A Historical and Contextual Perspective of Land Use Management of the Hudson Yards, New York City:

Considerations for a First Approach to Choice Modeling Experiments in Urban Design Projects

Máster Universitario en Estudios Avanzados en Arquitectura – Barcelona

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ABSTRACT

New York City real estate developers and investors who are looking to take advantage of market trends and rising property values are developing the city with increasingly larger and more luxurious projects. At $25 billion\(^1\), the Hudson Yards redevelopment project is scheduled to become the largest residential and commercial development project in the history of the United States.

The rapid and expansive development undertaken in the last few years has placed the mechanisms and tools responsible for the implementation and development of projects under pressure. Therefore, this study will review and clarify the processes through which development of real property and urban public space occurs in New York City. Using the Hudson Yards urban redevelopment project as a case study, a historiographical analysis and land use review as outlined in the New York City Zoning Resolution will be performed, after which, the paper will review the current tools and mechanisms that facilitate development. After a detailed examination of the historical and modern land use patterns of the Hudson Yards project, the paper goes on to criticize the planning process the management tools with which it is associated.

Finally, after gathering substantial historiographical and contextual information about the project, attributes and levels for a potential “choice modeling” study as applied to Phase II of the Hudson Yards project will be considered and recommended.


\(^1\) This number includes both private and public investment projects.
# ABSTRACT


Universitat Politècnica de Catalunya - Màster Universitari en Estudios Avanzados en Arquitectura

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1.0 INTRODUCTION, OBJECTIVES & METHODOLOGY

1.1 INTRODUCTION

New York City, the home of 8.5 million people, has seen exponential growth and investment in recent years. In response, the city has experienced rapidly rising property values and rent rates, and has earned it the reputation as both, the capitol of the world and the capitol of capital. More recently, the city has become a mecca for investors looking to extract the economic benefits of such a broad market. For those looking to make some of the greatest profits, real estate has been their main investment. Countless development projects have been undertaken, especially on the island of Manhattan. The largest of these projects, however, the Hudson Yards development, is slated to be the largest residential and commercial development project in the history of the United States, with a total cost of $25 billion. The rapid and expansive development undertaken the last few years has placed the mechanisms and tools responsible for the implementation of development projects under pressure. In the case of the Hudson Yards, these tools have evolved to permit the scale of the proposed project, pushing development standards to the edge.

While proponents of the project have stated overwhelming benefits, critics claim it all comes at a high cost, citing insufficient affordable housing. Others claim it fails to take into consideration the character of the existing neighborhood, and that the tax breaks to the developers are unnecessary considering the likely windfall profits of developing in one of the most lucrative real estate markets in the world.

This paper aims to explore and criticize the processes by which this development project has evolved. It will examine the project from a historical context, and study the

2 This number includes both private and public investment projects.
role that planning tools such as zoning have had through its development. In addition to a review of the zoning process, this paper goes on to analyze the tools and mechanisms of zoning, and their impact on public policy land development.

Finally, after gathering substantial historiographical and contextual information about the project, the paper goes on to recommend potential attributes and levels with respect to a possible “choice model” study regarding Phase II of the Hudson Yards project.

1.2 | OBJECTIVES

1.2.1 | Primary Objective

This paper seeks to establish two principal objectives. The first principal objective will be to examine and explain the tools and mechanisms involved with the development, edification, and management of land use in New York City. It will seek to provide a modern contextualized understanding of the Hudson Yards redevelopment and its growth up through the modern day. The second principal objective is to provide a historical context for the redevelopment project of the Hudson Yards by providing the historiographical evolution of the neighborhoods of Hell’s Kitchen and Chelsea, and more specifically, the West Side Rail Yard within the Special Hudson Yards District.

1.2.2 | Secondary Objective

The secondary objective, informed by the historical and contextual information of the primary objectives, will attempt to determine what elements of the urban landscape could be surveyed using a choice model analysis, with particular attention to its potential application to Phase II of the Hudson Yards project.
1.3 METHODOLOGY

A mixed methodological approach was used to assess the development of the Hudson Yards: the principal method involved a bibliographical study of multiple sources including Jstor, Google Scholar, and SpringerLink Journal articles. To expand the context in which the Hudson Yards project is developing, a review of the New York City Regional Master Plan was necessary. This contextual information was followed by a direct examination of New York City publications related directly to the project, comprising of the current Zoning Resolution and Zoning Text of New York City, the Hudson Yards Final Environmental Impact Statement, and the Urban Land Use Review Procedure text, among others.

These publications are strongly supported by the websites of the entities involved in the project: the Hudson Yards Infrastructure Corporation, the Hudson Yards Development Corporation, the Department of City Planning, and Related Companies and Oxford Properties Group. Various sources and opinion pieces were also taken into consideration from newspapers such as the New York Times and the Boston Globe. The diversity of the sources assures a variety of perspectives, which went on to inform the criticisms of the project.

Once clear contextual, historical and environmental knowledge was established regarding the project, it was used in tandem with case study reviews to develop the possible attribute for a potential choice model analysis.
2.0 **LAND USE & MANAGEMENT IN NEW YORK CITY**

2.1 *Introduction*

Land use and management in New York City is a challenging process, one which is developed and implemented primarily under the administration of the Mayor’s office in conjunction with the various agencies and commissions under its control. Because many governmental and regulatory procedures are involved with real property management, engineering, and development, different entities at the state and local level are involved in its planning and use. Most actions regarding the planning, transmission or development of land require contact with regulatory agencies, and all must follow certain guidelines that ensure the projects are advanced in the interest of the public.

The administration collaborates with a variety of organizations and sources, and considers their input to inform their decisions. Depending on the source of the recommendations, however, governs the administration’s obligation to implement them. That is because there are two basic categories of plans in New York City; binding plans and non-binding plans. A binding plan is one whose regulations and requirements must be legally followed, such as the City Zoning Resolution. A non-binding plan, however, is one that is suggestive in nature, and whose proposals are not legally realized such as the strategic Regional Master Plan.

While the administration is under no obligation to follow the recommendations outlined in a strategic plan, typically, the information contained is well researched and informed by scientists and specialists. Often, the plans are directly commissioned by the Mayor’s administration to develop a clearer contextual understanding of a project or problem, especially when considering large scale changes or actions that could impact many citizens. Therefore, the information contained in these strategic plans are influential in the planning process, and assist the decision-making process of the administration.
While this chapter will eventually explore the Regional Master Plan and its impact at the local scale, it opens and concentrates the majority of its focus on the Zoning Resolution of 1961. While the 1961 resolution is not the original zoning plan, it included significant and fundamental changes to the concept of zoning by introducing the principal mechanisms and tools that drive New York City’s development today. Also, the binding nature of the Zoning Resolution makes it the single most important land use tool in New York City. Therefore, having the ability to understand and interpret the resolution and its various mechanisms is essential to understanding the context which is responsible for generating a project like the Hudson Yards.

2.2 Zoning Resolution of 1961

Zoning is the set of laws and regulations that dictate the development of most major cities and the tool through which all real property development occurs within New York. Zoning is also common throughout the country, and the process for zoning changes, regulations, and construction permitting follow similar trends as well. While the original 1916 Zoning Resolution introduced the basic concept of zoning to New York, the 1961 Resolution profoundly altered the document and designed entirely new land use tools in New York City. Through the introduction of important ideas to zoning such as bulk regulations and Floor-Area Ratios (FAR), it profoundly altered the way cities and buildings are planned and managed. Most importantly, regarding the Hudson Yards project, it laid the groundwork for the creation of the Special Hudson Yards District, which would set the stage for the Hudson Yards development project.

The New York City Department of City Planning (DCP) is responsible for the overseeing the land use management and at its disposal. The DCP reviews and updates the city’s zoning maps and texts, reviews zoning change applications, and ensures the completion of the Urban Land Use Review Procedure (ULURP) when necessary. The DCP then works together with several other New York City agencies.
such as the New York City Department of Buildings (DOB) to ensure the continued successful implementation of current housing and zoning laws. The DOB’s primary responsibility lies in interpreting and enforcing the zoning resolution, issuing building permits, reviewing building applications, and ensuring that all building codes are followed. It is also responsible for finding and prosecuting zoning violations through the Board of Standards and Appeals.

The basic element of zoning, which was established by the original Zoning Resolution, is the zoning designation of which there are three: Residential (R), Commercial (C) and Manufacturing (M), and are the basis for all land use regulation in New York City. Each designation aims to prevent conflicting land uses which are deemed incompatible with each other, such as residential and manufacturing. The three designations are then further divided into categories each of which has varying combinations of densities, uses, and characteristics, so as to accommodate a wide variety of potential uses and building forms. Each zoning designation category carries with it certain standards which regulate all building and land use design features including setbacks, easements, abatements, parking requirements, and floor-area-ratios. Other regulated characteristics involve permitted uses, the number of permissible dwellings, and the amount of open space required on each lot.

In addition to zoning designations, some areas of the city fall into one of the 64 special purpose districts, such as the Special Hudson Yards District. The Special Purpose District is a tool that was developed in 1969 by the City Planning Commission aimed at achieving specific planning and urban design goals in predefined areas of the city. While special districts apply the same concepts as standard designated zones, i.e. FARs and incentive zoning, they also tend to include provisions which standard zoning districts do not, such as encouraging development through District Improvement Bonuses, the preservation of neighborhood character, or the inclusion of unique open space requirements.
Development through the zoning process in most cases occurs “as-of-right”. An as-of-right development means that a project complies with all applicable zoning regulations within the zoning resolution for that lot, and requires no additional action by the City Planning Commission or Board of Standards and Appeals. Although the application requires review by the Department of Buildings (DOB), once the DOB has ensured that the proposed structure complies with the zoning resolution provisions and building codes, a building permit is issued. At that point, construction can begin, and no further action is necessary, building inspections notwithstanding.

In particular situations involving sensitive environmental hazards, wetland/waterway construction, or projects required to meet certain technical performance standards (i.e. air quality), agencies with specific expertise undertake the administrative and enforcement responsibilities of the project. Also considered a special situation is the addition of Inclusionary Housing requirements in a project. In such cases, the Department of Housing Preservation and Development and the DOB would be responsible for assuring compliance with all requirements.

On the rare occasion where as-of-right development and zoning regulations do not permit the intended use of a site by the owner, a Zoning Resolution and Zoning Text amendment must be requested. A zoning map or text amendment is a legislative, legal action that can be either citywide or to a specific zoning district. An amendment may also be necessary to allow a development at a location or permit a layout that is not allowed. These zoning changes can impact either one lot or many blocks involving entire neighborhoods.

A zoning resolution amendment is permitted by any one individual, group or entity, not necessarily the land owner. However, for site-specific actions, it is required that the property owner agrees to the application. Occasionally, the Department of City Planning proposes zoning amendments to further promote positive growth and policy, however, any zoning map change, regardless of its author, must undergo a formal public review process before its adoption by the Zoning Resolution. Approval requires
the changes be examined and approved by the City Planning Council, and accepted by the City General Council.

This public review process is called the Uniform Land Use Review Procedure (ULURP), which sets standards and timeframes for required public participation in the local and citywide review process. Changes made to either the zoning map or zoning text resolutions must also be assessed for environmental impacts by the State Environmental Quality Act (SEQRA) and City Environmental Quality Review (CEQR).

2.3 Zoning Tools & Mechanisms of Development

2.3.1 Floor Area Ratio (FAR)

Among one of the most valuable tools introduced by the 1961 Zoning Resolution is the Floor-Area Ratio (FAR). The FAR is the primary bulk regulation controlling the size of buildings in New York City. The floor area ratio is the relationship between the total amount of usable floor area that a building has, or has been permitted, and the total area of the lot on which the building stands. This ratio is determined by dividing the gross (total) floor area of the building by the gross area of the lot. Typically, the higher the FAR, the denser the building. Floor-area-ratios vary by zoning designation and can vary throughout parcels on the same project. When the FAR is multiplied by the area of the zoning lot, it produces the maximum amount of floor area allowable on that lot. For example, on a 100,000 square foot zoning lot with a maximum FAR of 1.0, the floor area on the zoning lot cannot exceed 100,000 square feet. The FAR takes into account the entire floor area of a building, not simply the building's total footprint.

It is important to note the difference between building area and constructed area. Building area is the maximum area a developer is allowed construct on a plot of land according to the intended use. However, because city regulations often apply, the constructed area may be impacted by such things as on-site parking. To fulfill this
requirement, planners must take both into account when planning a project. Often, buildings with varying numbers of stories may have the same FAR value, and yet a different constructed area because the FAR is taking into account square feet of constructed building, meanwhile constructed area is considering the overall lot area under development.

2.3.2 Incentive Zoning

Incentive zoning is a term used to describe the procedure by which the city rewards developers for including certain public amenities such as affordable (low-cost) housing or public benefit project in their plans. These rewards often come in the form of additional FAR bonuses which permits them to develop more dwellings or office space in exchange for these public provisions. There are incentive bonuses for the inclusion of many kinds of public facilities. Most often they include private and public open spaces, performing arts spaces, subway improvements, historic preservation provisions and development, and affordable housing under the Inclusionary Housing Program (IHP).

2.3.3 Inclusionary Housing Program (IHP)

The Inclusionary Housing Program (IHP) is the tool by which the city encourages the economic integration of various class levels in areas of the city undergoing new residential development. Often this tool is used to promote social cohesion and prevent gentrification of surrounding neighborhoods by offering an optional FAR bonus to developers in exchange for the creation or preservation of affordable housing either on or off-site of the proposed project receiving the bonus. The Inclusionary Housing Designated Areas Program by its designed to encourage the creation and preservation of affordable housing throughout New York in specific areas mapped in medium to high-density neighborhoods, especially those being rezoned to create new housing opportunities such as the Special Hudson Yards District. These areas around or within
the Hudson Yards project can be seen in the appendix of the Special Hudson Yards District Zoning Resolution (*Figure 1*).

![Inclusionary Housing designated areas around the Hudson Yards Project. Source: "Zoning Resolution." Appendix F: Inclusionary Housing Designated Areas and Mandatory Inclusionary Housing Areas (2016).](image)

Within the Inclusionary Housing designated areas, new developments or enlargements of more than 50% of existing floor area that apportion a minimum of 20% of residential floor area for affordable housing can receive an FAR bonus of 33% above the area permitted. This FAR bonus in tandem with a variety of housing subsidy programs provides an incentive for the development and preservation of affordable housing.

To receive the bonus, developers must apply through either of the two programs designed to determine the eligibility for the IHP bonus. These include either the R10 Program or the Inclusionary Housing Designated Areas Program. Any IHP housing...
bonus floor area must conform to the height and setback provisions of the underlying zoning district.

All housing units created through the Inclusionary Housing Program must remain permanently affordable. Meanwhile, the affordable apartments may be rental units or available in an ownership plan according to the modifications made to the IHP plan in 2009. In the case of the Special Hudson Yards District, the plans will allow for a greater percentage of units to be apportioned for middle-income households if a larger percentage of affordable low income units are provided.

2.3.4 R10 Program

The R10 Program is the original Inclusionary Housing Program created in 1987 for high-density R (Residential) 10 districts and commercial districts with a similar R10 density. New developments that provide affordable housing as per the ICH guidelines “receive a floor area bonus of up to 20% of the maximum permitted residential floor area, increasing the maximum floor area ratio (FAR) of 10.0 to 12.0.”

A project can receive between 1.25 and 3.5 square feet of bonus floor area for each square foot of floor area apportioned specifically for affordable housing. The exact amount depends on a variety of factors including the location of the housing, whether it is new construction or rehabilitation, and whether the project utilized public funding as a source of financing.

2.3.5 Transfer of Development Rights / Air Rights

Development rights are considered the maximum amount of floor area allowable on a zoning parcel. In some cases, however, the actual built floor area of a lot is less than

the maximum permitted floor area. The difference between the maximum permissible area and the actual developed area known as the Unused Development Rights, or "air rights."

In recent years, it has become common for a building which has not developed their lot to its maximum FAR to sell the air rights of their property to another. Air rights are governed by a strict set of guidelines defined by the zoning district. Most often, the transfer of development rights is done through a zoning lot merger. A zoning lot merger consists of the joining of adjacent zoning lots into one new zoning lot which permits the unused development rights from one lot to transfer to the other. Because zoning lot mergers are recognized as "as-of-right" actions, it is considered the easiest was to transfer development rights. As long as the transfer is made between buildings on the same lot, it is permitted.

In some cases, however, air rights are allowed to be sold outside of a zoning lot merger between non-adjoining lots in what is called a Transfer of Development Rights (TDR). TDR's also follow a specific set of rules which govern the limits of their transferability. Because the process is more complicated for the transfer of unused development rights from one zoning lot to another, it is typically considered only in cases where a zoning lot merger is unfeasible. The City Planning Commission (CPC) is the governing body responsible for overseeing the transfer of development rights. In most cases, a TDR may be only permissible where the transfer could not be accomplished through a zoning lot merger as is often the case of a historical or early period building. When the
building is on a corner, it is permitted to transfer its rights to any lot on any of the opposite corners.

2.4 **Zoning Resolution Change Procedure**

While most development in New York City does occur “as-of-right”, occasionally the design of a project does not conform to the designated land use of that lot. Under these circumstances, they must request a Zoning Resolution amendment. As previously mentioned, a zoning resolution change can be proposed by anyone including the city and its agencies. However, the process remains the same regardless of the entity proposing the modification.

