FLUX: Adaptable Architecture for a Dynamic Society

by
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Abstract

Contemporary society is being re-defined by continuous travel and motion, resulting in the collapse of time and space - the origins of globalization, and infinite, never ceasing data transfer; both of which have propelled us into the Information Age. The resulting cultures are hybrid, more complex, and always transforming. As corporations and communities continue to expand and contract, re-locate, emerge, and vanish, their need to be capable of adapting is increasing. On Monday, the client desires a mid-rise building with an open floor plan on all levels. The following Wednesday, his company's stock has gone through the roof and his financial advisors suggest a mixed use facility, with retail space on the lower three levels and ten extra floors of office space. By Friday, his architect will have designed a sky-scrapper. These fast pace changing needs, the various forms of infrastructure that facilitate transfer, and evolving technology confront architects with a major question. Can architecture become flexible, adaptable, and transformable in order to meet the ever-changing demands of contemporary society?

Infrastructure permeates every facet of our lives. It allows us to move to here and there, it brings resources, data, and entertainment to our very fingertips. It operates at various scales, and even provides stability within society. The thought of architecture fusing with or becoming like infrastructure is not a new subject matter, theorist have written about it for years. The human species has always been transient, so why the need for a new architecture? Our new technologies have also prompted the degradation of our global environment, and caused the over utilization of various natural resources. Perhaps a more functional architecture that is kinetic, transformable, capable of disengagement, and reassembly could keep up with the occupants' need to have multiple programs taking place in one space, maintain economy, and alleviate the over use of energy and resources.

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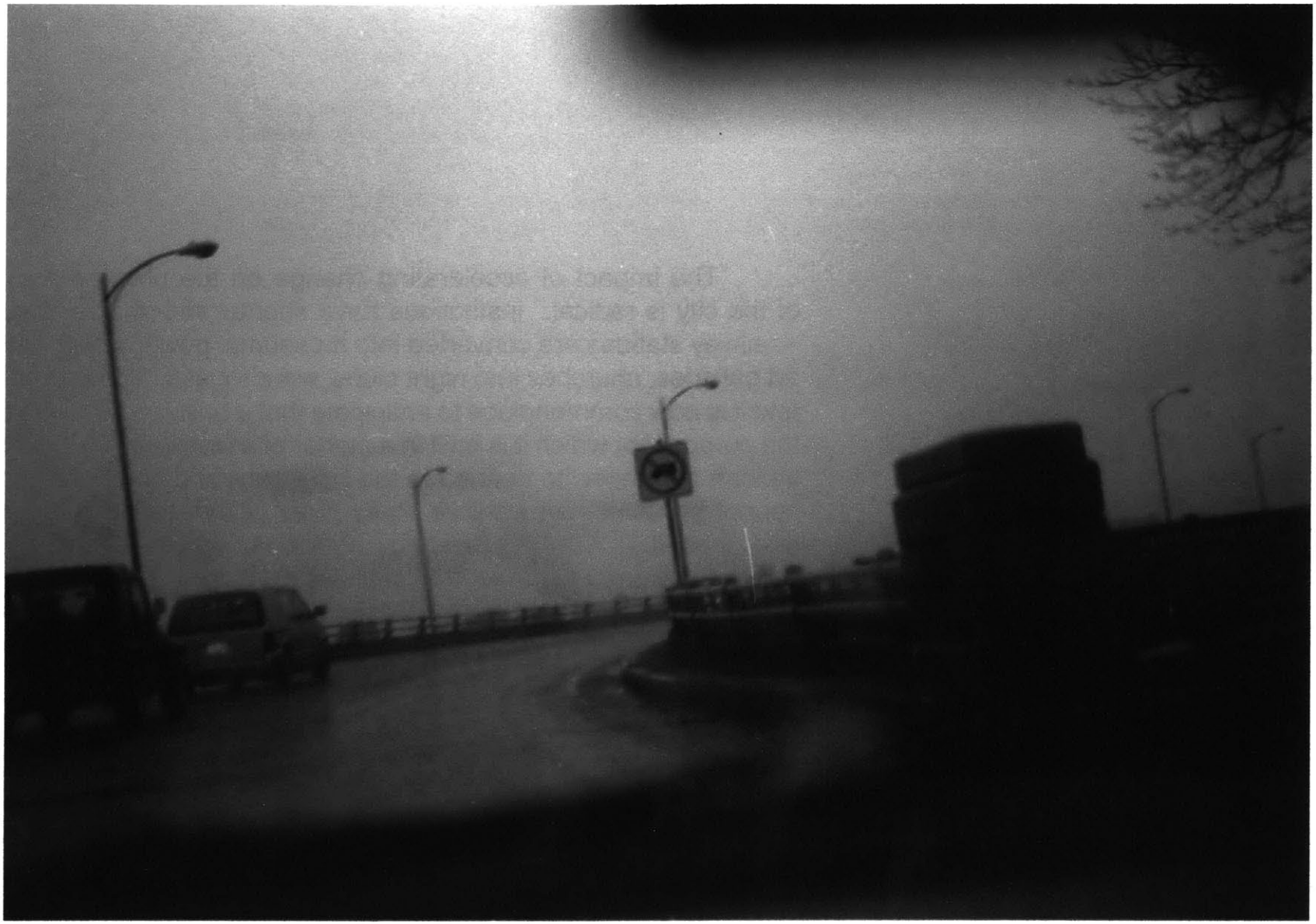
February 2004.

To my mother: Belinda Elaine Davis

Whose undying relentless care, support, and prayer has brought me thus far.

Thank you.

Contents:



"The impact of accelerating change on the physical form of the city is radical. Institutions have shorter and shorter lives – railway stations are converted into museums, power plants into art galleries, churches into night clubs, warehouses into homes – and it is now commonplace to anticipate that a building will outlive the purpose for which it is built in a matter of a few years. Modern life can no longer be defined in the long term and consequently cannot be contained within a static order of symbolic buildings and spaces. . . . . .. Buildings no longer symbolize a static hierarchical order; instead, they have become flexible containers for use by a dynamic society. However, it is the arrangement of buildings in space - the network of the city as a whole – that has come to be the dominant reflection of modern urban society."

Richard Rogers, *Cities for a Small Planet*

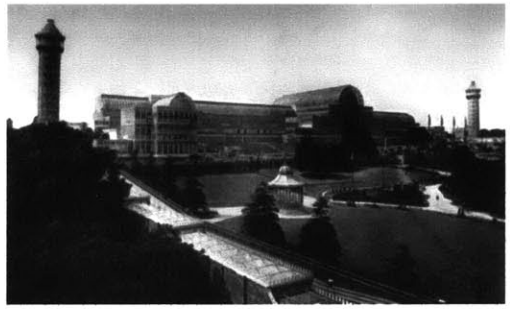
Introduction

In order for architecture to serve as a highly effective and sustainable cultural product for contemporary society, it must embrace the qualities of transformation and adaptation that are exemplified through the symbiotic relationships formed between cities and their infrastructural systems. Infrastructure permeates every facet of our lives, allowing for the transfer of people, information, and even places. Our societies have evolved into a state of constant transfer, exchange, and re-location. In 1830 it took a "new" American eight to twelve weeks to traverse from one coast of the United States to the other. Today this can be done in less than six hours, and occurs more than 150 times a day. [1] We are constantly exchanging data over our digital networks a rate that our ancestors could have only dreamed about. Information exists seconds away from the strokes of our fingertips. Even places are no longer static in contemporary society. We wrap ourselves in metal and plastic capsules creating little "micro-environments" as we traverse through and over air, water, and land. Each time we enter these micro-environments we are introduced to a proto-typical space that is transferred from location to location, consequently, creating a new and temporarily unique place at each moment of arrival, departure, and travel. This incessant flux is the generating proponent for our current state of affairs: **Globalization** and propulsion into the **Information Age**. These current states of existence, would be completely impossible without adequate infrastructure in all its forms, types, and scales.

Since the very beginning of our origins, mankind has always been continuously transient to one degree or another. What has changed is the rate and scale at which this flux occurs. The conglomeration of our various forms of infrastructure, has allowed us to adapt to situations and context in a seemingly infinite number of ways perpetuating our evolution. From aqueducts, highways, and the structural frames of buildings to fiber optic networks, subway systems, and flight patterns, we have created elements of transfer. It is this ability to adapt and transform that has insured our survival and continuous growth. **All forms of infrastructure have been created primarily to complete a minimum of two tasks: (1) act as a datum or base and (2) provide some form of transfer and/ or adaptation.** Both functions create highly three-dimensional environments and sometimes create a phenomenon that allows for or initializes the *transfer of place*.

Today's transients or "nomads" consist of a variety of students, soldiers, "managers" of mobile offices, entertainers, and "weekend warriors". These groups of individuals' needs go far beyond the typical occasional business traveler of any time period. In order to stay in communication with the world, complete their various forms of work, and/or quickly move to the next location, they require higher forms of adaptability. Indeed the typical American family may move as many as four times before their first child reaches the age of twenty, which would demand a degree of flexibility with some components of their lives, but a transient knows that he or she will not reside in a place for a long period of time.[2] He or she purchases clothing, furniture, equipment, and sometimes even vehicles that reflect such adaptability and impermanence. Even corporations are demanding more flexibility in everything from their communication systems and furniture to their programmatic spaces and digitally integrated wall types. "Experience shows that in this country a public building is no sooner finished than it is found not sufficiently extensive to provide for the public business that it was meant to serve" (Burnham,p. 116). These were the words of Daniel Burnham as he completed the collaborative *Plan of Chicago, 1909* with Edward Bennett. These words are as true today as they were almost 100 years ago. Nearly a century later we find ourselves in a similar predicament: still producing static buildings for a dynamic society. Companies and families, as well as transients, are comfortable with the idea of change (on their terms) and are demanding more and more flexibility. Corporations now present architects with briefs stating an estimated time of occupancy for some

Van Buren Street under the "El".



