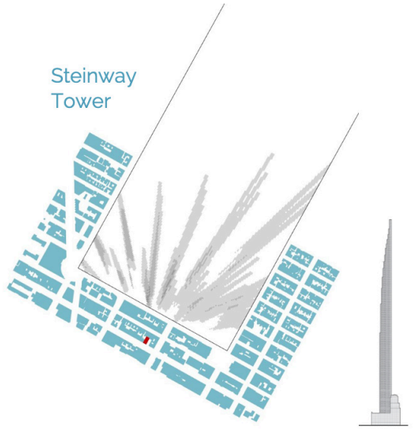
As the results show, all of the supertalls have incremental shadows cast on Central Park. In terms of shadow size, 220 Central Park South and Central Park Tower have the largest coverage due to their close proximity to the park and their height. In terms of duration, most of the incremental shadows last 0-30 minutes per day.

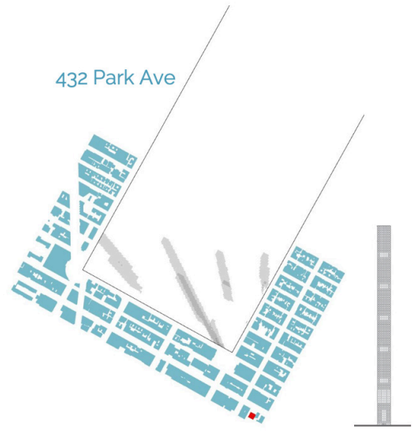












Tested months: March, April, November
Tested dates: 5th, 15th, 25th (nine days in total)
Tested hours: 7am - 6 pm

Average duration of shadows per day (min)

0-15
15-30
30-45
45-60
60-75
75-90
90 and more

For a more holistic approach, we tested all the 556 buildings around the south of Central Park instead of focusing on the supertalls alone. 29% of the buildings have incremental shadows cast on Central Park. Figure X shows the location of these buildings, their building profiles, and the level of their impact. The buildings are sorted by average duration of shadows per day, measured in minutes. The red dashed lines mark the five supertalls on Billionaires' Row.

The takeaway from this analysis is that while building height is a major contributor to shadows, the distance from the park, the location of the buildings, and the bulky form of the building are also factors related to incremental shadows. For example, the buildings that have the longest lasting shadows are the ones with a bulkier form. This is an indication that building form largely impacts shadow size. The perspective views shown at the bottom of the figure, when read from left to right, show that buildings that are closer to the park tend to cast shadows for longer periods of time.

Based on our analysis, we suggest that any proposed developments over 300 ft tall and within 500 ft from a public park should go through a shadow analysis and provide mitigation alternatives.

