

## ABSTRACT

Title of Document: VISUAL PERCEPTION IN  
ARCHITECTURE

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**Masters of Architecture, 2011**

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School of Architecture

The objective of the thesis is to investigate human sensory conditions that are vigorously generated from the spirit of place. The sensory experiences provoke the human consciousness and are distinct for external and internal atmospheric conditions. These multiple conditions of virtual and physical perception in architecture create an atmosphere of multiple sensory experiences between the voyeur, spectator, and spectacle.

The program objective that is proposed is an automobile showroom. Times Square has historically been the epicenter for automobiles as a traffic square, carriage-making district, and a terminating destination for the Lincoln Highway. Without the automobile, the experiential character of Times Square would be lost. The program is a contribution to its identity which entails an automobile test market research center that provides escort or rental transportation accommodations. The project will be sited on a west corner lot adjacent to the Lunt-Fontanne Theater and the W-Hotel facing Duffy Square in the Theater District, Manhattan, New York.

VISUAL PERCEPTION IN ARCHITECTURE

By

Daniel Benjamin Gonzales

Thesis submitted to the Faculty of the Graduate School of the  
University of Maryland, College Park, in partial fulfillment  
of the requirements for the degree of  
Masters of Architecture  
2011

Advisory Committee:  
Professor Hooman Koliji, Chair  
Dean David Cronrath

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## Acknowledgements

I would like to thank my family for their strong support in my architectural education. I would also like to thank Ken Gutierrez, Michael Rennard, Karen King, Hooman Koliji, David Cronrath, Ralph Bennett, and my academic colleagues for their substantial and meaningful guidance and inspiration.

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# Chapter 1: Architecture and the Sensory Experience

## Experiential Conditions: Voyeur, Spectacle, and Spectator

Criticism of post modern architecture often disputes the ignorance of experiential perception, order, and proportional relationships to the human body. Furthermore, the advancement in visual documentation with cameras promotes a misinterpreted perception of a three-dimensional form into a fragmented two-dimensional format rather than an inhabitable space. Pallasmaa writes, “In our culture of pictures, the gaze itself flattens into a picture and loses its plasticity. Instead of experiencing our being in the world, we behold it from outside spectators of images projected on the surface of the retina.”<sup>1</sup>



Figure 1: Sensory Overload Condition as Spectator

The Theater District is the epicenter of photographic energy that clearly flattens the spatial quality of space into a two-dimensional media. The snapshot from a camera produces a static visual imagery that flattens and fragments the strong spatial characteristics of Times Square without revealing the experiential characteristic of materiality, form, and three-dimensional movement activities of the people and automobiles intruding the space. Photographic interpretations clearly resist our ability to understand and experience our being in the world from multi-sensory experiential conditions as a voyeur, spectacle, and spectator.



Figure 2: Sensory Condition between the Automobile and its Atmospheres

The automobile is a strong multi-sensory paradigm that clearly identifies the complexities of experiential conditions as a voyeur, spectacle, and spectator and has historically made a strong contribution to the identity of Times Square. The New York City Planning Commission is currently planning to terminate automobile traffic

through Broadway and Seventh Avenue to promote safety for pedestrians and a sense of place for large gatherings. Terminating automobile traffic will reduce the sense of multiple three-dimensional movement velocities and sensory integration between pedestrians and traffic. The architectural proposal will develop conceptual design strategies to address the importance of automobile to the identity of Times Square and the experience of sensory overload that it creates. The automobile is a fundamental component that clearly defines the strong multi-sensory characteristics of Times Square and it will allow for the opportunity to investigate the duality between sensory overload and sensory deprivation experience to heighten human consciousness.

## Chapter 2: Site and Existing Conditions

### Brief Description and History

#### Manhattan Identity (City)

The current exponential population growth and economic distress will attract a strong increase in density in urban environments. Therefore, the complexity of urban environments such as Manhattan will not be able to provide spaces that mute the overstimulation of sensory experiences that can be executed effortlessly in suburban neighborhoods. Manhattan is an intense and active environment that clearly depends on various transportation systems to navigate around the city.



Figure 3: Manhattan and Overstimulation of Sensory Experiences

The complexity of navigating through the city by public transit, private automobile and pedestrian circulation is a critical opportunity to investigate and extract these sensory conditions into an architectural media that corresponds to human embodiment and sensory perception. The density and network of movement systems makes a strong sequential experience beyond the locality of one's environment that is unique to the Manhattan culture.

Manhattan culture and its urban fabric create a sequence of environments that stimulates the senses with its materiality, energy, and light for the voyeur and spectator. Rossi recollects his observation of a sensual space and writes, "The study of light, the great bands of light that fall on the benches filled with old people, the precise shadows cast by the geometrical forms of these seats and by the stove, seem to be taken from a manual on the theory of shadow. A diffuse luminosity pervades the large room, where the figures lose themselves as in a piazza. The practice of carrying naturalism to its extreme consequences leads to a kind of metaphysics of the object; things, old people's bodies, light, a cold ambience – all are offered through a kind of observation that seems distant"<sup>2</sup>. These fundamental textural qualities are strongly manifested within the various unique districts of Manhattan and are clearly identifiable for the voyeur, spectacle, and spectator at multiple scales.

#### Theater District Identity (District)

The Theater District is a landmark that generates an atmosphere of assemblage between all demographics beyond the city boundaries. It has historically been the epicenter of advanced transportation technology as the Carriage-Making

District in 1850 and the termination point of the Lincoln Highway which connects automobile circulation from New York to San Francisco in 1913. This development has been a crucial and sophisticated integration between the pedestrian and technology that directly responds to the sensorial experience. This integration at multiple scales and velocities amplifies human embodiment and physical interaction with the surrounding environment. Pallasmaa argues that, “Our bodies and movements are in constant interaction with the environment; the world and the self inform and redefine each other constantly. The percept of the body and the image of the world turn into one single continuous existential experience; there is no body separate from its domicile in space, and there is no space unrelated to the unconscious image of the perceiving self.”<sup>3</sup> The automobile is a fundamental component that contributes to the cohesion of one’s’ perception of the body to the existential experience of its surrounding environment in constant interaction.

#### Site Identity (Place)

Times Square has been an influential destination that promotes a sensation of vulnerability, pleasure, and satisfaction of personal expression of one’s identity. It has embraced popular culture and entertainment to provide sensual experiences of varying magnitudes and scales as a voyeur, spectacle, and spectator of the space contained. It is a destination for one to see and to be seen which is strongly generated by the commercial market within Times Square. The characteristics of Times Square clearly provide an atmosphere that heightens human consciousness to the extremity of overstimulation.

The magnitude of corporate advertising, theater, and cultural diversity are strong characteristics of Times Square that clearly provide an atmosphere that stimulates and extends one's visual sensory perception of its external environment as a voyeur, spectacle, and spectator. The extension of sensory perception is an extension on one's identity beyond the obstacle of social standards in return creating a sense of liberation and leisure for expression. Traub describes, "There is a desire to break through constraints that society has given us. Therefore, create an environment that exceeds beyond the boundaries given. It's whatever makes us more comfortable in life...in being ourselves and realizing our own identity without fronting somebody else in a respectful manner during the working environment. A place of leisure allows for this escape to occur and to realize ourselves and draw a stronger connection of our own identity in comparison to the rest of society. Times Square symbolizes the extension beyond social standardization and the desire for liberation and leisure to satisfy the human condition and experiences as a pedestrian in a broader environment or as a driver in a micro-environment within the broader context.