The Crystal Palace, John Paxton, 1851

of their facilities, and the desire to allow for easy transformations in as little as five or ten years. Museums and other cultural entities have always had the desire of expanding and contracting, if not their total buildings, the gallery spaces within them in order to accommodate the various exhibitions hosted within their facilities. Schools, at least in America, are constantly being added on to, in order to accommodate the growth within their communities and the resulting need for physical as well as technological expansion. "This raises the practical question of how to design buildings to keep pace with people's requirements. Modern life is changing much faster than the buildings that house it. A building that is a financial market today may need to become an office in five years and a university in ten. So buildings that are easy to modify will have a longer useful life and represent a more efficient use of resources" (Rogers, p. 74).

Precedents

Some architects, such as Nicholas Grimshaw and Richard Rogers, have adopted the idea of creating adaptable buildings, as an inherent design philosophy and end product. Yet, the basic concept of this idea-the transformer, a building capable of changing as its occupants' needs evolve-is not new. The Japanese have intrinsically built with a concept of "life expectancy" in mind, for centuries. The largest wooden structure in the world, Todaij, originally created in 734 A.D. was constructed with a material palate and detailing the that would allow for the dismantling of its components in order for them to be replaced with new elements, enabling the temple to stand the test of time. The Crystal Palace, of 1851, has always been revered in the world of architecture as a turning point. Because of its dramatically large use of metal and glass, it was seen as a spatial phenomenon to all of its occupants and visitors. The fact that it could be taken apart and reassembled was beyond fascinating at the time, but what many of us fail to realize is that its author, John Paxton, was not a novice at producing such structures. Prior to the Crystal Palace, he had a produced several similar structures with just as much creative detailing. Paxton's challenge was to produce such a building at a scale larger then he had ever designed for and in less than half the normal time it would take to construct a typical building. Of course, the short period of time in

which it was re-erected, along with the haphazard quick detail solutions employed by its constructors, resulted in the Palace's demise.

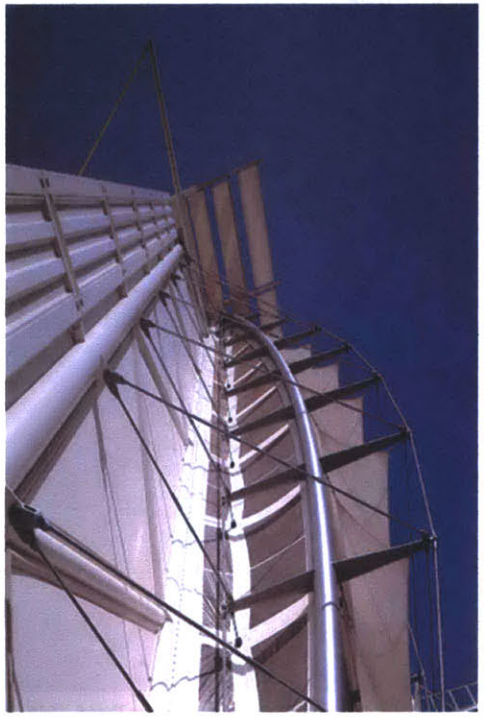
The Pompidou Center, designed by the combined efforts of Richard Rogers and Renzo Piano in 1978, carried enormous desires of adaptability. From the origins of its birth, the structure was to embody a liberal and progressive voice. This was to be expressed through the spatial possibilities of its arrangement as well as the envelope that would enclose these flexible voids. The initial schemes exemplified the notion of movable floors, leaping pass the issue of adjustable walls-although its structural system held this potential as well. "The essence of the proposed Centre was flexibility. It would be a 'university of the streets,' responding to the ever changing needs of its users. Partly inspired, perhaps, by the experimental arts and entertainment projects of Cedric Price and Archigram, and by memories of the revolutionary Russian Constructivists, the architects proposed a flexible container, where all interior spaces would be moveable within the framework provided by the freestanding structural frame. They envisaged 'an ever-changing framework, a meccano kit, a climbing frame for the old and the young . . .' There would be close interaction between the building and the piazza and the piazza façade of the Centre would be 'an activity container, a strongly layered, 3-dimensional structural framework with people walking on it and looking down from it, a wide variety of items clipped to it, tents, seating and audio-visual screens, etc . . . ." (Powell, p. 106). This facility, 'a center for the contemporary arts', a "live center of information, entertainment and culture, with the stress, perhaps on the information" was denied some of its original radical design concepts, yet it still provided its users with an exceptional degree of flexibility while simultaneously creating an urban juncture in its surrounding fabric.

The British Pavillion Expo 92' Seville, another contemporary structure, designed by Nicholas Grimshaw and Partners, was the result of an even more progressive execution of a flexible structure. It is completely capable of being disassembled, re-assembled, and moved about. Along with this capability it employed several pumps for the purpose of moving water to the top of the building and showering one of the main facades, cooling the building. These pumps, originally designed for Seville, were intended to be shipped to several poor communities in Africa to be used as wells, after the Expo. [3] The roof of the structure

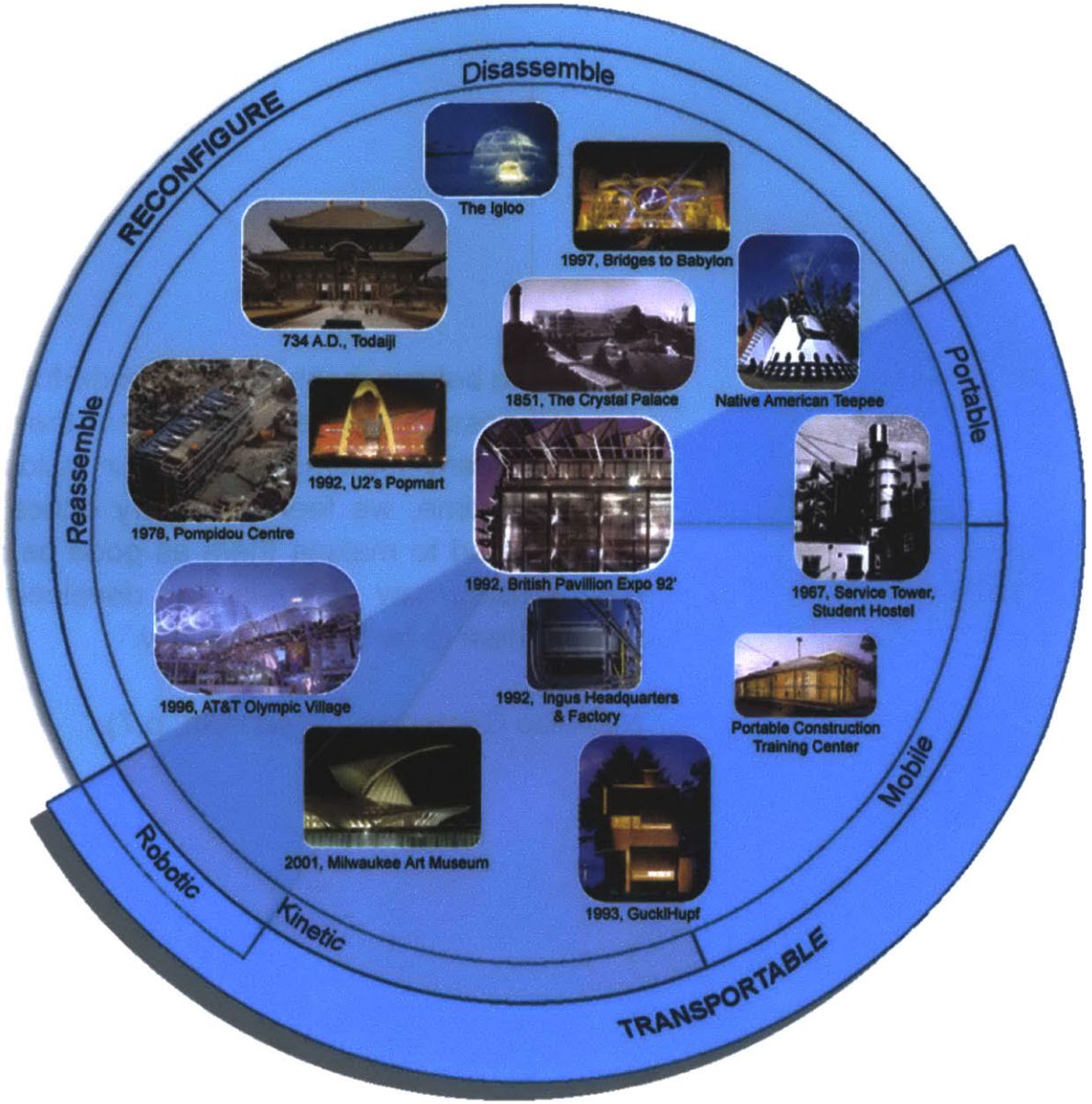
Interior of the Crystal Palace

Pompidou Centre, Richard Rogers and Renzo Piano, 1978

British Pavilion Seville Expo 92, Nicholas Grimshaw and Partners, detail below.



consisted of a series of light shading devices. The complete design resulted in a "shimmering façade, extensive solar shading and naturally cool, cavernous interior in a blistering hot climate . . ." (Pearman, p. 14). Apparently, the structure was eventually purchased by a wealthy Indian man in London for the purpose of hosting customary large wedding receptions, but it currently rest in boxes on one of the city's docks, due to the structures inability to with stand the wind loads of its new context. These are just a few of the most significant adaptable structures that have employed contemporary technologies of their own time periods in order to deal with the issues of change. Igloos, the tents of the American Indians, several temples of Japan, stages employed by entertainers and performers, temporary structures for festivals, floating exhibitions/pavilions, factories, some transportation hubs, and even various types of housing have been developed throughout history and improved, all on the premise of responding to flux.