The process begins with the application phase. During the application phase of the Zoning Resolution modification, the developer typically has an informational meeting with a city planner from the DCP, who will go over the applicant's pre-application statement. The pre-application statement is the formal start of the pre-certification and resolution change process and provides the basic pertinent information about the proposed change and project. Following the pre-application statement is the Interdivisional Meeting in which the developer must present his proposed project to the lead planner. The planner and the Department of City Planning will then list any necessary actions, as well as direct any environmental or technical analyses of the application in order to move on to the required environmental evaluation process.

![Figure 3. Flow Chart depicting both the Zoning Resolution amendment process as well as the ULURP. Source: “Application Review Process.” Environmental Review Process. New York City Department of City Planning, n.d. Web. 18 June 2016.](chart.png)
Following the application phase and only once all necessary paperwork and documentation has been submitted can the preparation of the environmental and land use applications begin. At this point, the developer must submit both the Draft Environmental Analysis and the Draft Land Use Application. Both of these documents will be reviewed by the Department of City Planning who will make comments and return them with a list of any required actions. Once the developer has taken all required actions, they can file the final land use and environmental review applications with the DCP for final review of application completeness. Before approval, the Zoning Resolution amendment must undergo the Uniform Land Use Review, which requires several additional steps including a Community Board review, and the City Planning Commission (CPC) review.

### 2.5 Uniform Land Use Review Procedure (ULURP)

Section 197-c of the New York City Charter requires that certain actions regarding the development and changes to city plans undergo what is known as the Uniform Land Use Review Procedure (ULURP). Actions which require ULURP review include any changes to the city map, as well as any change to zoning districts under the Zoning Resolution. Zoning districts and boundaries are used to identify permitted uses, densities, building dimension requirements, and other bulk and parking regulations. While changes to the zoning resolution are subject to ULURP review, amendments to the Zoning Resolution are not. The CPC can also modify zoning controls such as bulk use regulations and parking without the ULURP.

Other actions subject to ULURP review include special permitting and land reclamation, discretionary permits, and acquisition, disposition, lease, or exchange of city property. These include the selection of sites for new city facilities such as firehouses, police stations, libraries, city maintenance garages, and sewage treatment plants.
The ULURP review process also reviews cases deemed by the DCP to be considered a major concession. Major concessions are a city allowance for the private use of city-owned property which also has significant land use impacts, or which requires the preparation of an Environmental Impact Assessment.

There are generally 5 steps for the acceptance of any of the changes listed above, however, based on the action being considered, as many as seven steps to completion may be necessary. These seven steps as listed in order are:

1. Filing of Certification
2. Certification
3. Community Board Review
4. Borough President Review
5. City Planning Commission Review
6. City Council Review*
7. Mayoral Review*

*Steps with asterisks (*) are deemed to be under certain circumstances unnecessary.

_Filing of Application –_

Upon the filing of the application, the City Planning Commission must send copies of all the required application materials to the affected Borough President, Community Board, and City Council within five days. Occasionally, in situations where the application involves more than one district, the application must be sent to the Borough Boards which are comprised of the Borough President, all Community Board chairs and City Council members within the affected boroughs.
Certification –

The Department of City Planning is responsible for certifying that the application is complete and ready for public review through the ULURP process. The DCP, however, cannot certify the application until all plans and necessary documents have been included in the application, up to and including the City Environmental Quality Review. Once notice has been received that the Draft Environmental Impact Statement has been completed, the project is eligible for approval. Within nine days of its certification, it is once again processed and sent to the affected Community Board, Borough President, and the City Council.

Community Board Review –

Within sixty days of receiving the certified application, the Community Board is required to hold a public hearing and submit a written recommendation based upon the outcomes of the hearings to the City Planning Commission, the applicant, the Borough President, and the Borough Board. ULURP provisions guide the number of members required to be present, the voting process, and content of the Community Board's recommendation. Should the Community Board either waive its right to act or fails to communicate a negative response, the application automatically proceeds to the next level of review and is automatically approved by administrative silence.

Borough President Review –

Once the Community Board’s recommendation has been received or the application has been approved through administrative silence, the Borough President has 30 days in order submit a written recommendation to the City Planning Commission regarding the proposed action. In cases where an application involves land in more than one community district, the Borough Board can also review and submit a recommendation to City Planning Commission. As is the case with the Community Board Review, should
the Borough President fails to act within the thirty-day time limit, the application automatically proceeds to the City Planning Commission due to administrative silence.

*City Planning Commission Review –*

Once the Community Board’s recommendation has been received, or the application has been approved through administrative silence, the Borough President has 30 days in order submit a written recommendation to the City Planning Commission regarding the proposed action. In circumstances where an application involves land in more than one community district, the Borough Board can also review and submit a recommendation to City Planning Commission. As is the case with the Community Board Review, should the Borough President fails to act within the thirty-day time limit, the application automatically proceeds to the City Planning Commission due to administrative silence.

*City Council Review –*

While not all ULURP actions are automatically reviewed by the City Council, the City Charter does require that it reviews particular actions, and makes provisions for the Council to elect to review others at their direction. For example, zoning map changes, zoning text changes, housing plans, urban renewal plans, and the disposition of any residential buildings are all actions required to undergo a mandatory review of the ULURP process. Actions subject to discretionary review include special zoning permits, non-city public improvements, waterfront landfills, sale of commercial, vacant, or residential property to for-profit companies, and the acquisition of real estate by the city.

*Mayoral Review –*

Although Mayoral approval is not required, the mayor may elect to veto a City Council decision within five days of the vote. Should the Mayor exercise his right to veto, the
Council can override his veto within ten days with a 2/3 majority decision. Applications also approved by City Planning Commission but not reviewed expressly by the City Council can also be vetoed by the Mayor. The Council through a 2/3 vote can also override a Mayor’s veto of the City Planning Commission.

The ULURP timeline for the Hudson Yards Special Purpose District rezoning initiative was as follows:

<table>
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<th>Event</th>
<th>Date</th>
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<tr>
<td>Department of City Planning Certification</td>
<td>June 21, 2004</td>
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<td>Community Board Review (60 days)</td>
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<td>CB 5 Land Use Committee</td>
<td>July 1, 2004</td>
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<td>CB 5 Public Hearing</td>
<td>July 8, 2004</td>
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<td>CB 4 Land Use Committee</td>
<td>July 13, 2004</td>
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<td>CB 4 Public Hearing</td>
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2.5.1. ULURP & Public Participation

Section 2-03 titled Community Board Actions of the ULURP\textsuperscript{4} Rules and Provisions, lists the requirements and guidelines for the Public Review Process under the Uniform Land Use Review Process. These guidelines dictate the notice, conduct, and attendance of Community Board meetings. The following are excerpts of the rules and guidelines dictating their governance.

-Notice of Hearings

Notice of the time, place and subject of a public hearing to be held by a community board on an application shall be given as follows:

- By publication in The City Record for the five (5) days of publication immediately preceding and including the date of the public hearing;

- By publication in the Comprehensive City Planning Calendar distributed not less than five calendar days prior to the date of public hearing;

- To the applicant ten days prior to the date of hearing with a copy of such notice also forwarded to the Department of City Planning.

- Community boards are also encouraged to publicize hearings by publication in local newspapers, posting notices in prominent locations, and other appropriate means.\textsuperscript{5}


-Conduct of Public Hearing

Location

- A community board public hearing shall be held at a convenient place of public assembly chosen by the board and located within its community district. If in the community board’s judgment there is no suitable and convenient place within the community district, the hearing shall be held at a centrally located place of public assembly within the borough.

General Character

- Hearings shall be legislative type hearings, without sworn testimony or strict rules of evidence. Only members of a community board and persons expressly authorized by the chairperson may question a speaker. All persons appearing and wishing to speak shall be given the opportunity to speak. A community board hearing shall be conducted in accordance with by-laws adopted by the community board.

Public Attendance at Meetings of a Community

- The public may attend all meetings of a community board or its committees at which an application for an action subject to this Chapter is to be considered or acted upon in a preliminary or final manner. A community board may close a meeting or committee meeting to the public only as provided in the New York State Open Meetings Law (Public Officers Law, Sections 100-111).⁶

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In addition to a public review portion of the ULURP process, the City Environmental Quality Review (CEQR) also requires public scrutiny at certain stages of its progression. Publication of the Draft Environmental Impact Statement signals the start of the public review process.

Typically, the agency charged with leading a project is required to conduct a public hearing on the Draft Environmental Impact Statement. However, for actions of which the City Planning Commission is the lead agency, they are permitted to allow the public hearing on the ULURP also to serve as the public hearing on the Draft Environmental Impact Statement. Written comments are accepted by the public and all board and commission members both before and after the public hearing for up to ten days.

In addition to the environmental permit review process, the New York State Department of Environmental Conservation requires that the permit applicant of a Combined Heat and Power Plant permit to develop and execute a Public Participation Plan (PPP). The goal of the plan is to engage the local community and conduct outreach, including the creation of Document Repositories throughout the project site and neighborhood. The repositories help to disseminate information about the project to the public for consideration. The public plan for the Hudson Yards project was developed as part of the 20 Hudson Yards facility permitting application. In the context of the outreach process, documents pertaining to the permit application are available for public review online in addition to the physical document repositories.

### 2.6 City Environmental Quality Review (CEQR)

Most land use actions considered discretionary by the City Planning Commission are subject to a City Environmental Quality Review (CEQR). The City Environmental Quality Review process helps to identify any potential adverse environmental effects of the proposed development and suggests measures to either mitigate the effects or eliminate the impacts altogether.
Typically, the lead agency responsible for undertaking or approving an action (i.e. development, zoning change, special permits, and water landfills) determines whether the action requires an environmental review study. If so, the lead agency is responsible for coordinating with all other interested agencies, the distribution of documents for public participation through public hearings and inquiries, determining the significance of any environmental impacts. Before approving any proposed actions, it is required to issue its findings so as to avoid or mitigate any significant impacts.

All applicants whether public or private, are responsible for preparing the environmental analyses according to the CEQR Technical Manual specifications. For example, when the Department of City Planning proposes a zoning map or text amendment, they are required to disclose and analyze its potential environmental impacts. The City Planning Commission as the lead agency must then take this into consideration when it votes to approve or disapprove the proposal. The City Planning Commission is also lead agency when a zoning amendment is proposed by an individual applicant.

Much like the ULURP, the Environmental Review Process also requires a public participation component during the Draft Environmental Impact Statement. The CEQRS process is as follows:

1. Environmental Assessment Statement (EAS)
2. Determination of Significance
3. Draft Scope of Work
4. Draft Environmental Impact Statement (DEIS)
5. Final Environmental Impact Statement (FEIS)
3.0  HISTORY OF MANHATTAN & THE WEST SIDE YARD

3.1  Introduction

The story of Manhattan is one of evolution with humble beginnings as a local trading post which rapidly became a post-modernist landscape home to millions of people. When the Lenape Indians sold the island to Henry Hudson in 1626, it would have been impossible to imagine it would eventually evolve into one the greatest cities on earth. It would be foolish to claim, however, that the evolution of the island is one that occurred easily. In its earliest history, the Lenape settled and grew their civilization by the fruits beholden to them from the land. The Dutch would carve canals into the island to facilitate the transport of goods. Later, the British would set the stage for Manhattan to become the financial capitol of the American colonies. Subsequent revolutions, the American and the Industrial, would open the city to the world, while the construction of the Erie Canal opened it to itself.

In 200 years, Manhattan has experience levels of growth unprecedented in human history. Guiding the progress during the previous 120 years has been the silent hand: a progressive technique developed by the city that would go on to inform the development and land use patterns of thousands of cities throughout the United States, and the rest of the world; zoning. The following chapter reviews the historical evolution of Manhattan, the development of zoning, and the conditions that have produced the metropolis of today’s New York City.
3.2 Early 19th Century Manhattan

Before the construction of the Erie Canal, Manhattan struggled to get a foothold in the intercontinental trade of the America’s. The dominance of the ports of Philadelphia and Boston inadvertently constrained its growth. During the American Revolution, the city found itself under both British and American control, and while it would not be for another 100 years before it could compete on the same scale as its American counterparts, in either case, the city would remain one of the most important and prominent in the New World. It was not until the opening of the Erie Canal in 1825 that New York and its harbor was connected to the raw materials and vast agricultural markets of the Midwestern United States and Canada that it saw its ascendance as the preeminent American city.

The rapid transit of materials such as lumber and animal products spurred Manhattan’s expansion not only as a commercial port, but as the financial and trade center of the United States. By the early 1830s, it had grown larger both in scale and population than that of either Philadelphia or Boston. Soon after, over half of the country’s exports would originate here, and by 1874, nearly half of all American exports passed through New York’s harbor.
During this time, New York City not only saw a dramatic increase in exports, but also saw growth in every measurable category: landmass, coastline, edification and population, and the choices of this era are responsible for laying the foundation for what would eventually become the metropolis we see today. Beginning around the same time as the expansion of imports and commercial goods, New York City also saw a dramatic influx of another cargo: people. Fueled by instability abroad, from the mid to late 20th century, a massive influx of immigration appeared in America.

For example, the Irish Potato Famine was responsible for a significant expansion of the Irish population in New York accounting for between 45% and 85% of Irish population increase. During the worst of the famine, emigration specifically from Ireland reached around 250,000 people per year. According to the Library of Congress, “it is estimated that as many as 4.5 million Irish arrived in America between 1820 and 1930, and between 1820 and 1860, the Irish constituted over one third of all immigrants arriving to the United States. In the 1840s, they comprised nearly half of all immigrants to this nation [United States].”

Immigration to America, however, was not limited to the Irish. Families of Italian, Polish, and English descent, among many others, would emigrate from their nations and chose New York as their final destination. Germany was responsible for a significant portion of American immigration starting around 1832 when approximately 10,000 Germans arrived in the United States. However, as a result of high unemployment and falling wages, by 1854 nearly 200,000 German immigrants had arrived in America. Following this period of high German unemployment and a failed German Revolution in 1848, emigration was soon the best choice for most Germans. With the development of steamboats, the journey from Europe to America, which had once taken weeks, could be undertaken in under ten days, and as a result more than 5 million people left Germany for America during the 19th century.

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3.3 **Manhattan Expands**

Just as Manhattan’s population exploded in the early 20th Century, so did its coastline. Historical-geographical data has revealed the original coastline of Manhattan island suggesting that much of the land where the proposed Hudson Yards project is as well as much of the area that we now consider Hell’s Kitchen and Chelsea did not even exist before the 1850’s. Since its discovery by the Europeans, Manhattan has seen substantial growth regarding area particularly in the most southern portions of the island. This growth is due in part to a series of land reclamation projects which reclaimed much of the land area of today’s Chelsea and Hell’s Kitchen neighborhoods.

Not surprisingly, the island did not truly begin to grow until its population did in the late 1800s. In response to substantial population growth brought on both by immigration and opportunity, the city government found land reclamation as a solution to two principle questions: the first was where to house the growing population, and the second was where to place the debris from the construction of the new subway. According to a study by the USGS, the infill which makes up much of the reclamation rubbish consisting mostly of coal and wood ash was used in New York City between the years 1881 and 1900 added nearly 3,300 acres to the area of Manhattan and 6,740 acres to the city overall.⁹

Through this process, the Manhattan shoreline grew substantially. Tracing the boundaries to what they were before the arrival of the Europeans in 1609, researchers have concluded that the Manhattan shoreline at the proposed location of the Hudson Yards project was approximately 280 meters (820ft) further back then its modern day shoreline. Battery Park City, for example, is built on an entirely manmade foundation created with the earth excavated from the original Twin Towers project.

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Battery Park City and the expansion of the West Shoreline are not the only land altering projects undertaken. In fact, Manhattan has been undergoing landmass changes since its foundation. A series of land dredging projects began as early as 1646 when Peter Stuyvesant, the then Governor of New Amsterdam, expanded the fledgling colony between one and three blocks on either side of lower Manhattan. While this growth impacted the landmass of the island, it was not until the late 19th and early 20th centuries that Manhattan began to grow exponentially.

On its eastern side, the construction of Franklin Delano Roosevelt (FDR) Drive, which began in 1934, meant a 10-mile expansion north to south of the island founded on landfill and relief platforms. FDR Drive interestingly enough was built on debris from England, particularly the debris from destroyed WWII cities like Bristol and London. During the war, the German Luftwaffe bombed the cities ruthlessly, and rather than use the stone to rebuild the city; engineers decided it would be better used as ballast in many of the American ships which had brought cargo and supplies to England from America. The ballast was essential for the stability of the ships for their return journey to the United States. The ships were filled with the rubble from Bristol and London, and once back in Manhattan Bay, dumped the rubble in the East River, thereby creating a

![Diagram of Manhattan Island Growth](image)
steady foundation for the creation of FDR Drive. As Geoff Manaugh (2007) put elegantly on his blog,

“When you’re driving around on the FDR, in other words – or, for that matter, when you’re simply looking out over the east side of Manhattan – you and your gaze are passing over fragments of British cathedrals and London housing stock, flagstones quarried from Yorkshire, the shattered doorframes and lintels – and eaves, and vaults, and partition walls, and bedroom floors – of whole towns, pieces of Slough and Swindon perhaps, embedded now in asphalt, constituting what would otherwise have passed for bedrock.”