Maps and Plans

Manhattan

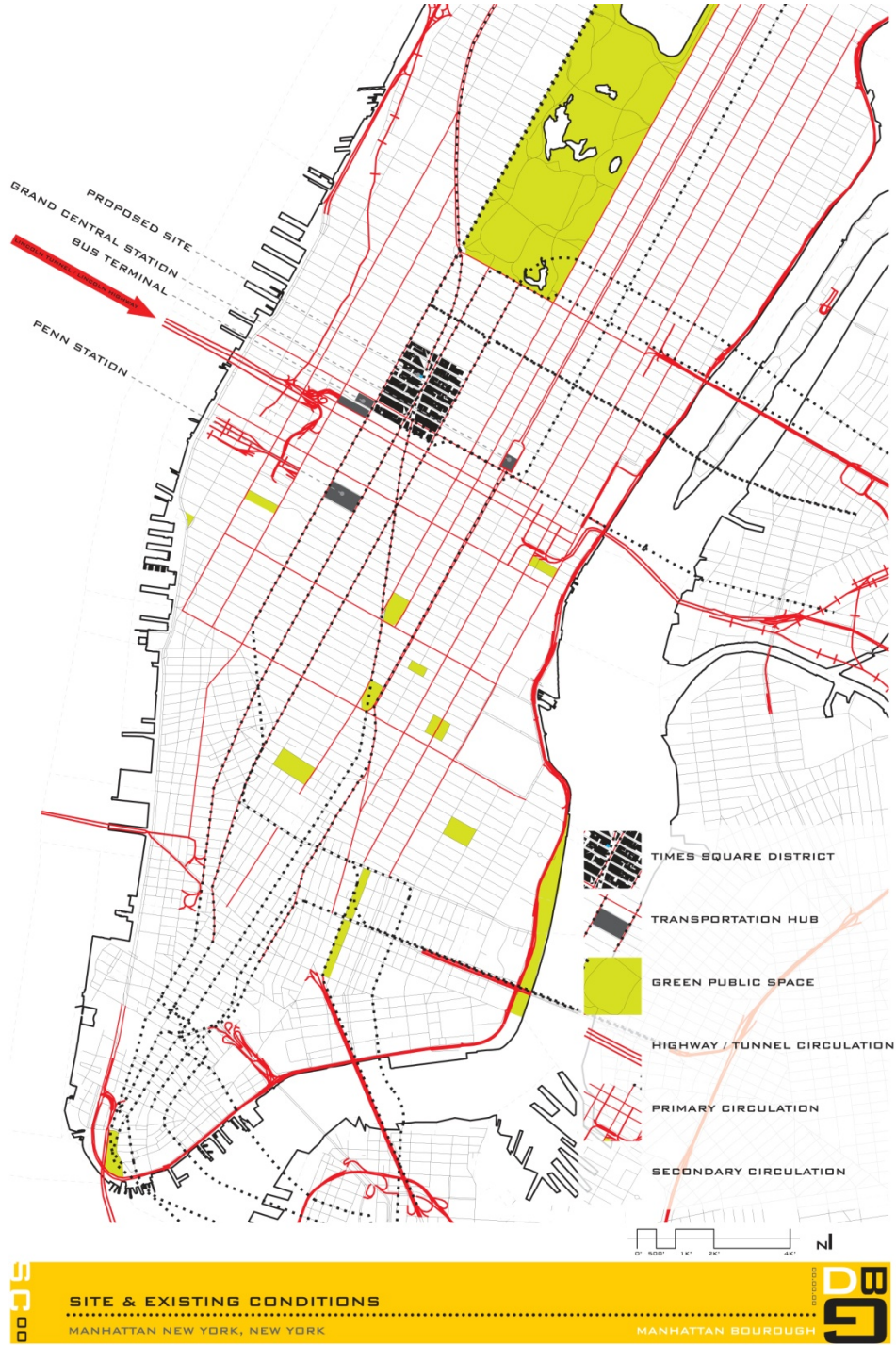


Figure 4: Diagram Manhattan Borough

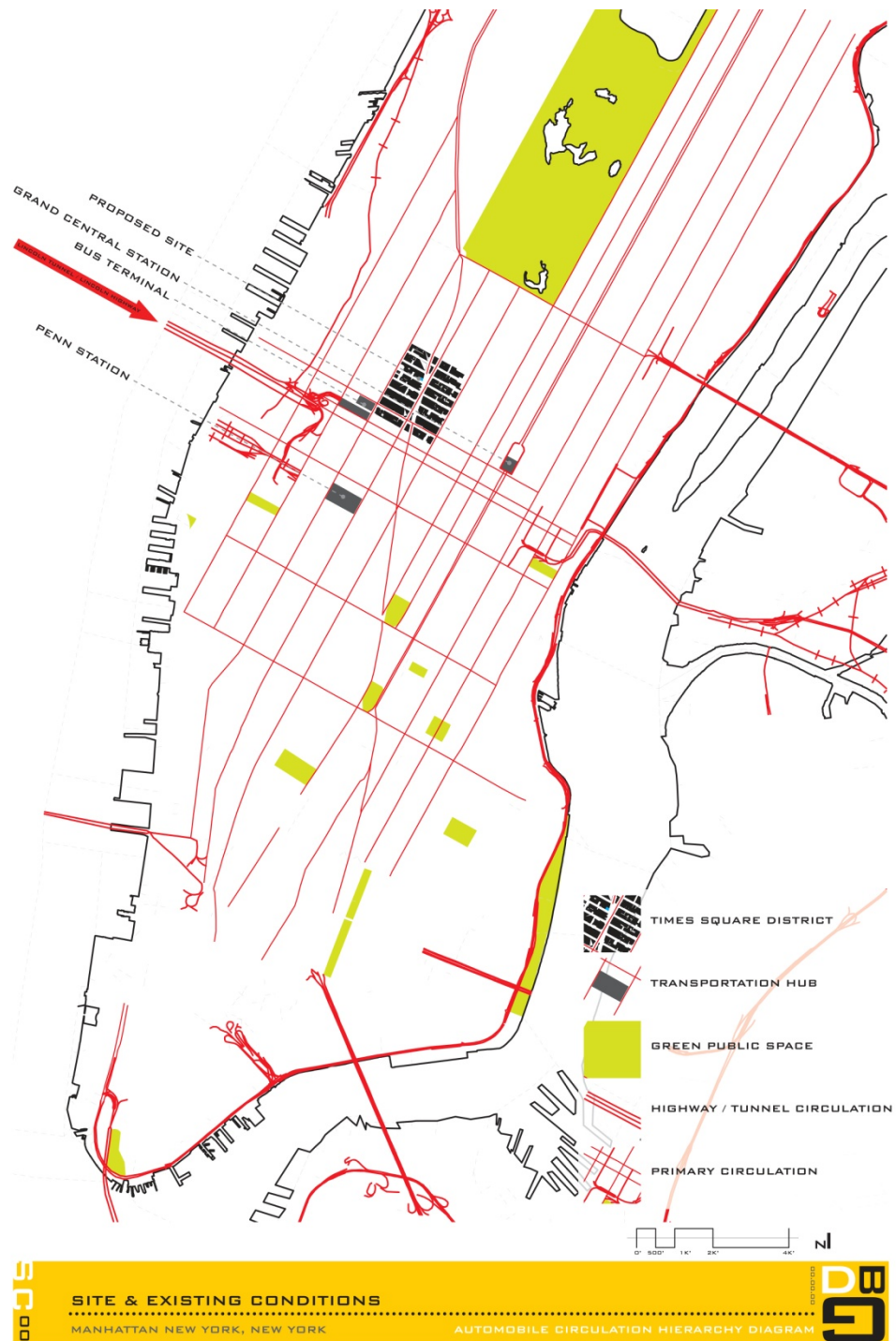


Figure 5: Diagram Automobile Circulation

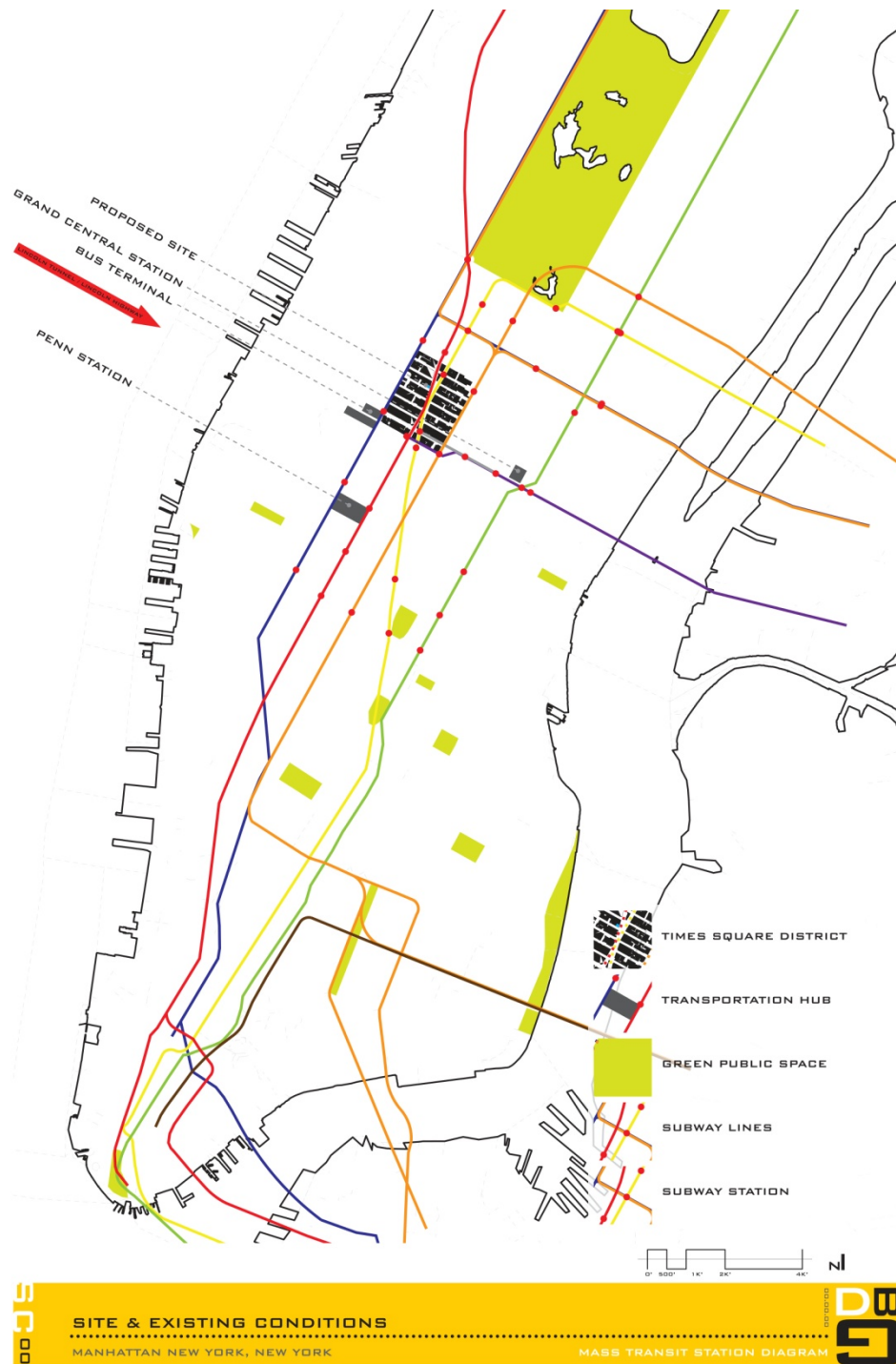


Figure 6: Diagram Mass Transit Circulation

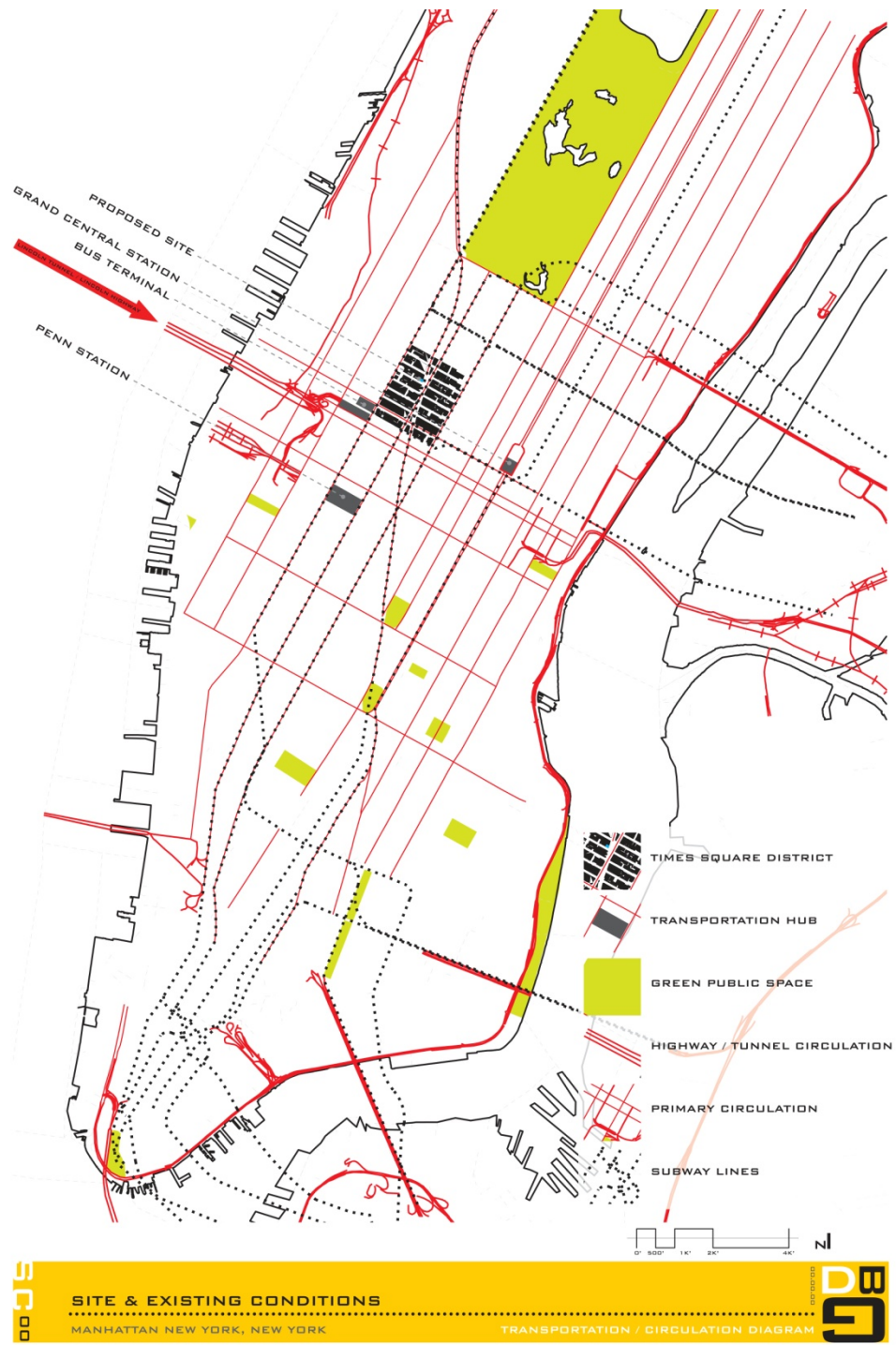


Figure 7: Diagram Transportation Hybrid

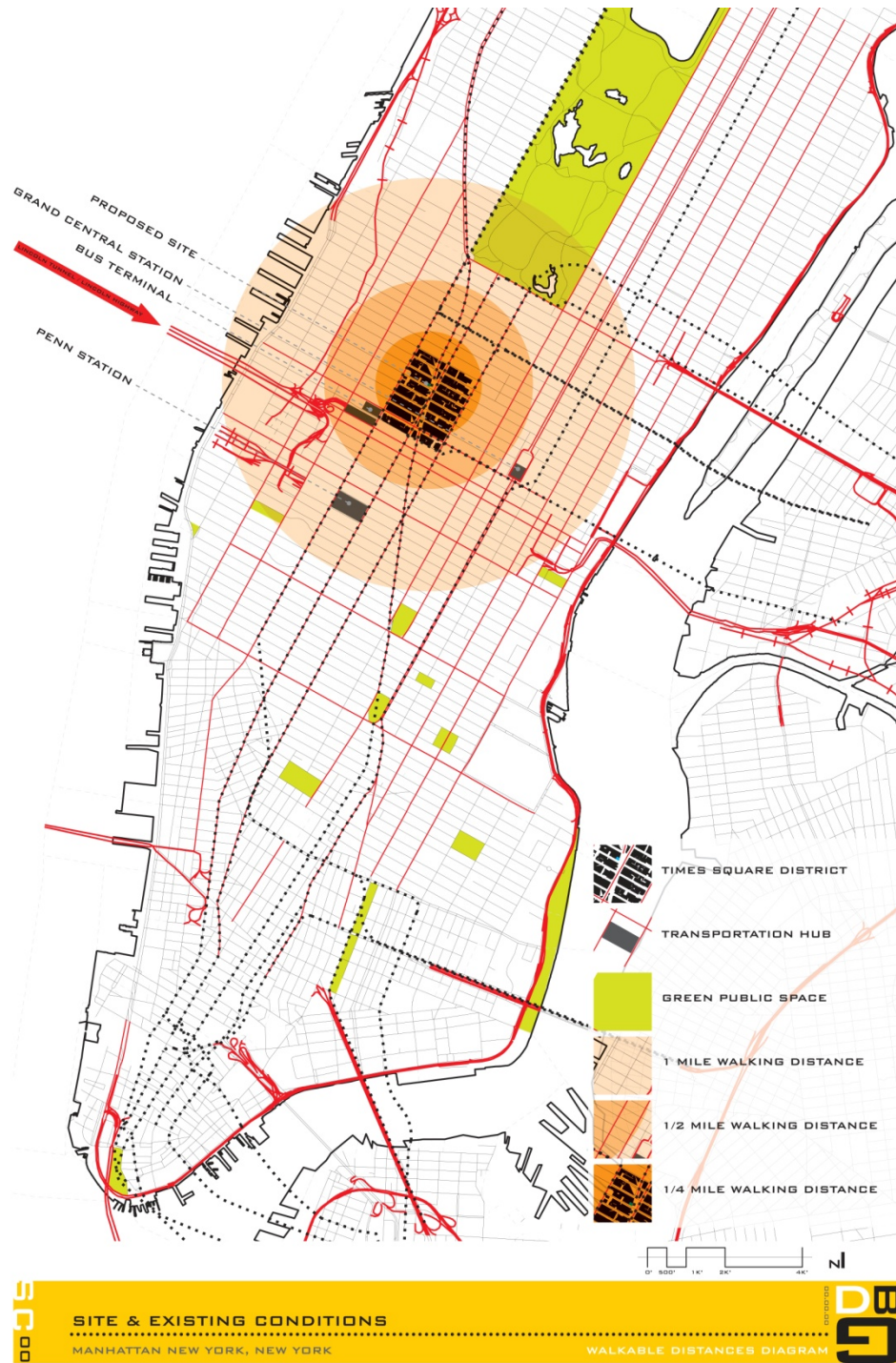


Figure 8: Diagram Walkable Distances

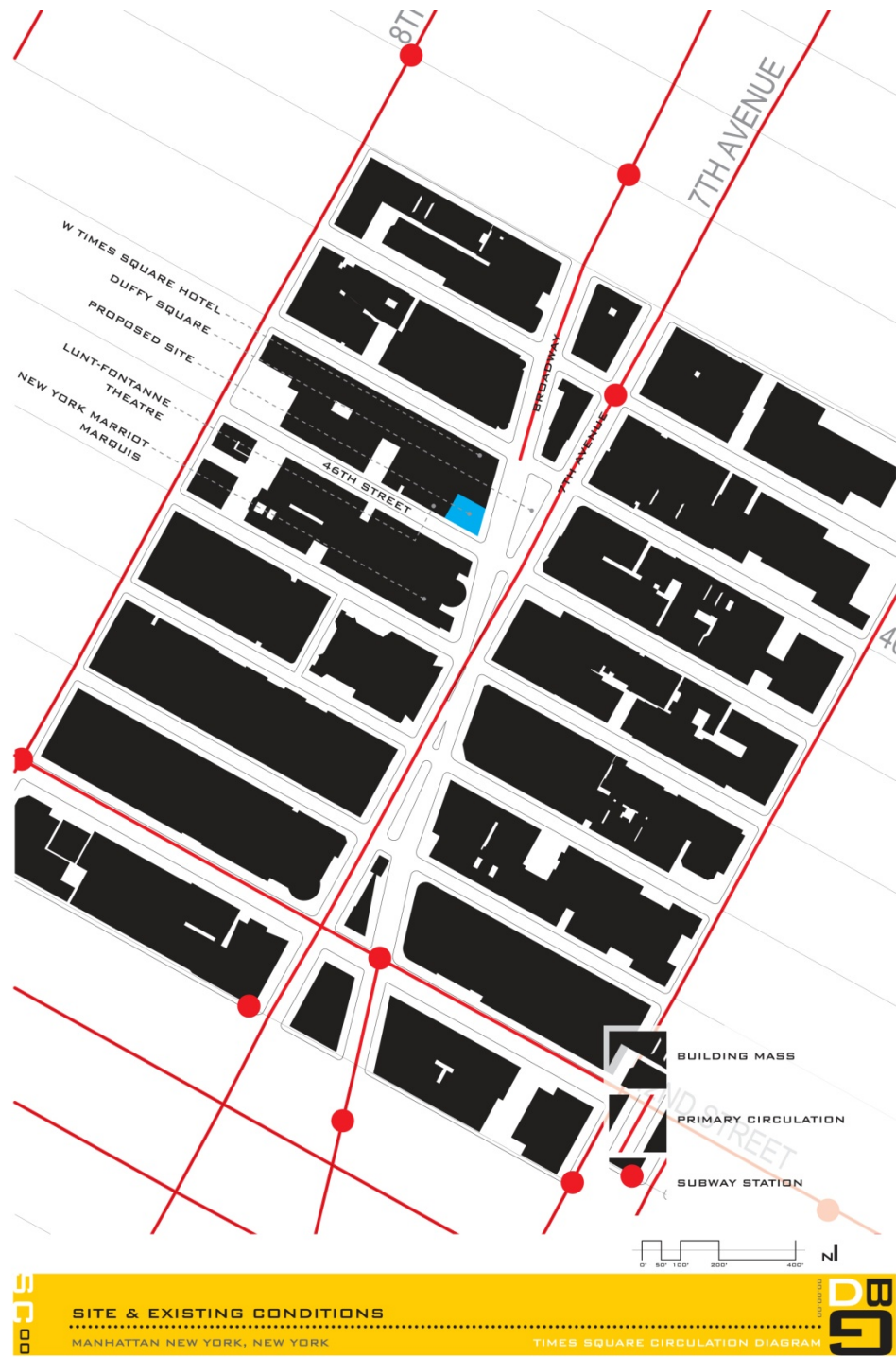


Figure 9: Diagram Times Square Circulation

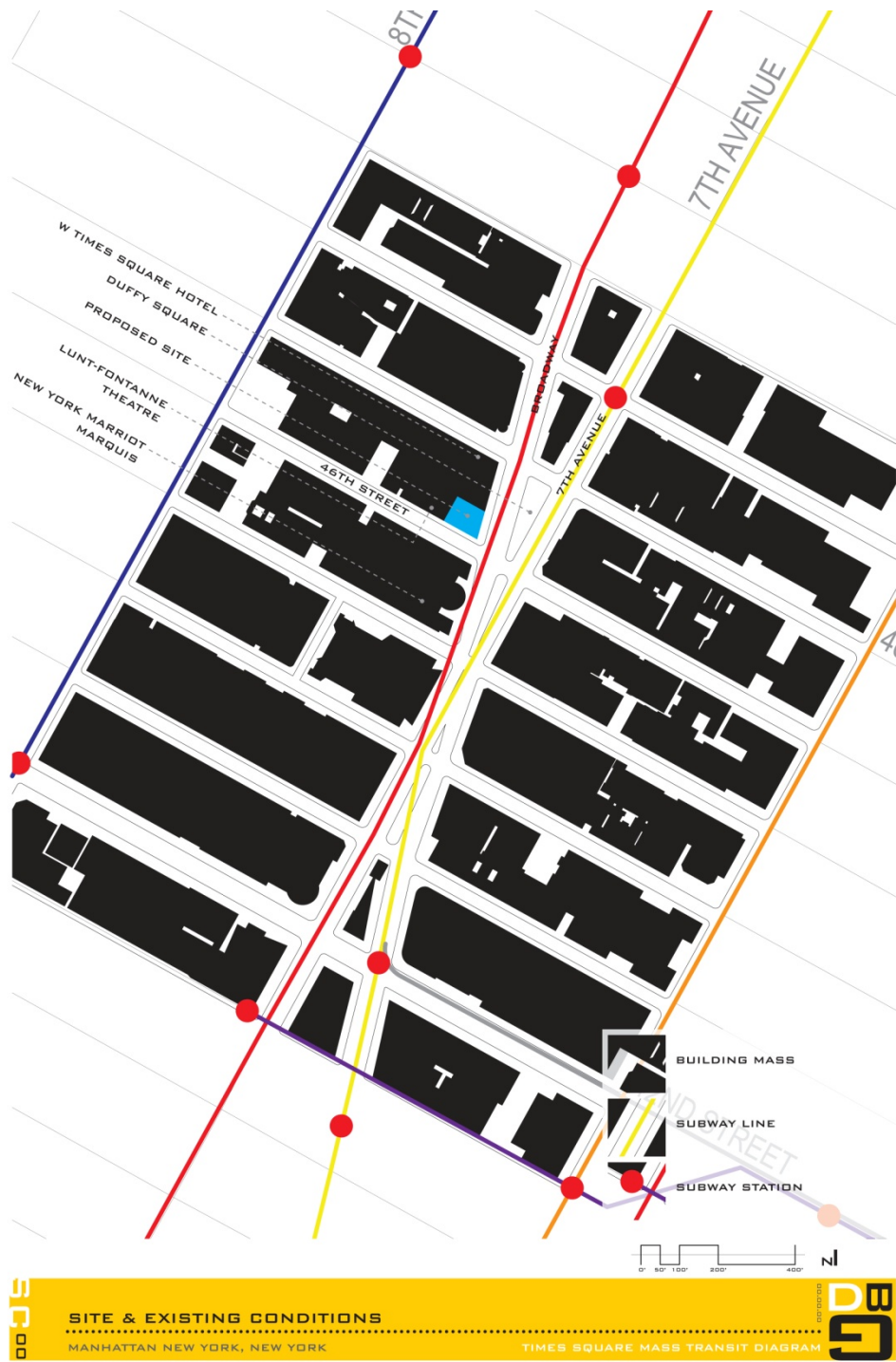


Figure 10: Diagram Times Square Mass Transit



Figure 11: Diagram Times Square Movement Velocity



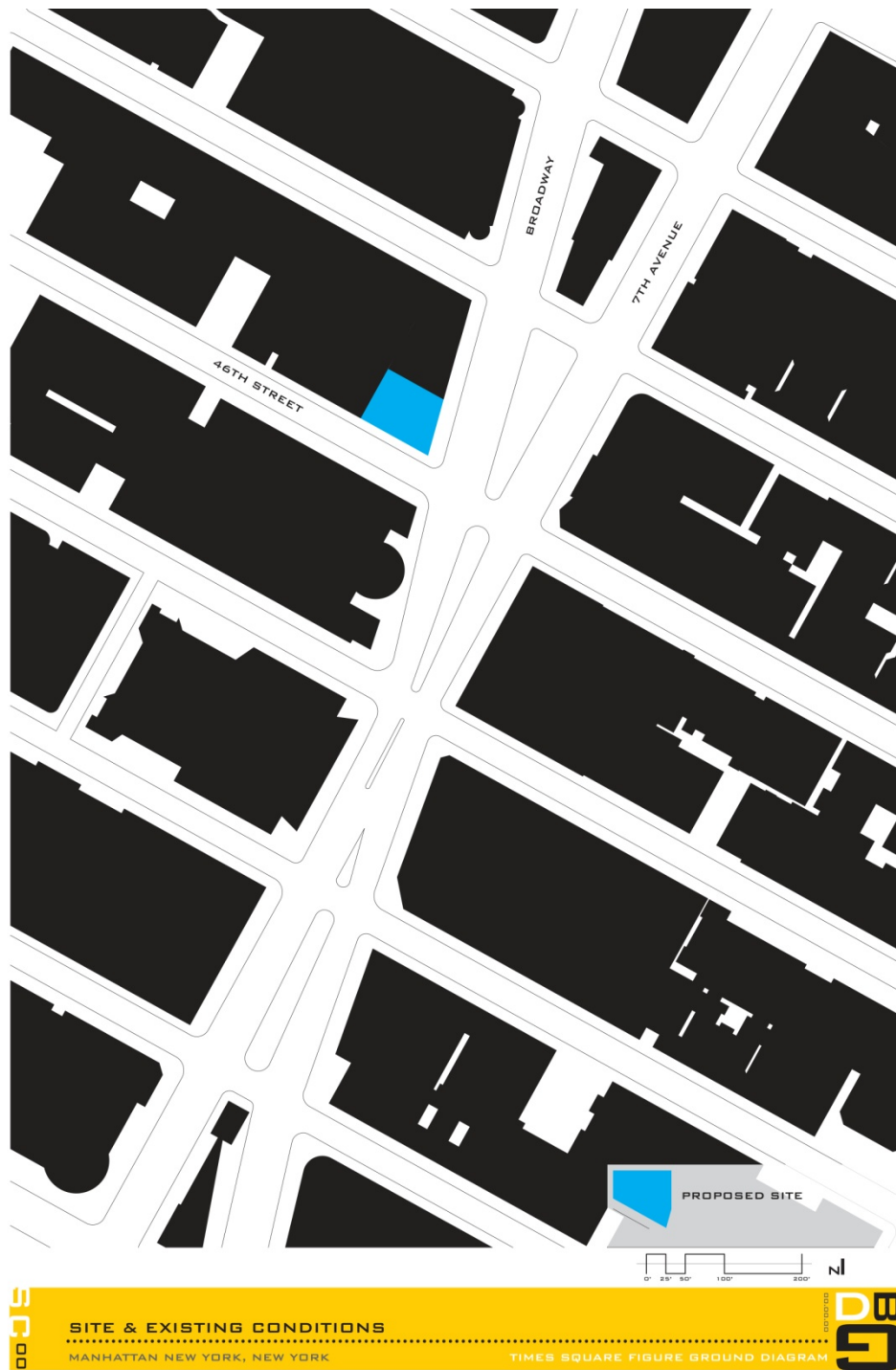


Figure 12: Diagram Times Square Figure Ground

### Proposed Site



Figure 13: Diagram Times Square Zoning



Figure 14: Proposed Site Plan

*Site Drawings and Photographs*

Photographs



Figure 15: Proposed Site Day Condition

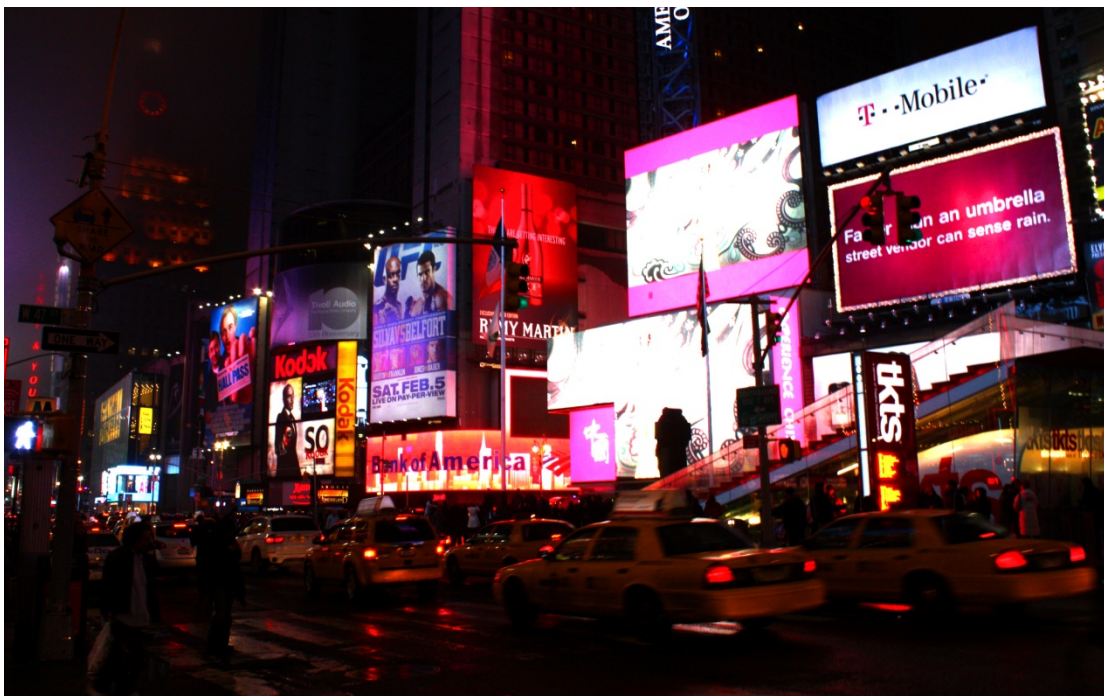


Figure 16: Proposed Site Night Condition



Figure 17: Proposed Site Panorama

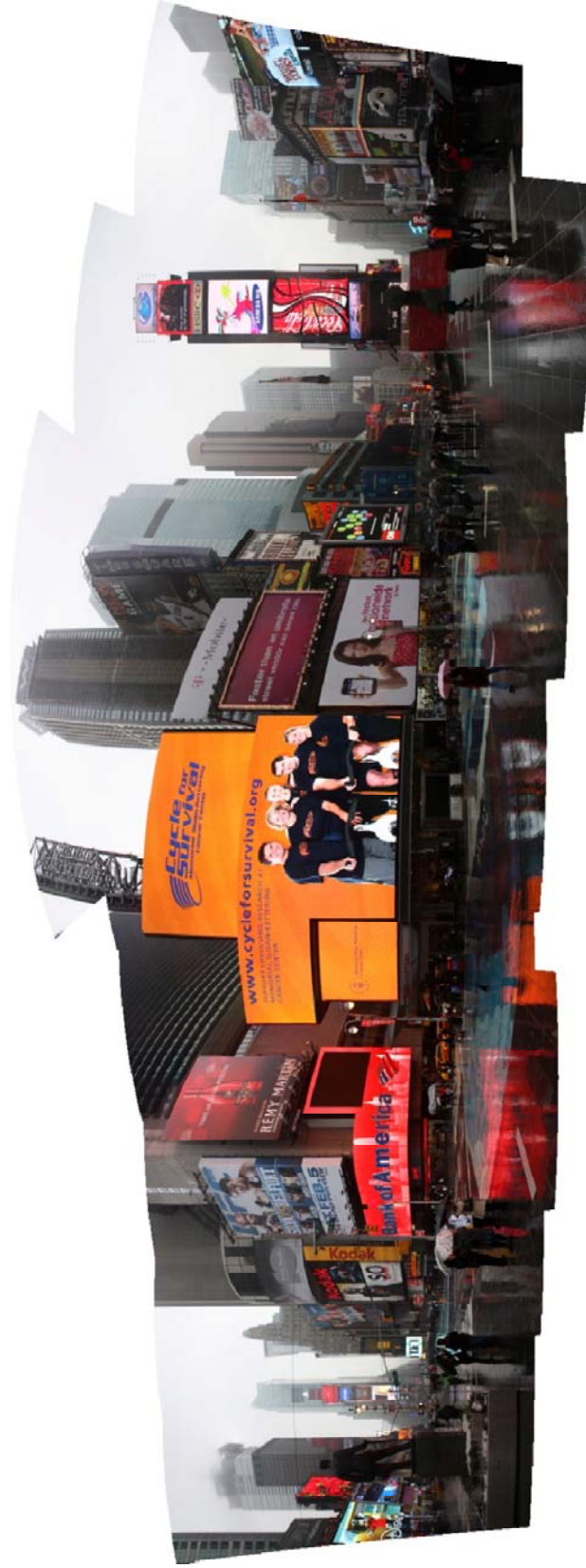


Figure 18: Proposed Times Square Panorama

Site Drawing

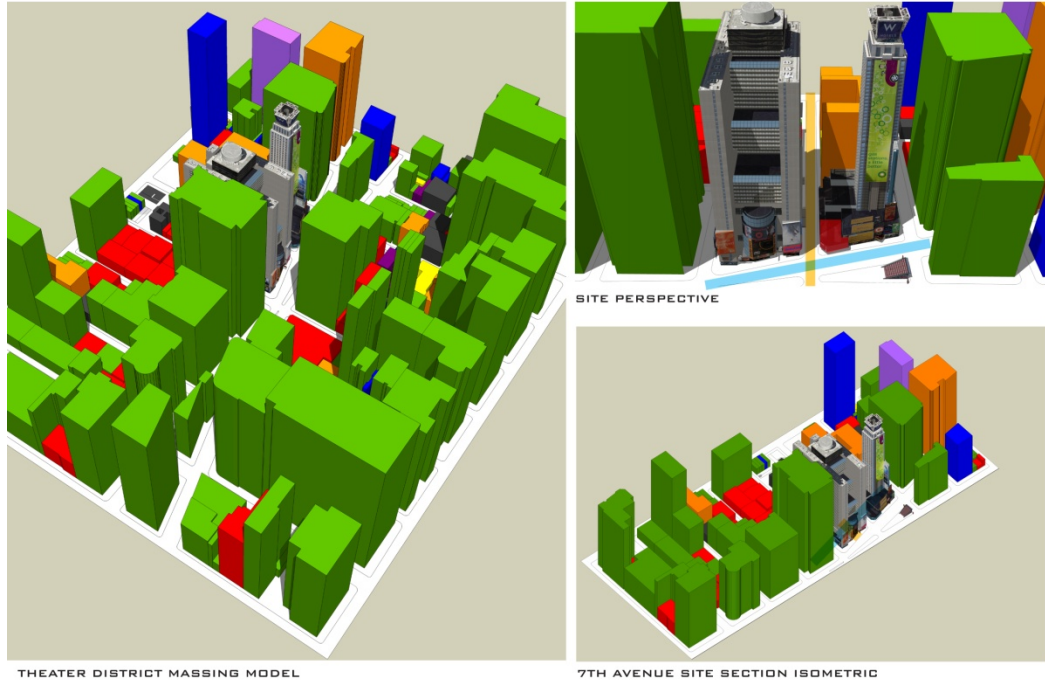


Figure 19: Site Drawing Massing Study

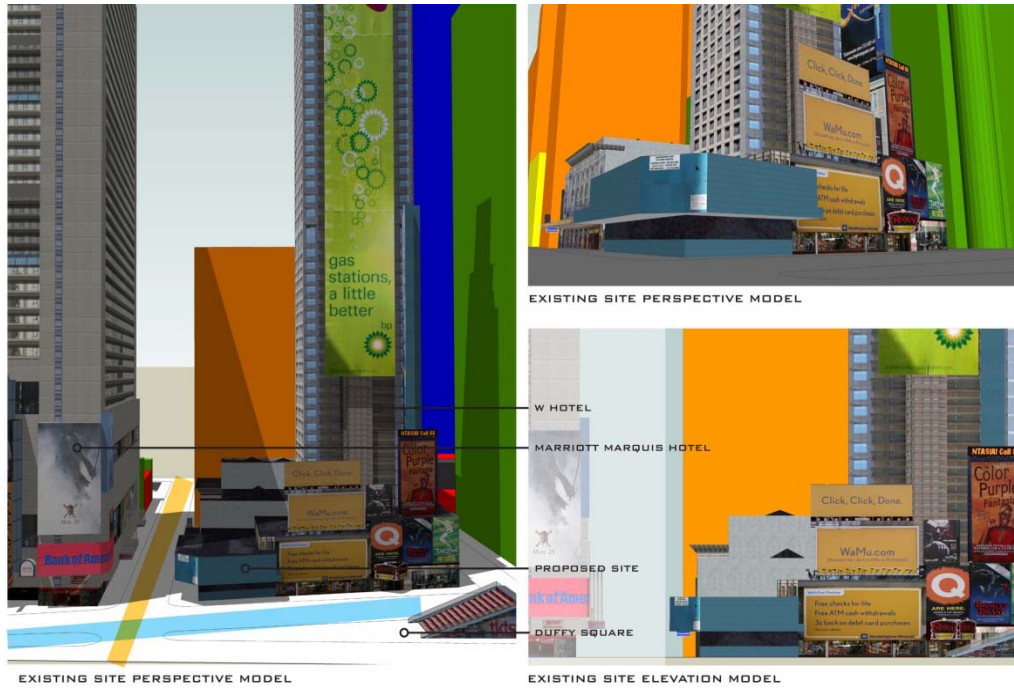


Figure 20: Site Drawing Detail



Figure 21: Elevation Existing East



Figure 22: Elevation Existing South

**Site Analysis Identifying**

Climate Data

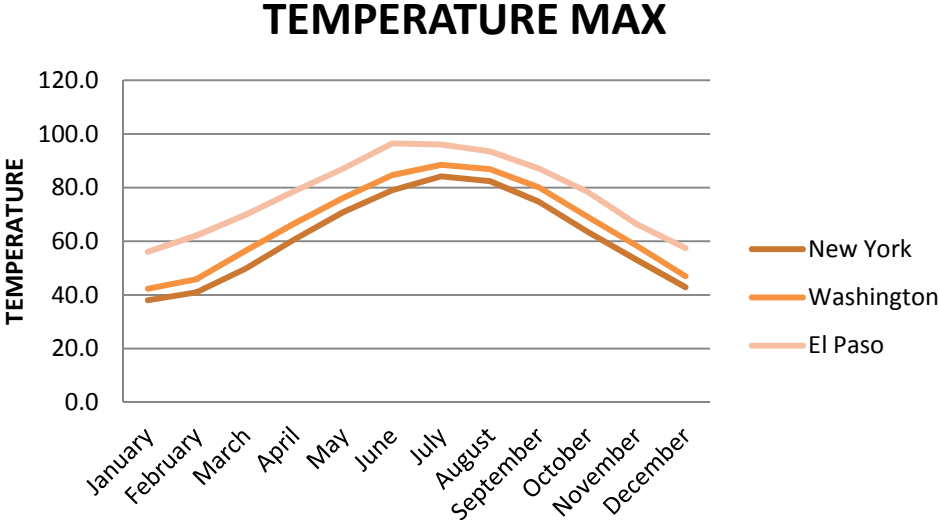


Figure 23: Climate Data: Temperature Max

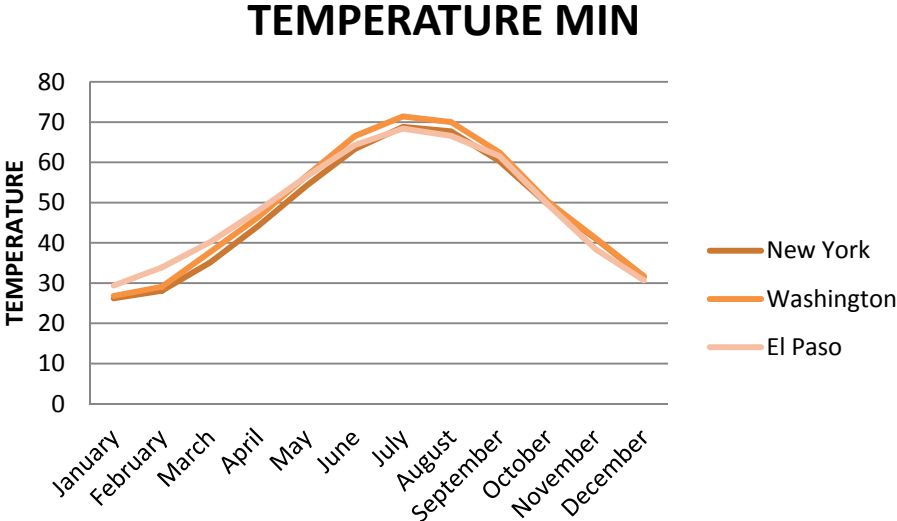


Figure 24: Climate Data: Temperature Min



## Site Analysis

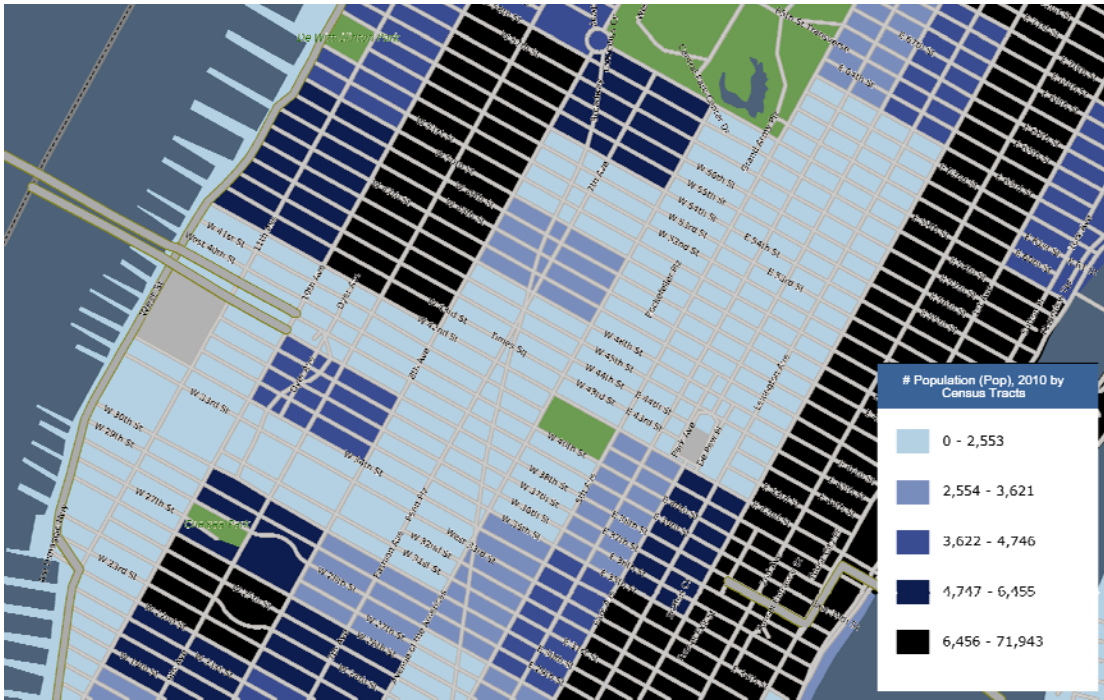


Figure 25: Midtown: 2010 Population

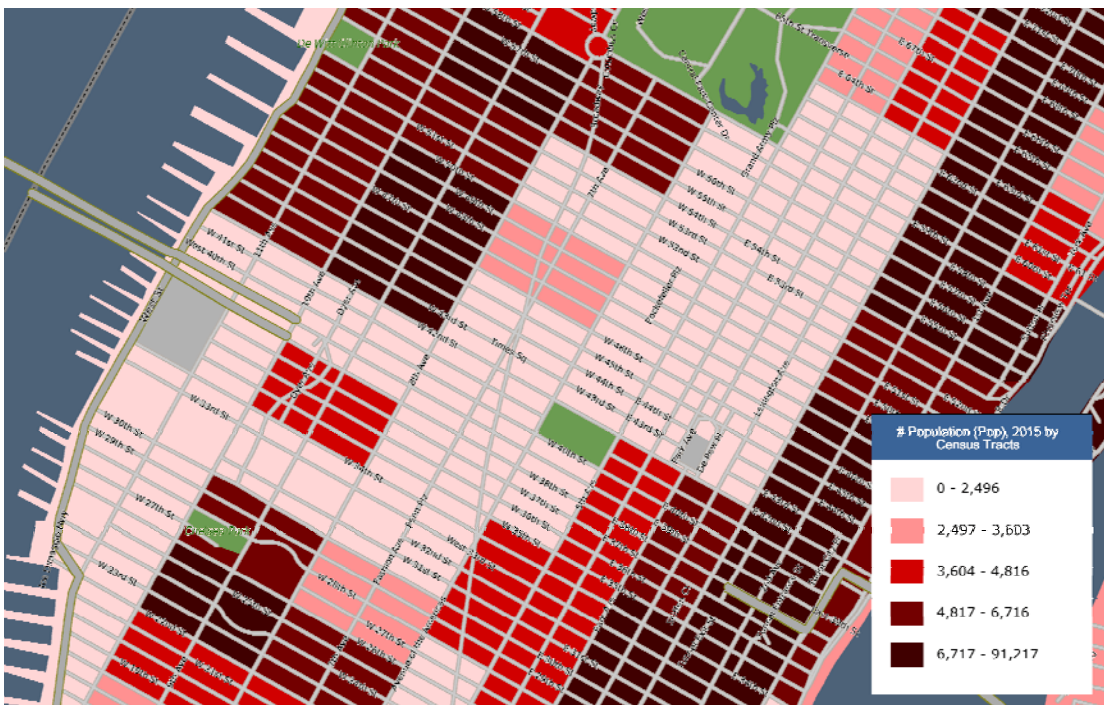


Figure 26: Midtown: 2015 Population Projected

## Site Precedents

### Piccadilly Circus

Piccadilly Circus is a commercial public traffic square in London. It is located within a historic district off Regent Street designed by John Nash. The historic preservation of the site allows for only limited illuminated signage to one of the buildings on the site. The surrounding buildings are at medium density. There has been a renovation to the traffic pattern to accommodate pedestrian circulation.



Figure 27: Site Precedent: Piccadilly Circus

## Yonge-Dundas Square

Yonge-Dundas Square is a commercial public traffic square in Toronto, Ontario. It is located at one of the busiest intersections in Toronto between Yonge Street and Dundas Street. The traffic square is an irregular pentagon and is used for many public events, concerts, and film screenings. The surrounding buildings are at medium density. The edge of the site is bounded by many commercial billboards and illuminated signage.



Figure 28: Site Precedent: Yonge-Dundas Square

## Hachiko Square

Hachiko Square is a commercial public traffic square in Shibuya, Tokyo, Japan. It is located at one of the busiest intersections in Tokyo. The traffic square is an irregular geometry and is used automobile and pedestrian circulation.. The surrounding buildings are at high density. The edge of the site is bounded by many commercial billboards and illuminated signage.



Figure 29: Site Precedent: Hachiko Square

## Chapter 3: Program and Cultural Identity

### Pragmatic Design Objectives and Approach

#### Program Objective

The program objective that is proposed will primarily service the strong tourism market within the Theater District. Times Square has historically been the epicenter for automobiles as a traffic square, carriage-making district, and a terminating destination for the Lincoln Highway. Without the automobile, the experiential character of Times Square would be lost. The program is a contribution to its identity which entails an automobile showroom and test market research center that provides escort or rental transportation accommodations. The automobile has been a historical and iconic symbolism of New York City identity. The program will service the much needed demand of over 600,000 passengers a day to promote a more sustainable lifestyle by decreasing the amount of privately owned automobiles.