Degrees of Adaptability Diagram:

This diagram was created in order to analyze the possiblity of overlaps and potential conflicts between methodologies of creating flexibility. The examples are placed "losely" within zones and are primarily concerned with the potential for considering more, while taking into account that not everything is completely capable of overlap. For example: Everything that is kinetic is not necessarily portable, capable of disassembly, or transportable .

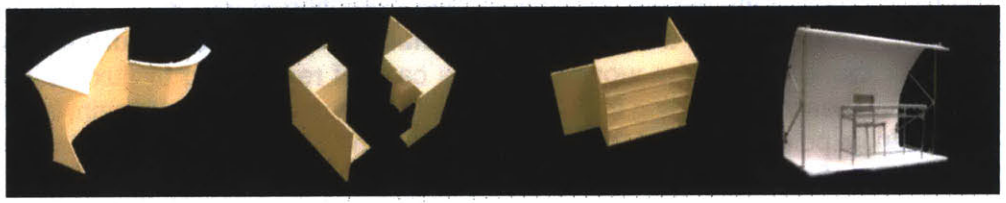
"We believe that however wonderful the spaces we create, it is still possible and even likely that they will be altered. Yet, however many metamorphoses our buildings may go through in their lifetime, we feel that every ounce of our effort should be dedicated to making them as good as possible today. This means using new materials and developing new details which enable them to be used effectively."

Nicholas Grimshaw (Pearman, p.7)

Personal Trajectory

It is this parallel thought process, along with the author's initial work experience, that has led to the following investigation and interest in creating *transformers* capable of meeting their occupants' various needs in an economic manner, while simultaneously providing the opportunity for more cohesive urban conditions, and dramatically decreasing the over utilization of our natural resources. If architecture employed the concepts of various forms of infrastructure it could be re-used, re-plugged, and re-configured. While I was employed at Design Organization, my first architectural job, I recall being fascinated upon viewing the development of a complex wall system in which each detailed joint had to be designed in order to respond to the transition of the façade into an overhead condition. Not one joint could be specified from a catalogue and consequently resolved. At this point in time, I became absolutely obsessed with the power behind the design, fabrication, and execution of the detail. I can recall thinking: **"the detail of a building could make the entire structure the best thing in the world or the worst."** In the case of responding to flux, therefore inherently creating a building that adapts to some degree, the detail again, became an essential point of interest, as it is with others who have taken on a pedagogy or philosophy of designing adaptable structures.

The primary intention of this thesis was to investigate the process (architecturally, cognitively, administratively, politically) of creating a truly adaptable structure at various scales. The site would have to be one that could directly address a measurable instance of flux, preferably with trains, and provide the opportunity to deal with the complexity of urban life. The context also needed to be grounded in a fundamental reality of measurable time in relation to its function(s) and users, in order to eventually analyze the thesis at its completion. Thus, this project became my first experiment in combining architecture and infrastructure in order to create a flexible building capable of adequately addressing the issue of flux.



Review 1: Content

"What is the scale of your project?"

"What is the scope?"

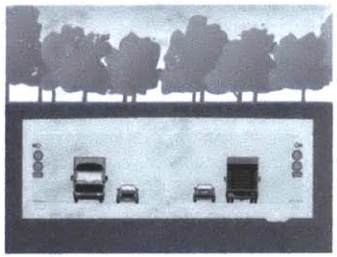
"What is it that you want to do?"

"What are you going to do about the circulation on the site- entering, leaving, moving through it, pausing, staying, resting, waiting?"

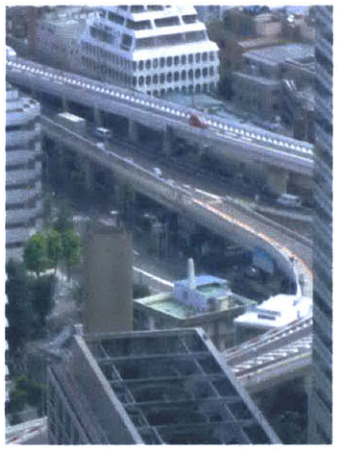
"What about your neighbors (The Art Institute, the community residents, commercial establisments, Metra)?"

"What about service roads and rail lines?"

Architecture and Infrastructure



"Cross-section of the road tunnel" from INFO BOX: THE CATALOGUE



Downtown Tokyo view from the Metropolitian Towers

Various constituents (politicians, programmers, residents, civil engineers, architects, urban designers, contractors, and theorists) of metropolis are constantly complaining about parts of "*the city*" and its lack of this or that. They are also very quick to point the finger at which member is the cause of such poorly designed or utilized spaces. Cities around the world have begin to undo some of the *mistakes* they have made with the employment of infrastructure-in this case in the form of highways-through the middle of their various neighborhoods and districts. San Francisco had a little help from mother-nature (an earthquake) in destroying their raised highway, which blocked the view of their beautiful waterfront and acted as a huge physical barrier between the people, the city, and the water. Boston has spent billions of dollars on "The Big Dig" in order to place a simple eight-lane highway below the city surface and create more open space within the city. The DB Projekt GmbH Knoten Berlin was started in 1996 and, amongst other things, seeks to redirect traffic "out of the city center" by employing such tactics as bringing almost seven tunnels for train and automobile transportation into a parallel formation underneath the Spreebogen. [4] Tokyo has extensive highway systems that still intertwine the inner most parts of its downtown districts. Yet somehow, many of these over passes seem far more integrated and appropriate than any other city utilizing similar tactics. This is probably because the Japanese tend to utilize every inch of space given to them, including the so-called residual space underneath bridges, which, in their case, become integrated into the urban fabric.

Other networks, like green and open spaces, are usually points of heated discussions within the city. These public spaces are very often neglected and

become unkempt in older cities, not even given a first thought upon initial design for the development of new cities, and sometimes simply ill-conceived by lone designers, master planners, developers, architects, and contractors. It has been said over and over again that what is "a piazza in Italy would surely be a parking lot in America". There is also the issue of *"the other side of the tracks"* which often clearly defines the deterioration point of certain portions of any given city. Why is it that we allow the area near most of our rail lines, around the world, to become wastelands? Together all of these issues cause major rifts in the metropolis. The severing of neighborhoods with highways, the misuse of green space or poorly designed public space, and the lack of attention to certain forms of infrastructure have placed ***"the quality of life"*** in jeopardy in many of our modern cities. Although we have evolved as a result of our ability to adapt, our lack of respect, or in-attentiveness to the details that perpetuate our flux, could lead to our demise.

The Site

Chicago, the city born from infrastructure, was selected as the site for this investigation. It is a city built on trade, commerce, and exchange via the development of rail lines that converged within it. Because of its rapid development of rail lines, it quickly became the gateway of the entire nation in the middle of the 19th century. Since its first permanent settler arrived in 1771, the establishment has been developed to respond to the flow of trade. Early on, it was suspected that the city would thrive because of water transportation, but the advent of the train was at hand. In 1833 Chicago officially became a town with 350 residents. It received its first charter for a railroad in 1836 with 3,820 residents and was incorporated the following year as a city with a population of 4,170 people and a growing reputation for land speculation and business ventures. The city also had a major dilemma. Chicago was built on a swamp that caused an unbearable odor, the spread of disease, rodent infestation, and the stifling of trade during the fall, winter, and most of the spring. By 1850 the city was expanding at a dramatic rate and the railroads were driving the development of the city spatially, economically, and politically. In 1855, the city officials made the decision to raise the entire city "out of the mud" in order to extricate itself from the sludge of its initial surface level. This move was a

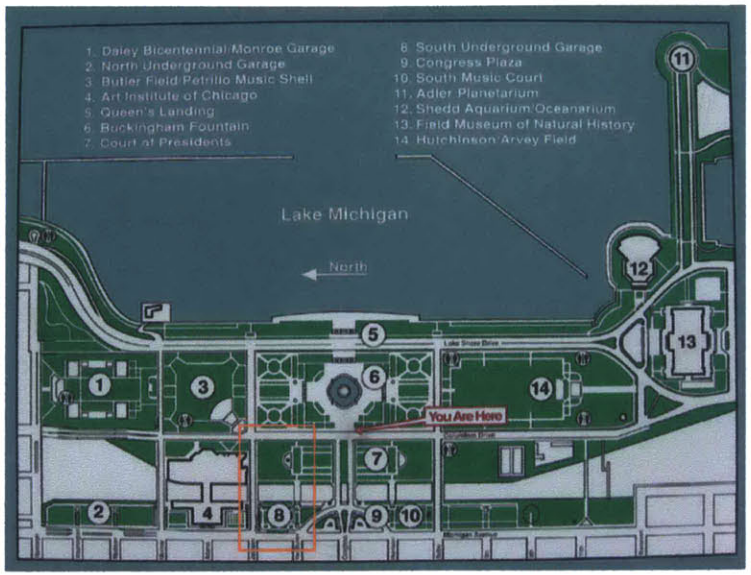
major factor in the development of Chicago as a truly three-dimensional city. Today, it not only has an unbelievable amount of underground rail lines and freight tunnels, but a significantly dense network of subterranean walkways linking several blocks across its downtown. Its Loop was a loop, before there ever was a "loop". As early as 1835 traders, farmers, and merchants would converge in this area in order to conduct business. The city has continued to develop around this economic zeal, adding the infamous elevated rail line called the "El" to the Loop and enormous highway systems around and into the city. In 1922, Chicago even reversed the flow of one of its rivers. Infrastructure has been the name of the game since day one for Chicago. This city was the perfect choice for the experiment.