According to the Daily Mail, “by 1976, Lower Manhattan had expanded an additional 23.5 acres with the land reclamation of Battery Park City along the Hudson River. With 1.2 million cubic yards of earth and rock excavated for the World Trade Center as its foundation.”

The growth of Manhattan over the last 200 years has not been strictly limited to outwards growth, but also vertical. This was primarily attributed to the new advancements in construction techniques such as the replacement of the previous wood trusses and structures with steel. Steel provided the rigidity and support necessary for buildings to increase in height. This single adaptation of the 1880s coupled with the invention of the elevator would change the way buildings would be designed and eventually change the skyline of cities as they were known into what we know today.


Not only would it change skylines, but it would also modify the way people lived and interacted with the city. The application of steel saw housing no longer restricted to three or four story buildings as was once standard. Now, buildings could be built many stories even with the most rudimentary steel technology standards. This led to taller buildings and higher densities. Using historical census tract data from the National Historical Geographical Information System, Shlomo and Hall have found that average tract density in the United States has declined by five times compared to what it was at the turn of the century. By referring to Sanborn Atlases, which were originally used for fire insurance purposes, it is possible to see the density, growth, and developed portions of Manhattan starting in 1867.

The Sanborn Atlases (see annex pgs. 112-114) were published up until 1974 and are available for the years 1867, 1879, 1885, 1897 and 1911. Through their data, a series of population density maps have been produced which show the changes in density of the island of Manhattan spanning from 1850 to 1950. The maps allow researchers to study trends in the development of late 19th Century Manhattan. Through their information, it can be deduced that the density in Hell’s Kitchen and Chelsea neighborhoods were at their highest between the years 1880 and 1910. Since then, the population of Manhattan has increased overall, while the population density of the neighborhoods has decreased since that peak. It should be noted, however, that population and density have increased in Hell’s Kitchen and continued to grow steadily since the 1990s due to the development and revitalization of those neighborhoods. This can be attributed to investment coming in the form of projects like the Hudson Yards. With continued development projects, density and population can be expected to continue to increase for the foreseeable future.
3.4 The Planned Metropolis

3.4.1 The Commissioner’s Plan of 1811

Manhattan as we know it today, is not how it always was, nor how it was always envisioned. Early plans for the city date back to its inception in 1690. The Dutch during their brief time as stewards of the city saw canals dug through the lower half of the island to facilitate the transport of goods. The British in the late 1700’s had already laid out the city with rectangular blocks. “Broadway Street” which is known today as simply “Broadway” was already running through its center like a spine connecting north to south. This development was independent of any established plan for the future of the city. With the influx of immigration in the early 1900’s, developers soon recognized the value of planning in the development of the city more than ever before.

Most growth on the island tended to be rather sporadic. Because most projects were undertaken on private land, no group or council was responsible for overseeing the construction of projects. Restrictions before the implementation of zoning laws were few if any on private property, and the rights of the landholder to see it developed were relatively unencumbered. This was until 1797 when the New York City Counsel asked Joseph-François Mangin and city surveyor Casimir Goerck to survey

Figure 6. Viele's 1865 Map of Manhattan. Source: davidrumsey.com/maps6128.html
Manhattan’s streets. The pair not only surveyed and mapped the existing streets, but also laid out a grid of potential future streets.

The suggestion of future streets as expressed in their survey would go on to provide the basis for the 1811 Commissioner’s Plan which gave the first true planned form to the city. The commission was made up of three members; Governor Morris, John Rutherfurd, and Simeon De Witt. From these men comes the “gridiron” form of New York City as we know it today. The gridiron was seen as the most practical and cost-effective method to lay out the city. Using right angles, allows the city to imitate the form of modern building standards and construction methods.

The plan included the entire length of the island, total of 11,400 acres (4,600 ha). Oddly enough, some of the avenues proposed in the Commissioners Plan were suggested on land that did not exist yet at that time. This applied directly to Twelfth Avenue, which runs through the current site of the Hudson Yards project. With this suggestion in mind, the state legislator authorized the city to extend its boundaries 400 feet (120m) into the Hudson and East Rivers. However, it was not until almost 100 years later that this feat would be undertaken.

Their plan included 155 cross streets and 12 avenues running from north to south. Each avenue was to be 100 feet (30 m) wide meanwhile the streets were to be 60 feet (18 m) with the avenues separated by 922 feet (281 m). These dimensions construct total blocks of about 260 feet (79 m) in length. Manhattan’s planned growth can also be seen in Viele’s 1865 map (figure 6) which shows the projected expansion of the island in line with the Commissioner’s Plan of 1811 (figure 7).

3.4.2 The Regional Master Plan

The Commissioner’s Plan along with the introduction of zoning helped guide New York City into the 20th century. However, in 1929 there became a greater demand for larger scale planning with the understanding that there was a need for not only a city master plan, but for a regional plan that connected the city with the greater context of the metropolitan area which it served. Most major cities at the time were planned on a smaller city-wide scale and rarely took on larger areas such as those extending urban centers and state lines.

The plan known as The Regional Plan of New York and Its Environs, was a breakthrough in planning in the United States. Published in 1929, the plan focused on the incorporation of regional transportation and open space networks. The aim of the plan was to increase accessibility and connectivity across the metropolitan area with the city of New York. The plan projected a network of highways, parks, corridors of mass transportation, and urban greening along with residential and commercial uses throughout the region. Unbeknownst to its proposers, this plan also laid the groundwork for the expansion and eventual sprawl of the urban environment. The plan also sought to determine the optimal public use areas, which eventually led to an expansion of green spaces in the urban districts. The first plan made many successful recommendations such as the Verrazano-Narrows Bridge, George Washington Bridge (GWB), the relocation of the shipping ports outside of the main Manhattan island, and the establishment of local planning boards throughout the region.
This plan was the foundation for regional planning in the area up until the 1960s when the Regional Plan Association once again produced a new plan with a focus on the remediation of adverse impacts of their first. Adverse effect include the decline of old urban centers and environmental degradation. The second plan also “advanced the idea of economic development of regional centers including Jamaica, Downtown Brooklyn, Newark and Stamford, cities that in recent years have been revitalized as strong transit connections led to the growth of business activity. In another prescient move, the plan also suggested closing Broadway to traffic in midtown Manhattan. The Times Square’s pedestrian makeover was completed in 2009.”

The 1960 plan also called for variable housing and income groups in each community, essentially framing the modern day mixed-use neighborhoods which surely impacted New York City’s plan of 1970 and the Special Clinton District. This plan informed the latter, as well as laid the framework for the mixed-uses of the Midtown West neighborhoods, and the preservation of their character.

The plan focuses a vast amount of resources into describing what it called the “42nd Street Corridor” and speaks of its vital importance to the city. It relates not only the location of 42nd Street as geographically fundamental to the city, but it recognizes its economic and transportation significance to the city. 42nd Street is not only the prime cross-street connecting the east and west shores of Manhattan, but it is also the location of several of the most important transportation hubs in the metropolitan area. 42nd Street contains Pennsylvania Station, the Port Authority Bus Terminal, and Grand Central Station. In addition to its importance as a transportation center, it is home to Times Square, the 5th Avenue shopping corridor, and the United Nations.

During the plan’s development, the Hudson Yards project site was still privately owned by the railroad. Therefore, little in the Regional Plan made mention to projects on the

site. It did, however, recognize its proximity to 42nd Street, noting that any potential future development of the site should take advantage of the prime location.

3.5 History of Zoning and City Planning Commission (CPC)

Hell's Kitchen is commonly associated with low-rise developments giving the neighborhood a housing character much different than most other parts of the city. However, during the early portion of the 20th century, these buildings that now give Hell's Kitchen its charm were home to some of the most horrid housing conditions in America. By the start of the 20th century, the neighborhood was controlled by gangs. In addition, these housing conditions lead to the strife and conflict in the neighborhood for which it would eventually earn its name as poverty and density bred animosity between residents and soon often riots erupted. Soon after, the neighborhood was ruled by street gangs and quickly gained the reputation of being one of the most dangerous places in the country. The violence escalated during the 1920s with the introduction of prohibition in the US as the large warehouses served as ideal locations for the rumrunners to brew, store and transport their alcohol. These same conditions as awful as they were, also provided the grounds for the development of housing laws and eventually zoning.

The poor housing conditions which bred discontent soon became referred to as “tenement” housing. The term was used to define buildings of multiple dwellings built for the poor and contained few of the amenities often found in the apartments of the aristocratic class including running water, gas, and toilets. Because of these poor housing conditions, the city adopted the First Tenement House Act in 1867 and the Second Tenement House Act in 1887, both of which saw only basic improvements to safety and living conditions in many tenement projects by requiring fire escapes or a window for every room. Buildings built under these codes were constructed in typical

“dumbbell” shape, which became iconic with tenement housing, and had little light and poor air circulation. Unfortunately, even with the adoption of such laws, developers continued to find ways around it, such as providing windows that faced into hallways. These building characteristics created abysmal dwellings for the poor who often shared apartments with several families.

The failures of the first laws eventually led to the 1901 New Tenement Law, which among other things, designated areas for garbage disposal, the creation of air ducting, natural lighting, and the inclusion of one toilet per every two families. The 1901 law and the building codes it introduced went on to shape the way developers designed their tenements. The new standard layouts typically came in the form of an ‘H’ or an ‘L’ shape allowing a sufficient amount open space on the lot. “New Law” tenements were also often constructed on corners, as the two adjoining streets allowed for the necessary light for each window, which the previous long narrow “dumbbell” building could not.

Around this same time, other cities and municipalities were experimenting with building codes and land use regulations. In 1899 Boston, an ordinance was passed limiting the height of buildings around Copley Square. The goal of the ordinance was to prevent the height of any

building higher than those of the existing buildings, which the city claimed would damage their value and appeal. This legislation was also one of the first ordinances to limit the height of structures by a municipality and subsequently was the first to be challenged in court. The case, which eventually made its way to the Supreme Court in 1909, saw the court uphold the height restrictions the case of *Welch v. Swasey*, 214 U.S. 919.

Not long after the case of height restrictions in Boston, the Supreme Court was listening to arguments against the restrictions of land uses. The 1915 case of *Hadacheck v. Sebastian*, 239 U.S. 394, saw a law uphold the banning of brickyards in Los Angeles. The landowner, Hadacheck, argued against a recent ordinance that he claimed restricted the use and sale of valuable clay deposits on his land. He stated that the ordinance would deprive him of his use of the property and force him to abandon his business. However, the Supreme Court ruled for the municipality eloquently stated, “There must be progress, however, in its march, private interests must yield to the good of the community.”15 *Hadacheck v. Sebastian* was one of the first cases to deal with the issue of land use regulation and zoning laws and laid the groundwork for future land regulation by use.

By this time, the Equitable Building was on the verge of completion in New York City. Upon completion, the building would stand at 538 ft (164m) and was, at the time, the tallest building in the world. It would also be the source of major controversy. The building, which had no setbacks or easements, prevented light from passing to the street or any building below it for a large radius. This unchecked growth led directly to the 1916 New York City zoning resolution. The enactment of this resolution was the first comprehensive zoning resolution of its kind in the United States. Although the city’s development and planning process under city is the City Planning Commission (CPC) wasn’t established until 1936, it still was a major landmark in city planning.

Ironically the Equitable building is now home to the New York City Department of City Planning.

The zoning movement was led by two advocates of municipal reform, George McAneny, and Edward M. Bassett. McAneny, the Manhattan Borough President, also became chairman of the Committee on City Planning. Bassett, a lawyer, was appointed to the Public Service Commission in 1907, and became vital to the planning and implementation of the city's subway. Under the guidance of Edward Bassett, a committee was formed tasked with gathering data with which a land districting or zoning plan could be made. This report developed the basis for the landmark 1916 Zoning Resolution. The resolution did what no other in the nation had: it divided the city into districts by land use and regulated the heights of buildings.

The Zoning Resolution of 1916 established height and setback controls and designated residential districts that excluded certain commercial and industrial uses, which were seen as conflicting. It also set building area requirements which led to the construction of what would become the towers that personify the city’s central business district, and created the rules which scaled most residential buildings to six stories.
While the zoning resolution was a relatively modest document, there were no entities to realize its rules or oversee its implementation during construction thus making it a rather toothless. That was until 1926 when Mayor James Walker appointed the Committee of Plan and Survey to compose legislation that would create a planning agency and study planning in the city, which could also oversee construction and the implementation of all zoning regulations.

Another ten years would pass before a city planning commission would finally be established under Mayor Fiorello LaGuardia. The endowment of the City Planning Commission implemented the basis for comprehensive planning in New York City, replacing a system primarily serving the needs of corrupt interest groups and political parties. The Commission would have seven members, six of which would be appointed by the mayor and the seventh an engineer of the Board of Estimate.

While the original 1916 zoning resolution was by all standards groundbreaking in the United States, by mid-century, many of the planning codes either outgrew their usefulness or made no practical sense to developers. One example given by New York City Planning stated that “had the city been built out at the density envisioned in 1916, it could have contained over 55 million people, far beyond its realistic capacity.”16 By this time, newer concepts were being considered by architects and planners, particularly the notion of trading floor area for public amenities, also known as incentive zoning. Also, with the development of the automobile and its rapid diffusion to the American public, the need for its integration became evident.

One of the last major stalwarts to planning came in 1926 when the Village of Euclid sued Ambler Realty Company in the Supreme Court case of Village of Euclid v. Ambler Realty Co., 272 U.S. 365. In this case, the city of Euclid reclassified a piece of property into classes which laid out height and use restrictions. The reclassification of land prevented the landowner at the time, Ambler Realty Company, from developing the

land for industrial and manufacturing uses as it had originally intended. In its case against the city, Ambler failed to demonstrate that the new ordinance did not detract from the value of the property. The Supreme Court in its ruling also noted that the speculation asserted by Amber was not a valid basis for a claim of injury. By siding with the municipality of Euclid, the Supreme Court cleared the way for land use reclassification, inhibitive uses, and zoning as we know it today. Essentially, the court upheld the constitutionality of zoning.

The implementation of the 1961 Zoning Resolution included new considerations such as use regulations, bulk regulations, and on-site parking. Most importantly it encouraged the creation of public open space through the concept of incentive zoning. Simply by offering potential extra floor space through an FAR bonus, the new regulations encouraged developers to incorporate plazas into their projects. In the central business districts, it accommodated a new type of high-rise office building, while elsewhere in the city it dramatically reduced residential densities.

3.6 **The Evolution of NYC Transportation**

3.6.1 **Elevated Railroads**

The same advancement that set the city growing upwards also helped to propel it to new speeds. The impact of public transportation on the expansion of the city, particularly the subway, has been tremendous. The best known of which, referred to as the “lifeline of New York City”, was the West Side Line. This “goods only” line carried no passengers and yet sustained the city. Completed in 1849, it stretched as far as Peekskill spanning a distance of 40 miles (64km), and was extended as far as Albany by 1851. Transportation not only relied on steel but also on one more breakthrough before it would alter the layout of cities completely: electricity.
Early modes of transportation such as elevated railways originally constructed and operated by the Interborough Rapid Transit Company (ITC), who would also go on to become the original operator of the subway, were cable-powered systems. The first line opened in July of 1868\(^{17}\), the West Side and Yonkers Patent Railway, was operated along the 9th Street from Battery Place northward up Greenwich Street to 30th Street. The cable cars used the proprietary steam-driven machinery which drew a loop of wire cables through a slot beneath the street, however, once electricity was added in 1909 to the cars, cable cars could no longer compete.

Electric operation of trolleys and elevated rail lines quickly became popular as they were more efficient and reliable over larger distances. These elevated trains were designed to run on tracks approximately 30 feet (10 meters) above city avenues. These elevated trains changed the way in which New Yorkers lived drastically. This change to electric was also the precursor to the subway. The use of steam engines in subway systems was initially installed in London. However, the use of steam required the burning of coal. This not only caused toxic fumes in the confined space of the tunnel, but was also subject to potential explosion.

### 3.6.2 The Subway

By 1900 the Interborough Rapid Transit Company (IRT) began construction on the first subway line, the West Side Branch, which ran from lower Manhattan to Van Cortland Park. The majority of the subway system used today was in fact built between 1913 and 1931. At this time the city applied a dual contract system for subway expansion and operation. The city awarded rights to the IRT to expand existing lines in Manhattan while awarding the Brooklyn-Manhattan Transit Corporation (BMT) the contracts to any new lines in Manhattan. The Independent Subway System (IND) began building and expanding lines further in the 1930s, which helped to put an end to many of the above

ground trains which were starting to conflict with automobile traffic. Finally, in 1940 the city decided to unify all three subway lines as a publicly owned entity known as New York City Transit Corporation, which eventually became part of the Metropolitan Transportation Authority (MTA) in 1968. The MTA is still the principal entity involved in the maintenance, construction, and management of transit in New York City today.

While this serves as the evolution of rapid public transport in the city, this does not give mention to one of the largest freight rail lines in Manhattan history. The West Side Rail Line began operating in 1846 when the Hudson River Railroad started construction north from Chambers Street and 10th Ave. This new connection was the first act to unite the people of Hell’s Kitchen and Chelsea with the rest of the city. By the end of 1851, the Hudson River Railroad reached East Albany, New York some 150 miles away.