Graphic Space Allocations

Proposal 01

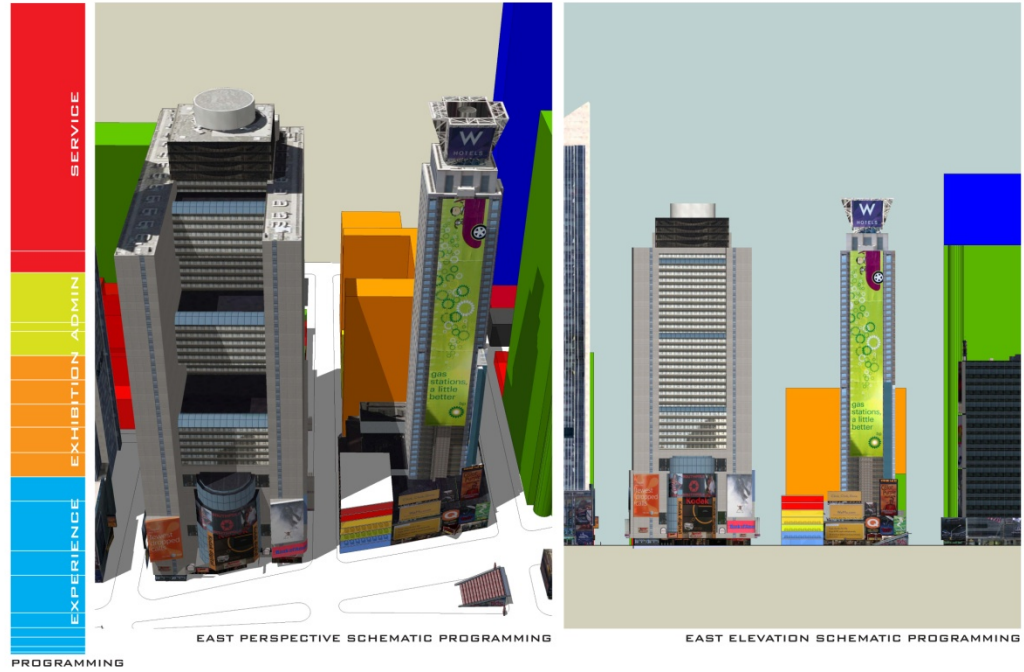


Figure 30: Proposal 01 Graphic Program Allocation

Proposal 02

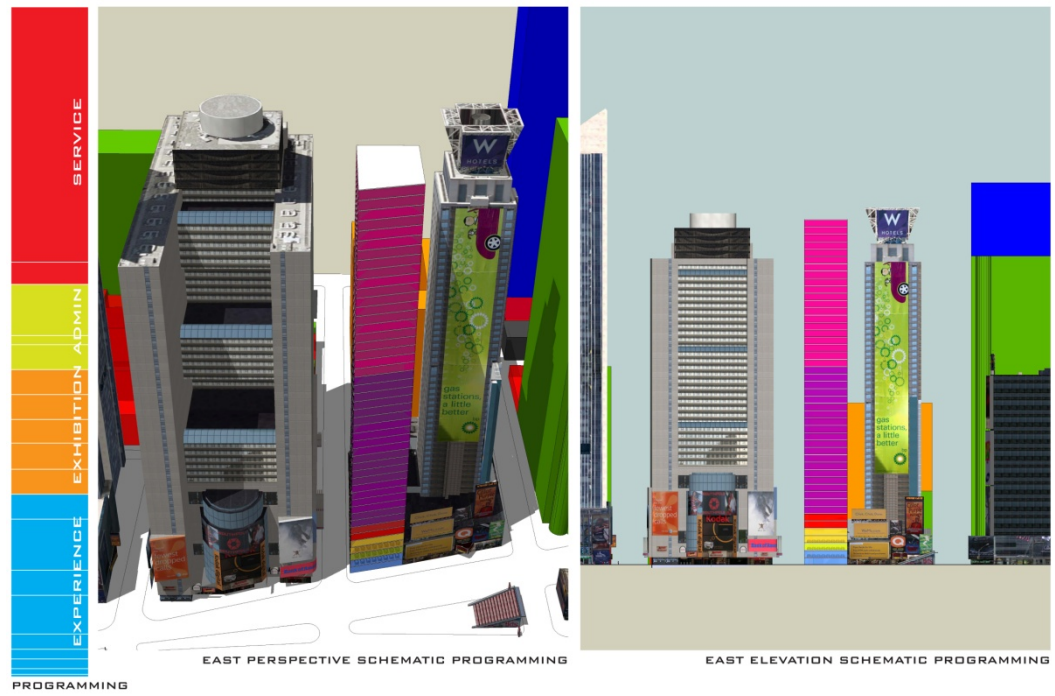


Figure 31: Proposal 02 Graphic Program Allocation

Proposal 03

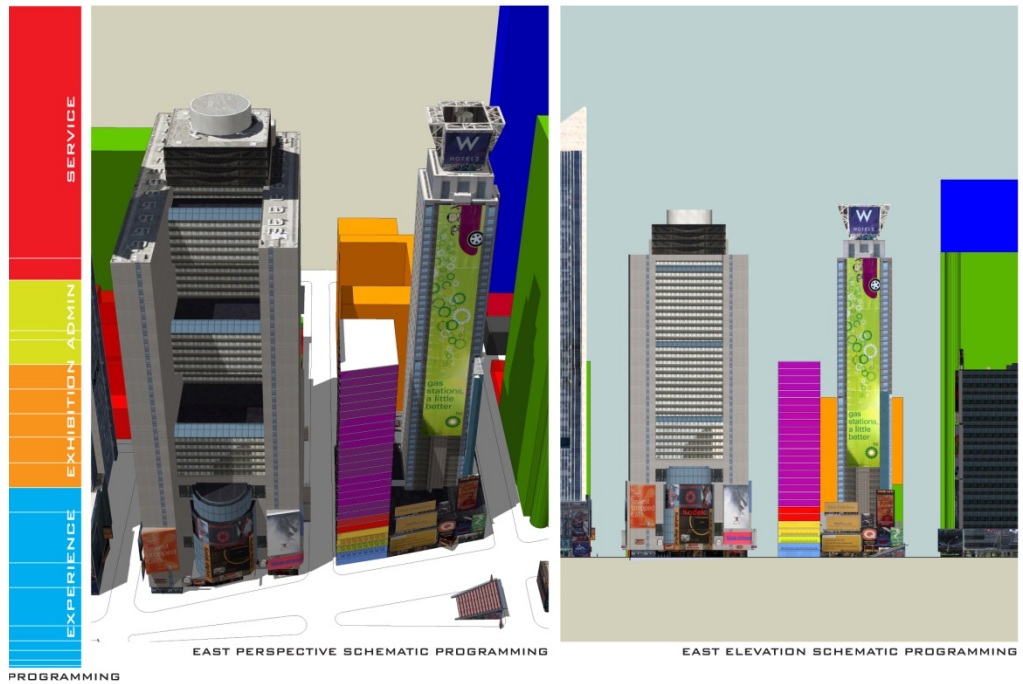


Figure 32: Proposal 03 Graphic Program Allocation

*Program Tabulation*

Proposal 01

<b>SPACE : PROGRAM : SCHEME 01</b>		
<b>SPACE TYPES</b>	<b>%</b>	<b>PROGRAM</b>
<b>EXPERIENCE</b>	<b>55%</b>	<b>17,700</b>
ENTRANCE FOYER	2%	600
INFORMATION	1%	200
SELF DRIVE SERVICE	1%	400
DRIVER SERVICE	1%	400
LOUNGE	2%	600
MAINTENANCE SHOP	5%	1,500
RESTAURANT	3%	1,000
EVENT AREA	6%	2,000
ROOF TERRACE	3%	1,000
<b>EXPERIENTIAL EXHIBITION</b>	<b>16%</b>	<b>5,000</b>
INTENSITY	3%	1,000
SPEED	3%	1,000
STRENGTH	3%	1,000
LUXURY	3%	1,000
LIGHTNESS	3%	1,000
<b>ADMINISTRATION</b>	<b>11%</b>	<b>3,400</b>
OFFICES	3%	1,000
CONFERENCE CENTER	1%	400
MARKETING RESEARCH	6%	2,000
<b>SERVICE</b>	<b>34%</b>	<b>10,800</b>
AUTOMOBILE STORAGE	0%	10,000
LOADING / RECEIVING	3%	800
<b>ALTERNATIVE PROGRAMMING</b>	<b>0%</b>	<b>0</b>
RESIDENTIAL UNITS	0%	0
COMMERCIAL OFFICES	0%	0
<b>MAXIMUM TOTAL</b>		<b>47,320</b>
<b>OVERALL TOTAL</b>		<b>31,900</b>

NOTES: 7 STORY BUILDING @ 47,320 SF

Figure 33: Proposal 01 Program Tabulation



Proposal 02

<b>SPACE : PROGRAM : SCHEME 02</b>		
<b>SPACE TYPES</b>	<b>%</b>	<b>PROGRAM</b>
<b>EXPERIENCE</b>	<b>6%</b>	<b>17,700</b>
ENTRANCE FOYER	0%	600
INFORMATION	0%	200
SELF DRIVE SERVICE	0%	400
DRIVER SERVICE	0%	400
LOUNGE	0%	600
MAINTENANCE SHOP	0%	1,500
RESTAURANT	0%	1,000
EVENT AREA	1%	2,000
ROOF TERRACE	0%	1,000
<b>EXPERIENTIAL EXHIBITION</b>	<b>2%</b>	<b>5,000</b>
INTENSITY	0%	1,000
SPEED	0%	1,000
STRENGTH	0%	1,000
LUXURY	0%	1,000
LIGHTNESS	0%	1,000
<b>ADMINISTRATION</b>	<b>1%</b>	<b>3,400</b>
OFFICES	0%	1,000
CONFERENCE CENTER	0%	400
MARKETING RESEARCH	1%	2,000
<b>SERVICE</b>	<b>3%</b>	<b>10,800</b>
AUTOMOBILE STORAGE	3%	10,000
LOADING / RECEIVING	0%	800
<b>ALTERNATIVE PROGRAMMING</b>	<b>90%</b>	<b>280,000</b>
RESIDENTIAL UNITS	45%	140,000
COMMERCIAL OFFICES	45%	140,000
<b>MAXIMUM TOTAL</b>		<b>317,720</b>
<b>OVERALL TOTAL</b>		<b>311,900</b>

NOTES: 47 STORY BUILDING @ 317,720 SF

Figure 34: Proposal 02 Program Tabulation

Proposal 03

<b>SPACE : PROGRAM : SCHEME 03</b>		
<b>SPACE TYPES</b>	<b>%</b>	<b>PROGRAM</b>
<b>EXPERIENCE</b>	<b>7%</b>	<b>12,700</b>
ENTRANCE FOYER	0%	600
INFORMATION	0%	200
SELF DRIVE SERVICE	0%	400
DRIVER SERVICE	0%	400
LOUNGE	0%	600
MAINTENANCE SHOP	1%	1,500
EVENT AREA	1%	2,000
ROOF TERRACE	1%	1,000
<b>EXPERIENTIAL EXHIBITION</b>	<b>2%</b>	<b>3,000</b>
INTENSITY	1%	1,000
SPEED	1%	1,000
STRENGTH	1%	1,000
<b>ADMINISTRATION</b>	<b>2%</b>	<b>3,400</b>
OFFICES	1%	1,000
CONFERENCE CENTER	0%	400
MARKETING RESEARCH	1%	2,000
<b>SERVICE</b>	<b>3%</b>	<b>5,600</b>
AUTOMOBILE STORAGE	3%	5,000
LOADING / RECEIVING	0%	600
<b>ALTERNATIVE PROGRAMMING</b>	<b>87%</b>	<b>150,000</b>
RESIDENTIAL UNITS	87%	150,000
COMMERCIAL OFFICES	0%	0
<b>MAXIMUM TOTAL</b>		<b>182,520</b>
<b>OVERALL TOTAL</b>		<b>171,700</b>

NOTES: 27 STORY BUILDING @ 182,520 SF

Figure 35: Proposal 03 Program Tabulation

## Chapter 4: Precedent Analysis

### *Porsche Museum: Delugan Meissl*



Figure 36: Precedent Analysis: Porsche Museum

The Porsche Museum is located in Stuttgart, Germany and was completed in 2009 by Delugan Meissl Associated Architects. The conceptual experience of the project clearly translates Porsche's model of how ones sensually experiences the act of driving and perception of speed. The sense of "lightness" and "floatation" is conveyed spatially and interactively with the exhibit and its materiality of the surrounding environment which corresponds with the sensuous experience of driving.