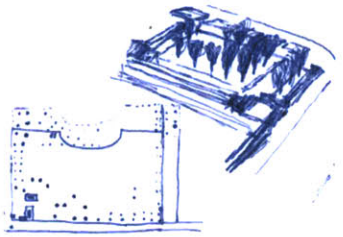
With Grant Park, the "Front Yard" of the city, as the general site, the project would have to address the issue of connectivity between green space and the metropolis. The immediate site, bound by the South Shore and Metra rail lines on the east, Jackson Street and the Art Institute of Chicago on the North, Columbus Drive on the west, and the edge of a manicured garden, a pedestrian bridge, and a monument to Lincoln on the south, encompassed almost 3 acres of land. The complexities of each boundary and the stipulations of the park department would provide grounded realities of measurable flow rates, time, and use constraints. The Taste of Chicago, an annual 7 to 10 day festival held in the park, became the primary generating proponent for the initial formulation of the project. Grant Park host about 15 of the 22 annual festivals held in the city. The park has been in existence since the birth of Chicago, and took form as an extension of the city grid. It is bound on its eastern edge by Michigan Avenue, or as some historians refer to it, "the Magnificent Mile"; a section of manicured "park rooms", and finally a twenty foot deep trench that is about 215 feet wide in which the 4 to 6, and in some cases far more, rail lines of the South Shore and Metra lie.

Downtown Chicago from ***Above Chicago*** by Robert Cameron.

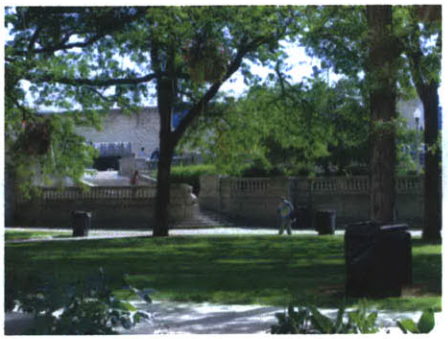

LAKE MICH

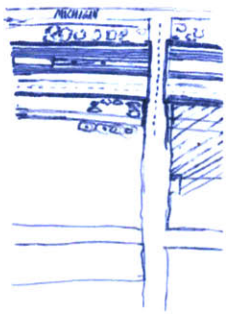
Far Left: CTA Map of Chicago, depicting public transportation routes and locations. Top Right: View of the downtown Chicago with the "Front Yard", Grant Park. Lower left: View of rail lines from Van Buren Station platform. Middle: View of train trench from bridge looking towards Jackson Street Bridge. Image shows rail lines and service road for convention buses as well. Right: View to Jackson Street Bridge and The Art Institute of Chicago. This page: Sketches of the corner of Jackson Street and Columbus drive. Images of the adjacent field-primary selected site.



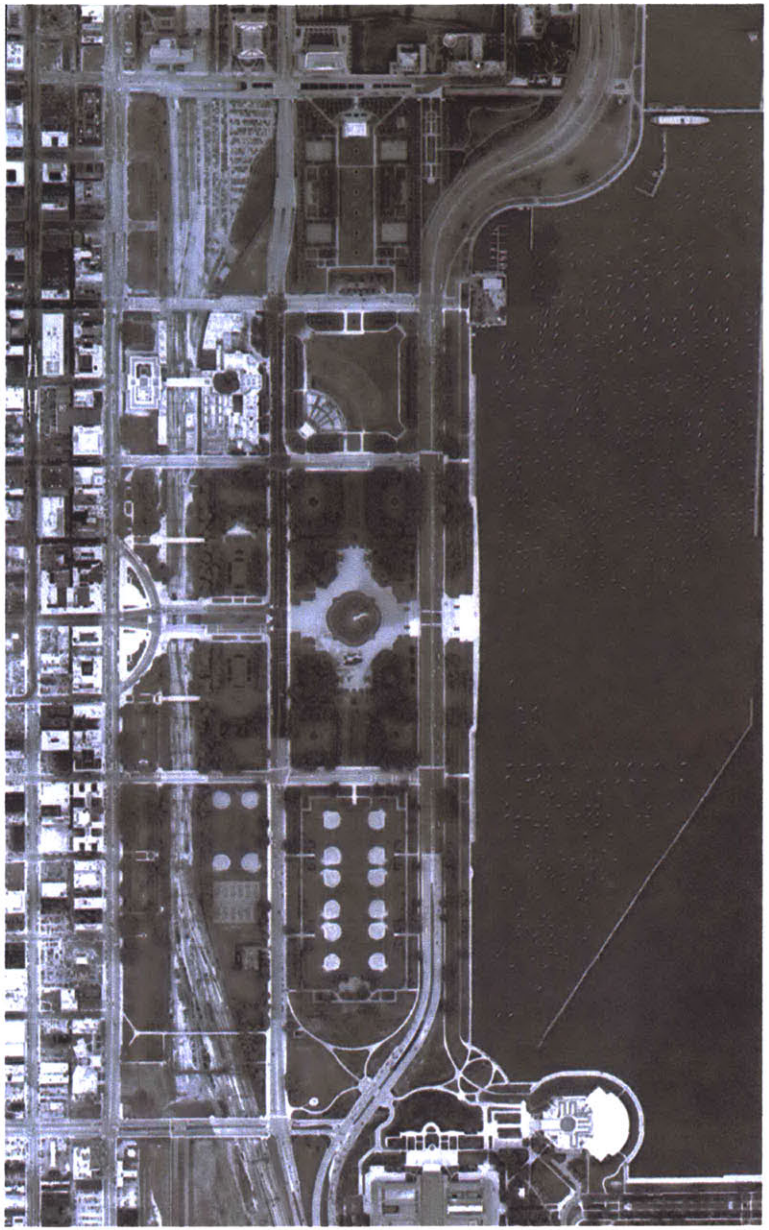


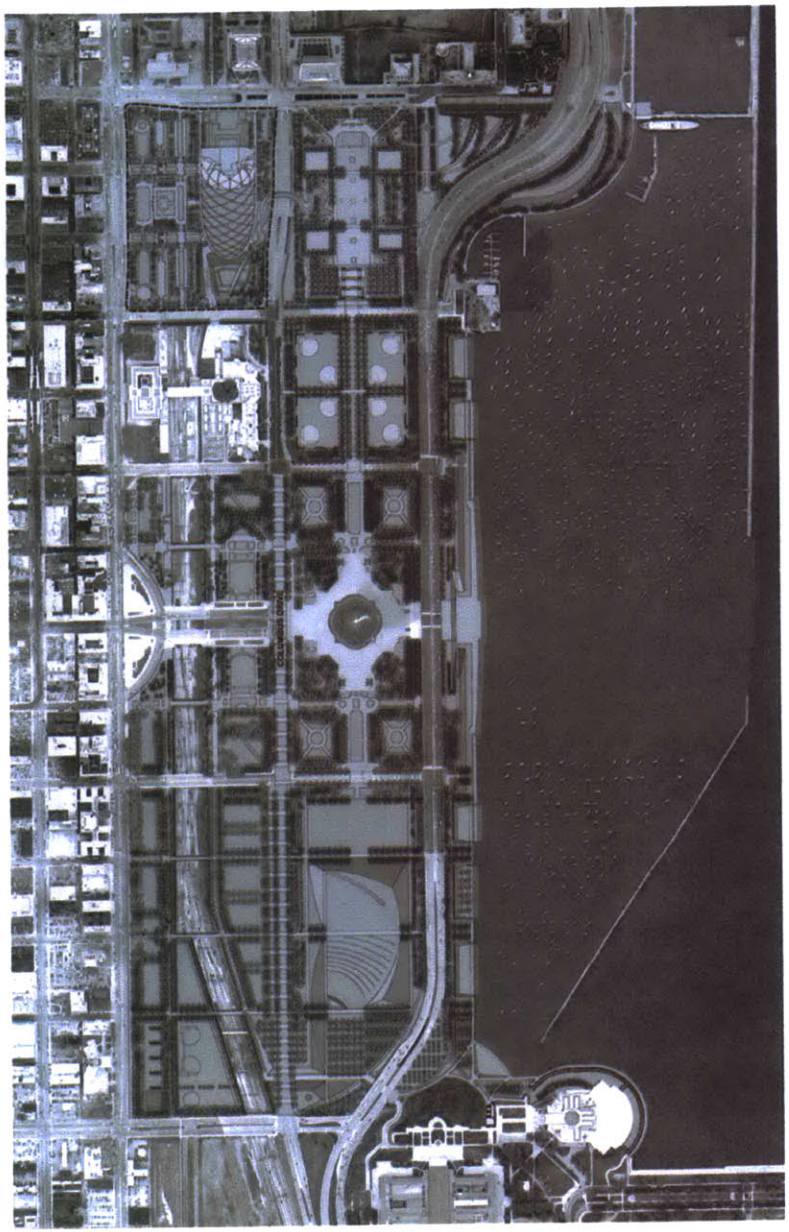
Above: Photograph of Grant Park Location Map. Below (from left to right): Image 1: "Park Room adjacent to Michicgan Avenue, Image 2 formal staircase from "Park Room" to the Jackson St bridge, Image 3: view from stair case. Opposite Page (from left to right): Image 4: View from stair case looking towards Michigan Avenue, Image 5: Service road behind main open field-see page27, Image 6: Map of Downtown Chicago.