In 1869 the consolidation of rail lines from New York to Buffalo resulted in most passenger service from 1871 onward to operate through Grand Central Station with the West Side Rail Line now being used predominantly for freight. Also, the New York Central Railroad Company built a new freight terminal at the juncture of Spring and Washington Streets which was connected to the original 30th Street Yard (Hudson Yards) with an elevated double track. This line crossed intersecting streets and helped to connect the industry at the south end of the island with the rail lines north and west of the city.
With the onset of the West Side Highway improvement project came further expansion for the West Side Line in the 1920’s. This began with the construction of an elevated track which is still in existence today as The High Line, as well as anticipation of the completed 30th Street Yard, which would have a capacity of 1300 cars. The elevated section of the line ran 1.5 miles south from 34th Street, where 233 buildings were demolished to encircle the 30th Street Yard\textsuperscript{18}.

In 1979, the 30th Street Yard was sold to the Triborough Bridge and Tunnel Authority (an affiliate of the MTA) for the construction of the Jacob K. Javits Convention Center and the Long Island Rail Road’s West Side Yard expansion. The chair of the Senate Transportation Committee Sen. John Craemmerer developed a bond appropriation plan to include $100 million to acquire the site for the Long Island Rail Road (LIRR). At the time, the LIRR trains had to return to Long Island after morning services empty. The purchase, expansion, and use of the yard would provide storage for those cars between rush hours. The project was turned into an MTA capital project and cost a total $195 Million. The design would see the removal of portions of the elevated line to

allow construction of the Convention Center. Eventually, in 1982 after over 100 years of service, the line saw its last run.

As of 2014, over half a million more people ride the subway on an average weekday than in 2007, which means a mean increase of 11% system-wide. On the other hand, average weekday ridership on Metropolitan Transportation Authority (MTA) buses has dropped by 6%, or 170,000 people during the same period. Going forward, the subway is projected to see a steady increase in ridership due to the planned expansion of several lines including the 7 Line extension, and ease of use.

### 3.6.3 The Metropolitan Transit Authority (MTA)

The Metropolitan Transportation Authority (MTA) is a public benefit corporation of the State of New York and is formed and governed by the Metropolitan Transportation Authority Act of New York Public Authorities Law. Founded in 1965 under the original name of Metropolitan Commuter Transportation Authority, the MTA is responsible for maintaining, developing, and implementing a unified mass transportation policy for The City of New York which includes buses, subways, ferries, and commuter rail systems between the 5 boroughs of Manhattan, Queens, Bronx, Brooklyn and Staten Island.

The MTA is the largest public transportation corporation in the United States serving a population of 15.2 million people in the 5,000-square-mile area (13,000 km²). Annually, the MTA transit network serves 2.7 billion riders with an average weekday ridership of 8.758 million people. MTA subways, buses, and railroads serve 2.73 billion trips each year to New Yorkers, while its bridges and tunnels carry more than 285 million vehicles a year.  

The MTA employs approximately 67,000 employees and is governed by its chairman, Thomas Prendergast and 16 other voting members of its board. In addition to the voting

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members of the board, who are appointed by the Governor of New York State with the approval of the State Senate. It is charged not only with the development and implementation of transportation systems and networks, but also their maintenance. It does so both directly and indirectly through a number of subsidiaries and affiliates including:

- The Long Island Rail Road Company
- Metro-North Commuter Railroad Company
- Staten Island Rapid Transit Operating Authority
- Metropolitan Suburban Bus Authority
- MTA Bus Company
- MTA Capital Construction Company
- Triborough Bridge and Tunnel Authority
- New York City Transit Authority
- Manhattan and Bronx Surface Transit Operating Authority

New York State provides more public transit funding than any other state government, with a total of $3 billion annually. However, this is not surprising considering New York transit systems carry about 33% of all transit riders in the country, primarily in the New York City metropolitan area.

It is funded through a variety of sources including general funds, federal funds, and taxes. The State Transit Operations Assistance Fund\(^\text{20}\), which was established in 1975 and is also known as section 18-B funding, is a matching fund program. This means that for the MTA to receive the benefit, it must raise funds, and these funds will be matched by the state. This portion accounts for approximately $224 million of the yearly operating budget.

Also providing funding for the MTA is the Mass Transit Operating Assistance Fund, is divided into two sections: downstate including New York City, and upstate. The downstate portion of the fund is funded primarily by a petroleum business tax which is imposed on any company that produces, refines, or imports petroleum for use in the state of New York. It also is funded by a New York MTA Corporate Tax Surcharge, a .25% sales tax in the New York City region, and a corporate franchise tax on transportation and transmission companies know as the Long Lines Tax.

In 1993 the state established the Mass Transportation Trust Fund, which is funded with petroleum business tax revenues from the State Dedicated Transportation Trust Fund. The State Dedicated Transportation Trust Fund divided into three portions the first is for highways and bridges of which get 63% of the fund, the MTA, which receives 34% of the fund, and the remaining 3% goes to all other transit providers in the state.

The 2015-2016 New York state budget has earmarked $4.974 billion in State Transit Operations Assistance funding, which is $64 million more than in the 2014-2015 budget, of which the MTA receives about $4.49 billion. Unfortunately for the MTA, it cannot be supported solely by rider fares and road tolls. Even though the MTA has raised the fare on the subway four times since 2008, it is still running an approximate deficit of about $13 billion. The single-ride fares for the subway have increased most recently from $2.50 to $2.75, an express service ticket from $6 to $6.50 and the MetroCard fare from $112 to $116 per month. In a stark example of the dramatic increase in fares since 2009, the cost of the MetroCard has gone from $81 to $116. Toll hikes have brought the farebox revenue to a total of $5.936 billion and makes up 41% of the MTA revenue. Cash fare tolls in 2008 increased to $6 from $8 and again in 2011 from $8 to $12. Since then, tolls have increased $1 every year since and are now at $15. Toll revenue however only accounts for 12% of the MTA’s total operating budget 21.

Among its primary capital construction projects include The Fulton Center, which was completed in 2014 with a total cost of $1.4 billion. Also included in the list of capital construction projects is the Second Avenue Subway, with its phase 1 completion scheduled for 2016 at a cost of $4.45 billion. Most importantly, the 7 Line Extension project with its ending stop at 34th Street Hudson came to a total project cost of $2.42 billion, funded entirely by the City of New York.

In summary the MTA currently runs an operating budget of $13.9 billion dollars annually, of which farebox revenue accounts for $5.936 billion (41%), toll revenue $1.716 billion (12%), taxes $5.153 billion (35%), and state subsidies make up $1.126 billion (8%). An additional 4% or $689 million come from other sources. Even with such a budget, the 2015-2018 adopted budget continues to foresee a debt service of $2.481 billion per year through 2018, not including the delay in capital improvements necessary for the continued safe operation of its lines.

3.7 History of the West Side Yard

Originally used as a depot for the Hudson River Railroad (HRRR), the West Side Yard has a yard for 150 years (see annex for Sanborn Maps, pgs. 112-114). In 1884, the HRRR was no longer labeled a co-proprietor of the site and had been joined with the New York Central Railroad in 1867 to form the New York Central and Hudson River Railroad (NYCHRR) under the management of Cornelius Vanderbilt.

As per the Sanborn maps, the New York Central and Hudson River Railroad now consisted of a block of West 37th and 12th Ave along with their existing holdings between West 33rd and West 30th Streets. By 1897 the previously built block incorporated into a block on West 37th and 12th Ave was no longer visible. However, their land holdings directly northeast of 30th Street and 11th Ave site had seen most of the previous buildings removed. Looking forward to the 1911 map, the growth of the NYCHRR was exponential. Rail lines can be seen expanding from its epicenter
between 10th and 12th Avenues, but had expanded to the block between 29th and 30th & ninth and 10th Ave, as well as Pennsylvania Railroad terminal tracks running straight down 32nd Street and ending in front of the Post Office building at 9th Ave. This was the case right up until the development of the Hudson Yards project. In other words, the site of the project has maintained the same use since as early as 1867 as per the Sanborn maps, and has had several land changes surrounding the site over the years.

The site of the Hudson Yards project has been that of a freight rail yard since its inception in the 1800’s. This has remained the case even after its expansion in the 1970’s, which saw the lot grow in response to the Long Island Railroad’s logistic issues at New York Penn Station. The Long Island Railroad (LIRR) trains which made the morning commute would return in the afternoon to Long Island empty for storage. When the yard opened in 1987, it immediately increased the capacity of the LIRR.

The site was also built with the intention of eventually developing its air rights by allowing enough space between the rails to accommodate pylons on which a future platform could be constructed. The platform was intended to support the weight of future development. Also planned for during the expansion of the yard in the 1980’s was an underground tunnel between the yard and Penn Station. The tunnel was built to allow Amtrak trains to connect to the West Side Line. This in tandem with the rehabilitation of a single track on the northern end of the West Side Line allowed for passenger service between Penn Station and upstate New York. This line named the Empire Line connects the city of New York with Albany and beyond. The connection, located just west of 11th Ave near the Jacob Javits Center severed the southern half of the West Side Line from its northern portion upon completion. This, however, turned out to be rather advantageous as it later allowed for the repurposing of the High Line.
3.8 The West Side Stadium

The site of the rail yards has long been the subject of speculation. In 1985, Madison Square Garden under the guidance of their chairman, Irving Felt, made the suggestion that the new Garden or “Garden II” could be moved over the rail yards which at that time was still under construction, however, no proposals were seriously made.22 Again in 1998, Mayor Rudi Giuliani suggested using the site over the rail yard as the site of the new stadium of the New York Yankees with a cost “estimated to be as high as $1 billion or more.”23 Again no serious proposal for construction was made as it failed to gain enough public support. It was not until several years later that a serious proposal was put forth for the building of a new stadium on the site of the rail yards, this time for the New York Jets.

Figure 12. Rendering of Proposed Stadium. Source: http://ny.curbed.com/2015/1/30/9997132/how-the-new-york-jets-very-nearly-got-a-west-side-stadium

The West Side Stadium was proposed in 2005 and was to be built on a platform over the West Side Yard. The stadium would have been home to the Jets football team

of the National Football League and would include 200,000 square feet (18,600 m²) of space and 75,000 seats. The stadium was proposed to strengthen New York’s bid for the 2012 Summer Olympics, but after much debate, the proposal was defeated only a month before the Olympic Committee’s decision. The stadium was only a piece of a larger project which would have also included the revitalization of the general area as well as an expansion of the Jacob Javits Center and an extension of the 7 subway line to the area.

The stadium, however, proved difficult to realize because it would have required major public financing. Though many of its opponents supported a strategic development plan for the West Side, they questioned the economic benefit of a stadium. Many also opposed what would have been the public subsidization of a privately owned football team which generates hundreds of millions of dollars in revenue. The total cost of the stadium planned was $1.4 billion. The Jets committed $800 million of private investment to the project while the city and state were to have split the remaining $600 million, $375 million of which would be used to build a platform over the rail yard. For their investment, the Jets would receive ownership of the building and sign a 49-year land lease with the MTA.24

The Jets’ proposal was considered to be the strongest of proposals received “because it would assure the city’s intention of extending the No. 7 subway line to the west, and would make it possible for the agency to sell development rights to the stadium property. Several members said those rights -- which they said could be transferred to nearby properties to allow higher buildings -- could be worth as much as $1 billion over time.”25

The project, however, met much opposition by both public and private entities and on June 6, 2005, the unanimous decision necessary to pass the land rights to the Jets

organization for development failed to pass and so with it the hopes a building the new stadium. Consequently, the death of the project also signaled the unlikelihood of a 2012 Olympic bid. The same day as the MTA vote, the International Olympic Committee released a negative evaluation of New York City’s bid as the city could not guarantee that the stadium would be available in time or at all for the Olympic Games. As a result, the 2012 Olympic Games were awarded to London later that year.
4.0 THE HUDSON YARDS PROJECT

4.1 Overview

The Hudson Yards project is expected to be the largest private real estate development project in the history of the United States. Since its conception in 2005, it has been the focus project in New York, as it is the largest urban development and renewal project since the completion of Rockefeller Center in 1939. The total estimated investment cost of the project has “doubled to $25 billion”\(^26\) in comparison to prior estimates, according to Forbes, and is expected to be completed by 2024. The Hudson Yards upon its completion is expected to employ and house approximately 125,000 people, distributed through 17 million square feet of commercial and residential space.

Of that 17 million square feet, an estimated 4,000 residences will be built, along with a 750 pupil school, and 14 new acres of public open space.

Growth on the western shore of Manhattan can be attributed to the resurgence of High Line, which has seen the construction of 29 new development projects since its opening in 2009, the end of which wraps around the perimeter of the Hudson Yards at West 30th Street, and ends at 12th Avenue and West 34th Street. This development coupled with an additional public investment in various open space and infrastructure projects, especially that of the 7-line subway extension, will see the $3.45 billion in improvements.

The project is designed to be implemented in two phases. The first phase of the project, known as the “Eastern Yard”, is by far the most extensive regarding edification. Meanwhile, phase two, the “Western Yard”, which is located from 11th to 12th Avenue between West 30th and West 33rd Streets, sees the creation of more community open space than high-rise development. On the following page is listed the buildings being constructed and their floor area broken down by Phases I and II.
**Phases 1 & 2 by building and floor area of the Hudson Yards Project:**

**Phase 1:**

<table>
<thead>
<tr>
<th>Building</th>
<th>Floor Area (ft²/m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Hudson Yards</td>
<td>1.8 Million / 167,000</td>
</tr>
<tr>
<td>30 Hudson Yards</td>
<td>2.6 Million / 242,000</td>
</tr>
<tr>
<td>50 Hudson Yards</td>
<td>2.3 Million / 214,000</td>
</tr>
<tr>
<td>55 Hudson Yards</td>
<td>1.3 Million / 121,000</td>
</tr>
<tr>
<td>Residential</td>
<td>1.9 Million / 176,500</td>
</tr>
<tr>
<td>The Shops &amp; Restaurants</td>
<td>1.0 Million / 93,000</td>
</tr>
<tr>
<td>Retail Pavilion</td>
<td>50,000 / 4,650</td>
</tr>
<tr>
<td>Hotel</td>
<td>220,000 / 20,500</td>
</tr>
<tr>
<td>The Shed</td>
<td>200,000 / 18,500</td>
</tr>
</tbody>
</table>

**Total** 11,340,000 ft² / 1,057,150 m²

**Phase 2:**

<table>
<thead>
<tr>
<th>Building</th>
<th>Floor Area (ft²/m²)</th>
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<tbody>
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<td>Office</td>
<td>2.0 Million / 186,000</td>
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<tr>
<td>Residential</td>
<td>4.0 Million / 372,000</td>
</tr>
<tr>
<td>Retail</td>
<td>100,000 / 9,300</td>
</tr>
<tr>
<td>School</td>
<td>120,000 / 11,200</td>
</tr>
</tbody>
</table>

**Total** 6,220,000 ft² / 578,500 m²
4.2 Stakeholders

4.2.1 The Hudson Yards Development Corporation (HYDC)

Established in 2005, the Hudson Yards Development Corporation (HYDC) is the principle point of contact on behalf of New York City regarding the development of the Hudson Yards project. Being the primary entity in charge of overseeing the Hudson Yards development, the HYDC works together with the numerous city and state entities as well as the developers to properly plan, finance, develop, and construct the project. In addition to those duties listed, the HYDC collaborates with the following agencies and activities of interest:

- The Hudson Yards Infrastructure Corporation and the New York City Office of Management and Budget, for project financing and cost containment.
- Metropolitan Transportation Authority (MTA), for construction of the No. 7 Subway extension.
- MTA, New York City Department of City Planning and New York City Council, for planning and development of the Eastern and Western Rail Yards.
- New York City Law Department, for condemnation and other property acquisition.
- New York City Industrial Development Agency, for financial incentive programs to spur commercial development.
- New York City Departments of City Planning, Housing Preservation & Development, Parks & Recreation, Transportation, Environmental Protection, and others, for streets, parks and other infrastructure improvements and for affordable housing development.
In addition to working with the various entities listed above and overseeing said activities, the HYDC is also responsible for overseeing the sale of the West Side Rail Yard’s transferrable development rights.

### 4.2.2 Hudson Yard Infrastructure Corporation (HYIC)

The Hudson Yards Infrastructure Corporation (HYIC) is a local public/private development corporation created to finance property acquisitions and infrastructure work in the Special Hudson Yards District, particularly, the extension of the 7 Subway line, through the sale of bonds. Established in 2005 by the City of New York under the Not-For-Profit Corporation Law of the State of New York, the HYIC forms the public improvement portion of the Hudson Yards project. Its task is to promote economic development within the Special Hudson Yards District, and foster transparency and cooperation with all other public and private actors involved in the Hudson Yards project, which includes the Metropolitan Transportation Authority, the City administration, the private developers, and the Hudson Yards Development Corporation throughout the development process.

### 4.2.3 Related Companies & Oxford Property Group

In 2008, Related was chosen by the City of New York after a successful co-bid with Oxford Properties Group to develop Hudson Yards. Related Companies, a privately

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owned for-profit company which in addition to the development of the Hudson Yards, was recently awarded the $4 billion Cosmopolitan Development in Las Vegas.

In 2010, Related “had launched a fund management platform to administer equity capital on behalf of sovereign wealth funds, public pension plans, multi-managers, endowments, Taft Hartley plans and family offices.”28 After success working among multi-family and distressed real estate, Related received $1.5 billion in outside investment capital. The following year, Related purchased a stake in Union Square Events in New York City, which gave it valuable leverage with the development, leasing, and sales of its properties.