Maserati Gallery: Mathias Klotz

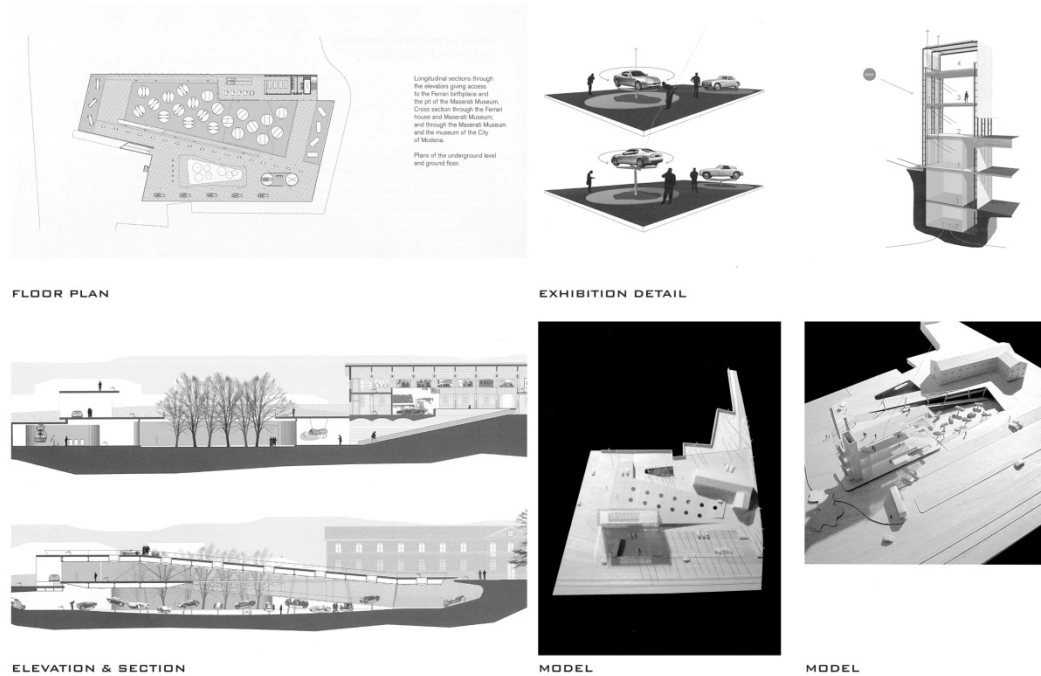


Figure 37: Precedent Analysis: Maserati Gallery

The Maserati Gallery was designed to be located in Modena, Italy in 2004 by Klotz & Asociados. The function of the museum is to highlight the life and work of Enzo Maserati, house the Maserati Museum automobile collection, and become museum for the town of Modena. The conceptual experience of the project involves the interaction between the spectator and the spectacle. The workshop exhibition space is located in an underground pit with movable automobile platforms. It uses the automobile platforms to create a sensual perspective of how spectators experience the automobile from multiple perspectives in three interactive dimensions.

Mercedes-Benz Museum: UN Studio

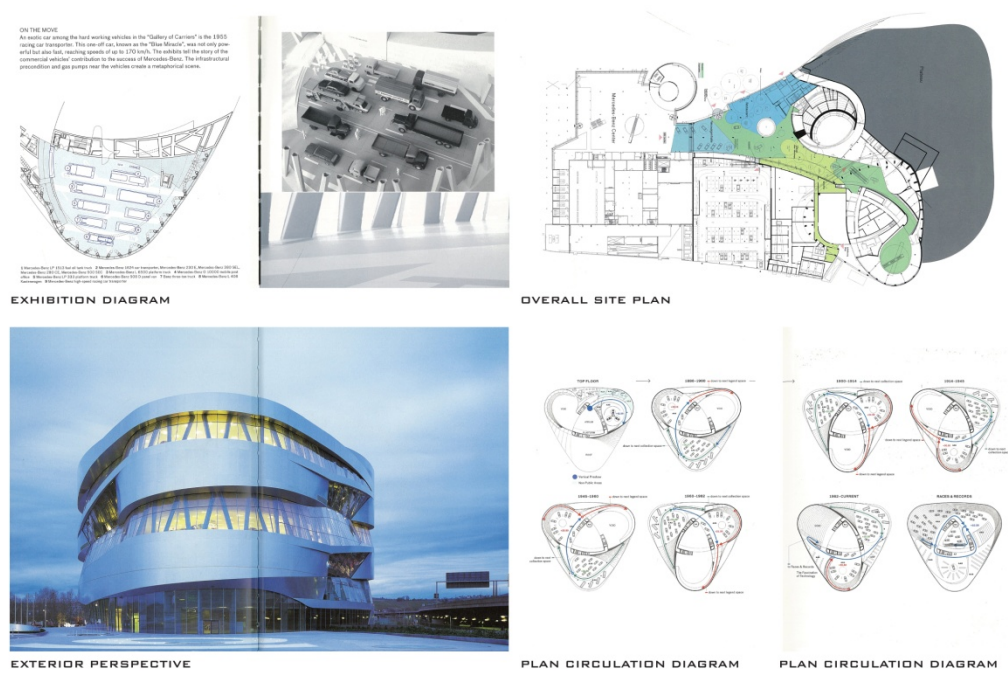
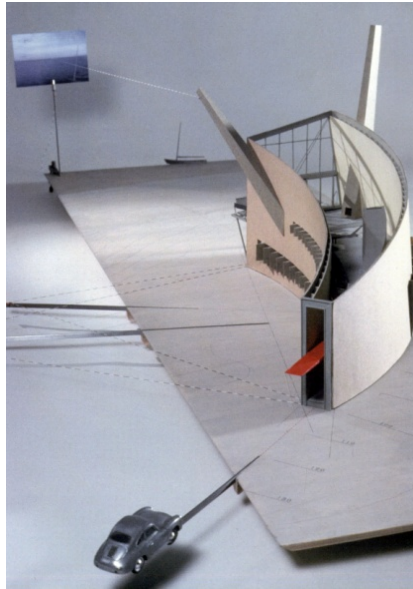


Figure 38: Precedent Analysis: Mercedes-Benz Museum

The Mercedes-Benz Museum is located in Stuttgart, Germany in 2006 by UNStudio. The program includes an auditorium, automobile exhibition, bookshop, restaurant, and offices. The total square footage of the project is 376,700 sf. The design is based on a unique trefoil double helix circulation concept that interconnects the exhibition spaces and overlaps vertically between floors. The program is distributed over the floor plate which ascends above the ground floor. The spiraling circulation conveys the sensuous experiences of voyeurism, spectator, and spectacle at unusual perspectives similar to the Guggenheim Museum in New York City.

*Slow House: Diller Scofidio + Renfo*



The concept of the Slow House is based around the meaning and logistics of vacationing. The vacation home is a departure from the energetic activity from New York City to the human connection with nature. Slow House formulates an analogy with contemporary life in regards to the ideology of “departure” which can be experienced with advanced technologies such as the automobile and the television screen. Within the design of the Slow House, the picture window, television screen, and car windshield ‘conspire,’ they suggest, to reconcile “visual experience with the velocities and discontinuities of the marketplace through a sequence of view aperture frames.<sup>4</sup> There are multiple virtual perception experiences that transpire as the vacationer approaches the site of the house.

The automobile windshield is the primary visual frame that virtually frames projected visual information onto the windshield. At the arrival point, the windshield

frames the door opening, and the door opening frames the entry. As one enters inside the house, the partition walls frame the picture window and the television set in the upper floor. The picture window virtually frames the view outside window as exterior information is being projected onto the glass of the window and the television set frames the same view outside by a video camera. The video camera condenses the information to the constraints of the camera lens and then projects the information to the television screen toward the spectator.

It is evident that virtual experiences are encountered in the physical world. The Slow House demonstrates a virtual representation of reality through the juxtaposition of the picture window and the television screen. In essence, the spectacle (exterior view of the landscape) through the window and the television screen (the virtual interface) to the spectator inside the house are a hybridization experience of the virtual and physical simultaneously. Beatriz Colomina argues that, “The window is a clearly established frame but this frame has no stable context. It is as free-floating as the frame of the television screen. The slight displacement of the horizon marks a deeper affinity between the two systems (picture window and television screen.”<sup>5</sup> It is evident that the sequence from city to nature is filtered through a series of framed virtual lenses that displays a continuous projection of digitized information of reality.

## Chapter 5: Architectural and Urban Design Theory

### *Sensory Conditions: Voyeur, Spectacle, Spectator Experiences*

#### Voyeur

Automobiles have advanced to a more complex visual sensory perception of our external environment. “The perception of sight as our most important sense is well grounded in physiological, perceptual and psychological facts. The problems arise from the isolation of the eye outside its natural interaction with other sense modalities, and from the elimination and suppression of other senses, which increasingly reduce and restrict the experience of the world into the sphere of vision.”<sup>6</sup> Visual perception is experienced in multiple conditions with an automobile. Automobile interiors are micro-atmospheres that allow us the opportunity to perceive the broader context beyond as voyeurs. Interiors are intimate spaces that directly correspond to the human condition and scale with sensory deprivation. This micro-atmosphere phenomenon allows us to perceive the external environment anonymously without detection in a voyeuristic manifestation. These fundamental principles can be translated into architectural concepts effectively to stimulate ones sensory perception.



## Spectacle

The spectacle is a display that is being perceived. The effectiveness of the spectacle is dependent on the voyeurs and spectators. What are the implications of the spectacle if the perception limitation of the spectator becomes a voyeur? Will the spectacle be redefined as it is perceived as a voyeur? These ideologies are continuously experienced within the envelope of the automobile and its contained external environment and the contained external environment with the exterior threshold of the automobile. Similarly, this notion is also applicable at multiple scales to the threshold between the urban envelope and the building envelope. Therefore, visual perception is experienced differently in multiple conditions within contained environments at multiple scales.

## Spectator

The spectator is one who is explicitly viewing the spectacle. Spectators are pedestrians in an open public space. Times Square is a paradigm that attracts volumes of people beyond its local parameters to be spectators within the public space. Spectators in Times Square are continuously observing other spectators as pedestrians and vehicular traffic. The architecture that is being explored will extract these ideologies and reinterpret them to architectural space. The sensory experience of spectators heightens human consciousness by overstimulation as one perceives while being perceived. The atmosphere can be experienced at multiple scales with multiple sensory outcomes. However, the qualifications of the spectator are that the spectator must perceive within a shared space rather than separate enclosures.

## *Experiential Conditions: Virtual and Physical Perception*

### Virtual Perception

Virtual perception is experienced through visual information that is within a bounded visual space.<sup>7</sup> The sensory condition that is experienced in virtual perception is that the two-dimensional image is constrained, intangible and it precedes the translation state from which the human body involuntarily executes. Examples of virtual perception are experienced through visual information such as geometry, color, texture, etc of a perceived image.

### Physical Perception

Physical perception is defined as an unbounded space of visual information. The visual information is then organized as sensory impressions into patterns that embody cultural meaning and identity.<sup>8</sup> Therefore, physical perception is experienced in a spectrum of culturally familiar objects of signs, signals, and symbols such as a mug, shirt, rain, etc that can be experienced as an active participant of space. Physical perception can be identified easily with a scale of time, distance, velocity, mass, and materiality within an inhabitable three-dimensional space.

## Chapter 6: Design Approach

### Special Design Challenges

#### Architectural Design Concept

The vertical building typology of Times Square will create an opportunity to explore a vertical sequence of sensory perception spaces that correspond to the concept of virtual and physical perception as a voyeur, spectacle, and spectator. The conventional floor plates inside high density architectural towers provide a challenge in capturing a more cohesive network of visual sensory experiences within the building envelope in a vertical format. Rem Koolhaas' analysis of vertical building typologies is described in *Delirious New York* where he describes, "The 'life' inside the building is correspondingly fractured...incidents on the floors are so brutally disjointed that they cannot conceivably be part of a single scenario. The disconnectedness of the aerial plots seemingly conflicts with the fact that, together, they add up to a single building...the building becomes individual privacies."<sup>9</sup>

## Surface and Mass

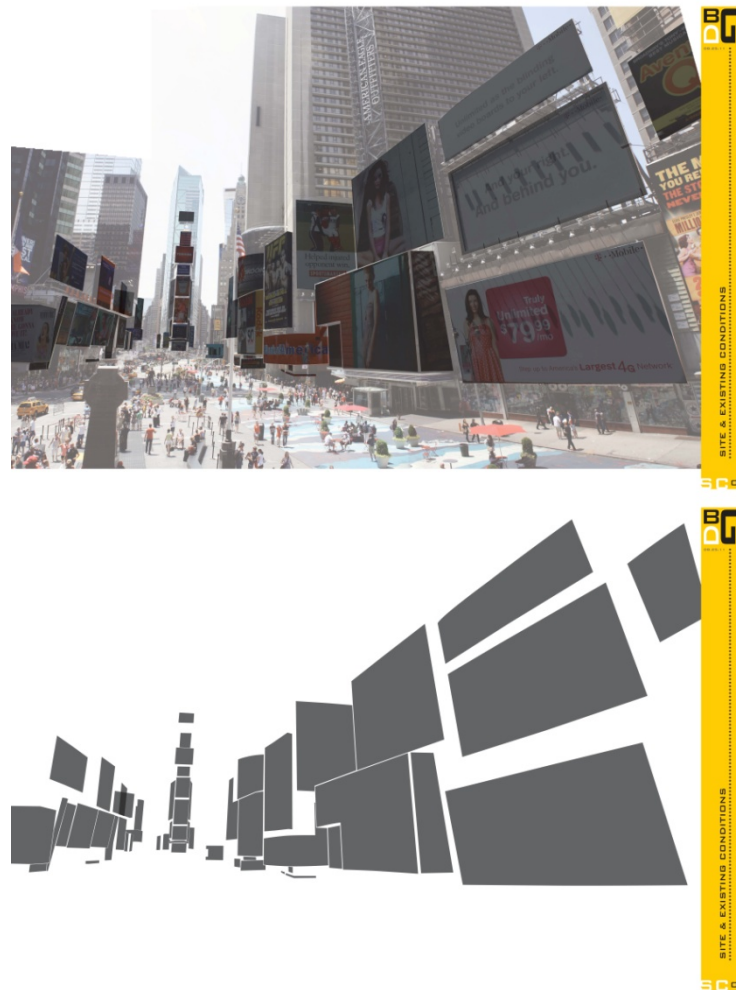


Figure 39: Diagram SW Times Square Surface Study

The zoning regulations for the Theater Subdistrict require all buildings with street frontage on Broadway to design at least one illuminated sign to preserve the character of the district. This provides an opportunity to investigate the character of Times Square by analyzing the space that is created with surface and mass. Mass is strongly significant in the day condition whereas surface has a substantial character at night. This notion has a direct influence on the sensorial experience between two contrasting perceived conditions.

## Movement, Velocity, and Time

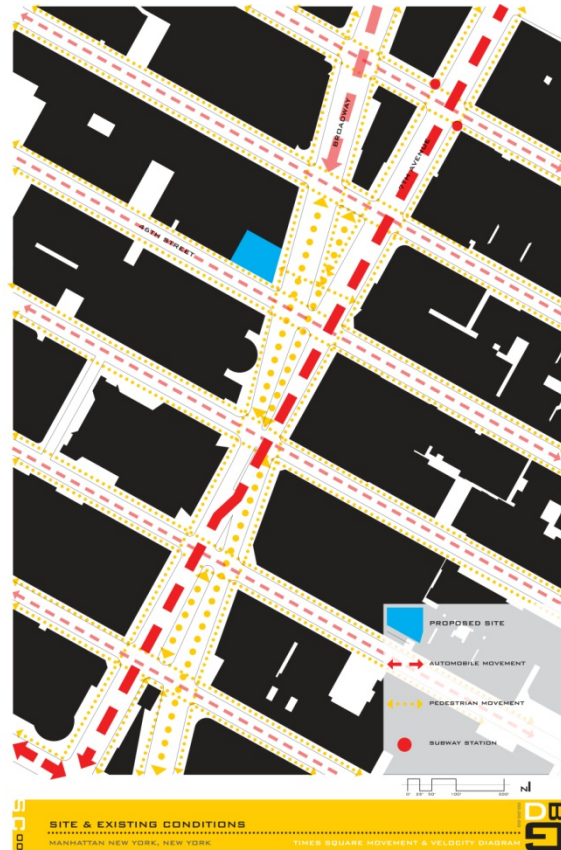


Figure 40: Diagram Movement and Velocity

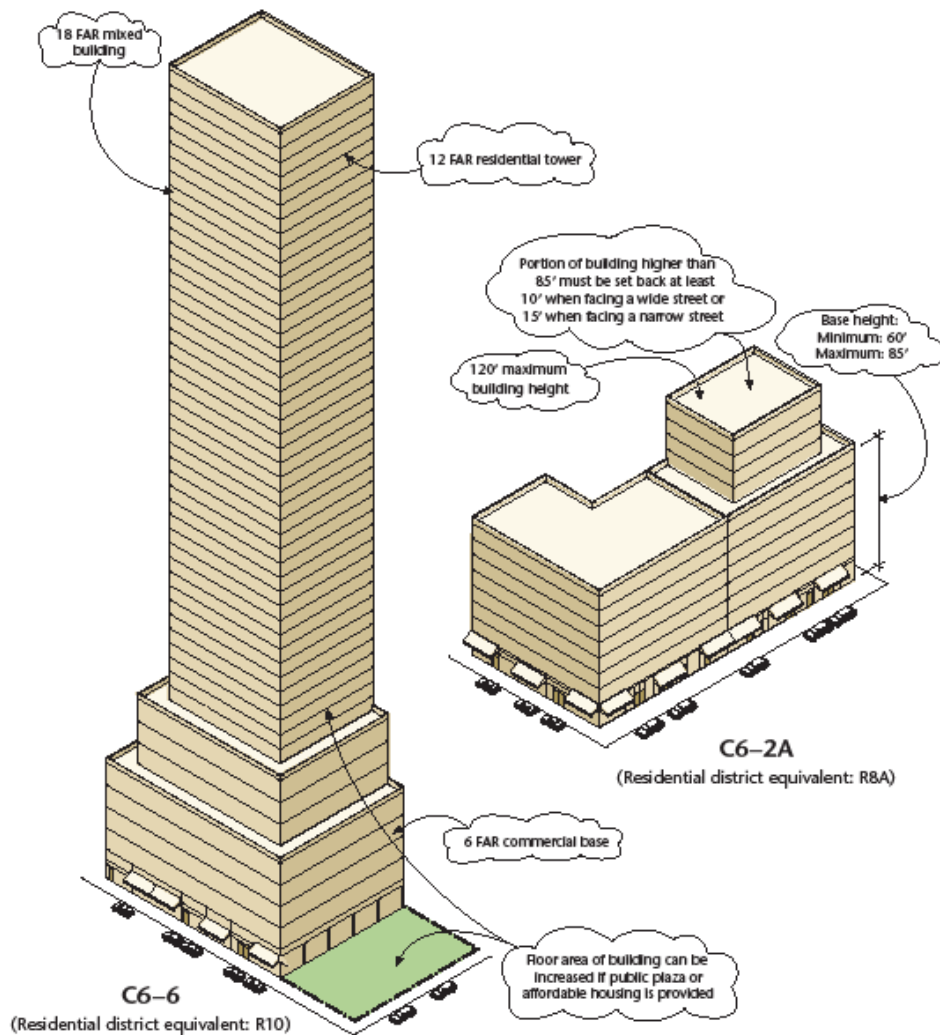
The circulation within the immediate Times Square edge is at fluctuating velocities that are all interconnected and intersecting harmoniously. There is a sensual experience when pedestrian velocities directly impact the movement and velocity of automobile circulation and vice versa. The intensity and continuous stimulation of multiple movement systems at velocities of different scales strongly impacts human consciousness. This unique characteristic of the Times Square district will provide an opportunity to investigate how the automobile and pedestrian will be translated into the building scale with movement conditions such as elevators, conveyor systems, etc. that connect horizontal and vertical places to the outside environment.

## Zoning

81-70 Special Regulations for Theater Subdistrict has a zoning ordinance regarding the Special Times Square Signage Requirement for all developers located on zoning lots between 43<sup>rd</sup> and 50<sup>th</sup> streets with street frontage on Seventh Avenue and/or Broadway to comply with the following requirements<sup>10</sup>

1. *At least one illuminated sign for the full length of the zoning lot frontage.*
2. *Illuminated signs shall be provided with a minimum aggregate surface area of 12 square feet for each linear foot of street frontage of the zoning lot on Seventh Avenue, Broadway and intersecting narrow streets up to the first 40 linear feet of street frontage.*
3. *Signs are required to meet a minimum of 20 percent of its surface area continuously electrically animated either by means of flashing borders, writing, pictorial representations, emblems or other figures of similar character or by means of flashing sign surface area serving as a field or background thereto; or, a minimum of 50 percent of its surface area continuously mechanically animated.*

Bulk regulations that are derived from lot size, floor area ratio, lot coverage, open space, yards, height and setbacks will determine the maximum size and placement of a building on the zoning lot for the proposed site (Figure 43). The zoning of the proposed site entails a land use of commercial and office and is classified as C6-7T. Therefore, the base height, sky exposures, and setbacks will be verified and determined to satisfy the zoning requirements for the proposed site.