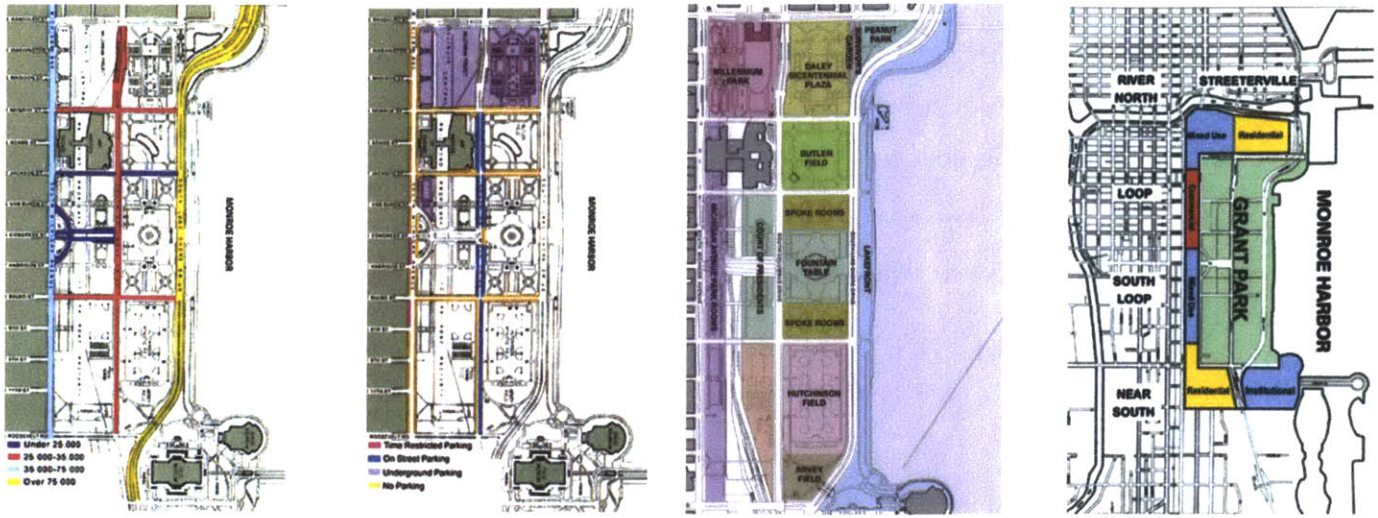




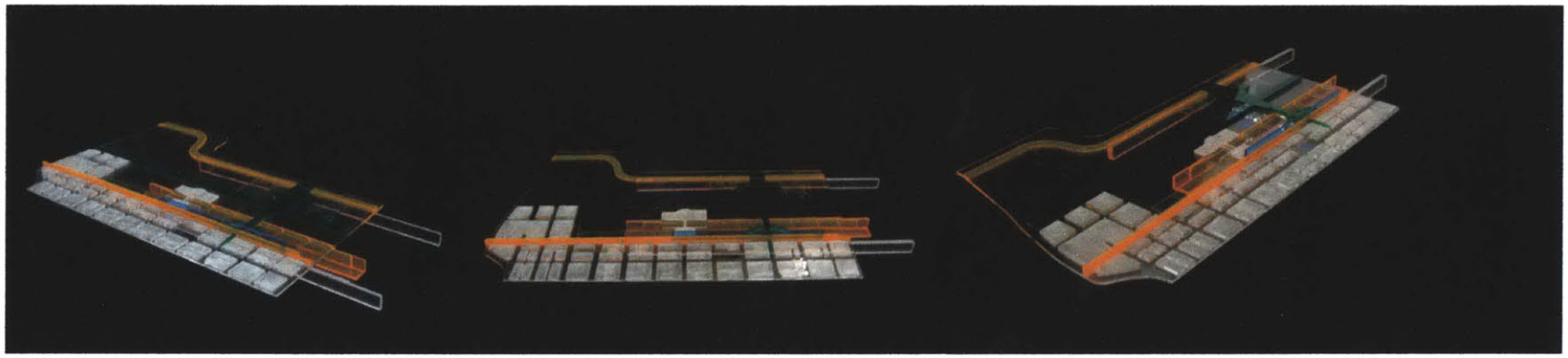

CHICAGO
LOOP MAP
AND NORTH
MICHIGAN AVENUE
American Map Corporation
LAKE
MICHIGAN







Opposite Page: Far Left: Grant Park Existing Map. Far Right: Proposed Grant Park plan. This page: Starting from Top Left Corner: Flow rate of Michigan Avenue, Columbus Drive, and Lake Shore Drive. Second: Parking zones. Third: "Grant Park Activities Areas Fourth: Current land use plan. All images are from the "Grant Park Framework Plan (January 2002)".



Analytical Site model depicting the intensities of flow along Lake Shore Drive, Columbus Drive, and Michigan Avenue.

Review 2: Design

"What connection will this intervention have with the Art Institute?"

"What scale will this structure have in relationship to the Frank Ghery amphitheater and the Institute?"

"What is its relationship to Michigan Avenue?"

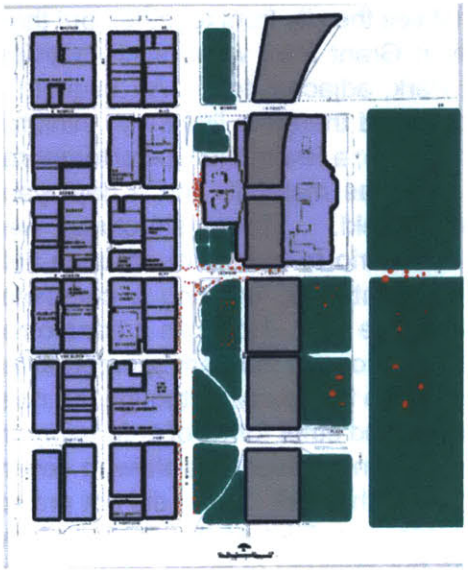
"What about the possibilities of vandalism?"

"What is the program of this project?"

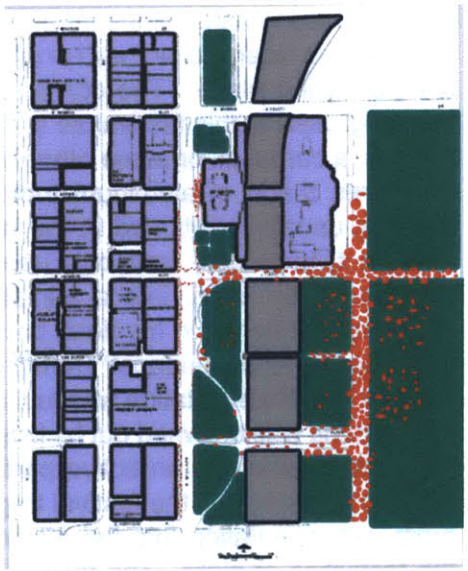
Adaptability

The Taste of Chicago provided an extreme circumstance under which the transformer would have to operate. The reality of this particular festival's time, space, and function constraints could be used as measuring device for the success of this building. The Taste of Chicago last for about ten days, normally around June 25th to July 4th and its planners, the Mayor's Office of Special Events, boast gatherings of 3 million people during this time period. Columbus Drive, Jackson Street, Congress Drive, and Balbo Street are shut down during this festival, consequently redefining these thoroughfares as "living streets". In this case, the event is used to redefine the infrastructure that ties the city front together, but these same roads seem to act as boundaries within Grant Park when such festivities are not taking place. The corner of Grant Park, adjacent to the Art Institute, is normally used in this festival as a "family zone" and therefore lined with miniature houses, a carousel, or some other type of small ride; a few of the typical temporary structures made of aluminum tubing and a canvas material, and a deployable stage is usually positioned in the middle of the field. These structures, were all in fact, temporary, and only used in this scenario to transform an open field, fenestrated by trees, into a miniature amusement park, creating a completely different experience in the field, but using the same void. How can a transformer perpetuate this experience? During this festival no one in the park seemed aware that the Van Buren Station was just a hundred or so feet away. Although the noise of the trains was drowned out by laughter, music, and other forms of entertainment, the station remained an active participant of the entire event. It allowed several of the participants of the festival to gain access to the park. Yet, it did not provide them with orientation into the festival or the site, nor did it enable them to leave the festivities at night. The task of removing the majority of these residents and visitors was left to the Randolph Station several blocks north of the site, near what