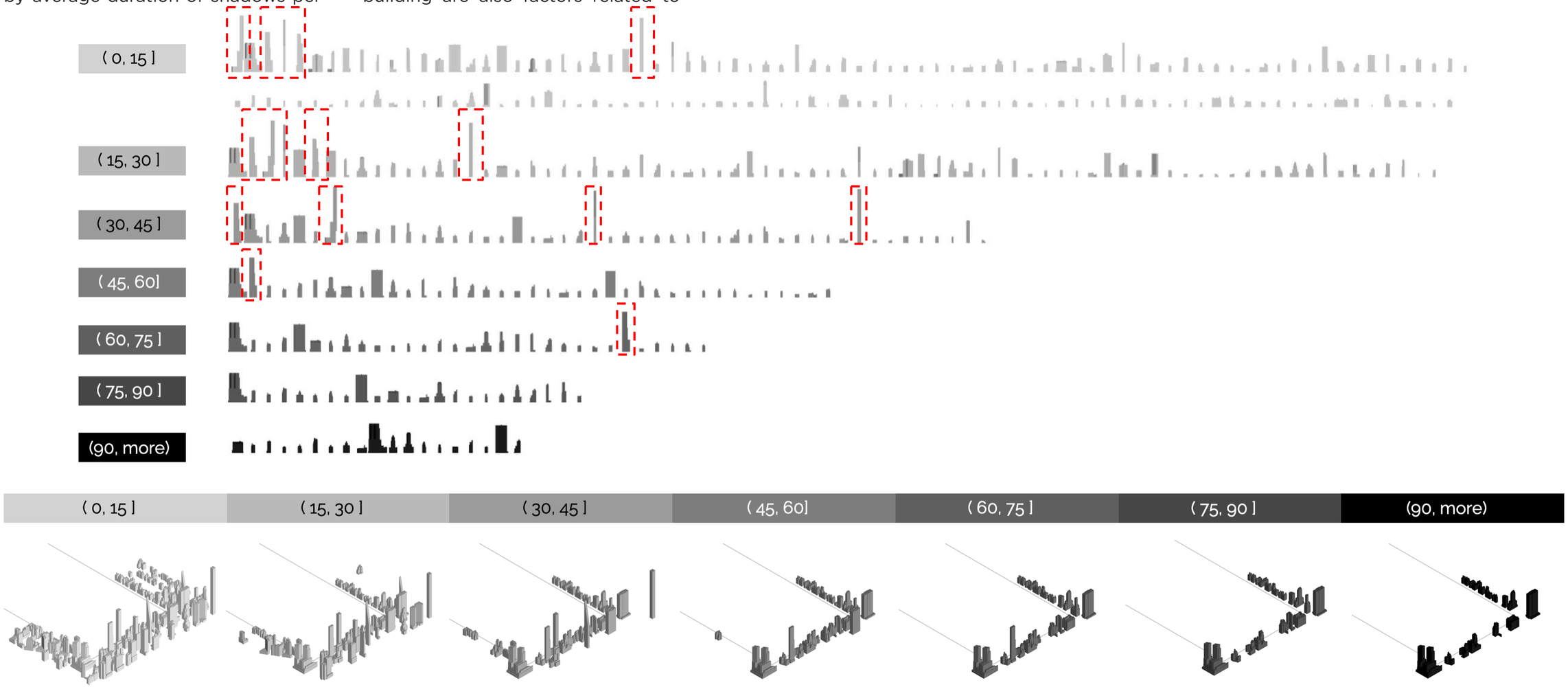


Figure X - Shadows Casted by all 556 Buildings Around The South of Central Park

3. Resilience to Flooding

In recent years, the reality and severity of flooding has been on display namely during superstorm Sandy when pre-storm preparations on the construction site of One World Trade Center could not withstand the floodwaters from the hurricane, causing large amounts of water to pour through into the building site. While there were emergency zoning text amendments following superstorm Sandy, critics argue that the regulations do not go far enough in mitigating risks.

According to studies by the Department of City Planning, Superstorm Sandy flooded neighborhoods well beyond the 1% annual chance floodplain or the high-risk zone. The storm also hit almost half of the lots in the 0.2% annual chance floodplain or the moderate risk zone. This shows that this area is at risk today and will be at risk in the future.

The Department of City Planning mentioned in their report on “Zoning for coastal flood resiliency” , which was published very recently, that