C6 Commercial Districts																
	C6-1	C6-1A	C6-2	C6-2A	C6-3	C6-3A	C6-3D	C6-3X	C6-4	C6-4A	C6-4X	C6-5	C6-6	C6-7	C6-8	C6-9
Commercial FAR	6.0 <sup>1</sup>	6.0 <sup>2</sup>	6.0 <sup>3</sup>	6.0	6.0 <sup>4</sup>	6.0	9.0	6.0	10.0 <sup>5</sup>	10.0	10.0 <sup>6</sup>	10.0 <sup>6</sup>	15.0 <sup>6</sup>	15.0 <sup>6</sup>	10.0 <sup>6</sup>	15.0 <sup>6</sup>
Residential FAR	0.87-3.44 <sup>1</sup>	0.78-2.43 <sup>1,2</sup>	0.94-6.02 <sup>1,3</sup>	6.02 <sup>4</sup>	0.99-7.52 <sup>4</sup>	7.52 <sup>2</sup>	9.0 <sup>2</sup>	9.0	10.0 <sup>1,5</sup>	10.0 <sup>4</sup>	10.0 <sup>4</sup>	10.0 <sup>1,5</sup>	10.0 <sup>4</sup>	10.0 <sup>4</sup>	10.0 <sup>1,5</sup>	10.0 <sup>4</sup>
Residential District Equivalent	R7	R6	R8	R8A	R9	R9A	R9D	R9X	R10	R10A	R10X	R10	R10	R10	R10	R10

<sup>1</sup> 4.0 FAR on wide streets outside the Manhattan Core under Quality Housing Program  
<sup>2</sup> 3.0 FAR on wide streets outside the Manhattan Core under Quality Housing Program  
<sup>3</sup> 7.2 FAR on wide streets outside the Manhattan Core under Quality Housing Program  
<sup>4</sup> FAR bonus of up to 20% for a public plaza  
<sup>5</sup> Increase in FAR with Inclusionary Housing Program bonus

Figure 41: New York City Zoning Regulations

Sustainability Goals or Considerations

Existing Conditions

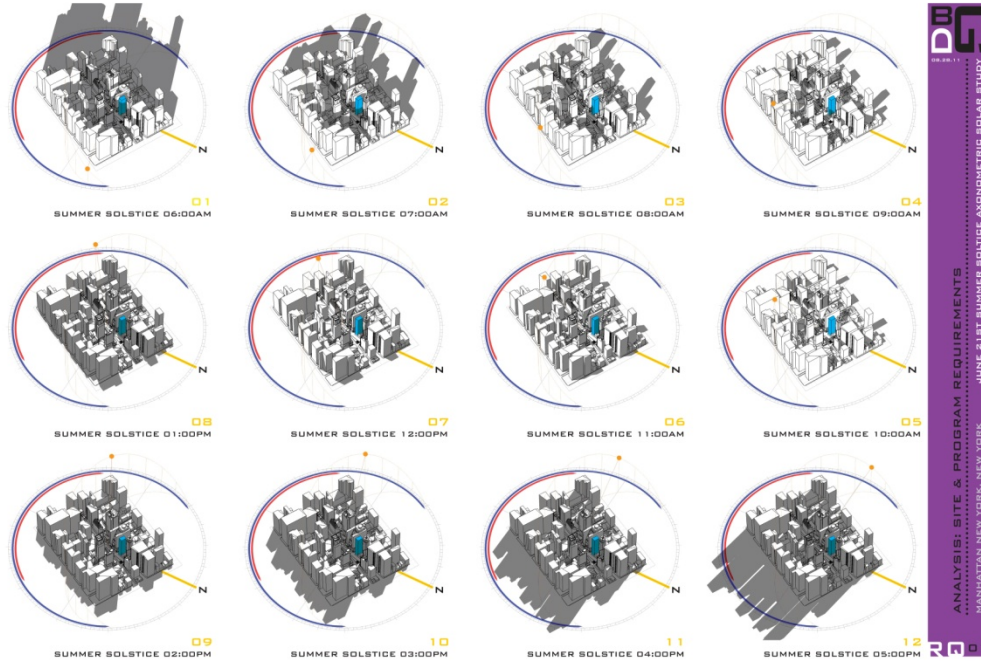


Figure 42: Diagram Summer Solstice Solar Studies

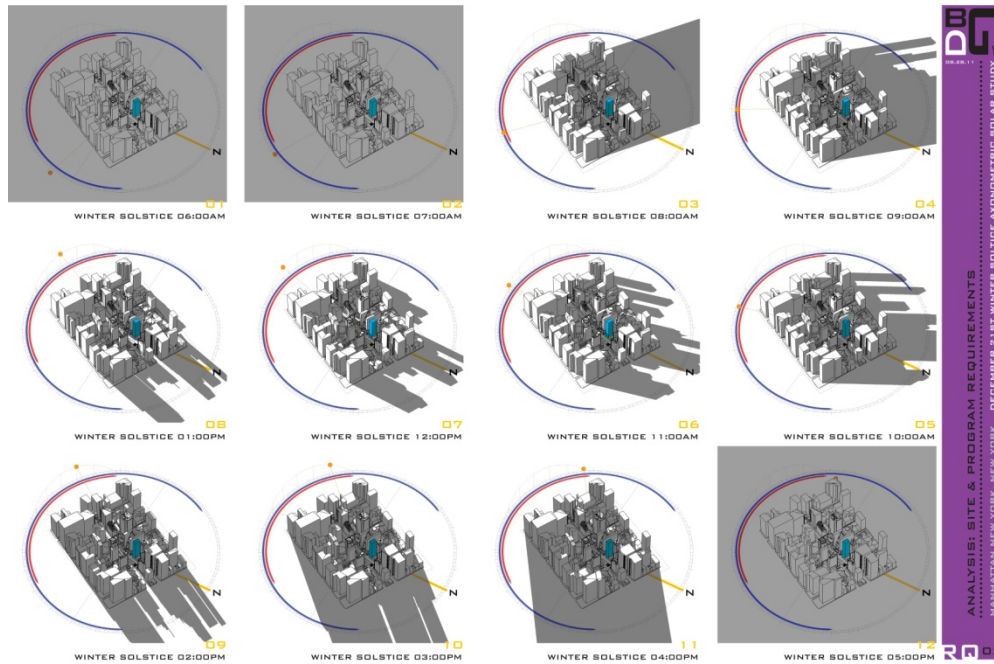


Figure 43: Diagram Winter Solstice Solar Studies



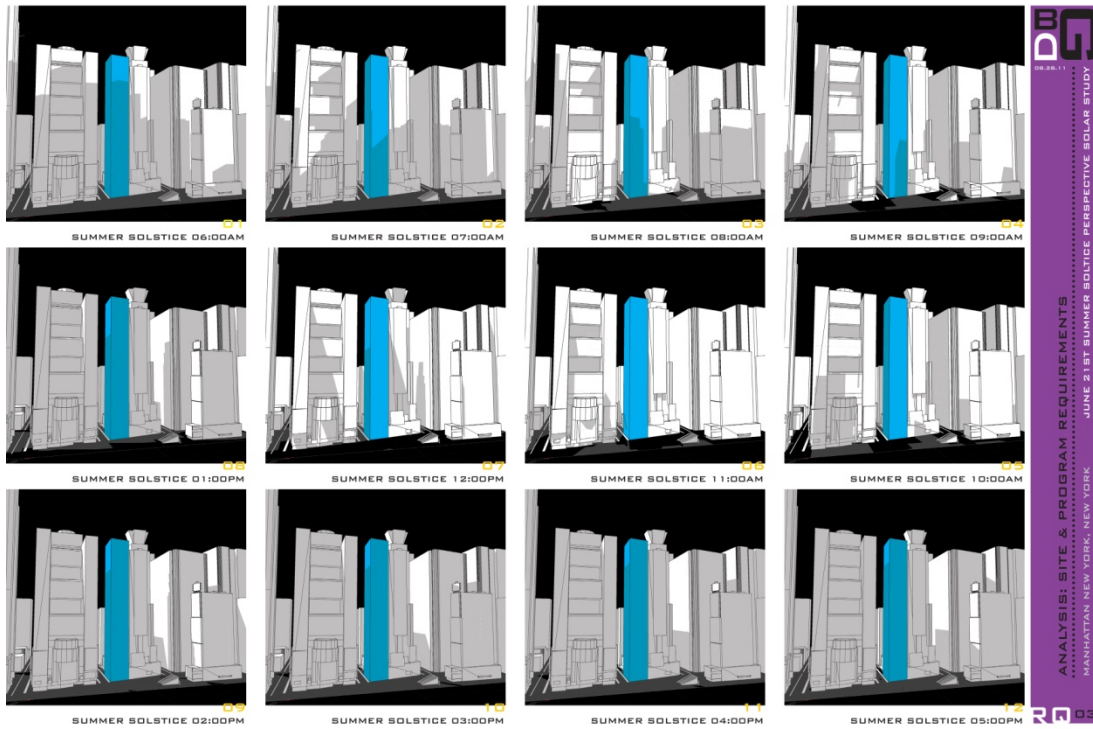


Figure 44: Diagram Summer Solstice Solar Studies

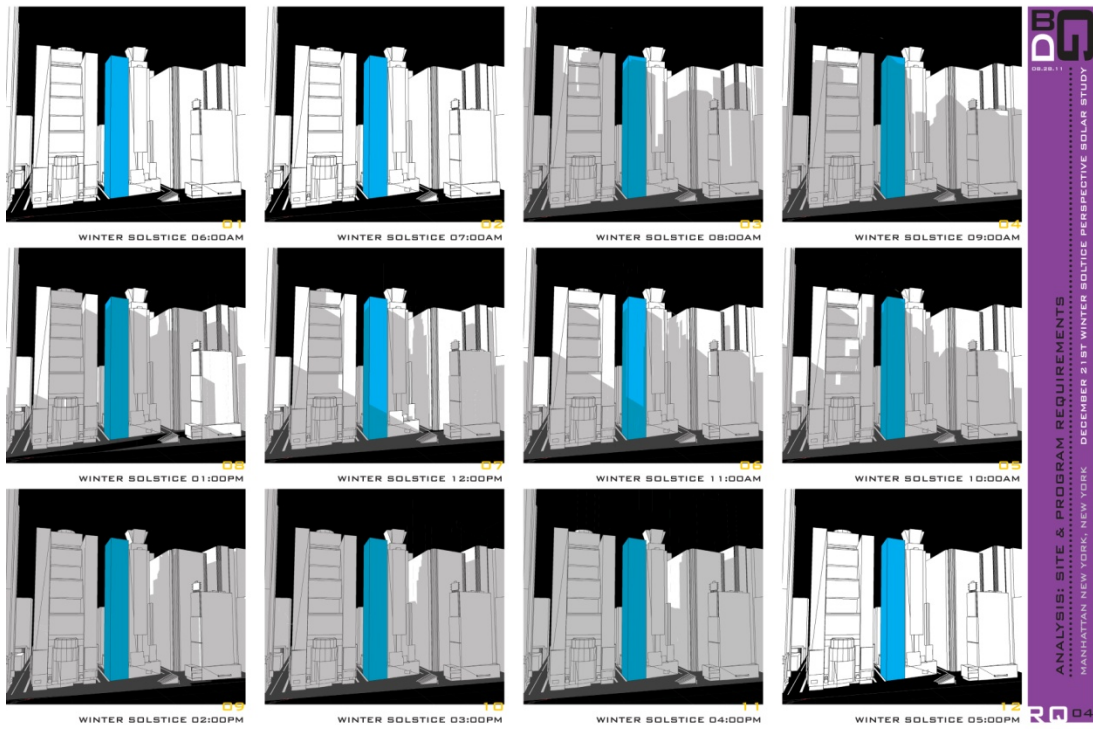


Figure 45: Diagram Winter Solstice Solar Studies

## PlaNYC 2030 : NYC Green Codes

PlaNYC was initiated by Mayor Bloomberg to prepare the city for a more resilient and independently sustainable future by enhancing the economy, climate change, and quality of life of New Yorkers. The development of PlaNYC has spawned the NYC Green Codes Task Force to research and initiate mandatory city-wide sustainable codes that are in the process of being enacted into NYC building codes. The NYC Green Codes is not a building rating system. Most NYC Green Code satisfies or is beyond the minimum requirement for the LEED 2009 Rating System.

### **Issuing Organization**

- NYC Green Codes Task Force
- Urban Green Council

### **Initial Date of Issue**

- February 1, 2010

### **Applicability**

- New buildings under construction
- Existing buildings under renovation
- Existing buildings with upgrades

### **Table of Contents**

- Section 01 (OC): Overarching Code Issues
- Section 02 (HT): Health & Toxicity
- Section 03 (EF): Energy & Carbon Emissions: Fundamentals
- Section 04 (EE): Energy & Carbon Emissions: Energy Efficiency
- Section 05 (EO): Energy & Carbon Emissions: Operations & Maintenance
- Section 06 (BR): Building Resilience
- Section 07 (RC): Resource Conservation
- Section 08 (WE): Water Efficiency
- Section 09 (SW): Stormwater
- Section 10 (UE): Urban Ecology
- Appendix A: Financial Cost & Savings Data

## LEED 2009 for New Construction and Major Renovations

### LEED 2009 FOR NEW CONSTRUCTION AND MAJOR RENOVATIONS PROJECT CHECKLIST

<b>Sustainable Sites</b>		<b>26 Possible Points</b>	<b>22 POINTS</b>
<input checked="" type="checkbox"/>	Prerequisite 1 Construction Activity Pollution Prevention	Required	
	<input type="checkbox"/> Credit 1 Site Selection	1	
	<input type="checkbox"/> Credit 2 Development Density and Community Connectivity	5	
	<input type="checkbox"/> Credit 3 Brownfield Redevelopment	1	
	<input type="checkbox"/> Credit 4.1 Alternative Transportation—Public Transportation Access	6	
	<input type="checkbox"/> Credit 4.2 Alternative Transportation—Bicycle Storage and Changing Rooms	1	
	<input type="checkbox"/> Credit 4.3 Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3	
	<input type="checkbox"/> Credit 4.4 Alternative Transportation—Parking Capacity	2	
	<input type="checkbox"/> Credit 5.1 Site Development—Protect or Restore Habitat	1	
	<input type="checkbox"/> Credit 5.2 Site Development—Maximize Open Space	1	
	<input type="checkbox"/> Credit 6.1 Stormwater Design—Quantity Control	1	
	<input type="checkbox"/> Credit 6.2 Stormwater Design—Quality Control	1	
	<input type="checkbox"/> Credit 7.1 Heat Island Effect—Nonroof	1	
	<input type="checkbox"/> Credit 7.2 Heat Island Effect—Roof	1	
	<input type="checkbox"/> Credit 8 Light Pollution Reduction	1	
<b>Water Efficiency</b>		<b>10 Possible Points</b>	<b>10 POINTS</b>
<input checked="" type="checkbox"/>	Prerequisite 1 Water Use Reduction	Required	
	<input type="checkbox"/> Credit 1 Water Efficient Landscaping	2-4	
	<input type="checkbox"/> Credit 2 Innovative Wastewater Technologies	2	
	<input type="checkbox"/> Credit 3 Water Use Reduction	2-4	
<b>Energy and Atmosphere</b>		<b>35 Possible Points</b>	<b>14 POINTS</b>
<input checked="" type="checkbox"/>	Prerequisite 1 Fundamental Commissioning of Building Energy Systems	Required	
<input checked="" type="checkbox"/>	Prerequisite 2 Minimum Energy Performance	Required	
<input checked="" type="checkbox"/>	Prerequisite 3 Fundamental Refrigerant Management	Required	
	<input type="checkbox"/> Credit 1 Optimize Energy Performance	1-19	
	<input type="checkbox"/> Credit 2 On-site Renewable Energy	1-7	
	<input type="checkbox"/> Credit 3 Enhanced Commissioning	2	
	<input type="checkbox"/> Credit 4 Enhanced Refrigerant Management	2	
	<input type="checkbox"/> Credit 5 Measurement and Verification	3	
	<input type="checkbox"/> Credit 6 Green Power	2	
<b>Materials and Resources</b>		<b>14 Possible Points</b>	<b>9 POINTS</b>
<input checked="" type="checkbox"/>	Prerequisite 1 Storage and Collection of Recyclables	Required	
	<input type="checkbox"/> Credit 1.1 Building Reuse—Maintain Existing Walls, Floors and Roof	1-3	
	<input type="checkbox"/> Credit 1.2 Building Reuse—Maintain Existing Interior Nonstructural Elements	1	
	<input type="checkbox"/> Credit 2 Construction Waste Management	1-2	
	<input type="checkbox"/> Credit 3 Materials Reuse	1-2	
	<input type="checkbox"/> Credit 4 Recycled Content	1-2	

LEED 2009 FOR NEW CONSTRUCTION AND MAJOR RENOVATIONS

➡	<input type="checkbox"/>	Credit 5	Regional Materials	1-2
➡	<input type="checkbox"/>	Credit 6	Rapidly Renewable Materials	1
	<input type="checkbox"/>	Credit 7	Certified Wood	1

**Indoor Environmental Quality**

**15 Possible Points 9 POINTS**

	<input checked="" type="checkbox"/>	Prerequisite 1	Minimum Indoor Air Quality Performance	Required
	<input checked="" type="checkbox"/>	Prerequisite 2	Environmental Tobacco Smoke (ETS) Control	Required
	<input type="checkbox"/>	Credit 1	Outdoor Air Delivery Monitoring	1
➡	<input type="checkbox"/>	Credit 2	Increased Ventilation	1
	<input type="checkbox"/>	Credit 3.1	Construction Indoor Air Quality Management Plan—During Construction	1
	<input type="checkbox"/>	Credit 3.2	Construction Indoor Air Quality Management Plan—Before Occupancy	1
➡	<input type="checkbox"/>	Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1
➡	<input type="checkbox"/>	Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
➡	<input type="checkbox"/>	Credit 4.3	Low-Emitting Materials—Flooring Systems	1
➡	<input type="checkbox"/>	Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Products	1
	<input type="checkbox"/>	Credit 5	Indoor Chemical and Pollutant Source Control	1
➡	<input type="checkbox"/>	Credit 6.1	Controllability of Systems—Lighting	1
➡	<input type="checkbox"/>	Credit 6.2	Controllability of Systems—Thermal Comfort	1
	<input type="checkbox"/>	Credit 7.1	Thermal Comfort—Design	1
	<input type="checkbox"/>	Credit 7.2	Thermal Comfort—Verification	1
➡	<input type="checkbox"/>	Credit 8.1	Daylight and Views—Daylight	1
➡	<input type="checkbox"/>	Credit 8.2	Daylight and Views—Views	1

**Innovation in Design**

**6 Possible Points**

	<input type="checkbox"/>	Credit 1	Innovation in Design	1-5
	<input type="checkbox"/>	Credit 2	LEED Accredited Professional	1

**Regional Priority**

**4 Possible Points**

	<input type="checkbox"/>	Credit 1	Regional Priority	1-4
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**LEED 2009 for New Construction and Major Renovations**

**GOAL TOTAL: 64 POINTS**

100 base points; 6 possible Innovation in Design and 4 Regional Priority points

Certified	40–49 points
Silver	50–59 points
<b>Gold</b>	<b>60–79 points</b>
Platinum	80 points and above