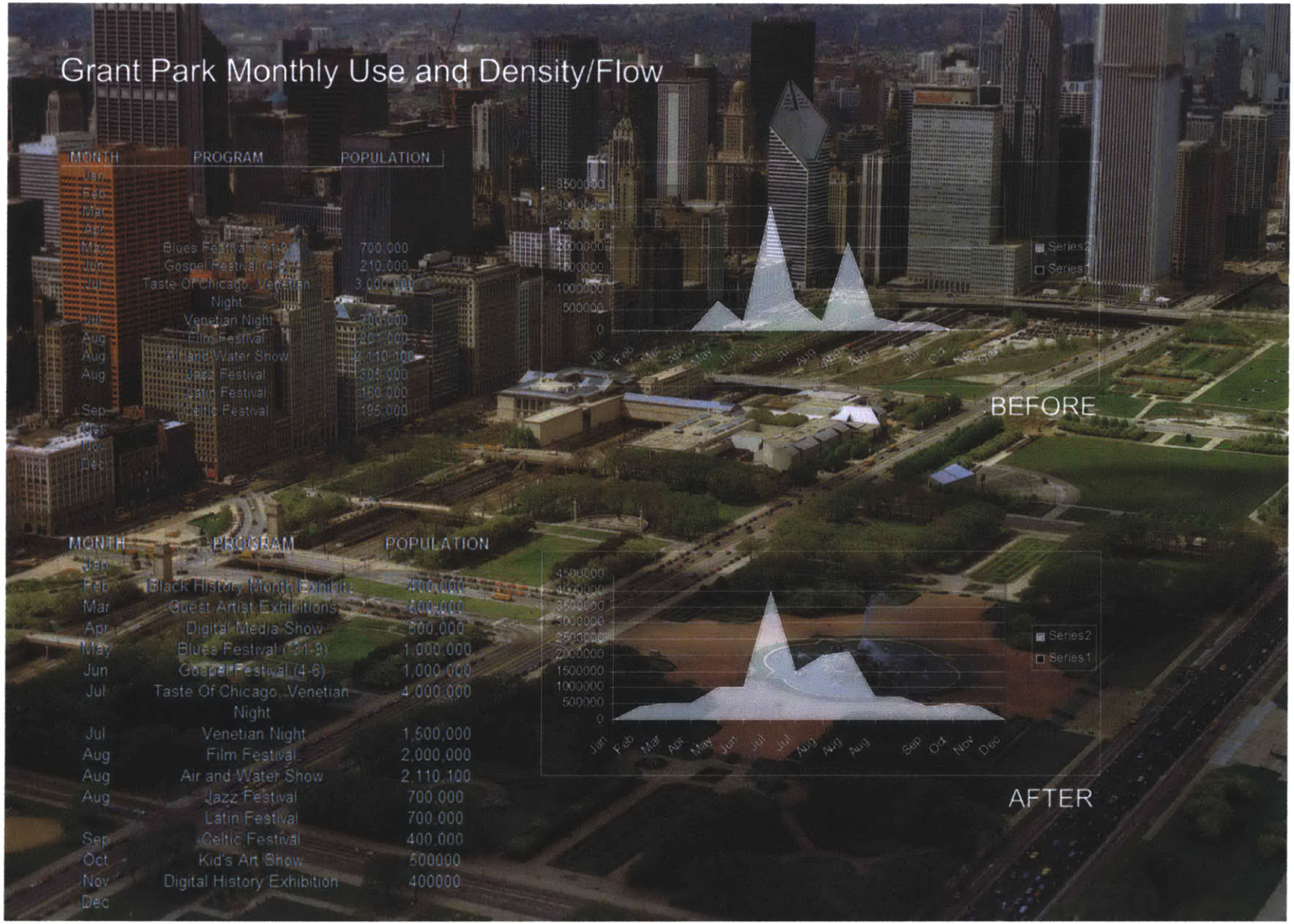
is now Millennium Park. How could the transformer improve the flow of people entering and exiting this park? Surely, it would be able to provide a better means of flow than the bottle-neck syndrome that occurs underneath the streets on the special nights of the fireworks. Circulation would be a major factor in the design of this intervention. The Art Institute could provide the scenario for a programmatic extension to enliven the facility during the off seasons, and the other celebrations, such as the annual Film Festival, could provide the opportunity and justification for a more ambitious range of functions and facilities to keep the intervention alive and pumping throughout the entire year.



Population Diagram: Normal Conditions



Population Diagram: Extreme Conditions


Grant Park Monthly Use and Density/Flow
MONTH
PROGRAM
POPULATION
Jan
Feb
Mar
Apr
May
Blues Festival (31-9)
700,000
Jun
Gospel Festival (4-6)
210,000
Jul
Taste Of Chicago..Venetian Night
3,000,000
Jul
Venetian Night
1,500,000
Aug
Film Festival
2,000,000
Aug
Air and Water Show
2,110,100
Aug
Jazz Festival
700,000
Latin Festival
700,000
Sep
Celtic Festival
400,000
Oct
Nov
Dec
3500000
3000000
2500000
2000000
1500000
1000000
500000
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Jul
Aug
Aug
Aug
Sep
Oct
Nov
Dec
Series2
Series1
BEFORE
MONTH
PROGRAM
POPULATION
Jan
Feb
Black History Month Exhibit
400,000
Mar
Guest Artist Exhibitions
400,000
Apr
Digital Media Show
500,000
May
Blues Festival (31-9)
1,000,000
Jun
Gospel Festival (4-6)
1,000,000
Jul
Taste Of Chicago..Venetian Night
4,000,000
Jul
Venetian Night
1,500,000
Aug
Film Festival
2,000,000
Aug
Air and Water Show
2,110,100
Aug
Jazz Festival
700,000
Latin Festival
700,000
Sep
Celtic Festival
400,000
Oct
Kid's Art Show
500000
Nov
Digital History Exhibition
400000
Dec
4500000
4000000
3500000
3000000
2500000
2000000
1500000
1000000
500000
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Jan
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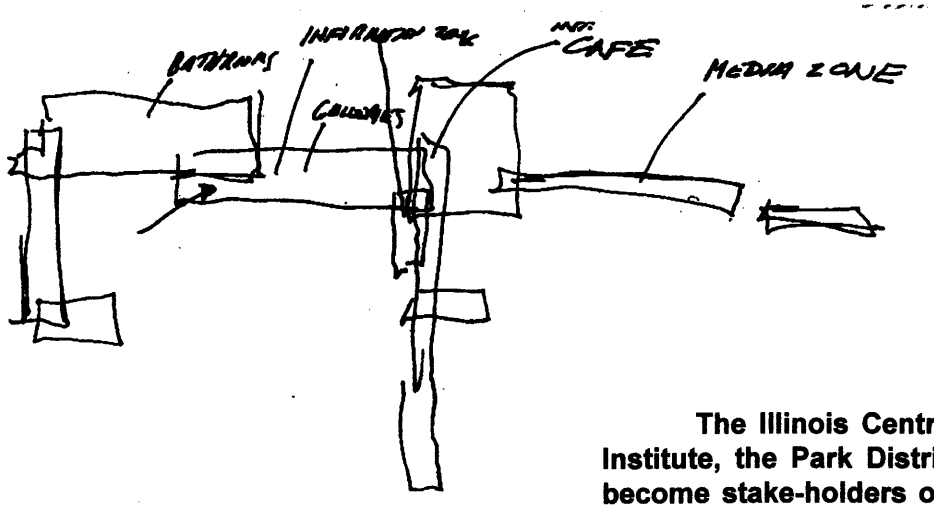
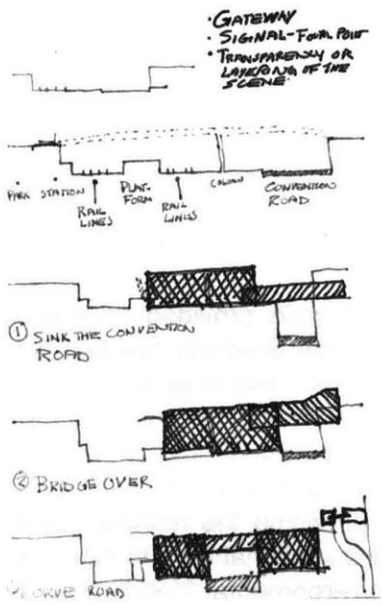
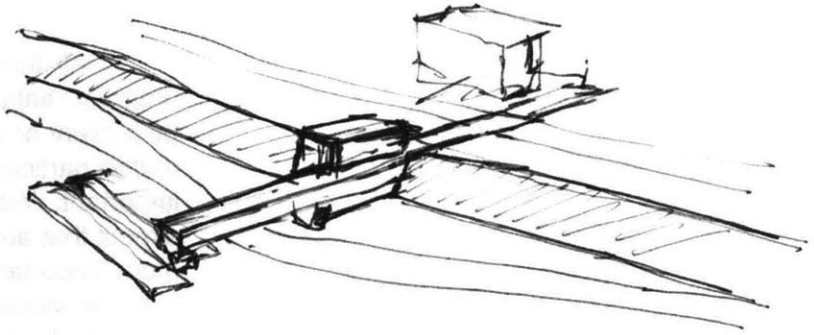
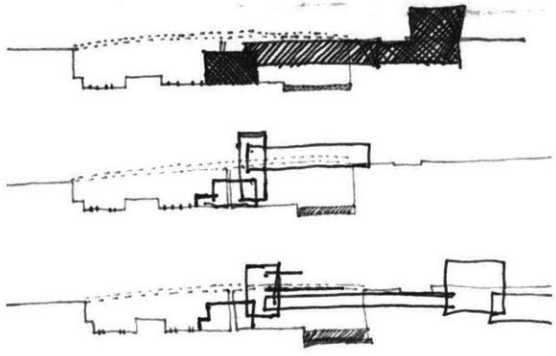
Nov
Dec
Series2
Series1
AFTER

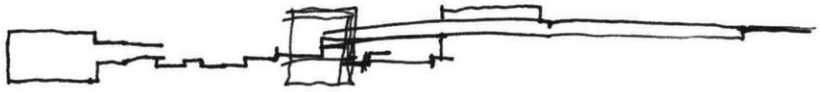


The Illinois Central Rail Line, now Metra and South Shore, the Art Institute, the Park District of Chicago, and the City of Chicago could all become stake-holders of the *transformer.* Yet, the design of the *transformer* would certainly dictate which stake-holder received the most benefits. If the building contained a permanent portion-a type of spine-from which other portions of the structure could adapt to the various needs of the stake-holders, maybe all of these giants could equally benefit from its development. The transformer could exist as the completion of a transportation hub positioned directly across from the Van Buren Station, allowing people to enter and exit directly from the site. Whatever other programs it housed would surely bring more business to the rail lines, especially if the function became an iconic moment in Chicago. The construction of the intervention would provide the opportunity for the improvement of the rail companies' land. The City of Chicago could benefit from the facility by having a dynamic structure that catered to housing the diverse needs of several of their major festivals, and the Park District would be pleased if the insertion of this building into the park could improve the quality of the immediate site, while possessing the potential to be removed if necessary. The Art Institute would also be capable of extending their programmatic needs to the facility. This could alleviate any spatial pressures they may be experiencing at this time and allow for the promotion of their endeavors in a different setting. The transformer would become a signifier of programs and events within the community.