In 2014, Related invested in one of the leading boutique real estate brokerage firms in Manhattan, CORE. This provided Related with additional real-time market knowledge and customer insight, as well as provided it a platform through which it could market and sell its properties in New York City.

Today, Related owns and operates many asset types worldwide such as luxury residential, commercial, retail and mixed-use developments valued at over $20 billion. Now, with the development of the Hudson Yards project, they seek to increase their market share in New York.

Oxford Properties Group is a global real estate investment, development and management company employing over 2,000 people with an estimated $37 billion of assets. Established in 1960, Oxford has offices in three countries and manages over 150 properties of over 9,500 residential units and 3,600 hotels rooms. Oxford’s US portfolio includes many investments involving real estate-backed credit producing and development properties, with a focus on the New York and Washington D.C. markets. Oxford Properties was ranked number one overall in North America for sustainability by the Global Real Estate Sustainability Benchmark for the previous two years and

continues to introduce the latest green building materials and technologies into the market

4.3 **Zoning Amendments & Special Districts**

In January 2005, the New York City Council approved a comprehensive rezoning plan of the Hudson Yards and in the process paved the way for the creation of the Special Hudson Yards District. The district allows for 24 million square feet of new office space, 13,500 new housing units, including 4,000 affordable units, 1 million square feet of new retail space, and 2 million square feet of new hotel floor area. Then again in late 2009, the City Council approved another comprehensive rezoning of the Western Rail Yard that will allows for the construction of over 5,000 apartments and 14 acres of public open space. 29

The Zoning Resolution also establishes the Hudson Yards District Improvement Bonus (DIB) at $100 per square foot and provides an additional floor area of up to 8.0 FAR for sites within certain areas of the project. To be eligible for the extra bonus, the applicant must make a payment to the Hudson Yards District Improvement Fund (DIF). The current price per square foot is listed as $125.36 per square foot. The HYDIF is used to repay bonds sold which was used to finance infrastructure improvements in the Hudson Yards area including the extension of the 7 Line.

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4.3.1 The Special Hudson Yards District

The Special Hudson Yards District was established in 2005 to encourage a neighborhood varied with uses, densities, and residents while providing new public open space. At the core of the plan is the extension of the Midtown central business district by inviting private investment of commercial and hotel development. This in conjunction with a reinforcement of the existing residential neighborhood with new and rehabilitated housing. The plan also calls for the expansion of mid-density residential development which hopes to spur a renaissance in the neighborhood of the Hudson Yards.

A total of six sub-districts were created within the Hudson Yards District which include varying FARs through a District Improvement Bonus, TDRs, as well as the reinforcement of Inclusionary Housing Designated Areas Program that would support financing of capital improvements to the site. By providing special regulations, FAR bonuses, District Improvement Bonuses and Incentive Zoning, the Special Hudson Yards District designed transitions between the lower-scale side streets, and the Special Midtown District (established in 1982) and Special Clinton District (created in 2005).

The key to the Hudson Yards Special District is the focus on two new corridors for high-density commercial and residential development. This development would be strengthened by as-of-right height and setback controls to allow for creative design in the construction of commercial office buildings, and the extension of the 7 Subway.
In addition to targeted improvements, mandated improvements include:

- Retail use on major corridors
- Street wall continuity
- Pedestrian circulation space
- Street plantings
- Subway entrance easements
- Screened or below-grade parking

Additional specific goals as per the zoning resolution are:

- To facilitate and guide the development of an environmentally beneficial, transit-oriented business and residence district by coordinating high density development with expanded mass transit facilities, extended and improved subway lines, improved pedestrian access to mass transit facilities, improved pedestrian circulation and avoidance of conflicts with vehicular traffic
- To control the impact of buildings on the access of light and air to the streets and avenues of the Hudson Yards area and the surrounding neighborhoods
- To provide an open space network comprised of public parks, public open space and public access areas through the establishment of a large-scale plan and other controls and incentives
- To preserve the pedestrian orientation of ground floor uses, and thus safeguard a traditional quality of the City
- To preserve the low- and medium scale residential character of the Hell’s Kitchen area
To provide a transition between the Hudson Yards District and the Clinton community to the north, the Garment Center to the east and West Chelsea area to the south

To promote the use of the Jacob K. Javits Convention Center to the west by creating an active and attractive business district that facilitates pedestrian access to the Center

To provide flexibility of architectural design within limits established to assure adequate access of light and air to the street, and thus to encourage more attractive and economic building forms

To provide a transition between the Hudson Yards District and the Hudson River to the west

To facilitate the restoration and reuse of the High Line elevated rail line as an accessible, public open space through special height and setback regulations

To promote the most desirable use of land and building development in accordance with the District Plan for the Hudson Yards and thus conserve the value of land and buildings and thereby protect the City’s tax revenues

To limit the amount of off-street parking based on regulations that address the anticipated needs of residents, workers and visitors to the Hudson Yards Area, consistent with the objective of creating an area with a transit- and pedestrian-oriented neighborhood character.30

4.3.2 **The Special Clinton District**

The Special Clinton District was originally drawn in 1974 and later updated in 1990 when the CPC called for the construction of the new convention center and the rezoning of a portion of 11th Avenue. The change, which was the first in the area since its creation divided the district into four areas with the following specific goals:

- **Preservation Area:** 43rd to 56th Streets between Eighth and Tenth Avenues. R-7 density, 6-story height limit on new buildings, suggested average apartment size of two bedrooms.
- **Perimeter Area:** Eighth Avenue, 42nd and 57th Streets. Bulkier development permitted to counterbalance the downzoning in the preservation area.
- **Mixed Use Area:** Tenth and Eleventh Avenues between 43rd and 50th Streets. Mixed residential and manufacturing. New residential development only permitted in conjunction with manufacturing areas.
- **Other Areas:** West of Eleventh Avenue. Industrial and waterfront uses. Later combined with "Mixed Use Area."\(^{31}\)

The district would be zoned R8, but building bulk (density) would be restricted to that of R7-2 districts which would encourage the construction of five- and six-story buildings which would help to preserve the character of the rest of the neighborhood. Most major corridors would be zoned for ground floor commercial uses to encourage neighborhood retail shopping and a mix of uses. Meanwhile, segments of the area zoned for higher density commercial uses would be subject to R8 restrictions.

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4.4 Financing the Hudson Yards

4.4.1 Public Financing

The concept behind the public funding portion of the Hudson Yards, particularly that of infrastructure improvements, can be summarized by explaining two newly implemented mechanisms known as tax increment financing (TIF), and payments in lieu of taxes (PILOT). These financing options allow a municipality to sell bonds which will eventually be repaid with future tax revenues, typically from within the improvement zone for which they were sold. The taxpayer dollars are used to lay infrastructure which was a key component to large-scale private investment and development at the Hudson Yards site. Because these financing methods suggest that the improvements can eventually be paid off with the same revenues they are supposed expected to generate, they are often described as self-supporting.

The methods used to finance the public portion of the Hudson Yards redevelopment was similar. In 2005, the City Council passed the Special Hudson Yards District, which opened 26 million square feet for development. The council and mayor’s office felt that development would be unlikely with the state of the area as-is. Therefore, the rezoning was accompanied by two City Council resolutions (Resolution 760/2005 and Resolution 547/2006). The resolutions authorized the financing of infrastructure to attract developers, including the extension of the No. 7 subway, and new urban public open space.

Both TIF financing and PILOT financing share a similar funding structure, where a local government, in this case, the City Council, creates a redevelopment agency (The Hudson Yards Development Corporation and The Hudson Yards Infrastructure Corporation). The agency then sells bonds from which the proceeds are used to finance public improvements intended to increase property values and eventually generate new tax revenue.
While TIF and PILOT are often viewed and spoken of interchangeably, there is one substantial difference between them. Usually in the case of a TIF, private developers own the land and are charged property taxes according to the laws set forth by the municipality. However, under a PILOT program, the city owns the land and allows the developer to develop on it, after which they pay a reduced amount to the agency instead of the standard property tax rate.

The Hudson Yards project would eventually see a return on its investment from a combination of PILOT programs as well as payments in lieu of sales taxes, payments in lieu of mortgage recording taxes, district improvement funds (produced through payments through the sale of the District Improvement Bonus program), and proceeds from the sale of the air development rights over the rail yard.

In addition to the PILOT and TIF programs, the New York City Industrial Development Agency’s (NYCIDA) Uniform Tax Exemption Policy (UTEP) designed a number of financial incentives for investors. These include real estate tax discounts in the area of the Special Hudson Yard District on certain commercial projects expected to bring employment to the area.

4.4.2 Private Financing

The private funding portion of the Hudson Yards development project supports the majority of the edification and open space to be built on the existing eastern and western rail yard sites. In 2010 Related Companies came to terms with the MTA to lease the site of the Hudson Yards for 99 years for $1 billion on which they placed a $21.75 million deposit.32

Because of the enormous investment required for a project of this scale, the total investment necessary has not yet been achieved. However, due to some large cash injections from companies such as Bank of America and Deutsche Bank, Related Companies and Oxford Property Group do have a substantial portion of the capital necessary to begin.

The financing package agreed to in 2015 saw one of the largest capital investments for a U.S. real-estate project in history, mostly coming from foreign investment firms. This includes $2.19 billion in debt from lenders such as Bank of America, Bank of China, Deutsche Bank, Crédit Agricole, and the Commercial Bank of China.\(^{33}\) Also included is Wells Fargo, which recently saw itself sign a tenant’s agreement with Related and Oxford for commercial space in 10 Hudson Yards when completed.

In general, the debt financing consists of two pieces, a $1.5 billion loan on the retail space made by a syndicate of mostly foreign banks and a $690 million loan on the office tower made by banks led by Bank of America and Wells Fargo which will be used to construct 30 Hudson Yards.\(^{34}\) A London-based non-profit, Children’s Investment Fund Foundation, also provided $850 million in debt financing.

### 4.5 Public Investment Projects

The Hudson Yards redevelopment project, aside from large-scale private investment in construction, has also seen massive investments in public works, among which include mass transit infrastructure, new parks, and new cultural/recreational facilities. The following public investments have already begun or been completed:

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Number 7 Subway Extension - $2.4 Billion

A central part of the Hudson Yards rezoning and development program saw the extension of the 7 Subway Line both west and south from its old end station once at Times Square. Two new stations have been added, one at West 34th Street and 11th Avenue, and the other at West 36th and Hudson Blvd East.

Moynihan Station Renovation - $267 Million

The renovation of Moynihan Station will also see the construction of a new train station at the current Farley Post Office which will extend Penn Station west to 9th Avenue. This project plans to reduce the Penn Station congestion by providing passengers with direct access to the entries of Amtrak, New Jersey Transit, and Long Island Railroad trains.

Jacob Javits Center Renovation - $465 Million

The Jacob Javits Center has been recently renovated with a complex that will attract more investors and trade shows to New York City, and help to reinvigorate the west side of Manhattan. Among the major renovations to the main building include a new green roof, skylights, and the enlargement of the main entrances.

The High Line - $190 Million

In 2012, the High Line completed its final section which wraps around Hudson Yards, extending the park to 12th Avenue and West 34th Street. The High Line has been credited with inciting the renaissance on the west side of Manhattan.

Hudson River Park - $440 Million

The Hudson River Park, which begins at Clinton Cove at West 55th Street and the West Side Highway, will be one of the largest expanses of green space on Manhattan.
once completed. Anticipated to extend five miles from the Cove to Riverside South, it will be comprised of thirteen reconstructed piers, multiple pocket parks, and a multitude of landscaped areas.

_Hudson Park and Boulevard - $30 Million_

Hudson Park & Boulevard will be a central element of the new Hudson Yards district. The project consists of four blocks of tree-lined parks and open space extending from West 33rd to West 42nd Street, and will be the primary open space corridor for the new business district.

4.5.1 The Tunnel Box & Gateway Projects

The Gateway Project is a proposed high-speed rail corridor between Newark, New Jersey, and New York City. The proposed aim of the project is to reduce the amount of congestion and bottlenecking along the Northeast Corridor (NEC) by adding new rails to be used by both Amtrak and New Jersey Transit. The project would dig new tunnels in the Hudson River, construct new rail bridges in the Meadowlands, and add a terminal to New York Penn Station.

The Gateway Project plan was originally unveiled in 2011, and is estimated to cost roughly $20 billion and 15 years to complete. Drew Galloway, Amtrak chief of Northeast Corridor Planning and Performance has stated that Amtrak is "underway with full environmental impact and preliminary design work on Gateway." Officials hope to have environmental permits and final designs in hand by 2019-2020. Once the permits have been received and construction has started, the project could take four to five years.

In 2015, Governor Chris Christie of New Jersey announced that after months of negotiation he had reached an agreement between the states of New York and New Jersey and the federal government to fund the new Hudson River high-speed corridor. During his statement, Governor Christie state that "no less than 50%" of the money needed for the project would be provided by the federal government, meanwhile The Port Authority of NYNJ and the taxpayers of New Jersey and New York would be responsible for paying the other half.

At the same meeting, the governor revealed details of a new development corporation which would be led by the Port Authority and Amtrak. The new entity known as the

Gateway Development Corporation will be formed under the Port Authority of New York and New Jersey (PANYNJ). The board will comprise of PANYNJ board members from both states, the United States Department of Transportation (USDoT) and Amtrak. The corporation will be responsible for overseeing the planning of all aspects including environmental, engineering, and construction. It will also be responsible for the acquisition of any federal grants available and apply for loans.

In October 2015, new federal legislation was passed by Congress allowing Amtrak to operate the NEC as a financially separate entity. This allows Amtrak to separate the budget for routes along the Northeast Corridor from the rest of its network, thereby allowing them to use any profits from the NEC to be reinvested there rather than being redistributed system wide. The legislation also provided for more low-interest loans through changes in the Railroad Rehabilitation and Improvement Financing and Capital Investment Grant, and Northeast Corridor Improvement Fund account which are categorized as federal funding programs. In addition to federal forms of financing, Amtrak and PANYNJ approved $35 million each for the project.

The Tunnel Box project is a sub-project within the context of the larger proposed Gateway Project. Senator Chuck Shumer of New York was quoted in 2012 as saying "Amtrak's engineers have determined that the only place they can bring these new tunnels (those proposed under the Gateway Project) into Manhattan is under Hudson Yards, along a Long Island Railroad right of way." This section began on September 23, 2013 when Amtrak Chairman Tony Coscia, U.S. Senator Charles E. Schumer (NY), U.S. Senator Robert Menendez (NJ) and Congressman Jerrold Nadler(NY) announced the start of construction of an 800-foot concrete arch at the West Side Yard in order.

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to preserve the right-of-way for new rail tunnels under the Hudson River. The box, estimated to cost $183 million, will hold the current right-of-way connecting the future Hudson tunnel and existing tracks at Penn Station. Construction of the project was deemed critical to the Gateway Project and had to begin before that of the Hudson Yards because the construction of the Hudson Yards platform would have made it impossible to develop this new right-of-way once its construction began.

### 4.6 Demographics

The development of the Tunnel Box Project will see one of the largest infrastructure investment projects since the construction of the subway. The development of rapid transport for those inside the city as well as passengers traveling into the city has led to several demographic shifts in the last century. These factors in combination with the economics have caused the greatest demographic changes. At the turn of the century, the once congested tenements of Harlem, Fort George, and the Lower East Side were torn down, and urban sprawl began as workers with lower incomes moved further away from the city center and chose to commute in for work.

With the introduction of the rail lines, industry became more prevalent along the shores of Hell’s Kitchen. These industries were now not only located close to a means of transportation, but used the Hudson River as a source of water and a receptacle into which the tanneries and slaughterhouses could discharge their wastes. The arrival of the industry also encouraged the growth of neighborhoods particularly in the area around West 44th Street. Around 1890, the density and population of the neighborhood was higher than anywhere in Manhattan with the exception of the lower east side, as seen in Shlomo’s density maps (see annex pgs. 115-116).

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The era of gentrification was ushered in during the 1970’s, during which New York City experienced a dramatic loss of population; over 800,000 people or more exactly 10.4% of its population left. These families of predominantly working class Irish and Puerto Rican descent were replaced with upper-middle-class workers from Wall Street and the Financial District. Since 1980, however, the city’s population levels have experienced rapid population growth and has led to the city reaching its largest population ever by 2015 with 8,550,405. The city’s higher-income neighborhoods which include Hell’s Kitchen and Chelsea regained their 1970 population levels by 2000. However, the population in other gentrifying neighborhoods in 2010 was still approximately 16% below its 1970 population. The growth of the neighborhood strengthened with the introduction of the special districts. These district rezonings took place to appease the long-term residents and to accommodate the new master plan for New York City in 1970. The rezoning called for the preservation of its character of low rise family apartments, while also encouraging urban infill projects. In exchange for the special zoning district, the residents agreed to allow the approval of the new Jacob K. Javits Convention Center on a 44th Street site which would replace Piers 84 and 86.

Much has changed since the implementation of the Special Zoning District. In the past 15 years, the area has become an increasingly upscale neighborhood caused by the influx of young professionals. Rents in the neighborhood have increased dramatically above the average in Manhattan. It has also acquired a large and diverse community as residents have moved north from downtown and neighboring Chelsea and West Village neighborhoods.