Figure 8 - Flood Levels Projected For 2100

Source: NYC Flood Hazard Mapper

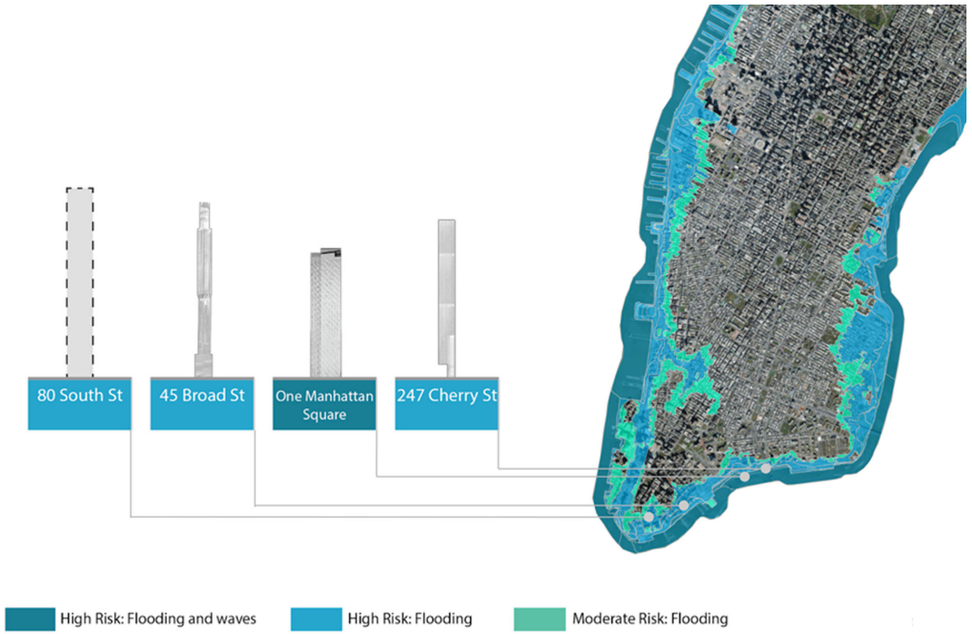


Figure 9 - Flood Levels Projected For 2015

current zoning regulations need to be modified to also take into account future flood risk. The new zoning would improve resilience of all developments in the area at moderate risk of flooding.

Four of the tall buildings that we studied are located in the current high-risk flooding area and some are proposed in the moderate risk flooding area. 247 Cherry Street is part of the Two Bridges Large Scale Residential Development that issued an Environmental Impact Statement. The latter offered measures to mitigate flood risks for the new developments in this area. Some of the proposed techniques to mitigate flood risks are to elevate all residential units above flood levels projected for year 2100 and to locate the non-critical uses above the flood levels projected for 2050.

Source: NYC Flood Hazard Mapper

4. Energy Efficiency

A building's energy efficiency can be highly associated with its cooling and heating systems. The use of regular glass in the building's envelope would require more energy to keep it warm and cool. A city study found that about 70 percent of the city's greenhouse gas emissions came from buildings, and those with glass exteriors had the most impact. Most of the projects that we looked at have envelopes that are predominantly made of glass. Additionally, 129 buildings with glass curtain walls were constructed in the city since 2015, according to the Department of Buildings. Mayor de Blasio announced there will be changes in the city's new energy code to avoid the use of glass in new buildings. Nevertheless, city officials and developers are asking for more clarity on these changes. The use of glass does not necessarily need to be completely banned, there are other strategies to make a building more energy efficient. The use of a "high-performance glass" is one strategy.

Building Envelope Concerns

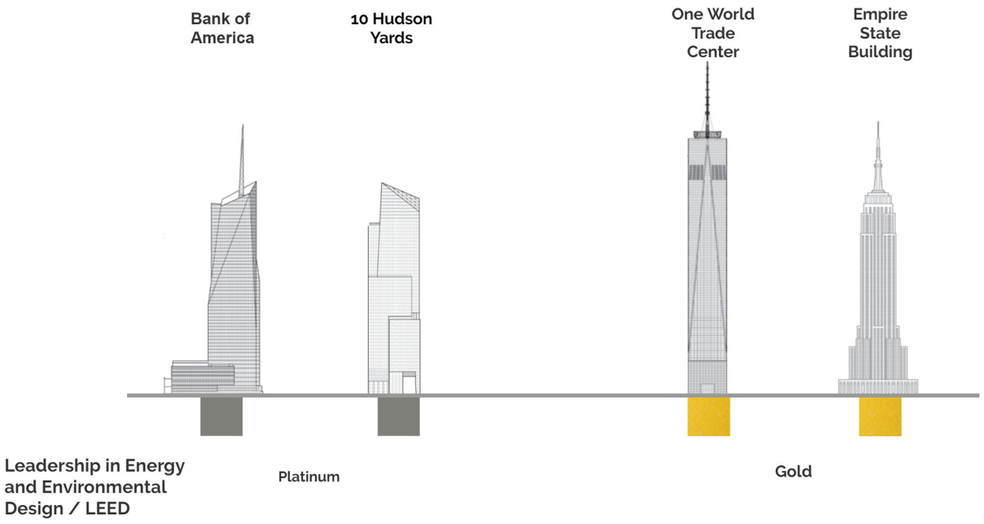
"We are going to introduce legislation to ban the glass and steel skyscrapers that have contributed so much to global warming"
-Mayor de Blasio

City officials and developers are asking for more clarity on the legislation. The use of "high-performance" glass and other strategies could make an all-glass building more energy efficient.