*Applicable Codes*

International Code Council Building Code

2010 Building Code of New York State

2008 NYC Construction Code

Conceptual Design Strategies

Impact of Research Data and Analysis on the Architectural Design

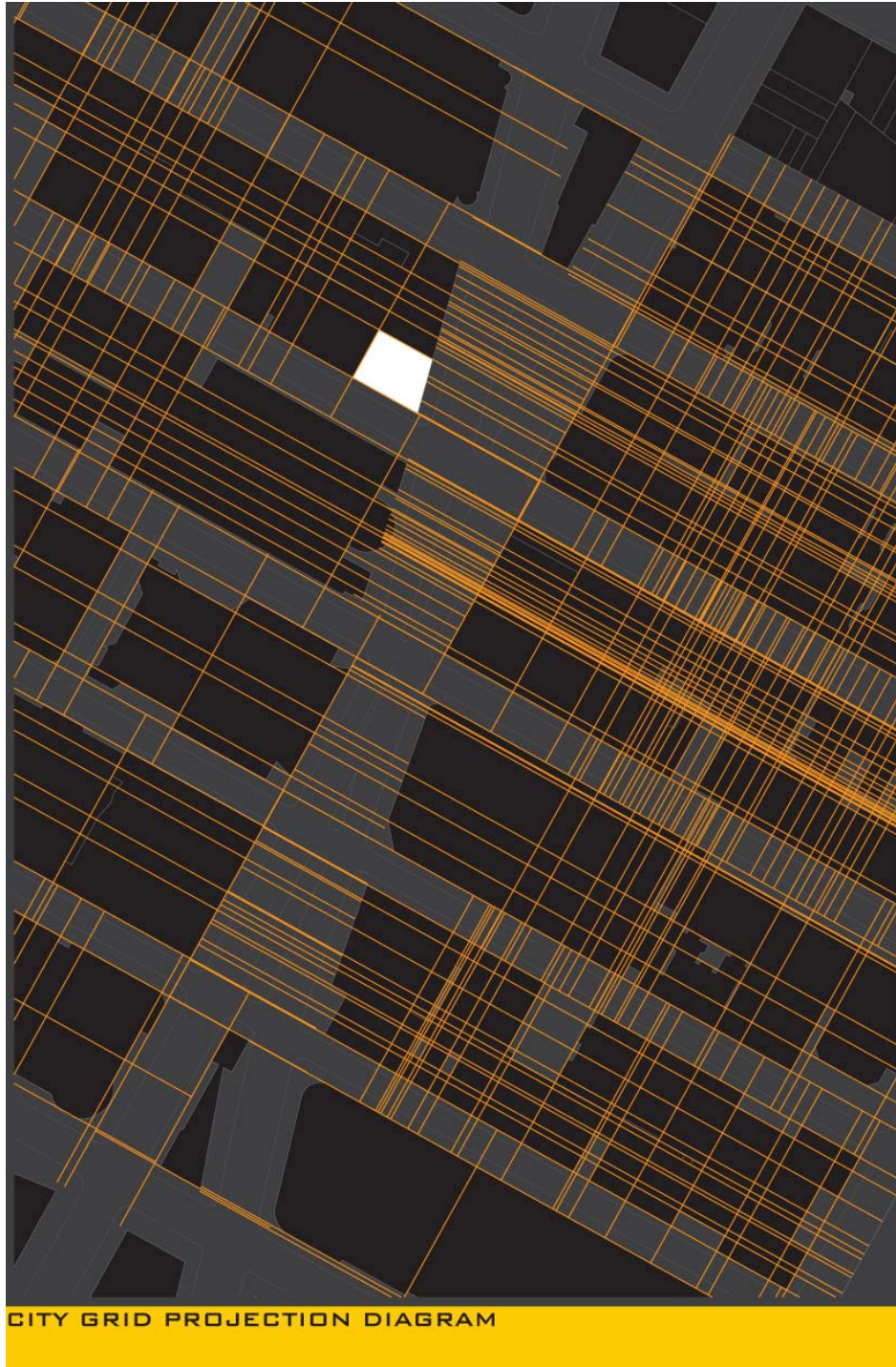


Figure 46: City Grid Projection Site Diagram

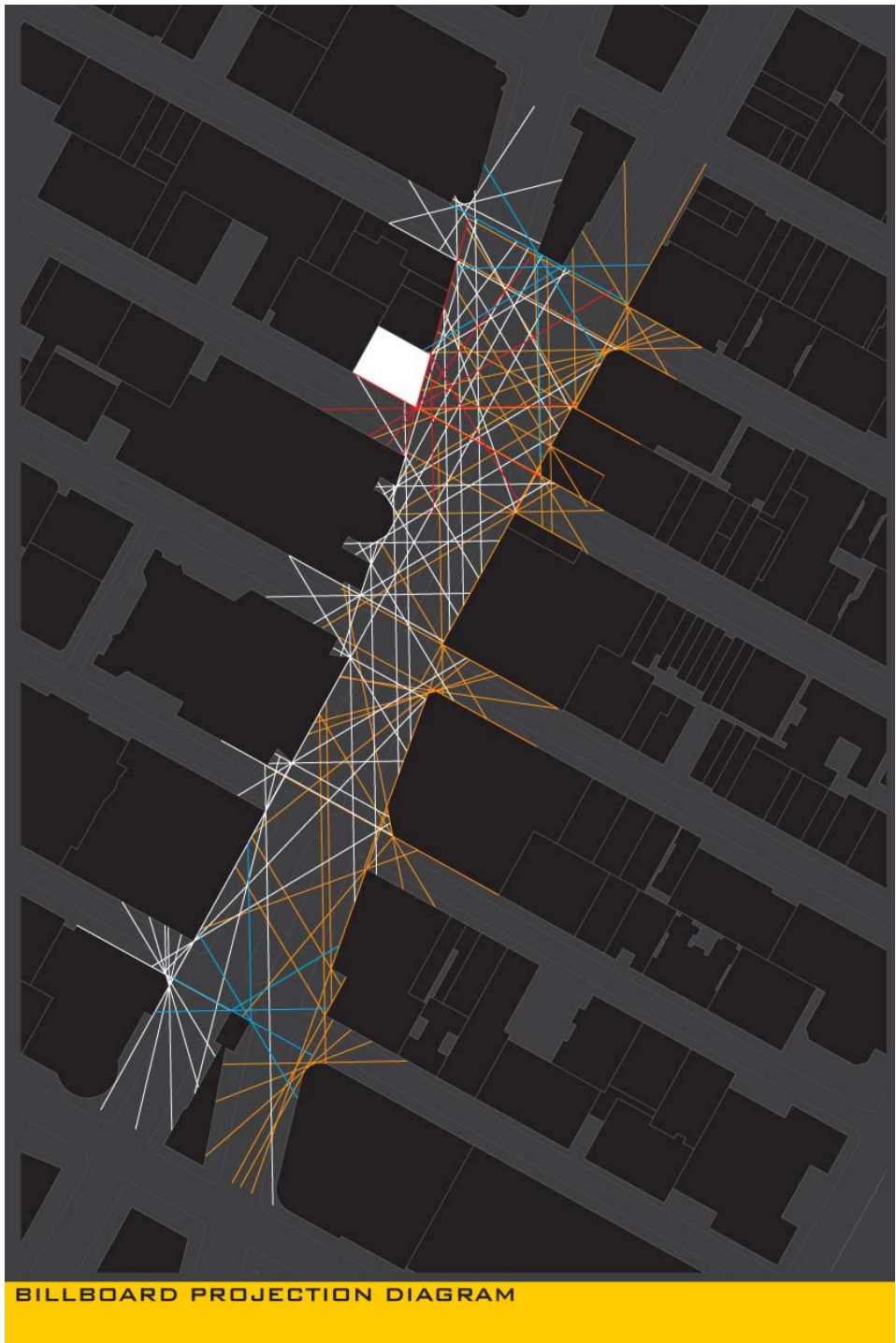


Figure 47: Billboard Projection Site Diagram

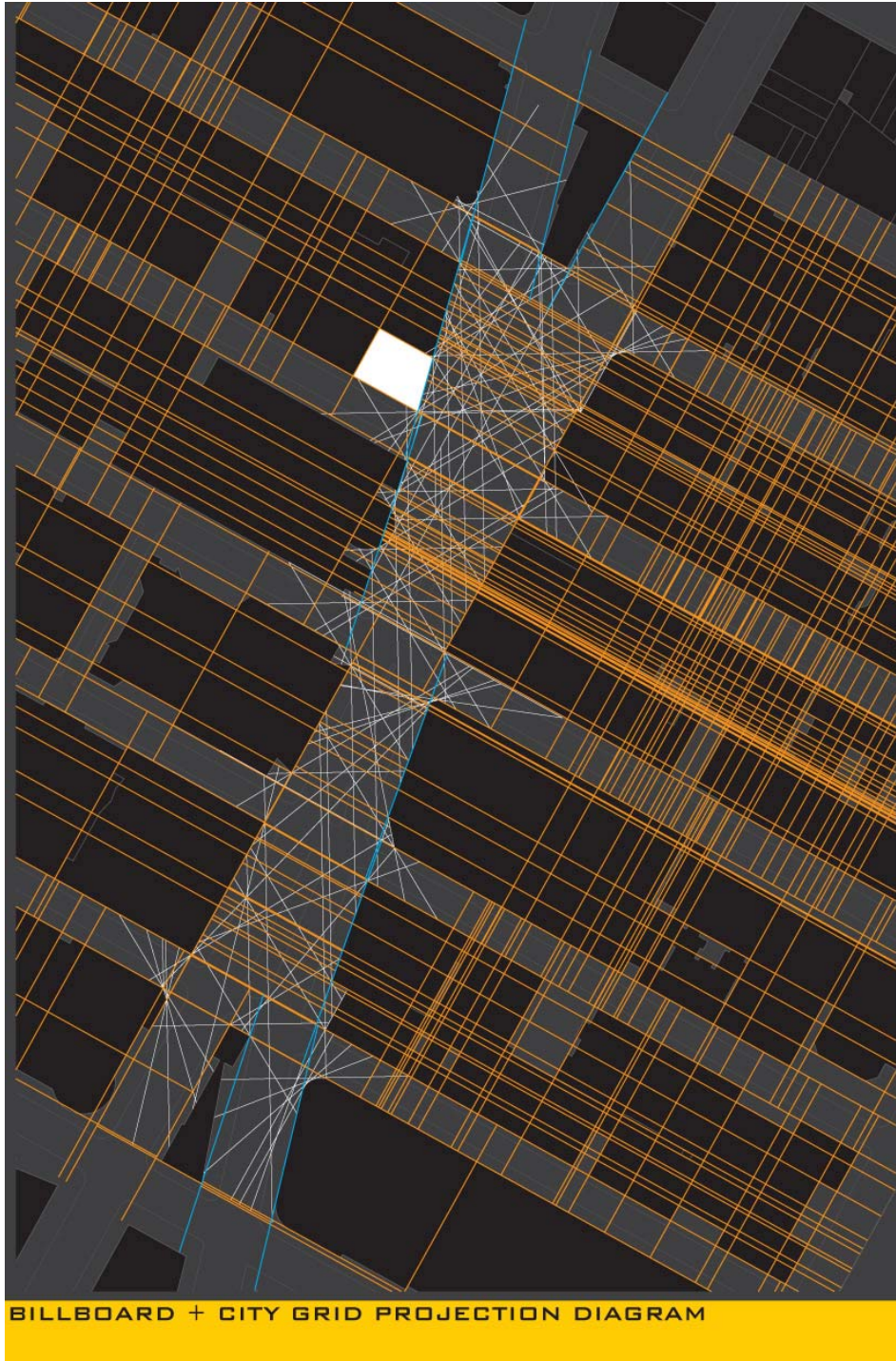
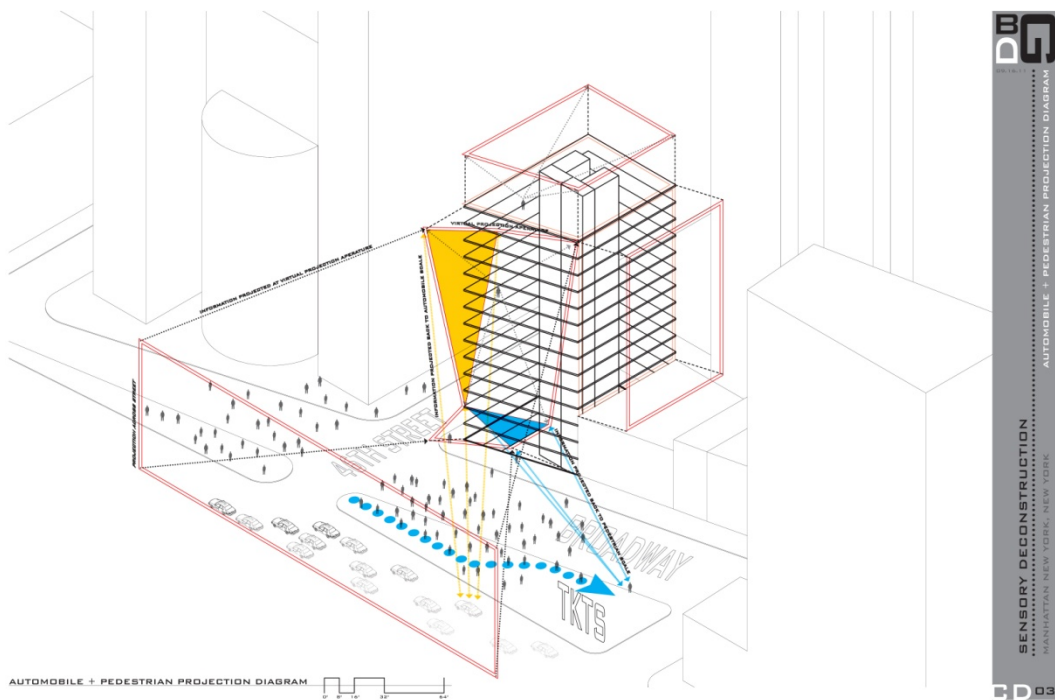
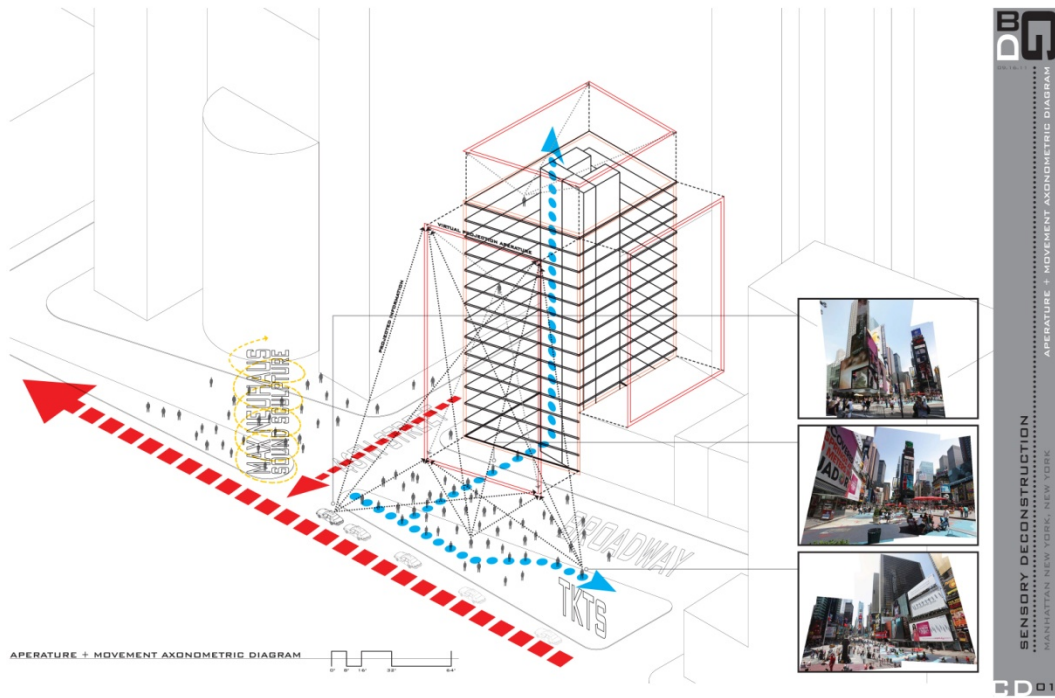


Figure 48: Billboard + City Grid Projection Site Diagram



# Perception + Movement Diagram



### *Alternative Parti Analysis*

The massing parti studies are based on the concept of visual transformation of information that is being project onto the building envelop. The changing façade geometries provide opportunities of multiple interpretations as one circulates Times Square. Proposed Parti 01 incorporates Euclidian geometry as a building envelope which is comprised from the city grid projections of the 1811 grid and built of the surrounding the site. The Proposed Parti 02 incorporates faceted geometry as a building envelope which is comprised from the dynamic billboard projection geometry of the surrounding site in Times Square. The experience of the billboard projection geometry as three-dimensional space heightens the visual experience of Times Square. Proposed Parti 02 establishes the strongest connection to the geometrical texture that is being projection within the edge conditions of Times Square as demonstrated in Figure 51 and its reflective relationship to the proposed showroom and its site context.