Since 2000, Manhattan’s foreign-born population has only grown minimally by about 2% and reached 461,000 in 2011 making Manhattan, after Staten Island, the most Caucasian borough. Latin Americans account for 40% of all immigrants as compared to 32% share in the city overall. There is a small presence of immigrants from the non-Hispanic Caribbean countries who accounted for just 4% of all immigrants, which is much smaller when compared with their 19% share in the city overall. Foreign-born
Asians composed of 30% while Europeans accounted for 19% which was slightly higher compared with their shares among all immigrants in the city.

The Dominican Republic was the largest source of immigrants in Manhattan with 109,800, or 24% of all immigrants. The Chinese accounted for 14%; meanwhile, Mexicans accounted for 5%. While the major European foreign-born groups in the other boroughs tend to be Russians, Ukrainians, Italians, and Poles, the top European sources in Manhattan were western European such as Germans, French, Spanish, and Italian. Keep in mind that in many Manhattan neighborhoods, the foreign-born include a relatively high proportion of non-immigrants, such as diplomats, students, and business personnel.

The largest number of immigrants in Manhattan was in the northern section. Upper Manhattan, had a total of 203,400 immigrants, this area includes Washington Heights, which has one of the largest (80,200) and densest concentration of immigrants (49 %) in the city. Lower Manhattan section had 93,000 foreign-born residents, half of which lived near Chinatown (56% of total) and the Lower East Side (31% of total). The East Side of Manhattan had 78,800 foreign-born residents who made up a relatively small proportion of the overall population. Meanwhile, the West Side and Midtown section of Manhattan was home to 78,500 foreign-born residents. In general, the people of Chelsea tend to be predominantly white with 62% of the population being of Caucasian decent which is high compared to 26% average citywide. Also surprising is Hell’s Kitchen and Chelsea have one of the highest percentages of residents with a bachelor’s degrees or greater with 65% as compared to only 36% citywide.

Much like the East Side section of Manhattan, there was no single dominant foreign-born group on the West Side and Midtown Manhattan. The overall foreign-born population was disproportionately European and Asian. In the Upper West Side neighborhood, the United Kingdom, China, Canada, France, and Germany were all top countries of birth.
Current socio-economic data for Hell’s Kitchen and Chelsea comes directly from American Community Survey (ACS). The average household income in Chelsea, for which data is displayed above, is $129,264 per year which makes it a 19% increase from only ten years prior and a 41% increase from 20 years prior. This is at odds with a mean high-income neighborhood income of $75,465 annually.

4.7 Current Housing Market

According to the Furman Center, Chelsea, Hell’s Kitchen and Midtown are considered higher-income than most Manhattan neighborhoods. This, however, has not sheltered them from the effects of gentrification. Overall, residents of Midtown West have seen a 51.8% increase in average rent prices since 2000. Rent growth was modest in most higher-income neighborhoods, and it was during the 2000s that rent growth accelerated dramatically citywide. Although higher incomes neighborhoods did not experience rent increases as steep as most other neighborhoods, they still saw a 16.1% increase in average rent between 2000 and 2014.

This greatly affects vast swaths of New Yorkers. Nearly 70% of households in New York City rented their homes in 2014, almost twice the national rate. Manhattan had one of the highest percentages of rental at 77.3% second only to the Bronx with 81%. However, this has been the case since the 1970's. Only in the years before the recession in 2009 did the share of households that rented decline. 2006 claims the lowest rental rate of 65.6% of households since the mid-1960’s.

Also, the percentage of households considered debt-burdened has increased dramatically. Typically, a household spending 30% or more of its pre-tax income on rent and utilities is considered to be in a rent burdened situation. Using this threshold, the Furman Center also determined that “to afford a unit renting at the 2014 median gross rent of $1,277 per month, a household needed to earn an annual income of at least $51,080. The median household income for New York City in 2014 was
$41,210—almost a full $10,000 less. A household looking to move into a rental unit needed to earn even more—$112,000—to afford the median asking rent for listings on of $2,800."

Data pertaining directly to the area of Midtown West is clear. Median rent as reported by the Furman Center shows an overall current median rent of $2,064 as opposed to $1,716 in 2009 which is a dramatic increase of 20.3% ranking it 3rd in New York City. This number considers all rent including rent controlled units. The median asking rent, however, was as high as $3,490 per month. It also saw one of the greatest increases ranking it at 4th in units authorized by new residential building permits with 4,097. However, these numbers do not include the additional units authorized by the Hudson Yards project as these numbers are for 2014, meanwhile the Hudson Yards project was approved in early 2015. Median sale price of a condominium in Midtown West was $1,324,432 meanwhile households considered rent burdened was 25.9%.

4.8 Public Participation Plan

As part of the State Facility Air Permit Application, the applicant is required to produce a Public Participation Plan, the purpose of which is to provide stakeholders information about the project and permit. As per the requirements for the application, there are six tasks mandated which must be completed with respect to the Hudson Yards. 40

Task 1 – Identify the Affected Area

Task 2 – Identify the Stakeholders and Create an Outreach Contact List.

• This should include: Residents, property owners, and neighborhood groups who reside or are active in the vicinity of the proposed project.
• Neighborhood environmental, business and religious groups.
• Local community and civic organizations including Manhattan Community Boards 4 (CB4) and 5 (CB5) and other appropriate state, local, and elected officials.

Task #3 – Preparation of Written Information

Written information on the proposed project and the review process was to be prepared for posting and distribution. The materials should be written using clear terminology with emphasis on avoiding legal or overly technical phrasing. Materials to be prepared by the PPP includes:

• Project Fact Sheet in both English and Spanish
• Information Availability Notice in both English and Spanish
• Newspaper Advertisements regarding the open Public Information Session in both English and Spanish
• Complete State Facility Air Permit Application
• State Environmental Quality Review Act (SEQRA) Full Environmental Assessment Form (FEAF) and attachments
• Environmental Justice Analysis

Task #4 – Establishment of Repositories & Distribution of Project Information

As part of the PPP, the 4th task requires the establishment of public Document Repositories at locations close to the project site and readily available to interested parties. Typically, these locations include local libraries and Community Board offices as well as other locations in addition to an online repository.
The information included will be in accordance with the established guidelines outlined in Task #3. Also included in the repositories will be information prepared for the proposed project’s PPP in addition to any copies of the permit applications once they are approved.

**Task #5 – Conduct Public Information Session & Informational Briefings**

In accordance with Task #5 of the PPP, one Public Information Session (PIS) will be held at an easily accessible location within the outreach area.

The PIS is not to be publicized any later than three weeks ahead of the meeting date so as to give stakeholders reasonable notification of the information session. Publications should be made via newspaper advertisements which should be published in the Chelsea Clinton News, so as to satisfy the English newspaper requirement, and El Diario, thereby satisfying the Spanish printed ad requirement. These are newspapers of local circulation in the 20 Hudson Yards facility PPP outreach area.

In addition to newspaper ads, a mailing including a Project Notice announcing the project’s PIS, as well as a copy of the Project Fact Sheet will be prepared for the project for delivery to all parties on the Contact List. The Project Information Notices must include:

- The name of the project sponsor and the project’s name and address
- A description of the project information available
- An explanation of why the project information is being sent
- The time period being provided for submitting comments on the project
The contact information for any questions about the project information
Where and when to find the answers to any questions or comments submitted

Task #6 – Preparation of PPP Outreach Summary & Certification Document

A written summary of the actions conducted under the PPP should be prepared and submitted to the Department of Environmental Conservation (DEC). This report must include:

- A summary of the plan implementation including any important meetings
- Methods used to involve the public and solicit outreach
- Time and date of the Public Information Sessions or Briefings
- Any essential issues raised during outreach activities or the public comment period
- Description of how the issues raised were attended
- A description of any unresolved or outstanding issues

This will serve as the project’s Certification Document and will become part of the permit application. Once complete, it will be made available to the public at the document repositories.

4.9 Hudson Yards Environmental Impact Statement

An Environmental Impact Statement (EIS) is a document required by Federal and New York State law which is prepared so as to describe the effects of proposed development activities on the environment. The term environment, although often understood as meaning the natural environment, in this case, is understood as the relationship of the project to both people and nature. Therefore, the EIS must include
not only natural features such as land, water, air and animals, but also takes into account human structures, humans and their social, cultural, and economic aspects. An EIS not only assesses the impact of proposed changes, but also suggests ways to mitigate or offset those impacts and adverse consequences of development.

The baseline for an EIS is understood as the "no action" scenario or alternative. Every EIS is required to analyze a "No Action Alternative" as it is used to identify the expected future environment should the existing conditions were left as is with no development action taken. This analysis is compared against the action alternatives so a decision can be made regarding the approval of development or modification of existing development plans. Often a cost analysis for each alternative, including costs to mitigate expected impacts, are used to determine whether the proposed development is beneficial or detrimental.

The EIS takes into consideration many of these “actions” and analyzes their impact, however, most often the EIS focuses on the following areas:

- **Cultural Impacts** – Actions that impact historical or cultural sites
- **Natural Impacts** – Such as threatened or endangered species; Air and water quality
- **Social Impacts** – Impacts to local communities such as displacement of families, impacts to housing stock, aesthetic impacts or increase in noise.
- **Economic Impacts** – Includes impacts, both positive and negative, to businesses, property values or jobs.

Regarding the development of the Hudson Yards project and in accordance with the project’s request for a State Facility Air Permit and the Zoning Resolution changes, the Hudson Yards produced an EIS outlining the following impacts for the facility being applied for in the permit:
The following is a summary of the results of the Environmental Impact Statement:

- **Land Use, Zoning and Public Policy**

Regarding the future proposed project, the EIS of the Hudson Yards project suggests that the site would be developed with the same amount of residential, office and retail space as it would with a no action scenario and therefore the project has no effect on the land use of the site. In fact, the EIS states that “The Proposed Action would significantly improve conditions in the Project Area, would not result in significant...
adverse impacts to land use, and would be consistent with zoning and public policies affecting the study areas."41 Although the project is not currently located within the Coastal Zone boundary, a pending revision to the Coastal Zone boundary would eventually include the site. Therefore, the EIS does include a Coastal Assessment Form and an assessment of the Waterfront Revitalization Plan, however, the EIS does go on to state that the site “has no relationship to the waterfront. It is located over 1,000 feet from the water’s edge, and is separated from the waterfront by the western portion of the John D. Caemmerer Rail Yard and Route 9A, both of which limit visual and physical access to the Hudson River waterfront and the project site.”42 Also, the project would not limit existing access to the waterfront and nor negatively affect any of the goals of the Comprehensive Waterfront Plan, and therefore, the project need not be studied further regarding this context.

- Socio-Economic Conditions

In the State of New York, a socioeconomic assessment should be conducted if an action may reasonably be expected to create substantial socio-economic changes within the development that would normally not occur with a no action scenario. Therefore, according to the Hudson Yards EIS, actions that would require the analysis involving substantial socio-economic change include:

- The direct displacement of 500 or more residents or more than 100 employees
- The direct displacement of a business that is uniquely significant because its products or services are dependent on its location
- The development of 200 residential units or more or 200,000 square feet (sf) or more of commercial use that is markedly

different from existing uses, development, and activities in the neighborhood.

- The development of 200,000 sf or more of retail on a single development site, creating the potential to draw a substantial amount of sales from existing businesses within the study area.

- Impacts on a specific industry; for example, if it would result in the loss or diminution of a certain product or service that is important within the City\textsuperscript{33}

According to the EIS, “The Proposed Action would not result in significant adverse socioeconomic impacts related to direct or indirect residential displacement, to direct or indirect business and institutional displacement, or to specific industries. The Proposed Action would result in substantial economic activities and benefits that would accrue to the New York City and New York State economies.\textsuperscript{44} Also, because the proposed project would not result in the direct displacement of any residents or businesses, nor would it result in an increase in commercial or residential development as compared to the no action condition, no further analysis was necessary.

- Community Facilities and Services

According to the Hudson Yards EIS, the project would not displace any community facilities such as schools, libraries or health facilities. Therefore, the proposed project would not result in any significant direct effects on community facilities and services. Also, the proposed project is not anticipated to result in the physical loss of public open space nor create a sufficient number of new residents or workers to reduce the site’s existing open space from serving the existing or future population. In fact, it goes on to mention that the proposed development is expected to increase open public space by


\textsuperscript{44} Final Generic Environmental Impact Statement. No. 7 Subway Extension—Hudson Yards Rezoning and Development Program. Tech. New York City: City of New York City Planning Commission (CPC) and Metropolitan Transportation Authority (MTA), 2004. Print.
23 acres. However, there would be expectations that the development would increase potential demands on Firefighting services and public schools as well as publicly funded daycare programs. Therefore, according to the EIS requirements, no further assessment of open spaces would be necessary.

- Shadow Study

Among the negative impact of the shadow studies done by the EIS, it suggests that there would be no negative impacts caused by shadows with the exception of James A. Farley Building and St. Raphael’s Catholic Church. As per the EIS report, “St. Raphael’s would be affected by incremental shadows during the 2025 Future with the Proposed Action. The rose windows would be affected by a significant adverse impact from additional shadows resulting from the projected 500-foot residential tower between West 40th and 41st Streets and the commercial and residential towers projected on Tenth and Eleventh Avenues between West 38th and 39th Streets."45 The EIS goes on to say “Mitigation measures for each of these historic resources were considered, including the reduction of the heights of the projected developments around each resource. Such reductions were determined to be unreasonable and infeasible, as they would result in substantially reduced development at three projected development sites.”46

- Historic and Cultural Resources

Unfortunately for the High Line, the development of the Hudson Yards project is going to see significant adverse affects on its structure. The EIS explains that although

development would not result in significant adverse impacts on any city landmarks, it would have significant impacts on the High Line in 2010 and 2025 due to construction of a Multi-Use Facility, which would partially remove sections of the High Line viaduct north of West 30th Street and west of 11th Avenue. Mitigation suggestions have included photographic documentation and salvage of the sections removed.

- Urban Design and Neighborhood Character

Neighborhood character has been a top priority for the Hudson Yards projects according to its stated goals as well as within the rezoning and redevelopment plan. With this in consideration, the EIS suggests that the future development of the Hudson Yards and its rezoning is “expected to substantially improve the urban design and have no significant adverse impacts on visual resources. The Proposed Action would fundamentally alter and dramatically improve the urban form of the Project Area, replacing drab and underutilized urban landscape with a mix of new office, residential, convention, entertainment, and recreational facilities, and a substantial amount of open space integrated into the built environment”. The EIS goes on to state that “The Proposed Action would dramatically improve neighborhood character in the Project Area and have no significant adverse neighborhood character impacts. Large areas of the underutilized urban landscape would be replaced with the dense, new, active and lively 24-hour mixed-use Hudson Yards community.”

- Natural Resources, Waterfront Revitalization Program, Infrastructure, Solid Waste and Sanitation & Energy

As per Natural Resources, Hazardous Materials, Waterfront Revitalization Program, Infrastructure, Solid Waste and Sanitation & Energy, the EIS suggests that the

development and rezoning of Hudson Yards as has been proposed would create “No significant adverse impacts”. ⁴⁸

- Traffic, Noise, Parking and Pedestrians

The development process would have negative traffic impacts as well as adverse impacts relating to individual subway stations, bus routes, and pedestrian features in 2010 and 2025, however, the majority of these impacts could be mitigated through traffic engineering and other mitigation measures. Meanwhile, the potential of significant noise impacts can be mitigated through the use of City sponsored window-replacement programs.

- Irreversible and Irretrievable Commitments of Resources

With the construction of such a large-scale project, it is inevitable that certain environmental resources be used that will inextricably not be available for future use. According to the EIS, “Approximately 567,000 cubic yards of concrete, asphalt, sand, and gravel and 3,000 precast concrete segments, approximately 357,000 tons of steel and other construction materials, approximately 9.5 million square feet of glass and drywall, and approximately $5.8 billion of funds (2003 dollars) would be irrevocably committed to the No. 7 Subway Extension, the Convention Center Expansion and the construction of the Multi-Use Facility”. ⁴⁹ Also, mentioned in the EIS is “the construction of the approximately 40 million square feet of commercial and residential development that would result from the proposed rezoning and related land use actions would also require the irreversible and irretrievable commitment of energy, construction materials, human effort, and funds. Approximately 9.7 trillion BTUs of energy would be needed

annually to operate the various elements of the Proposed Action." In addition to the physical loss of land and materials, the EIS takes into account here which it did not earlier, the use of fire, safety, educational, and medical services which might have otherwise be used for other programs or projects.

5.0 CRITICISMS

5.1 Socio-Economic

When speaking regarding redevelopment, especially one of such a large scale in an old neighborhood, the first thing that comes to the mind of most public awareness advocates is the term “gentrification”, and it certainly was no different for Juliet Kahne of the NGO, Project for Public Spaces. Gentrification is the term to describe the displacement of long established businesses and residences as a result of increased property values. In her article titled “Does Placemaking Cause Gentrification? It’s Complicated”, Kahne observes that “when local officials, developers, or any other siloed [sic] group prescribe improvements to a place without working with the community, no matter how noble those groups’ intentions may be, it often alienates locals, provokes fears of gentrification, and increases the feeling and experience of exclusion. This kind of project-led or design-led development ignores the primary function of Placemaking – human connection.” 50

Although the Hudson Yards development project has completed the requirements for the Public Participation Plan, the Environmental Impact Statements, and the addition of Inclusionary Housing requirements, there has still been what could be seen as a disconnect between the reality of introducing a project of this magnitude to an area of the city whose primary character has been characterized by low-rise apartment

buildings for over 100 years, and the stated goals of the rezoning plan. In contradiction to their stated goals and values following the rezoning of the district, the City Council approved the construction of the Hudson Yards redevelopment project, which completely alters the face and character of the existing neighborhood, irrespective of how many steps are taken to try and prevent it.