5. Sustainability Standards

The Leadership in Energy and Environmental Design (LEED) standard is a green building rating system that is widely used worldwide. Our research revealed that most of the new tall developments in NYC that are certified are commercial and mixed-use. A smaller number of tall buildings in NYC that are LEED certified are residential. Most of the residential buildings that are not certified are turn-key projects where developers have less incentive to practice sustainability. Hudson Yards, which was planned as the largest LEED neighborhood in New York City, has mixed-use buildings. Moreover, the Bank of America tower is an example of a project that achieved the Platinum certification, which is the highest level of LEED. Some of the strategies used for energy conservation are the addition of an on-site natural gas-fueled power plant that provides 70% of the annual electrical power needs. Furthermore, 40% of the materials used for construction were regionally sourced "from within 500 miles of the project", reducing the energy use for transportation.

Achieving such levels of sustainability for commercial and mixed-use buildings is a possibility. Therefore, incentivizing developers of residential projects to attain the same types of standards would help in reaching the city's goals of accomplishing higher levels of sustainability.



Recommendations for Sustainable Development

1. Measure Shadow Impacts:

The Department of City Planning shouldmust require any building above 300 feet constructed 500 ft from an open space, park, playground, schoolyard and plaza to produce a CEQR Shadow Analysis. Approval of these buildings will only be established if they meet all necessary guidelines and promote substantial mitigation efforts to curb any negative shadow impacts. The approval process would be similar to an expedited ULURP. Wherein, the local community board as well as the Manhattan Borough President would approve/disapprove the development with comments, the measure would then be brought towards the CPC (City Planning Commission) for a vote.

The is necessary because new buildings that are approved as-of-right might have significant shadow impacts on sunlight-sensitive spaces in shoulder months (March, April, November). Without a regulation or an Environmental Impact Statement, these buildings will be approved without any type of mitigation for these impacts. For example, in the case of the Two Bridges Residential Development, the final EIS showed that the new proposed buildings on site would cause significant shadow impacts on two sunlight-sensitive resources: the Cherry Clinton Playground and the Lillian D. Wald Playground. However, One Manhattan Square, which is located adjacent to the Two Bridges LSRD, was approved as-of-right and did not issue an EIS.

New real estate developments with significant shadow impacts would not be approved without mitigation measures if the CPC adopts this standard.

2. Enact Stricter Flood Regulations:

Produce a new zoning amendment which would increase flood resiliency standards for all new buildings located in the 100-year floodplain and also in the 500-year floodplain.

Many new tall buildings are currently proposed in zones with a moderate risk of flooding. Since developments in the high-risk zone (1% annual chance floodplain) are

already regulated, and given that Superstorm Sandy hit a large area in the moderate-risk zone (0.2% annual chance floodplain), the zoning should be amended to take into account the zones with a moderate risk of flooding.

The current zoning regulations must be modified to maximize the resiliency of all developments in areas that face a moderate risk of flooding.

3. Increase Performance Standards:

The NYC Division of Energy Management (DEM) must amend the building code and require the use of “high-performance glass” and/ or apply measures to enhance the energy efficiency of all buildings.

The majority new tall buildings have facades predominantly made of glass. This increases the costs of operating the buildings efficiently and increases greenhouse gas emissions.
Using “high-performance” glass / triple pane glass in all-glass buildings would help in achieving the goal of reducing greenhouse gas emissions by an additional 30 percent by 2030, which was set forth in the New York City Green New Deal. Another initiative is to require all large existing buildings of 25,000 square feet or more to cut on their harmful gas emissions or face a penalty.

4. Expand on the Wind Impact Section in Environmental Reviews:

The Department of City Planning must require future EIS reports to expand on wind impact studies and promote the mitigation of stagnant air conditions which surround tall buildings.

Currently, environmental impact statements include a section describing the potential wind tunnel effects (high speed wind) which could be significant in the winter season at the pedestrian level. However, it does not account for issues of stagnant air around the planned building. Increased height causes lower wind speeds around the building in the summer season. This lack of air movement has the potential to reduce the air quality of surrounding buildings. Consequently, documenting both high-speed wind conditions and stagnant air conditions in all seasons as part of the approval process, is necessary.