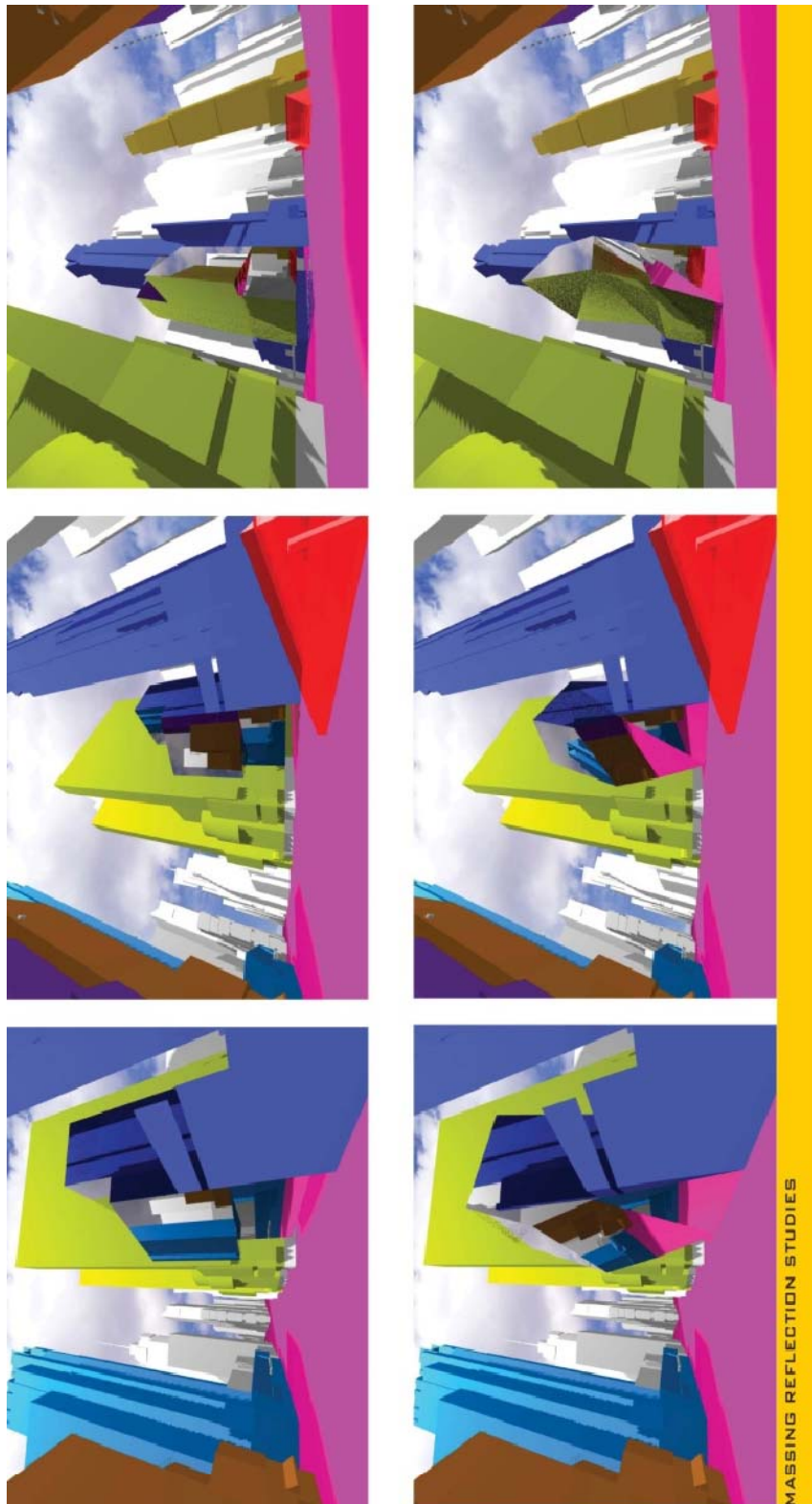


Figure 49: Massing Reflection Studies



Figure 50: Form Study - Euclidian Geometry



Figure 51: Form Study - Faceted Geometry

Drawings

Vicinity Plans

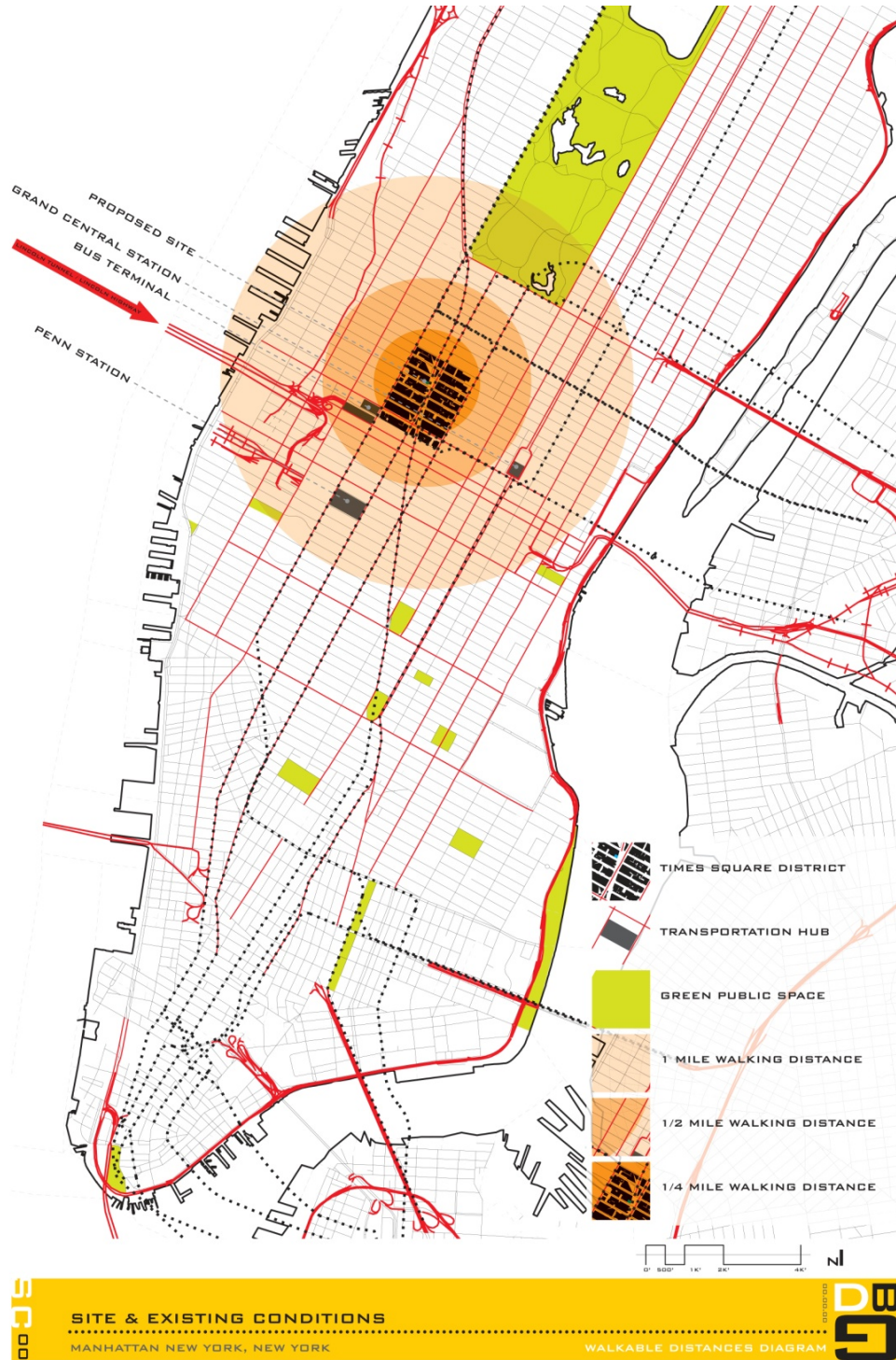


Figure 52: Vicinity Plan Manhattan

Site Plans

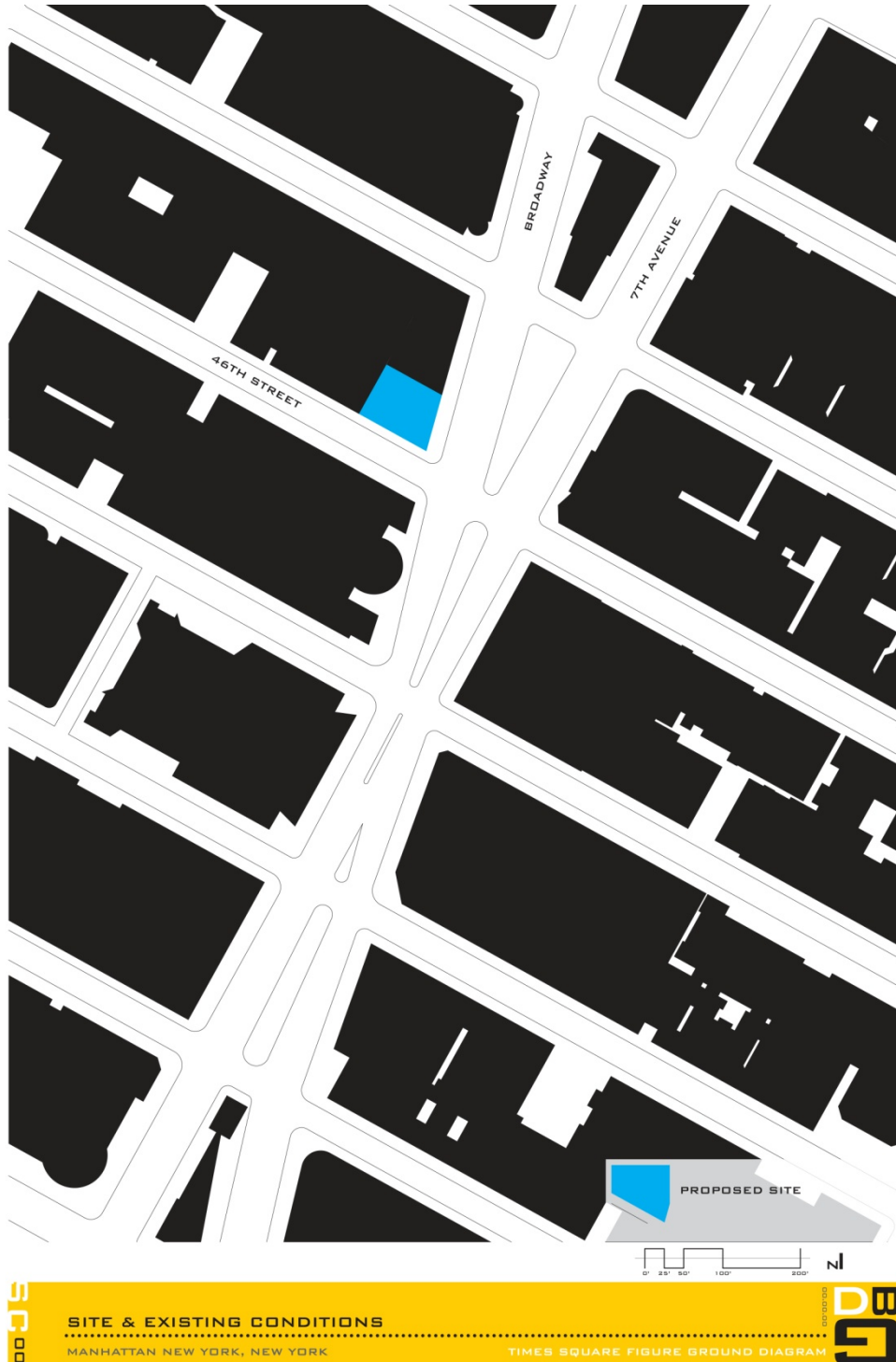
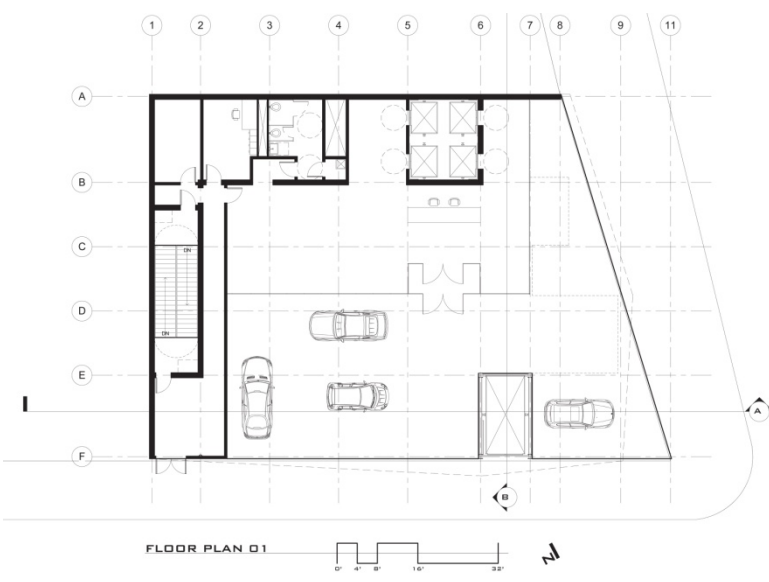
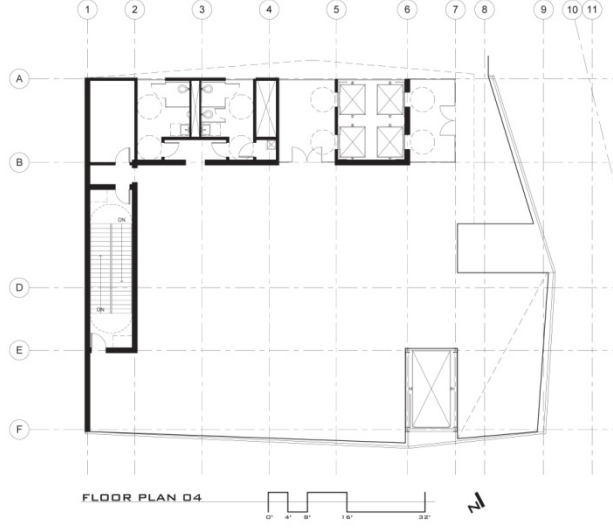
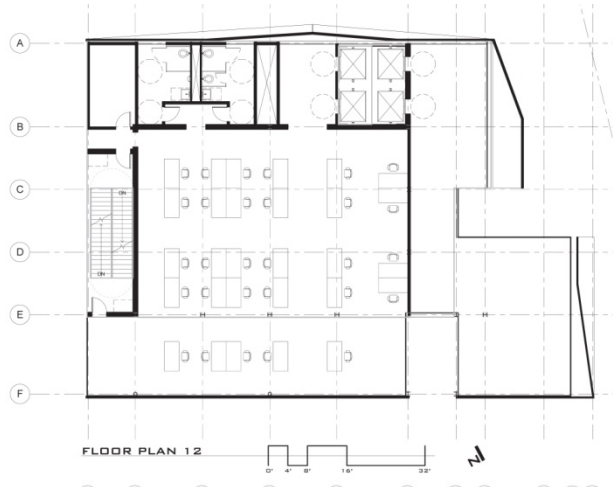


Figure 53: Site Plan

# Building Plans





# Sections

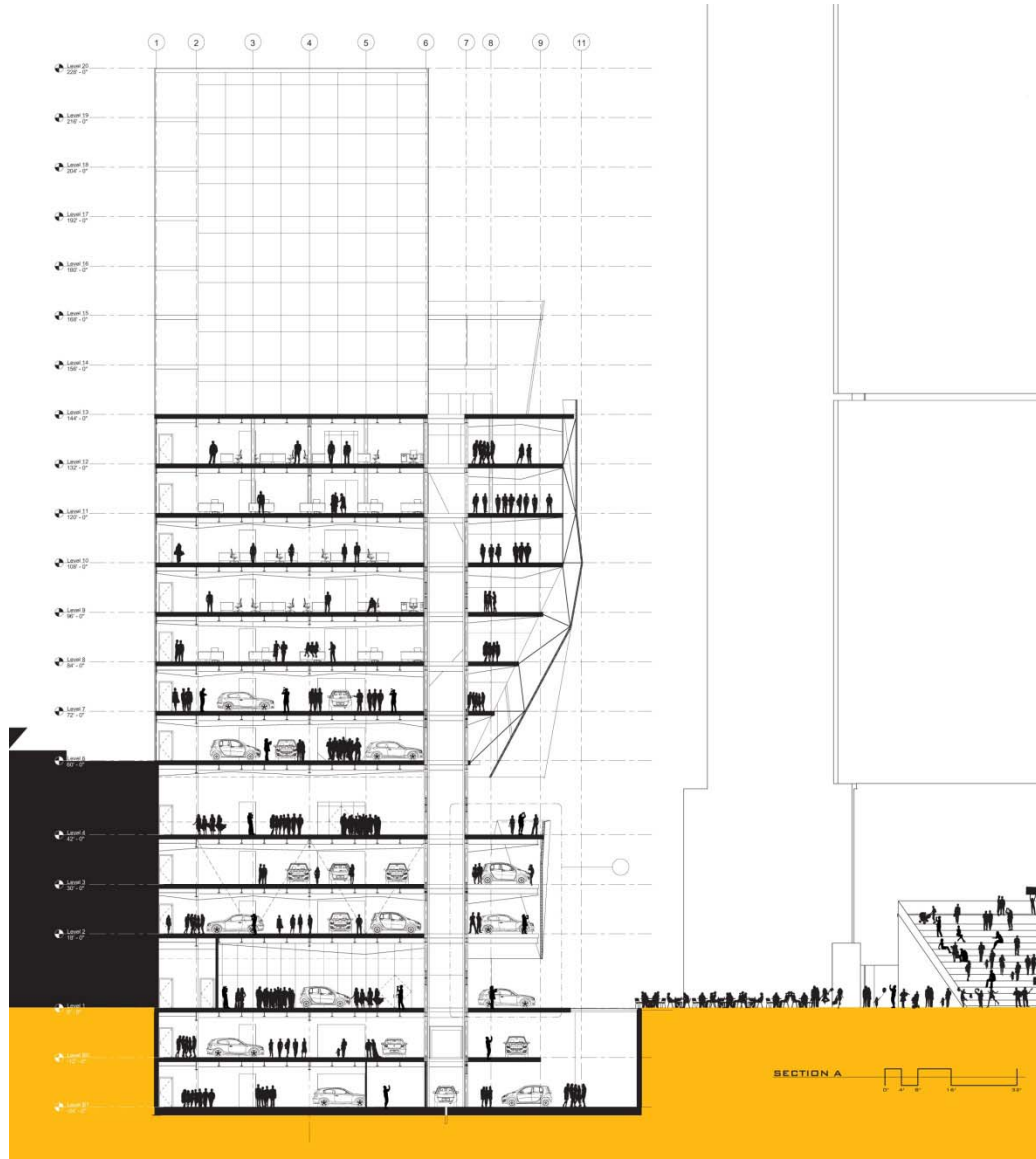


Figure 54: Section A (East-West)

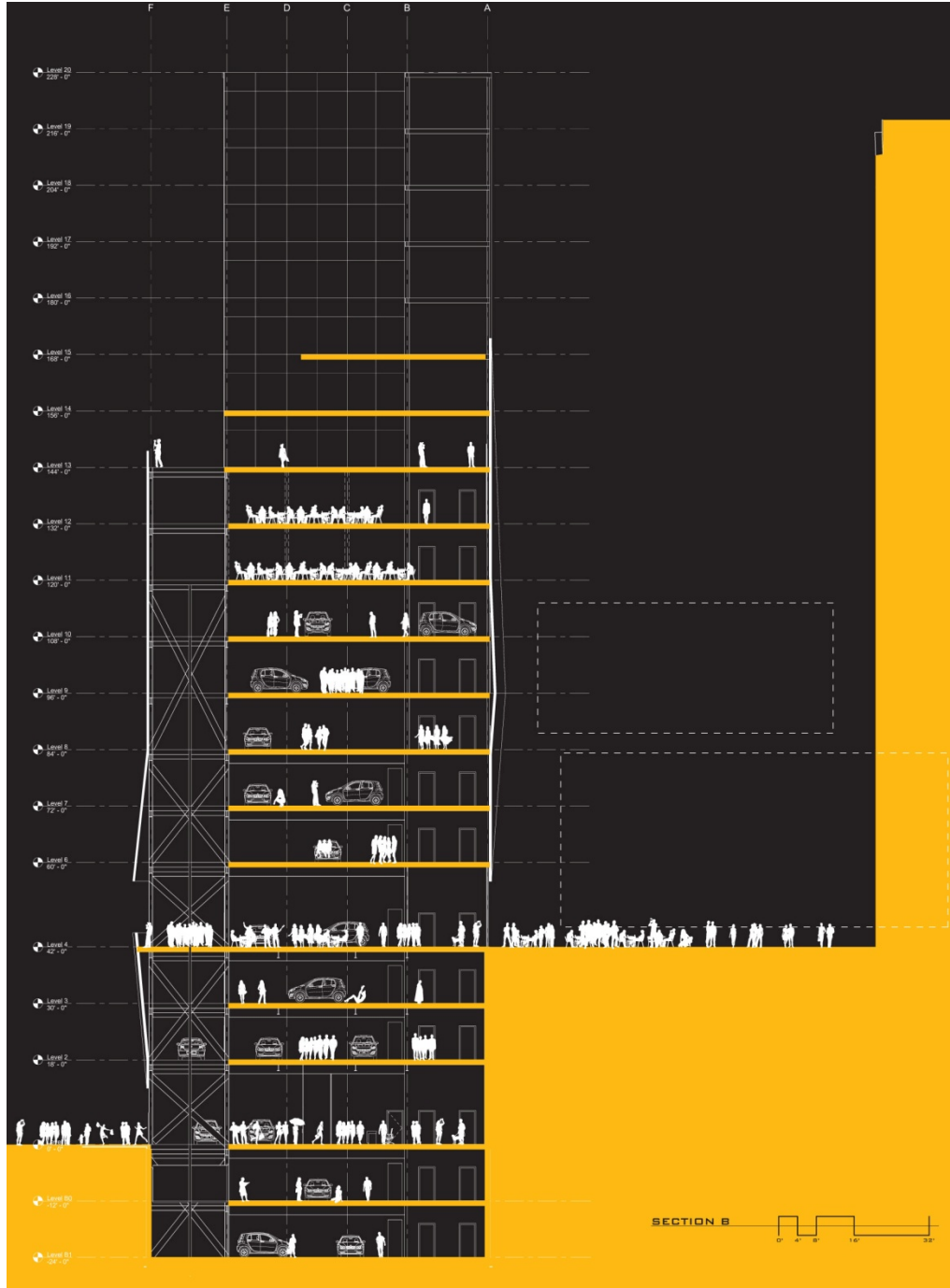


Figure 55: Section B (North-South)

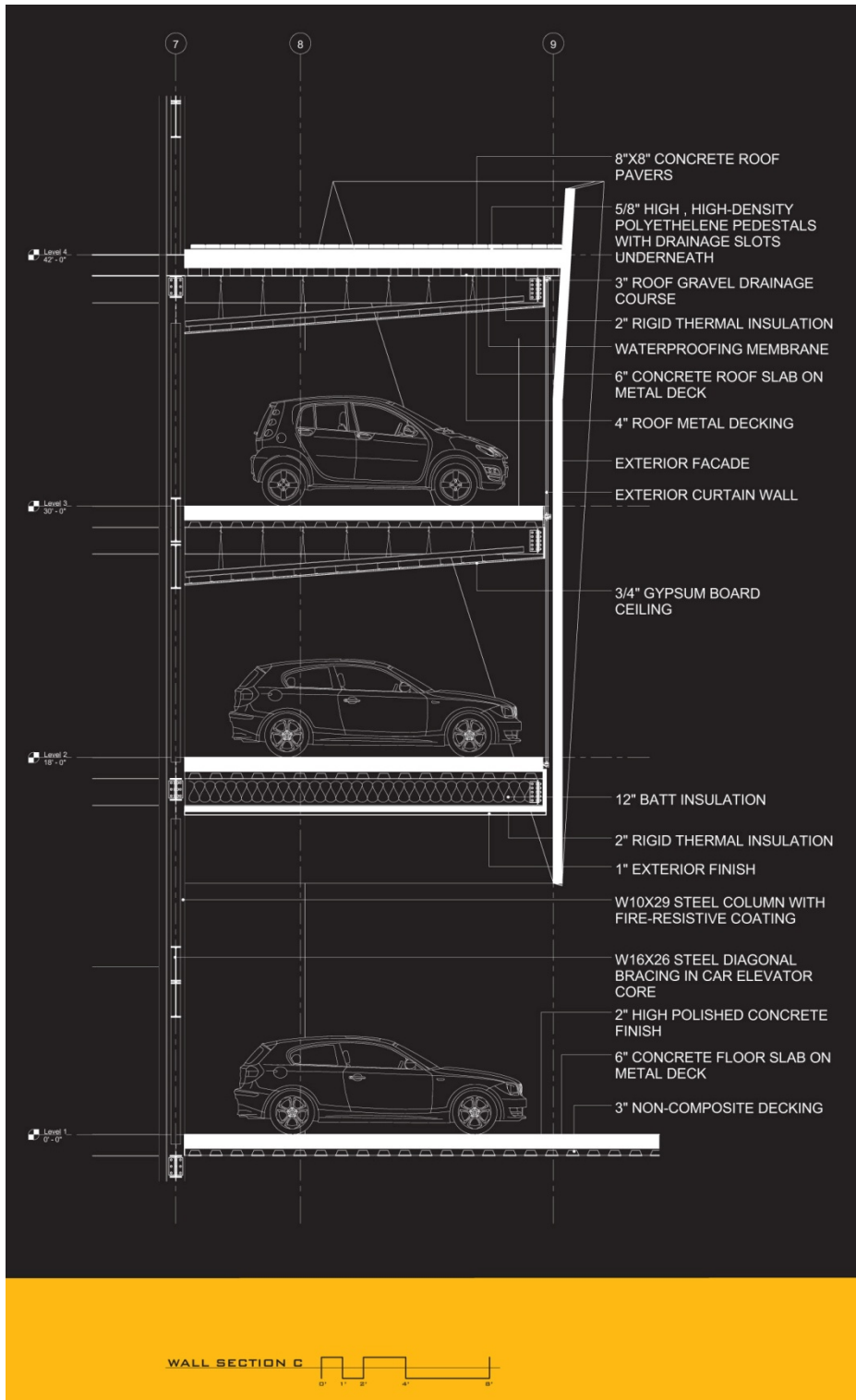


Figure 56: Wall Section A (East-West)