One example comes from the Environmental Impact Statement, which reports that the development of the Hudson Yards “would not result in significant adverse socioeconomic impacts related to direct or indirect residential displacement, to direct or indirect business and institutional displacement, or to specific industries. The Proposed Action [Hudson Yards Development] would result in substantial economic activities and benefits that would accrue to the New York City and New York State economies.” While the report acknowledges the direct displacement of 85 total housing units in the redevelopment area, it seems to feel that the number of residents displaced would represent a small percentage of the overall population, and that their displacement would not result in a substantial loss of the population that characterizes the current neighborhood.

The EIS goes on to justify the indirect displacement of residents because of already existing conditions causing the displacement of said residents. Because “a substantial amount of new residential and non-residential development would be added to the Hudson Yards community, a community already in transition with higher income residents moving into the area, an analysis of ongoing existing and projected income and population trends, the new population introduced by the Proposed Action, and the housing stock still remaining after the Proposed Action, the assessment finds that the Proposed Action would not displace substantial elements of one or more components

of the population so as to alter the socioeconomic composition of the area". Even though the project according to the EIS would add a considerable new population, “its socioeconomic character would not differ from that of the current and projected population,” which of course seems rather unreasonable.

Critics are justifiably concerned that the changes likely caused by the development of the Hudson Yards project as-is will most likely create a situation of both short term and long term gentrification. This would irrefutably alter the makeup of not only the physical attributes of the neighborhood, but its socio-economic makeup as well.

While social criticisms come into play in regards to the Hudson Yards project, an equal amount of criticism comes regarding the fiscal policy of the administration. Critics say the administration’s policies have encouraged an economy of stagnant wages and rising rents in the city of New York, where 46% of New Yorkers live at or near the poverty line. The administration was also criticized for what many viewed as a policy of subsidizing large-scale development in the city. Many critics point to the incentives for developers to build at the Hudson Yards as unnecessary tax breaks. James Parrott, deputy director and chief economist at the Fiscal Policy Institute in New York City, commented to the Boston Globe that tax breaks and incentives in Manhattan are, “a giveaway to developers, a giveaway that will ultimately cost the city billions of dollars.” Ultimately, New York City offered tax breaks of up to 65%, which many views as an unnecessary handout to businesses who will make windfall profits by building in one of the most profitable real estate markets in the country.

This comes on the heels of a New York City Independent Budget Office (IBO) report which states that between the years 2006 and 2012, the Hudson Yards has generated 40% less revenue from taxes and fees than what was initially estimated. The project

has only created $170 million in revenue up through 2012, some $113 million lower than the $283 million it had been anticipating.\textsuperscript{54}

Because the city backed $3 billion in infrastructure bonds with guarantees through tax revenues, the city finds itself responsible for the difference should the Hudson Yards Infrastructure Corporation be unable to generate the required revenues to meet the interest payments on the bonds. In short, if the project is unable to self-sustain itself as promised by the Bloomberg administration, the taxpayers will fund the difference. Therefore, the additional money will be drawn from the city budget, which it has done already between 2006 and 2012, when the city gave the Hudson Yards Infrastructure Corp. $137 million from the general city discretionary budget to help cover the difference in interest payments.\textsuperscript{55} According to the IBO, the city also earmarked an additional $125 million in interest payments to the HYIC for 2013.

Not only does this have consequences for the immediate project, but it also has long-term ramifications as policy makers and officials must also consider the costs of maintenance, particularly that of open space and parklands. The creation of new parkland in New York City is a concern considering the maintenance budget for new parks does not seem to be increasing at the same rate as the creation of new park spaces. This was brought up by Holly Leicht, executive director of New Yorkers for Parks, who was quoted saying, “The big concern is that already the maintenance budget has not kept up with the existing supply of parkland, much less being enough for additional parks.”\textsuperscript{56} This is of particular concern regarding the Hudson Yards, which by its completion will have added 14 acres of open public space which will be maintained using an already dwindling budget. According to the Wall Street Journal, public money available to take care of the already existing 30,000 acres of city parkland

began to dwindle when the recession hit. The New York City Department of Parks and Recreation maintenance budget fell to $337.5 million in 2013 from $367 million in 2008.

Proponents and supporters of the project claim that the jobs created, not only during but after the development of the project, will justify the tax incentives offered by the city. In addition to the jobs created, proponents claim this revenue is in addition to the revenue produced through income, sales, property, and business taxes created by the project. These claims are supported by the EIS, which states, “total capital expenditures of approximately $23.5 billion through a combination of public and private investment” only during the construction of the project. This is in addition to “the associated fiscal effects from new tax revenues for New York City and New York State which are estimated to generate approximately $1.47 billion,” of which the city would receive $689.4 million per year by the time of its completion in 2025.

Another report released as recently as May 2016 by the IBO seems to support both claims. The report states, “The Hudson Yards Infrastructure Corporation (HYIC) collected higher than anticipated revenues from development this year—although still well-below initial forecasts—allowing the city to eliminate its $58.1 million interest support payment planned for 2018 and reduce an $89.8 million payment budgeted for 2019 to $26.8 million.” While the project is in fact generating a certain amount of revenue, it continues to put the city at a substantial loss. Hopes by both supporters and critics is that the initial estimates by the EIS are correct, and that its revenues will exceed its expenditures, otherwise, the Hudson Yards project could come at a substantial cost to taxpayers for many years to come.

5.2 Design Critique

Criticism is not limited strictly to economic and social issues. Many outspoken residents feel the design and weight of the project completely shift the focus of Manhattan from its historical center. Carter Horsley, a prominent New York architecture critic, claims that “The Hudson Yards will dramatically shift much of the skyline’s visual weight away from the center of the island and the Empire State building which for decades was the focal point of the Manhattan skyline.”59

It is true that the focus of the skyline seems to be shifting more uptown, especially with the addition of the new residential tower at 432 Park Avenue on the southern side of Central Park. Once completed later this year, it will be the tallest fully residential tower in the world standing at 1,396 feet. A project of this size in combination with the construction occurring along the river at the Hudson Yards certainly makes a strong case for the loss of historic character.

In addition to the boom in construction currently being experienced, recent statements by the administration has it considering yet another rezoning plan of the area surrounding Grand Central Station to allow for the construction of taller buildings. This will obviously have economic and visual impacts for the city, as well as the Hudson Yards. Should a rezoning and redevelopment take place so close to the Hudson Yards project, there is uncertainty as to how this will affect the ability of the Hudson Yards to maintain residential, and more importantly, commercial tenants.

An additional criticism, this time, offered by the Hudson Yards Community Advisory Committee (HYCAC), suggests that the site density of the project is far too high. In an open letter to the MTA, the HYCAC writes, “The base floor area ratios (FARs) of 11 on the Eastern Rail Yard (“ERY”) and 10 on the Western Rail Yard (“WRY”) seem

reasonable until you realize that they are calculated across the entire site, including open space and streets. Excluding open space and streets (as parks and streets are excluded elsewhere in the City), the effective density of these proposals is in the neighborhood of 25 FAR. That is, to our knowledge, an unprecedented density over such a large area anywhere in the City, and far exceeds what can be considered good planning for the future of the City or the local community.\textsuperscript{60}

The HYCAC goes on to criticize the development of “big open space”, and calls on the council to consider making “real New York City blocks” out of the project. Their current criticism of the project is that the Hudson Yards seems to isolate itself physically and economically. The HYCAC suggests that attempts should be made to incorporate the project into the existing fabric of the city. They recommend several actions such as:

- \textit{Reintroduction of the street grid and break down of the superblock}
- \textit{The construction of buildings along both sides of 11th Avenue}
- \textit{The creation of individual development parcels with street frontages}

During the public review and comment meeting of the Draft Generic Environmental Impact Statement (DGEIS) published in June 2004 for the No. 7 Subway Extension and Hudson Yards Rezoning, many groups came out in support and opposition of the planned development.\textsuperscript{61} Community Board 4 and the Hell’s Kitchen Neighborhood Association both came out in strong opposition to the project citing many negative or adverse consequences of development. Adverse effects of the project including the construction of excessive amounts of commercial space, failure to include enough protected and inclusionary housing, the accelerated gentrification and displacement of existing low- and middle-income residents, and a reduction of access to the waterfront.

In a non-surprising manner, all of these comments were refuted by the Hearing Committee as per the Environmental Impact Statement.

While there were obvious negative criticisms and sentiments towards the Hudson Yards project, there are also voices of support at the public comment session. Groups such as the American Institute of Architects came out in support for the project stating, “While we recommend refinements to the plan and by implication to the zoning needed to implement such refinements, such requested improvements will only strengthen what is an admirable piece of work.” In fact, many community groups and organizations did come out for the proposed project. The Citizens Housing Planning Council encouraged the expansion of public land.

With this being said, there is undoubtedly room for improvement. The project would benefit from the inclusion of more protected housing, and the site does seem to be entirely too big for the scale of the city. While the socio-economic and designs require reconsideration, the emphasis now that the project is underway should be on redeveloping the planning process. This would help to prevent future projects from committing the same mistakes as this one.

5.3 The Environmental Impact Statement

Perhaps the greatest critique of the building and zoning process in New York City is its heavy reliance on the Environmental Impact Statement. The reality of reporting is that there are differences between the science, analytics, and politics of an EIS, all of which can be subject to misconstrued, misinterpreted, or altered data, which come from a wide variety of sources. Because data is open to interpretation by many people, it is also subject to perspective bias, which can go on to reduce the statement’s impact.

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The impact of what some would deem as bias is even more influential in cases where the public relies on a government agency to interpret the data and work in its best interest. Not only does this erode confidence between the government, its officials and the public it is elected to serve, but it can also lead to dramatic and often adverse consequences.

In addition to the potential for bias in data interpretation and analysis, there are also limitations based on time constraints and motives. Because an Environmental Impact Statement is produced by a government agency, and the CPC is under the direct advisement of the Mayor’s administration, the EIS can be swayed from impartiality depending on the bias from the Mayor’s office. Irrespective of any potential bias, the EIS is only a tool designed to gather, analyze, and interpret data. Assuming that all these actions go smoothly, and researchers present facts and actions free of bias in the best interest of all, the policymakers, which in this case include the City Council, can still choose to either deny or enact the plan as they see fit. This It is important to keep this in mind while examining the statements made by the EIS and the observations were regarding the Hudson Yards EIS:

In the Final Generic Environmental Impact Statement (FGEIS), the impression the report gives is one of an advertisement for the Hudson Yards project by understating the adverse impacts while overstating the positive ones. As explained in the last paragraph, the EIS, although a tool used to analyze the impact of potential zoning changes and development, is by its very nature an extension of the administration’s policy. Using the no action scenario as the baseline, and considering that the current land use of the site is a rail yard, there in certainly no denying that development of the site, regardless of its final form, would most likely provide more benefit than detriment. However, the FGEIS for the rezoning project fails to fully consider the fact that the single largest redevelopment project in the history of the United States is most likely going change not only the character of the site, but also the neighborhood, and the way that citizens interact with it. Unfortunately, there were perhaps several
shortcomings of the EIS concerning land use, facilities, and the existing neighborhood character.

Using the Land Use chapter in the FGEIS as an example, the report claims that the site will have no “no relationship” to the water, and it fails to take into consideration that upon the completion of a 90 story building, there is likely to be some relationship, albeit not direct. While the development of the Eastern Rail Yard will not yield a direct connection with the waterfront, the development of the Western Rail Yard will, irrespective of the highway. It would not only be to the benefit of the city to acknowledge this connection, but it would do the developers well to tie their project more closely to the proposed Hudson River Park. Acknowledging this connection, however, would most likely lead to further environmental impact studies; something the city and developers are certainly hoping to avoid. This was perhaps a way to avoid further “red tape” and speed up the project approval.

Another criticism of the EIS is the use of the “No Action” as the baseline. For example, the proposed development project suggests that it will have no significant adverse effects on the zoning and land use when compared to the no action condition. As stated in the EIS, the project “would greatly improve conditions in the Project Area, and would not result in significant adverse impacts to land use, and would be consistent with zoning and public policies affecting the study areas.” This statement is, of course, true due in part to the rezoning and zoning text changes. However, this project when compared to the existing conditions has huge impacts and implications for the site, the neighborhood and the city.

On its website, www.hudsonyardsnewyork.com, the project claims to “create a new neighborhood from the ground up.” The sheer action of “creating a neighborhood” would carry substantial and significant socio-economical ramifications. This is not to say the consequences of the project would be either all bad or all good, but to say outright that there are no consequences at all is extremely incongruous.
Also included in the EIS for examination is the proposed development’s effect on existing public facilities. Although it is true that the site would not adversely affect or reduce the number of public facilities (in fact the project is expected to expand facilities with the construction of a public school), the EIS denies that the proposed scale of the project will require an increase in demand of public services. Should the project come to fruition and expand the population of the site by 300,000, few could deny that further pressure public services will occur. This also includes strains on infrastructure which the EIS currently feels is adequate enough to handle the project, which is expected to create 17,560,000 square feet across 14 acres. Therefore, it is in the option of this paper that the implications for infrastructure, waste, and energy facilities have been grossly understated.

In addition to denying the need for facility expansions, it proposes the removal of historical patrimony by removing certain sections of the High Line. The growth and resurgence of the High Line are often credited with the resurgence of Hell’s Kitchen and Chelsea neighborhoods. Unfortunately, suggestions regarding the removal have not included including reusing the removed sections, nor incorporating the sections into some other location. This could be seen as a missed opportunity to salvage what still seems to be the “lifeline” of New York City.

One final criticism regards the character of one of the oldest and most historic neighborhoods of New York City. One of the Hudson Yard’s stated rezoning goals was to preserve the character of the neighborhood and its surroundings. According to the EIS, “the Proposed Action would dramatically improve neighborhood character in the Project Area and have no significant adverse neighborhood character impacts. Large areas of the underutilized urban landscape would be replaced with the dense, new, active and lively 24-hour mixed-use Hudson Yards community.” What one group calls improvement, perhaps another would view as depreciation. Hell’s Kitchen and Chelsea have always been low rise tenement-type neighborhoods since the late 19th century. While the EIS is unashamedly in favor of the rezoning and redevelopment of the Hudson Yards, the belief that the creation of a $25 billion project hailed as “a city within
a city” would be unlikely to alter the character of the neighborhood is unacceptably unjust, quite contrary to the responsibility of the administration to consider equally and evenly the application of zoning tools and the planning process.

It is evident after reading the EIS that the city administration was in full support of the project, however, the task of any administration is to guide and plan a more sustainable and economically vibrant community that is inclusive and responsive to all citizens regardless of their background or economic situation. Unfortunately, it is the opinion of the writer that this EIS has grossly underestimated the potential impacts of such a large-scale development on the site, and while there is no doubt that the project is most likely going to reap economic benefits, there is doubt as to what the actual cost of those benefits will be.

5.4 **Failures of the Planning Process**

Currently, there are two principal methods for examining the preferences of park land and open spaces in New York. The first, which only occurs during the design of a public park or in some cases a Public Private Partnership (PPP) of public land, takes place through the Community Parks Initiative Process (CPIP). During the CPIP, in-house designers of the New York Department of Parks and Recreation (NYDPR) reach out to the community to determine first hand what elements and activities they would like to see in the park.

Community development could be achieved through a scoping meeting which is an opportunity for the residents to input their ideas by re-imagine the park and offering suggestion. After feedback and input from the community are collected, the site can begin the capital project process. Because not all projects undertaken are done so on land specifically managed by the NYDPR, other agencies such as New York City Economic Development Corporation or the New York City Department of Design and Construction will implement particular projects. However, because these actions do
not require changes to the zoning resolution or other large scale capital improvements, many times the CPIP is the only opportunity the community has at being heard regarding development and design of their neighborhood parks.

The second opportunity and process that allows for community input come from a process already discussed in detail above; the Uniform Land Use Review Procedure (ULURP). As mentioned, the ULURP allows for public input at several stages of the process, and this is regardless of where the project is being built, who is building it, or who is funding it. As long as a ULURP procedure is required, the public is guaranteed input.

The issue facing the ULURP community input is that it is limited to a forum designed review session, so only comments can be made regarding design features. Because there is no community outreach, i.e. design critiques, schematic and conceptual plan discussions, nor is there interaction with all members of the community particularly younger members, there remains a limited input of ideas which inherently limits the output of designs.

Therefore, a stated failure and critique of the two current community design processes are summed up rather simply:

1. The Community Parks Initiative Process does not review or engage the public regarding all park projects. This is as much an administrative failure as a design failure, as requiring public input would surely encourage neighborhoods to respect and value their open spaces through equity and personal investment. In cases where public input is accepted through the CPIP, the recommendations and input stop after the schematic design phase, thereby not allowing the continued development of the public space.

2. The ULURP process takes into consideration the ideas of the community through public forums. However, these forums do not typically produce tangible results. By the time the ULURP process has been initiated and the project is at the public
comment / review stage, the general designs have already been submitted and therefore, short of a major flaw in the design scheme of the project, the community’s input with respect to the design of the open space is rarely taken into consideration by the developers.