Conclusion:

All twelve of these buildings are members of a new age of New York City’s skyline. However, they are often developed independently and in a piecemeal manner without public review or criticism into their various impacts. Therefore, the future of these “singular buildings” must be determined through a more inclusive planning process which requires increased transparency and freedom of information between local city agencies, real estate developers and community members. Only then can a holistic process which seeks to maximize economic development, reform existing zoning regulations, lower environmental impacts (wind and shadows) and develop a more sustainable and efficient generation of modern buildings be formulated. All of these goals if accomplished, could lay the foundation to the protection of local public space, sustained preservation of diverse neighborhoods and promote a public realm and urban fabric which are evenly developed.

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Appendix

A. INTERVIEWS

Kate Ascher - Former executive vice president of the New York City Economic Development Corporation

Q- Could you explain the manner in which real estate deals are made, the concept of Transferable Development Rights and the use of transit bonuses? Zoning lot mergers? Why does it take that long to assemble tax lots?

A- The transfer of development rights is prescribed by regulation, so it's not subject to so much of the vagaries of Government action. So, for example, if you own two adjacent lots you can move development rights between them, or if there's a historic building you could move development rights from them. So, it's all prescribed within, essentially the zoning code. So, there isn't much for me to say about that, other than when a developer is looking to build a very tall building, they are looking to amass enough of a footprint, with development rights on all lots, so that they can build a very tall building on a very small portion of it. You see, there is no height restriction in New York City, you can build as tall as you like, but you can only build on a quarter of the lot. So, you need to have a big lot, because if you have a building which isn't pencil-thin (like a lot of the residential buildings today), you have to have a building that is a generous size that somebody can live in, you need to have a lot that is much bigger. And that means that you have to assemble parcels one by one, until you have enough that it gives you enough floor area to move around. And that's the mechanism by which it works here.

The subway bonuses are something completely different and that is not a guarantee, you have to negotiate that with the MTA and the city. Because they need to have some sort of subway improvement that they want. If not, you don't just get a subway bonus. You have to actually do something to either fix a station or maintain a station. There must be something that they need, and then you get a 20% bonus on the floor area. So, to make a very tall building, you want to try and assemble development rights and you want to get a subway bonus so you can add it on top of each other.

Q- There has been a lot of discussion during CB meetings about the shadow effects of tall buildings on parks and plazas. Could you give us an idea of how you feel about the shadows cast on public space in Manhattan? Also, how are are tall buildings designed to react to climate change in general?

A- I don't think that supertall buildings are doing a lot with shadows they are very very skinny. It's almost not an issue. In terms of climate change, the supertall buildings are very light on the ground so I'm not sure how much they are contributing to urban heat effect, I don't know that they have much to do in terms of flooding and everybody's designing now so that they're not vulnerable but all buildings are, it's not just supertalls so there's nothing specifically with supertalls. When a building is skinny it's not casting a whole lot of a shadow, it is not staying in one place for very long whereas if you get a big building like a monolith building, potentially the shadow could be much bigger. I don't think those are issues that are really super-relevant.

Approvals for tall buildings go through city planning assessment and city planning looks at shadows. That's one of the things that is analyzed in the land use review procedure and they have a way of calculating the shadow effect and it looks at how much land is in the shadow, for how much time during the day, in each month of the year. They add it all up it's mathematical and they determine percentages. If it is too much, the project is not approved and they require modifications. These buildings don't go up as-of-right. To get the additional floor area, you have to get public approval and usually your building will be assessed for all of the impacts. It includes aspects other than shadows. People like to complain about shadows because it is what they can see and it does affect them but for most people, any building is going to block light and the air. It doesn't have to be supertall, they're not blocking much up there they're blocking down here and that could be any other building. It's part of living in the dense city.

If there is anyone to rent and to buy the apartments, then there is a market for the developer to build.

Douglas Woodward - Senior Director of Real Estate & Chief Planning Officer Lincoln Center Development Project

Q- What are some of the pros and cons of having an Environmental Assessment Statement for a project's approval?