Elevation

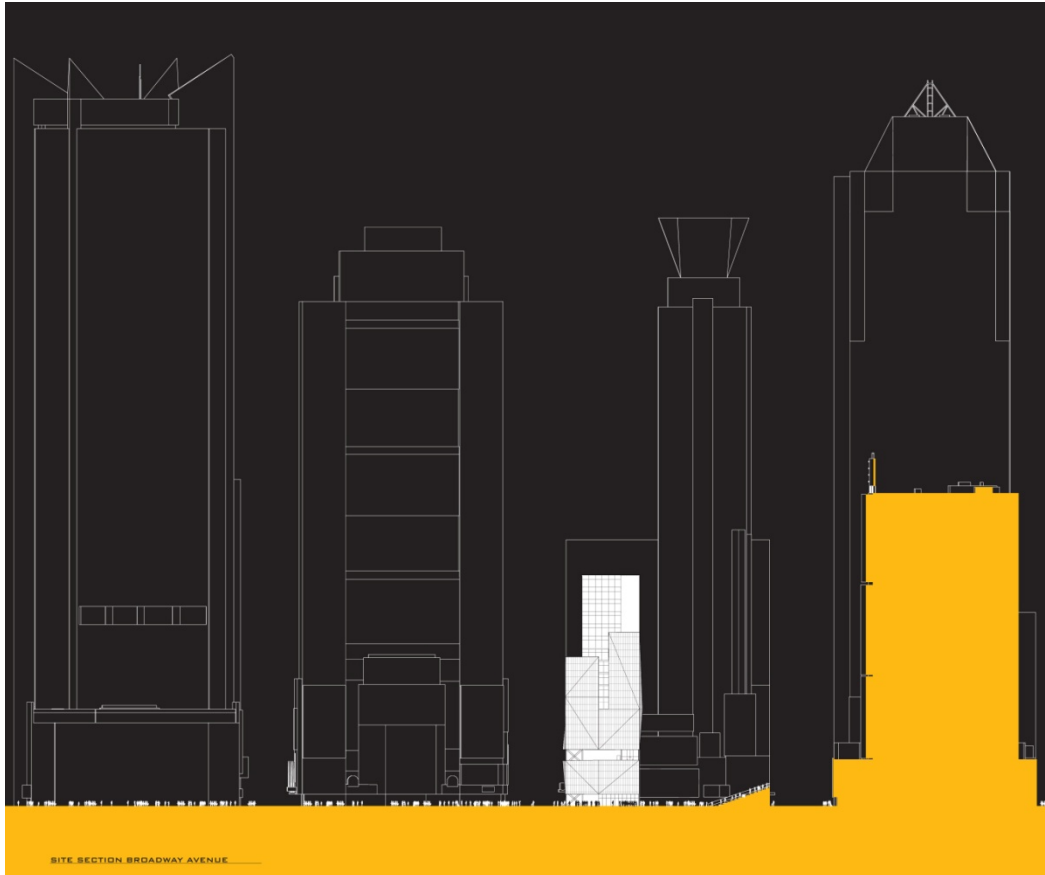


Figure 57: Elevation East

Axons and Perspectives Indicating Massing of Major Program

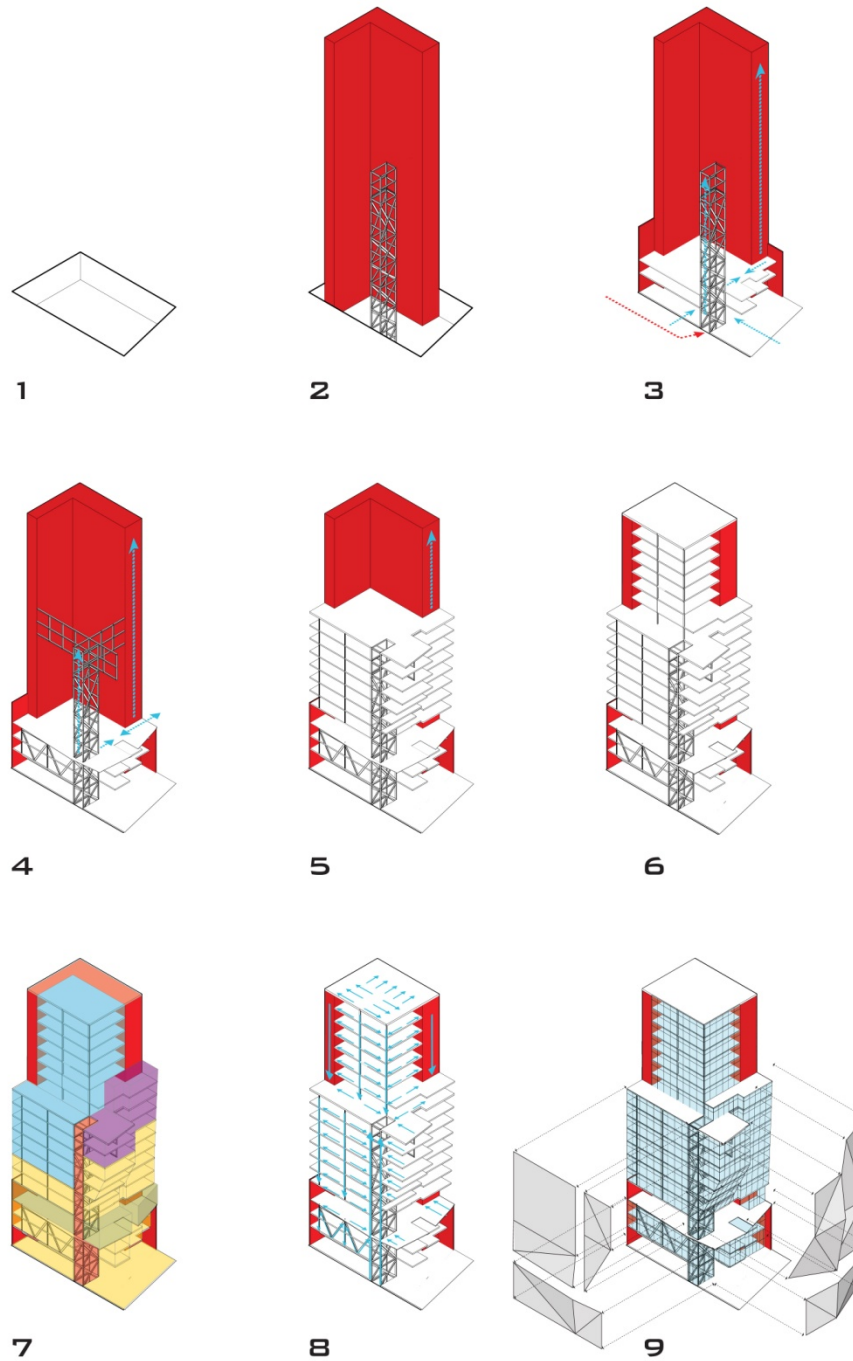


Figure 58: Axonometric - Program + Tectonics

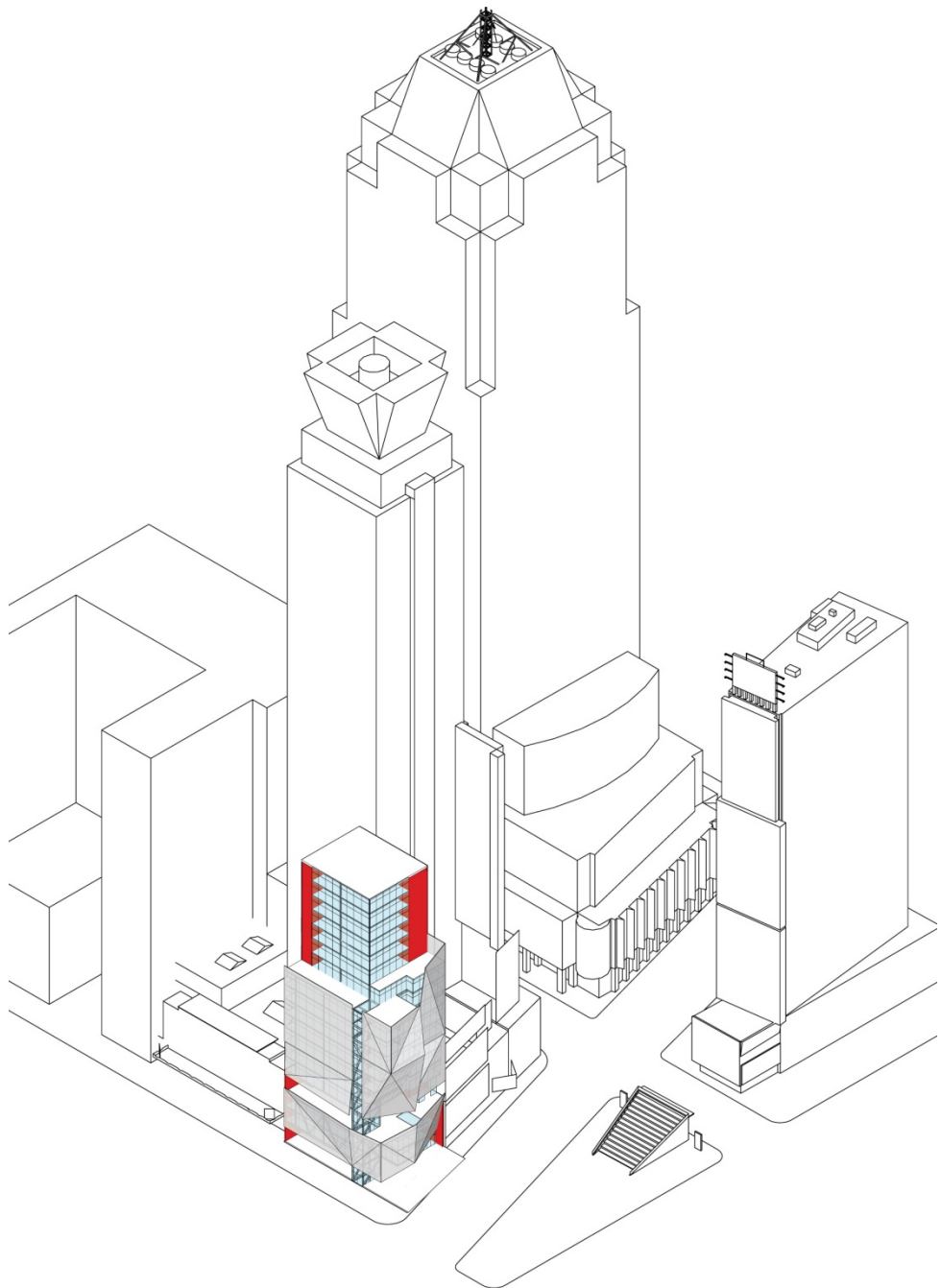


Figure 59: Axonometric - Site Relationship



Figure 60: Perspective Exterior - Day Condition



Figure 61: Perspective Exterior - Night Condition



Figure 62: Perspective Interior – Elevated Plaza



Figure 63: Perspective Interior – Showroom

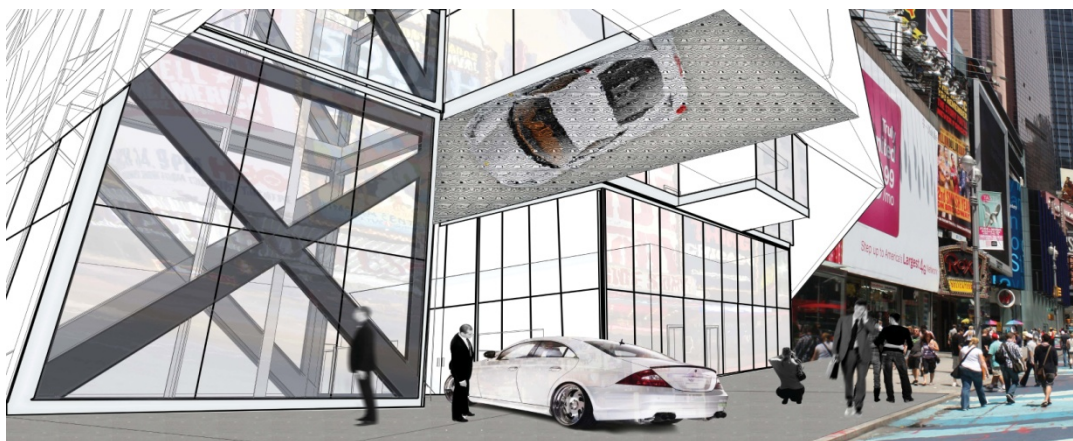


Figure 64: Perspective Interior – Public Lobby



## Chapter 7: Conclusion

Times Square is the epicenter of energized sensory experiences that have a strong interaction at two distinct scales, the automobile and the pedestrian. The multiple interpretations that are experienced in visual perception and dynamic movement systems in Times Square as a voyeur, spectacle, and spectator develops a complexity of multi-sensory experiences that fully re-engages the human condition to its external environment. The photographic energy, the velocity of the automobile, and the dynamism of illuminated signage are all fundamental components of Times Square that have been historically disconnected in architecture between internal and external spaces. Billboards have been an element of application and transmission of information on buildings facing Times Square as opposed to an integration between the interface of inside and outside conditions.

The exploration of automobiles is a strong multi-sensory paradigm that clearly identifies the complexities and engagements of inhabitable environments at multiple scales. The windshield of the automobile is the interface between a virtualized interpretation of reality of the outside world. This notion is also correlated with the idea of perceiving reality through a window inside a building. In both cases, the glass interface is medium that allows for information of reality to be projected while separating the body from fully experiencing reality. Thus, the automobile showroom demonstrates this experiential phenomenon through its materiality of the façade. The LED curtain wall system allows for information to be transmitted inside the building

as voyeurs perceiving the dynamic view of Times Square. In addition, the LED curtain wall system projects digital information back to the spectators of Times Square while allowing the spectators to perceive the layering of reality within the building and the project advertisement. This juxtaposition of complexities in visual experiences as demonstrated in the perspective drawings implies a strong visual contrast of surface and depth, abstraction and actuality, and tangibility and intangibility that can be experienced as a voyeur, spectacle, and spectator within the dynamic energy of Times Square.

# Appendices

Climate Data

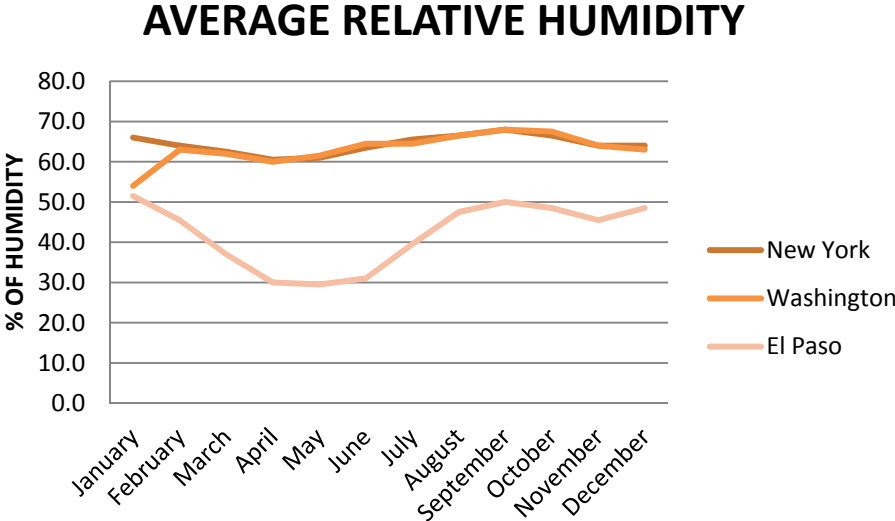


Figure 65: Climate Data: Average Relative Humidity

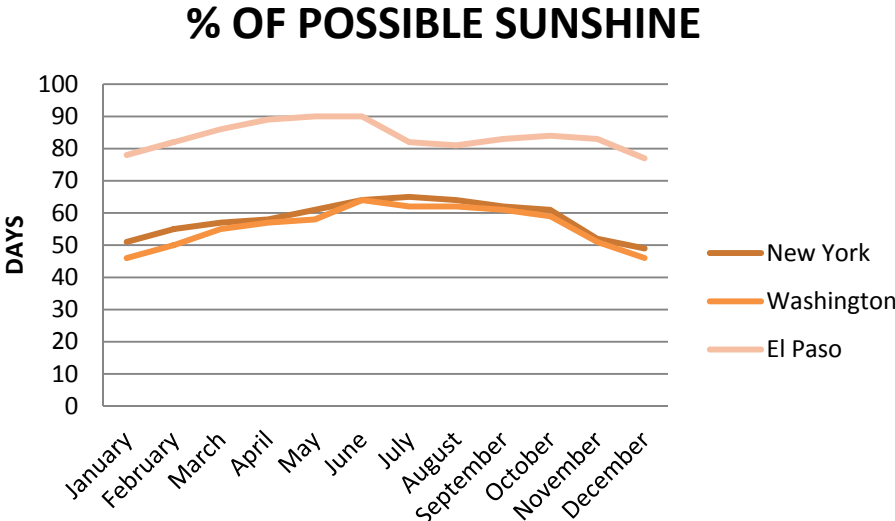


Figure 66: Climate Data: Percent of Possible Sunshine

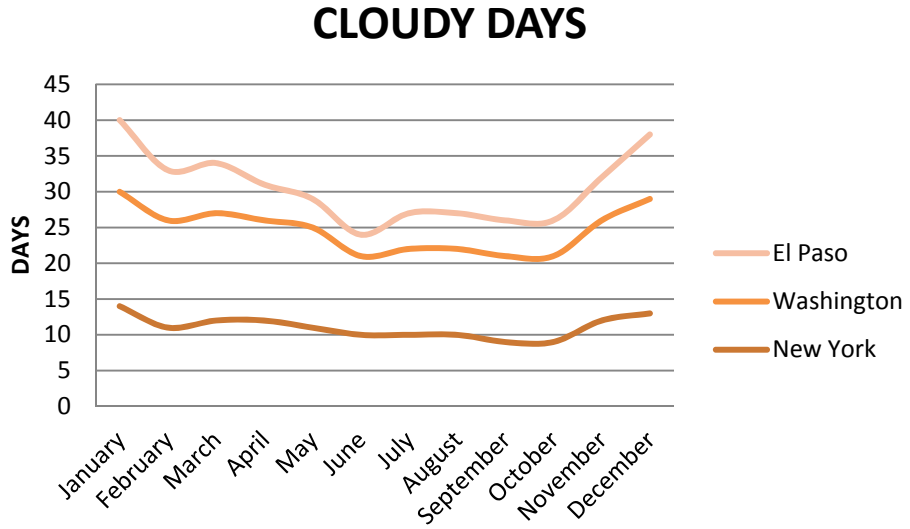


Figure 67: Climate Data: Cloudy Days

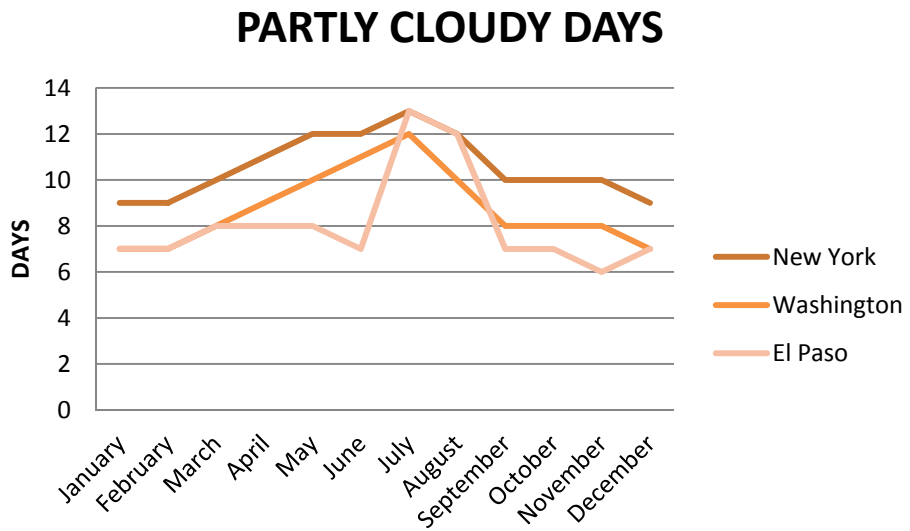


Figure 68: Climate Data: Partly Cloudy Days

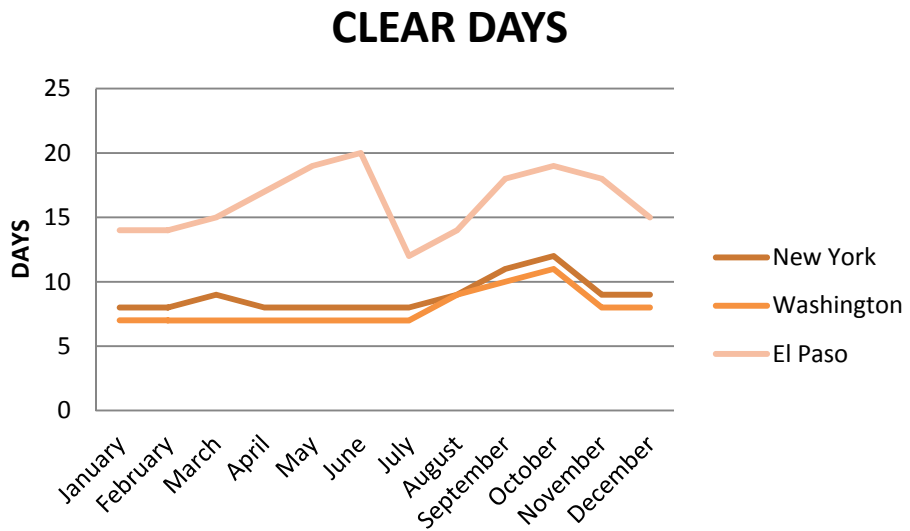


Figure 69: Climate Data: Clear Days

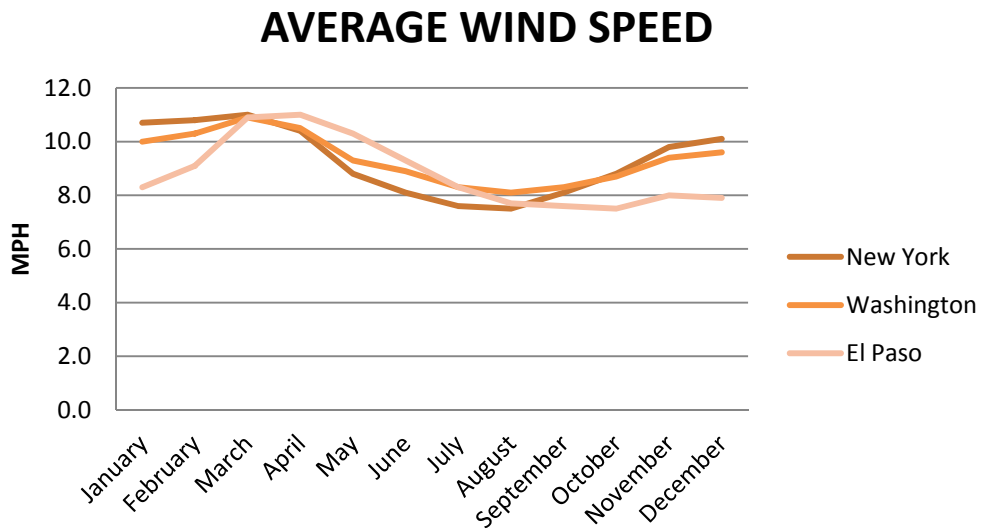


Figure 70: Climate Data: Average Wind Speed

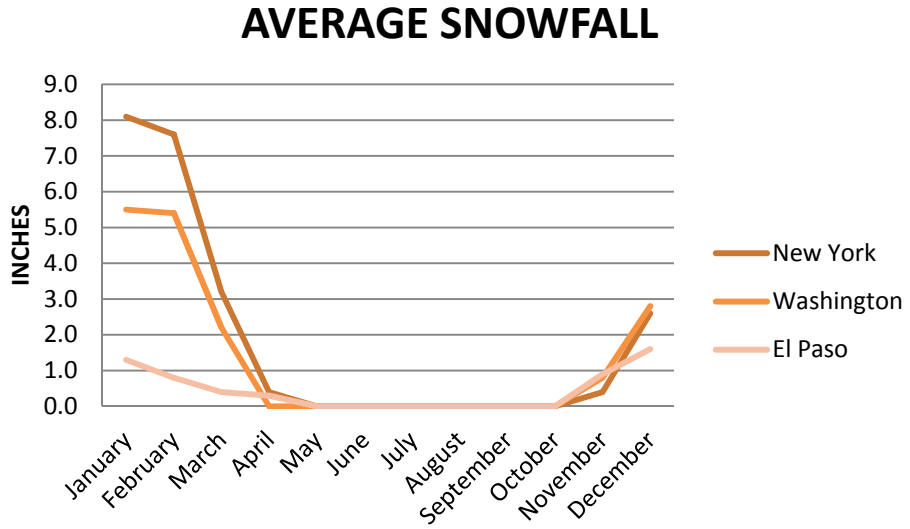


Figure 71: Climate Data: Average Snowfall

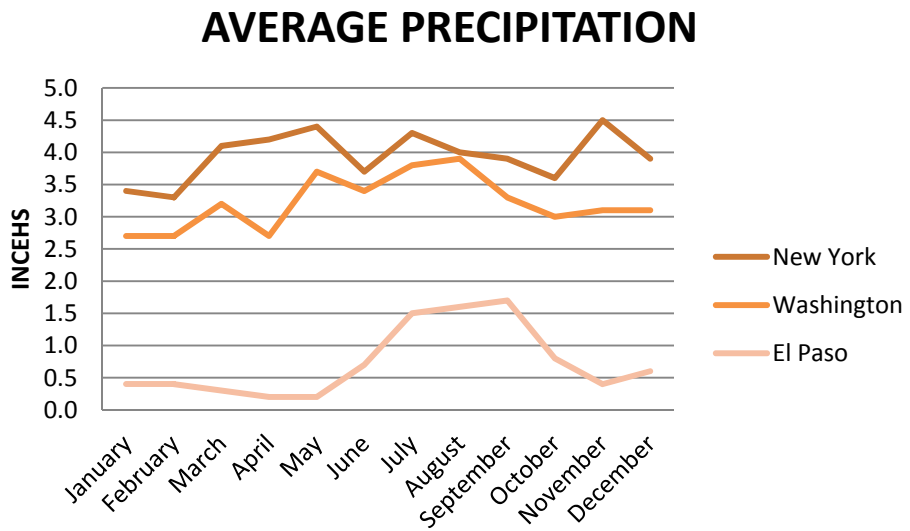


Figure 72: Climate Data: Average Precipitation

## HEATING DEGREE DAYS

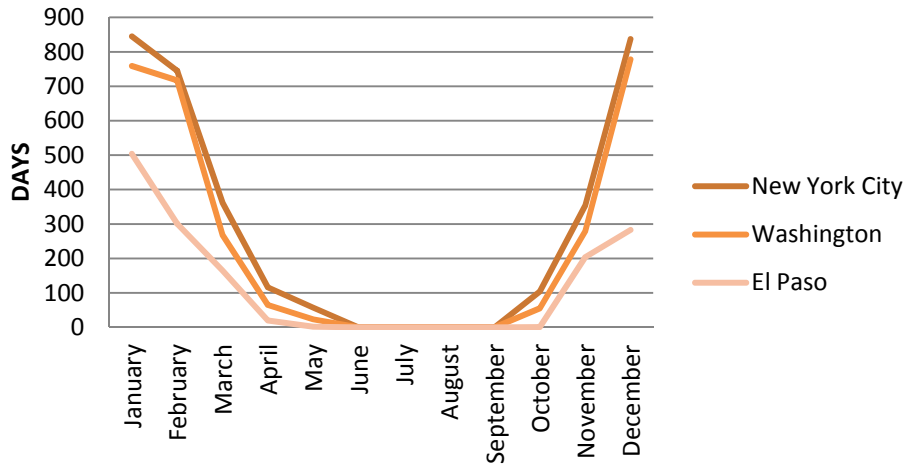


Figure 73: Climate Data: Heating Degree Days

## COOLING DEGREE DAYS

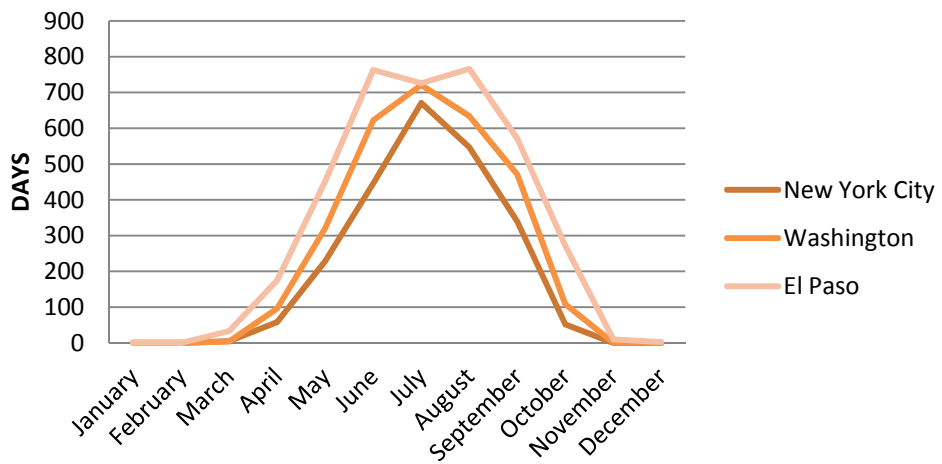


Figure 74: Climate Data: Cooling Degree Days

## Glossary

- Voyeur: A person who views a spectacle anonymously who is invisible and unannounced.
- Spectacle: A public display presented to the sight or view. Being seen.
- Spectator: A person who is present at and views a spectacle. An observer who is visible and announced.



## Endnotes

- <sup>1</sup> Pallasmaa, Juhani. The Eyes of the Skin: Architecture and the Senses. England: John Wiley & Sons Ltd, 2005. 30.
- <sup>2</sup> Rossi, Aldo. A Scientific Autobiography. Cambridge: The MIT Press, 1981.12.
- <sup>3</sup> Pallasmaa, Juhani. The Eyes of the Skin: Architecture and the Senses. England: John Wiley & Sons Ltd, 2005. 40.
- <sup>4</sup> Bremner, Alex. "Re-Activating The Docile Body: A Critical (Re)View of Diller and Scofidio's Slow House." Architectural Theory Review (2000): 115.
- <sup>5</sup> Colomina, Beatriz. "Domesticity at War." Assemblage, 16 (1991): 24.
- <sup>6</sup> Pallasmaa, Juhani. The Eyes of the Skin: Architecture and the Senses. England: John Wiley & Sons Ltd, 2005. 39.
- <sup>7</sup> Nichols, Bill. Ideaology and the Image: Social Representation in the Cinema and Other Media. Indiana University Press, 1981.
- <sup>8</sup> Nichols, Bill. Ideaology and the Image: Social Representation in the Cinema and Other Media. Indiana University Press, 1981.
- <sup>9</sup> Koolhaas, Rem. Delirious New York. New York: The Monacelli Press, 1994.
- <sup>10</sup> NYC Department of City Planning. BYTES of the BIG APPLE. New York, 2011.

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