·GATEWAY
· SIGNAL-FOCAL POINT
· TRANSPARENCY OR LANDMARK OF THE SCENE
RAIL LINES
PLAT-FORM
RAIL LINES
CONVENTION ROAD
① SINK THE CONVENTION ROAD
② BRIDGE OVER



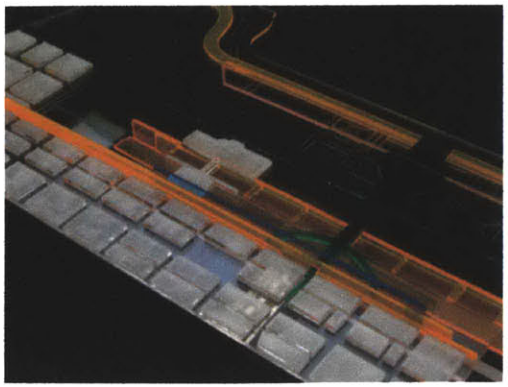




The Issue of Program

All these possibilities and advantages provided another question: Does program really matter at all? It matters that whatever function is to be employed by a client or institution for public use is effective in its ability to draw people and gather participants. In some cases, its surrounding programs can be even more important. Yet, with the rapidly changing needs of our communities, one can only expect that any given program will last for a short period of time. What is perhaps more important than the program, is providing the highest quality environment, with the widest range of adaptability and sustainability. In this case, sustainability is more about durability than simply environmental friendliness. Time and again, buildings have been constructed and leased leaving the specific functions up to the purchaser, as long as his or her wishes fit the desires of zoning laws. **Program can only be as important as the environment (architecturally, culturally, economically, politically, physically, and socially) that contains it. With this thought in mind, it is extremely important to always consider *the possibility for more* and *future use* when designing for the full *life expectancy* of any structure.**

In this situation the mixed-use building offered the most promising scenario. The primary functions of the facility would eventually evolve into the fusion of a transportation hub and a media center. These two primary elements would ground the project's significance in the park and the city. The Art Institute would gain an institutional partner if not additional space in the development of such a facility. The South Shore and Metra would have a new station riddled with retail possibilities, and the City of Chicago and the Park District would have a device by which to provide quality facilities and entertainment to the guest of their many festivals.

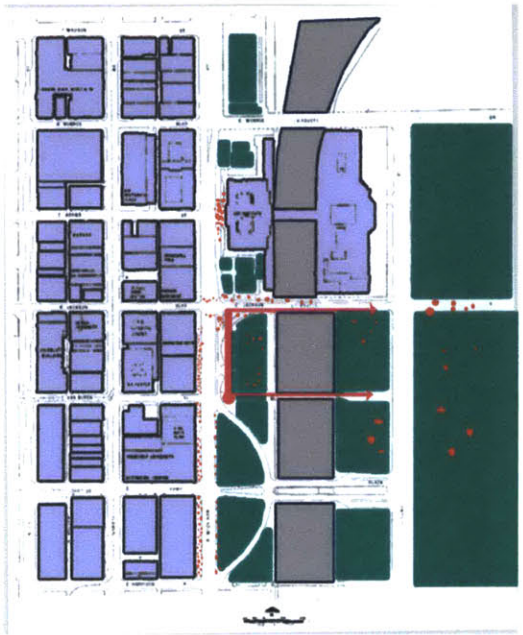


Form and Function

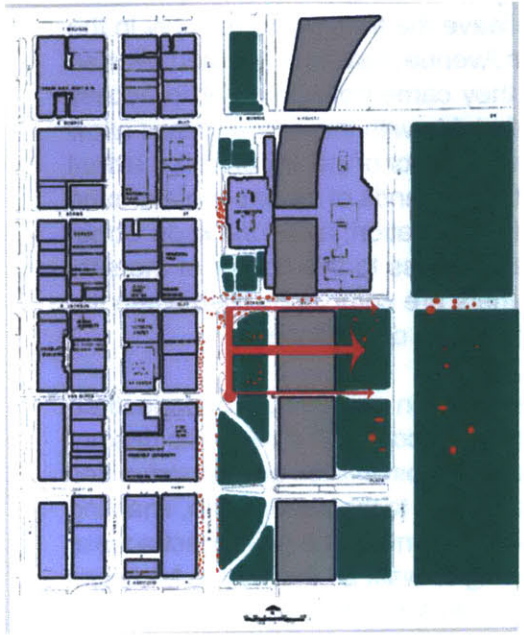
While program has relevance, getting people to and from a place has just as much significance. Circulation became the major design proponent of this *transformer*. In its current state, participants of any festival or visitor of the park can access the area by walking, cycling, driving (which is highly unlikely during an event that creates the density of the Taste Of Chicago), or using public transportation. The Van Buren Station allows its occupants to leave the train platforms only in the direction of the city. After surfacing on Michigan Avenue, travelers are then allowed to turn around and walk back in the direction they came from, in order to access the park. Any city resident would be quite comfortable with this or may never allow them self to be placed into the situation. However, a visitor of the city or new resident could find this experience quite disorienting with thousands of other people around him or her. The two bridges that are closest to this station, along Jackson Street and the Van Buren, provide the most immediate access to this corner of the site. These same two bridges, along with several others are completely filled when the night falls on the Taste of Chicago and a mass exodus commences.

Controlling movement and enabling the direction and amount of pedestrian flow is something that the intervention could easily accomplish through its design. Several proposals were made to explore the various possibilities and opportunities of this issue. The first two schemes added a third bridge to the existing site, enabling individuals to go to and from the park via the "Media Center" and gain direct access to the train platforms directly below without having to walk all the way to Michigan Avenue. The third proposal decked completely over the rail lines, producing what could have been developed into a large green space allowing for full access to the park. Eventually, this proposal was dropped because of the effect covering the rail lines would have on Chicago. In a city born from infrastructure, it seemed inappropriate to cover this portion of its history. Perhaps the scheme could have

been developed with articulations and further manipulation of the deck in order to reveal the infrastructure and its relationship to the city; however, a device that expressed more control over the flow of people was desired. The idea of creating a promenade to the park, using the new intervention as its frame, seemed to be more justifiable in developing the adequate relationship between human scale, infrastructure, and the park.



Existing primary movement on the site.



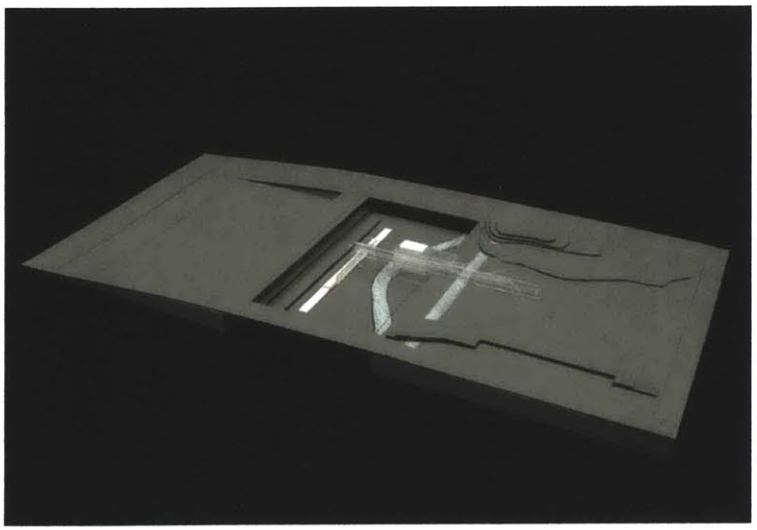
Estimated result of movement after implementing bridge proposal 1 or 2.

Estimated result of movement after implementing proposal 3.