A- The cost EAS/EIS have gotten very expensive for developers as they become more complicated EIS especially can cost millions of dollars.

For supertall development most developers and the city are on the same page with EAS as the priority which takes less time and is more frequent in as-of-right and less difficult developments. The city wants less complications to get approval for tall buildings but the communities want more assessments dealing with shadows and wind impacts for tall buildings.

The community is the strongest supporter of EIS which takes more time, includes the community on a larger scale and is more expensive adding more risk on the side of the developer.

Q- Do you think the CEQR guidelines are enough to mitigate the negative impacts of supertalls (i.e. shadows, winds, views..) on public spaces and parks?

A- CEQR guidelines were written to give policy makers guidelines to suggest mitigations but that would not necessarily be the final decisions. The city Planning Commission and the BSA will make these decisions (for example they might say that something is already sufficiently mitigated or they can make it a unmitigatable impact). The CEQR is not in itself a decision-making document. I'm not sure if it's strong enough for the supertalls.

There were 4 supertalls that were built at a time before CEQR: the Twin Towers, WTC, the Chrysler building, and the Empire State building. At the time, people were so concerned about safety and environmental effects but now these buildings have become landmarks and they're considered landmarks of New York.

432 Park Avenue good example of Supertall development for wind mitigation and clean design. It looks like the buildings that are much shorter….

Pedestrian level wind effects are a major design element which engineers and architects must assess before development takes place.

Not as big of a problem in Manhattan as other boroughs which do not have such a high and dynamic skyline which lowers this effect.

Q- Do you think public review is necessary for the approval of similar projects? What other supertall project proposals in NYC do you think should go through a public review process that have not?

A- I worked on the other side of a building and against the development of a proposed 1000 ft tower in Sutton Place. The context is most important if you build residential supertalls in a neighborhood which already has heavy commercial tall building development it is not as big of a deal as the Sutton Place example where you have an out of context supertall next to much smaller brownstone residences.
Fire safety is the main reason for these types of buildings to go through a different type of process than general tall buildings.

Q- In your opinion, is height the main issue for residents? Are context, zoning or bulk, orientation and intensive developments at close proximity to public amenities like parks of greater concern?

A- The park issue doesn't bother me if the shadow can be managed shadows which are skinny move very rapidly.
Yes I think a shadow study should be done for each of these buildings that are built near parks but it seems unlikely that the shadow impact for the majority of these developments is significant.