Parks and open space would certainly benefit from an expansion of community involvement, particularly through the channels of the Community Boards. Unfortunately, more community involvement would not be enough. It is also important to include planning sessions early in the process to avoid wasting time on designs that won’t fit the community’s needs, as well as several times throughout the project’s development. This would most likely give the community the feeling of equity as well as continued interest in the development of public works.

6.0 CHOICE MODELING & THE HUDSON YARDS

6.1 Introduction

In economics, choice modeling is used to study the decision making and demand of consumers when choosing between two or more alternatives. While choice modeling can be performed using a variety of methods, they all have shared objectives. Choice models investigate the choice preferences of consumers while attempting to determine correlations between a good's various attributes. In doing so, the model aims to establish the willingness of consumers to pay for those attributes, making choice modeling one of the most suitable study methods for estimating a consumers’ willingness to pay for attribute improvements.

While the use of choice modeling analysis has been utilized in the fields of economic and marketing research, its inclusion in real estate development is somewhat recent. Currently, choice modeling methods such as discrete choice models, contingent choice models, and qualitative choice models have all been used to study consumer
preferences in fields including transportation development and product development. Choice modeling studies offer advantages over other forms of study methods as its applicability to the planning process, and the ease with which a survey can be constructed, makes it applicable to a variety of projects.

Inside the field of this market research lies two distinct yet related approaches to choice modeling analyses. The first is Stated Preference modeling which refers to the explicit choices individuals make based on the values that they directly assign to a good, and studies the respondent’s expressed preference for those goods. The second, Revealed Preference modeling, is an indirect method for studying the implicit preferences of a subject. Through proper design, a revealed preference model can estimate the respondent’s implicit desires through their explicit choices.

While choice models are considered one of the best ways to research consumers’ preferences of market goods, the strength of the model comes directly from the designer’s ability to determine and present the most relevant attributes. This, of course, depends on the stated goals of the specific project. However, without a clear understanding of the attributes and levels being examined, the model will be ineffective in determining any correlations inhibiting its ability to achieve its objectives.

The purpose of the following chapter will be to suggest the attributes and levels for potential choice models, justify their application to the project, and their possible applicability to the design and development process, with particular application to Phase II of the Hudson Yards development project. These choice model attributes will be informed by the content of the previous bibliographic study which has outlined the various processes and considerations regarding the development of the project to this date.
6.2 Theoretical Framework

When talking about choice modeling, in particular, discrete choice modeling, it is difficult to have a conversation without mentioning the Nobel Laureate Daniel McFadden. McFadden became famous after winning the Nobel Prize in economics for helping to develop the theoretical framework for Random Utility Theory and Discrete Choice Analysis. In his 1968 study regarding the San Francisco bay area rapid transit system, he successfully implemented the use of revealed preferences.

McFadden’s work went on to lay the foundations for the development of other theories and choice analysis methods such as conjoint analysis. Conjoint analysis aims to:

“parse the appeals of a product [or concept] into a set of factors, assign utility values to the separate levels of each factor, and finally, under the assumption of separability, determine the utility value of any product or concept by adding (or multiplying) the utility values of the individual levels of each of the factors embodied in the product or concept.”

Much of current choice research is also based on Lancaster’s Theory of Value in which respondents of a survey are asked to choose from any number of predetermined options containing levels, and within each level, a number of attributes. Using the respondent’s answers, researchers can then determine each of the attribute’s utility, or ranking, and therefore in this context, can be used to break down the individual components of a project to determine the respondent’s preference.

These techniques are also based on two assumptions. The first is that products can be described using only the given attributes listed, and the second is that the products being described are products of those collective attributes. Therefore, deciding the

proper selection of levels and attributes becomes critical. Therefore, when a choice model is applied to any project, it must be thoroughly researched and understood. While the two assumptions may weaken the case for choice models, both stated and discrete models do come with certain advantages, one of the greatest being its ability to examine the value of an attribute simultaneously while identifying its relative value in comparison to the other attributes.

By doing so, it can partially define the extent that the subjects are willing to trade-off on an attribute for another, such as cost versus quality, and allows developers and designers to measure trade-offs made by respondents when choosing from a number of alternative product options.

6.3 Applications

The application of Choice Model analyses for market research is well documented and relatively straightforward. However, its application in real estate development projects and open space improvement projects is still relatively new. The survey, when presented properly, can be used to determine how people value different attributes of a product (feature, function, benefits), thereby providing the researcher with a method for examining the subject’s choices by using the principle of ranking.

The actual distribution and delivery of a survey can be done a variety of ways, making it flexible as an urban development tool. Methods include both in person (CAPI) distribution and online distribution methods. CAPI methods offer the advantage of mobility, and can be distributed to subjects directly on the site. This has a greater overall utility as it can be given to residents and workers of the area where the proposed development is set to occur. Online methods make it easy to disseminate to the various stakeholders of a project who would not normally have a say in the ULURP process. It can also be easily included in the ULURP process by distributing the link online, and the inclusion of surveys in the mandatory repository stations.
Furthermore, choice modeling, unlike hedonic modeling, does not rely heavily on the availability of large quantities of data, which can provide the benefits of modeling without the need for high data input making it applicable to most projects. Consequently, the levels and attributes must be carefully considered and weighted considering the context into which the design is being proposed. This makes development an excellent example of a compound good of multiple and varying attributes, thereby suggesting that the use of conjoint analysis in the case of public open space development is applicable. Nevertheless, once researchers have conducted a stated preference or discrete choice study, they should be able to draw conclusions from the data, hopefully allowing for a fuller and deeper understanding of the public’s wants, needs, and expectations of the new open space being developed.64

6.4 Attributes, Levels & Justifications

As suggested, the recommendation of attributes and levels for a Choice Model requires extensive background knowledge of the context into which the proposed project will be constructed, in addition to a broad understanding of the demographics, culture, existing uses and various other topics. Based on these points in combination with the research done above regarding the historical and current context of the site, this paper suggests the following 5 attributes:

1. **Project Management**: Referring to implementation as well as management of the development with three levels: private, public or public-private partnership.

64 For additional "State of the Art" regarding Choice-Based-Conjoint Analysis Method of Discrete Choice Modeling, see annex pages 117-119.
2. **Connection to the Hudson River & Proposed Hudson River Park:** Option to connect the project to the Hudson River using a direct visual and physical connection i.e. bridge or pathway or maintain the current poor connection.

3. **Project Scope and Scale:** Using two different levels, the first preserving the existing plan as drawn, or allow for a second plan which reduces the scale of the project into traditional NYC blocks.

4. **Outdoor Recreation Facilities:** Currently, the project contains no active recreation facilities, so a Choice Model Analysis would allow for the inclusion of either active recreation facility (i.e. basketball, tennis, etc.) or maintain the design as-is.

5. **High Line Treatment:** The active plan suggests the removal of a portion of the historic High Line. Three levels would suggest either the removal and salvage of the portion, removal and no salvage, or the preservation of the High Line as-is with no change.

6. **Cost and Concessions:** An interesting examination for the project would be to examine the willingness of the public to tradeoff an increase in open space for cost which could come in the way of FAR bonuses or an increase in property taxes.

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**1. Project Management**

Currently, the development of the Hudson Yards is dependent on two separate groups to develop the project; the administration, represented by the Department of City Planning, City Planning Commission, Department of Buildings, Hudson Yards Infrastructure Corporation, and the Hudson Yards Development Corporation. Meanwhile, the private sector is represented by two principal groups; Related Companies and Oxford Properties Group.

Positive consequences of the separation come in the form of financial benefits to the taxpayers. It means that the public has no cost burden in the construction and development of the project. Negative consequences, however, include lack of...
participation by the public in the design and implementation of the public space. An alternative that could be presented is the creation of a Public-Private Partnership in which the design and costs of the project are shared among all participating members: the administration, the private sector, and the public.

2. **Connection to the Hudson River & Proposed Hudson River Park**

The project as proposed, including Phase II, has no direct connection utilizing public space to the Hudson River, which lies only 100 yards away from the site. A connection to the river would also mean a connection to Hudson River Park, which is one of the administration’s open space investment projects currently being designed and constructed. This opportunity could be included as a level in a proposed Choice Modeling Analysis. The two attributes included would be to either create a bridge or pathway connection directly to the river or to leave the project as currently designed with less direct connections to the river.

3. **Project Scope and Scale**

Criticisms of the project have come from many members of the community. One particular criticism is the scope and scale of the project, which some claim is too big and divides the site from the rest of the city. Because of the massive scale of the project, it is seen by community members as ruining the character of the historic neighborhood. Also, the project has been advertised as “a city within a city.” In this context, the inclusion of this attribute could include two different levels, the first of which would see the project constructed as planned. This includes the construction of a mega-block, in which three to four normal city blocks make the project. The second level would see the project constructed using traditional New York City block sizes. This perhaps would see the project incorporate itself into the existing fabric of the city and encourage cohesion.
4. **Outdoor Recreation Facilities**

The current plan as directed includes no active recreational facilities. This is perhaps because the construction of the project and its facilities is focused more on the development of the area as a commercial center, not a residential center, and therefore, the creation of any public open spaces were designed with the intention of providing employees with a place to enjoy their lunch, not participate in active recreation. However, because there has been a proposed Public School to be constructed during Phase II of the project, it would be prudent to include active recreational options for the students and the community. With this in mind, a possible levels to be taken into consideration is the inclusion of active recreational facilities on the site or to maintain the design as-is.

5. **The High Line Treatment**

The High Line has been credited with the resurgence of the neighborhood of Hell’s Kitchen and Chelsea. The current plan calls for the removal of a portion of the track in the development process of the Hudson Yards. While removal of the track is already decided, there has been no discussion regarding the savage or use of the portion removed. In this context, a potential for levels selections could include either one of three options. The first suggestion is for the creation of a museum to commemorate the role the High Line has played in the development of the neighborhood and the city. The second would be for the reuse or inclusion of the salvaged portion in the development of the park. This could include the removal and relocation of the track in another section of parkland / open space. The third would be for removal and non-salvage.
6. **Cost and Concessions**

The development of public open space is expensive. However, it does play an important role in the value of property in New York City. An important attribute to take into consideration would be to examine the public’s willingness to trade public space for a cost. The cost could come in one of two ways: it could be an increase in tax, such as property taxes, which could be strategically implemented to affect only those residents within a certain block radius of the park, and not applied to the entire city. Another option could be to examine the willingness of the public to tradeoff more open public space for an increased FAR bonus. The final option would be to not include any additional park space outside the proposed plan.

7.0 **CONCLUSIONS**

The Hudson Yards is undoubtedly a project which is indicative of the changes and challenges that New York City has and will overcome in the coming years. Historically, the city has found itself at the crossroads of people and ideas, evolving to become the epicenter of culture, finance, fashion, and design on an international stage. Understanding this goes a long way to understanding the complex issues surrounding the development of real property in New York, particularly on the island of Manhattan.

The planning and development process, although complicated, is designed to serve all rich and poor citizens alike. That is why it is important to continue encouraging efforts to include the public in development projects, particularly those of this scale. The current project notwithstanding, there are evident flaws in the planning and development process in New York City, which include a heavy reliance on the Environmental Impact Statement in the decision-making process. Failures also include the disenfranchisement of the general public throughout both the design and
construction phases, in addition to the continued and often encouraged gentrification of New York City’s historic neighborhoods.

Failure to preserve the buildings and their residents that give New York its character threatens the fundamental spirit of the city. By encouraging gentrification on such a wide scale risks turning New York City into a place where only the immensely wealthy will be able to afford to live, and risking what makes New York City so remarkable. Of course, progress is equally important, and it is in the best interest of all those living in Manhattan to have an increase in services, facilities and property values, because as President John F. Kennedy once stated, “A rising tide lifts all boats.”

In terms of the market, investors and developers in the real estate industry constantly seek to improve their comparative advantage by anticipating the needs and expectations of future users. Often, when projects involve public and private financial investment, as is the case with public-private partnerships, such participation can help to legitimize the allocation of valuable city resources. In this respect, few quantitative approaches affiliated to the study of demand can evaluate the trade-off that is given between the preferences of individuals when they are faced to choose a single alternative, as is usual in real estate and urban projects. The inclusion of choice models is just one of these tools that can be used in combination with many others to produce a more transparent development project and provide developers with a competitive edge. Additionally, by encouraging and applying these methods developers, investors, and public-private partnerships can advance the process by which projects are developed and implemented.

Further analysis of choice models in an urban setting, particularly involving projects that form part of the public realm such as parks and open space, is needed. Further study will continue to refine the process by which attributes and levels are chosen. In the case of Phase II of the Hudson Yards project, choice modeling could potentially play an important role in the development of the urban parkland. While one can confidently say that applying a choice model experiment could potentially increase
marketability and improve public works, more importantly, it would further advance the sentiment of public equity to the benefit of all stakeholders, public and private alike in New York City.
8.0 **ANNEX**

Figure 16. Site of Proposed Hudson Yards Project (Highlighted in purple). Source: Lionel Pincus and Princess Firyal Map Division, The New York Public Library Digital Collections. 1867.

Figure 17. Site of Proposed Hudson Yards Project (Highlighted in purple). Source: Lionel Pincus and Princess Firyal Map Division, The New York Public Library Digital Collections. 1884.
Figure 18. Site of Proposed Hudson Yards Project (Highlighted in purple). Source: Lionel Pincus and Princess Firyal Map Division, The New York Public Library Digital Collections. 1911.

Figure 19. Site of Proposed Hudson Yards Project (Highlighted in purple). Source: Lionel Pincus and Princess Firyal Map Division, The New York Public Library Digital Collections. 1897.
Figure 21. Site of Proposed Hudson Yards Project (Highlighted in purple). Source: Lionel Pincus and Princess Firyal Map Division, The New York Public Library Digital Collections. 1923.


Additional State of the Art of Choice-Based-Conjoint Analysis:

Depending on how the researchers choose to combined features, researchers can infer the preferences that respondents assigned to the individual features of the product without them being conscious of the method used. In other words, Choice-Based Conjoint Analysis seeks to measure people’s revealed preferences for features rather than asking them their stated preferences. Rather than using a rating system, conjoint analysis seeks to achieve the same result simply by asking the subjects to do something we all do every day; make a choice. Through these choices, researchers can use theories derived from both behavioral science and economics to determine the participant’s preferences driving their choices.

Earnhart\textsuperscript{65} used conjoint analysis to examine the structural features of houses and their effect on consumer choice. Earnhart also chose to cross-reference the structural components of housing with neighborhood and environmental characteristics. Using features such as style, lot size and structure age, he quantified the relationships between revealed and stated preferences with respect to a neighborhood’s features such as rivers, parks, lakes and woods. While these are some of the potential uses of CA, other strengths of Choice-Based Conjoint Analysis include:

\begin{itemize}
  \item \textit{Demonstrate potential disinterest in a specific choice or set of choices using a “null” option which could inform designers of any particular negative consequences before development is underway.}
  \item \textit{Ease of use as the act of making choices and choosing one option over another is a task that is easily understandable and comes naturally.}
  \item \textit{The quantification of interactions between the selected options whereas other methods of study only analyze the direct interaction between the subject and choice with only inferred or estimated correlations.}
\end{itemize}

Recent studies have attempted this similar method to develop a closer understanding of the maximum social utility of a project with a particular focus on the private-public sector. In their 2013 study published by the Journal of European Real Estate Research, Carlos Marmolejo and Manuel Ruiz-Lineros examined the potential of conjoint analysis in the case of a former industrial site once owned by Pirelli Tires in Manresa, Spain. Using CA, their results helped to conclude with 95% accuracy that “the majority of respondents would prefer to preserve the buildings instead of the alternative of demolition and constructing new buildings…”\(^6\) By way of choice-based-experiment they searched to establish public preference regarding the use of public parkland and open space.

One benefit of conjoint analysis is its ability to determine the preference without the need of high data input. Unlike hedonic modeling, discrete-choice models do not assume the presence of market equilibrium in order to reach its results, nor do they rely heavily on the availability of large quantities of data. Sandy Bond used conjoint analysis to analyze buyer preferences with regards to the stigma of land contamination in the United States where she concluded that “conjoint study has demonstrated that conjoint measurement can be used to validly determine the importance of vacant residential land attributes to purchasers. The attribute importance and price information is particularly useful to estimators when valuing property affected by land contamination issues, including stigma”\(^7\). Her findings show the use of conjoint analysis in determining attributes of property values can be useful however, it depends on the extent to which that sample size permits.

Conjoint analysis has also been used use to research the public preference over the environmental impact of wind farms. Álvarez-Farizo and Hanley, using conjoint analysis, determined that methodologically speaking “choice experiments gave higher estimates of willingness to pay to prevent environmental damages than contingent

rating. In their study they used CA “to estimate the effect on people’s utility of the potential environmental impacts of wind-farm developments where flora and fauna are valued more highly than impacts on landscape or on the geologically-rare cliff sites.” While the focus of Álvarez-Farizo and Hanley’s study was the environmental preference with regards to the impacts of wind-farms, this method can also be used to study the social preference of public space such as is the case of Marmolejo-Ruiz which promoted social participation and thereby social sustainability in the case of their former industrial site in Manresa.

9.0 BIBLIOGRAPHY


Lionel Pincus and Princess Firyal Map Division, The New York Public Library. "Plate 18: Bounded by W. 36th Street, Eighth Avenue, W. 25th Street, Thirteenth Avenue, [Hudson River, Piers 55-60], and [Hudson River, Piers 61-66], Twelfth Avenue."