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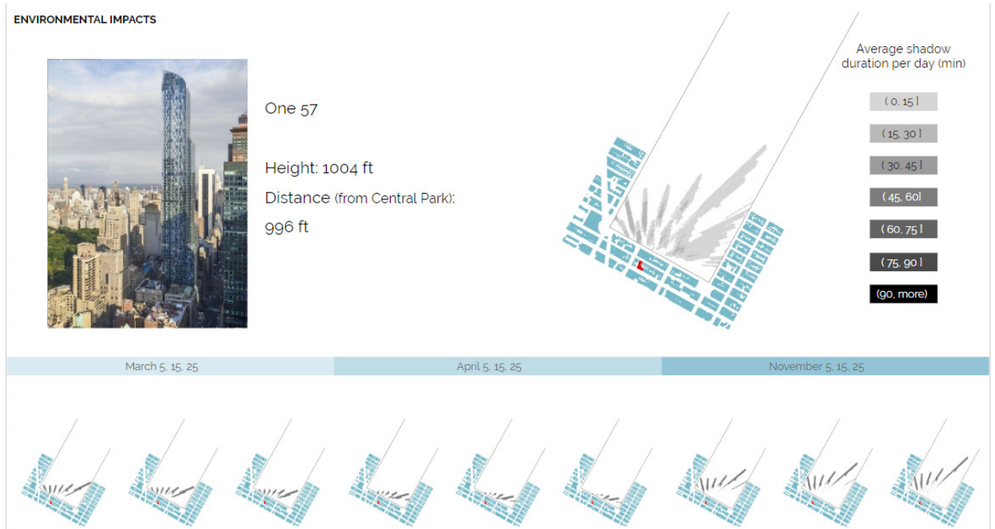
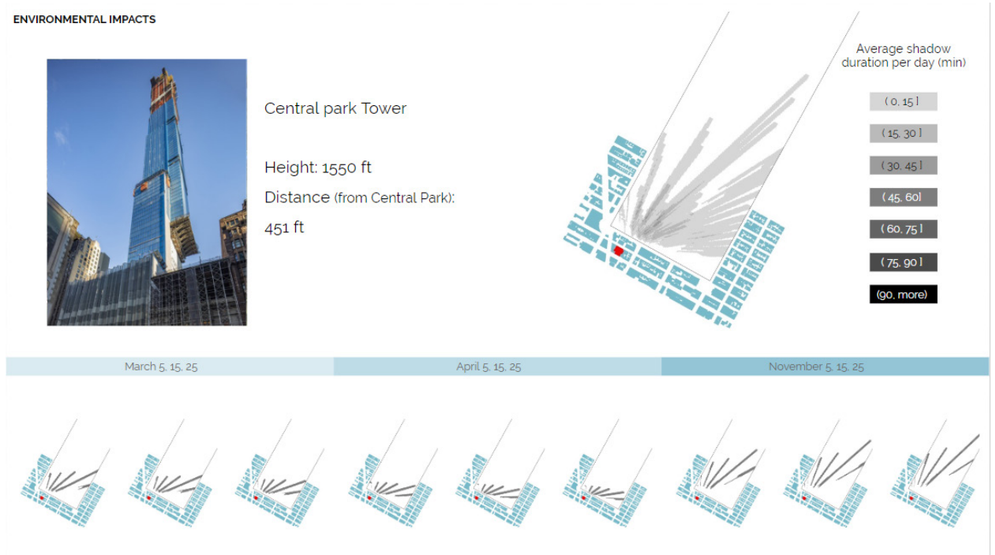
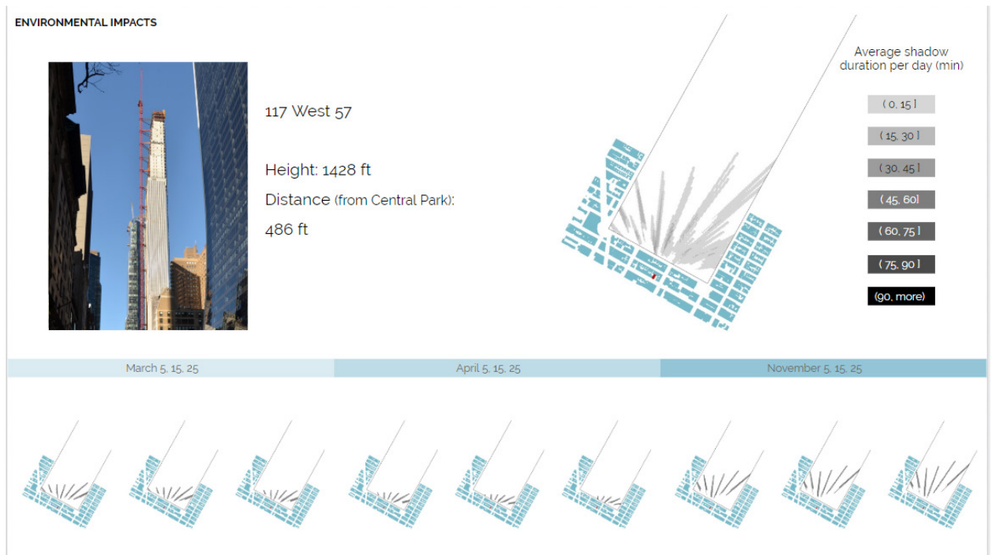
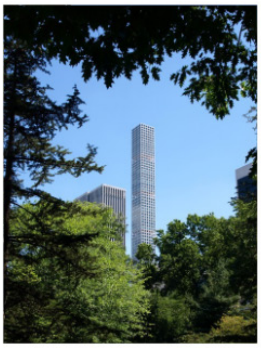
B. SHADOW STUDIES







ENVIRONMENTAL IMPACTS



432 Park Avenue

Height: 1397 ft

Distance (from Central Park):

1069 ft