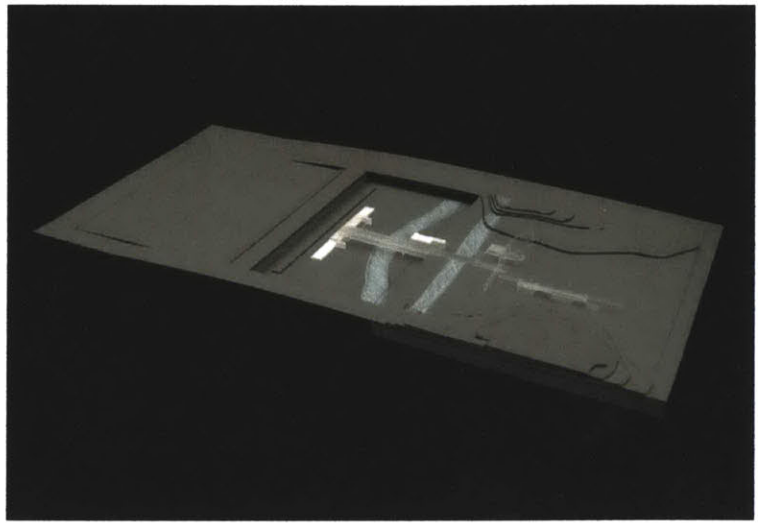
01

02

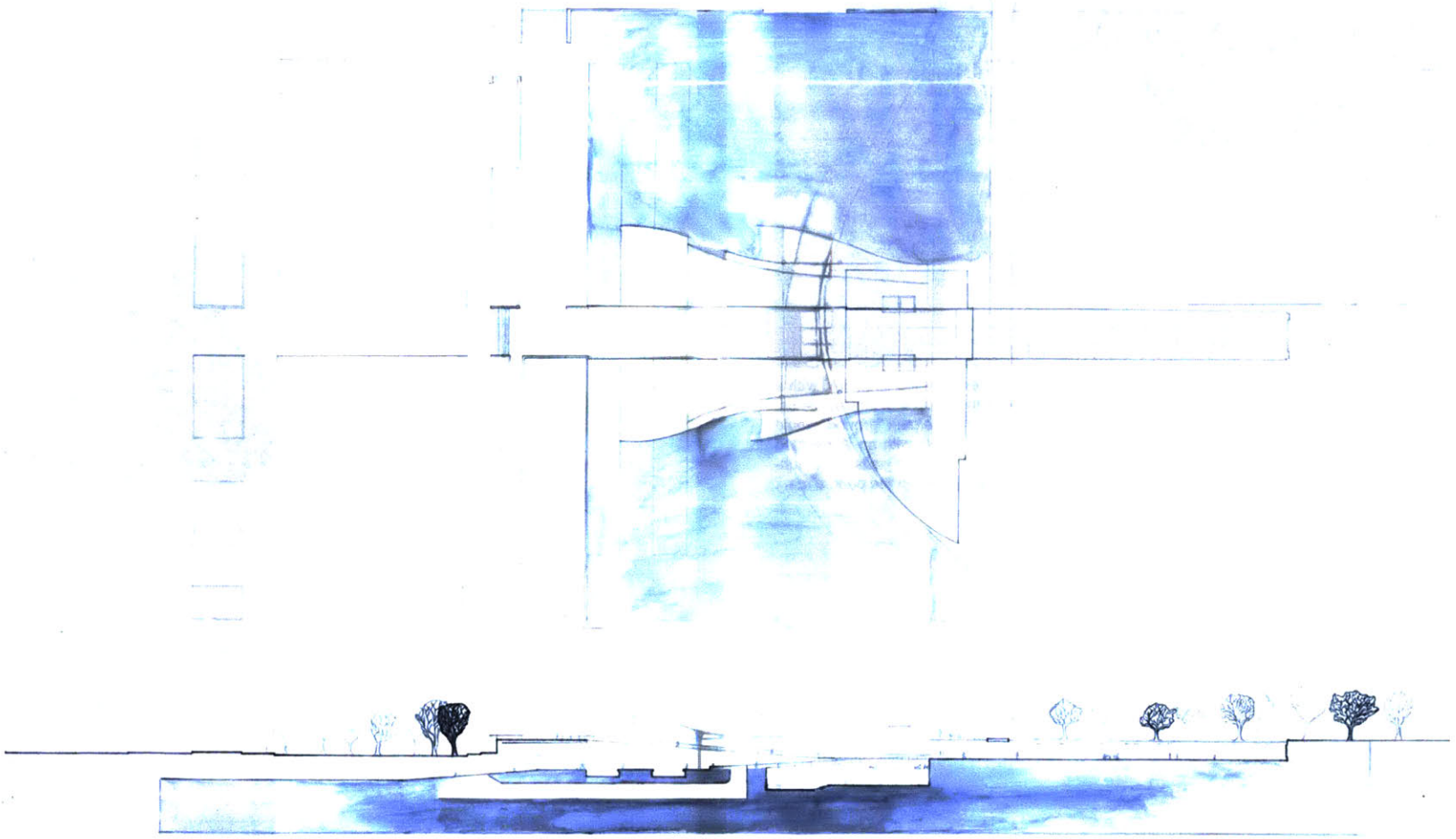
03

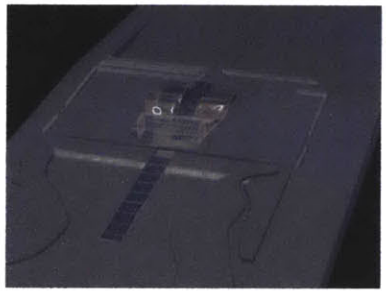


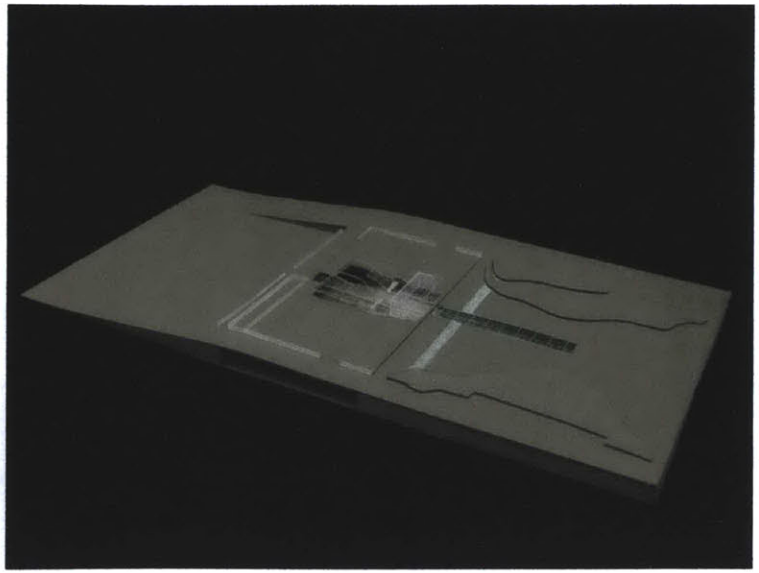
Proposal 1: Extendable armature with unfolding stage. The end of the bridge was to be capable of extending into the open field and transforming into a stage.

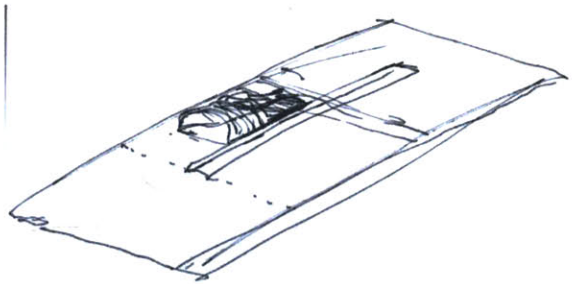


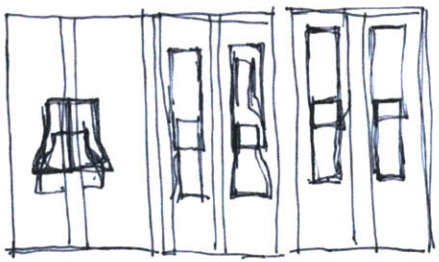
Proposal 2: Bar of Light. The bridge in this proposal tunnels underneath the open field with a translucent roof. The "Bar of Light" was to be programmatically energized with internet cafes, information access points, stores, and galleries. The overhead condition/park "ground" would be capable of taking on performances, dining, and even fashion shows with an illuminated floor within the park. A stage would be capable of being deployed from the walls of the tunnels-pulled up from the ground. This proposal would create a feature within the park, a mark of light.

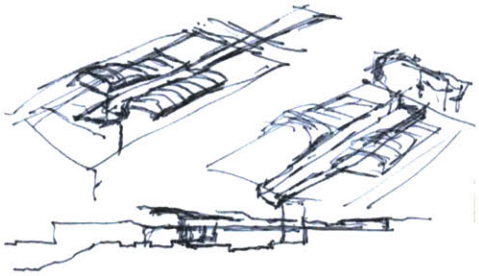


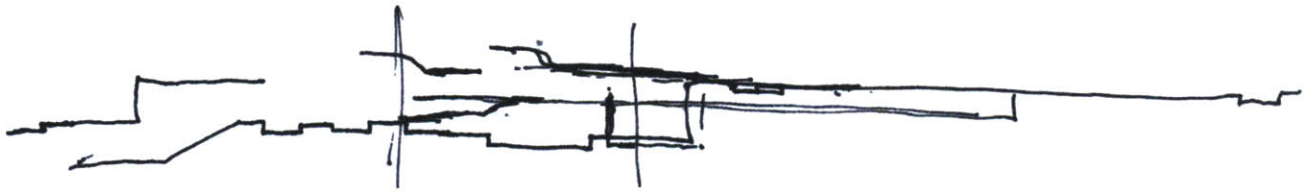


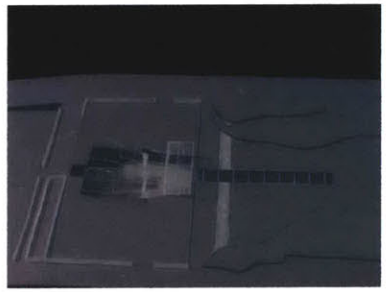












Review 3: Architecture

"Could this be an iconic moment in the city of Chicago?"

"Have you considered making the building bigger and/or more vertical?"

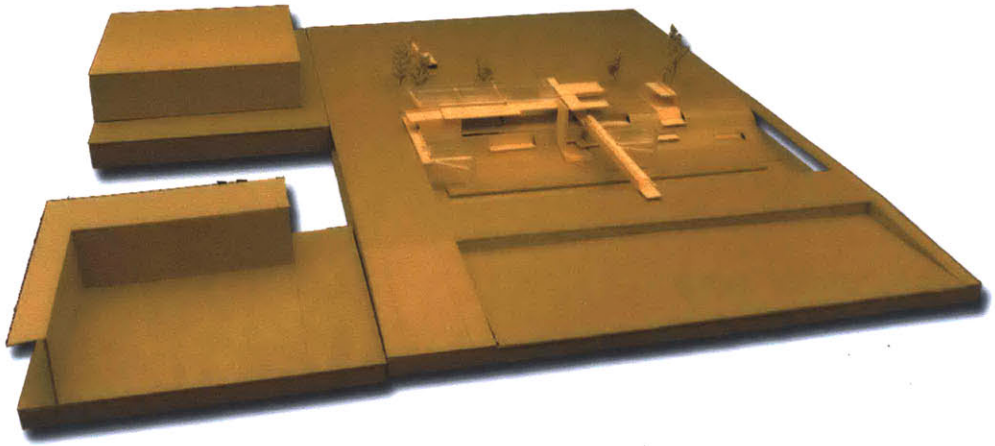
"Can you celebrate the idea of arrival and movement more?"

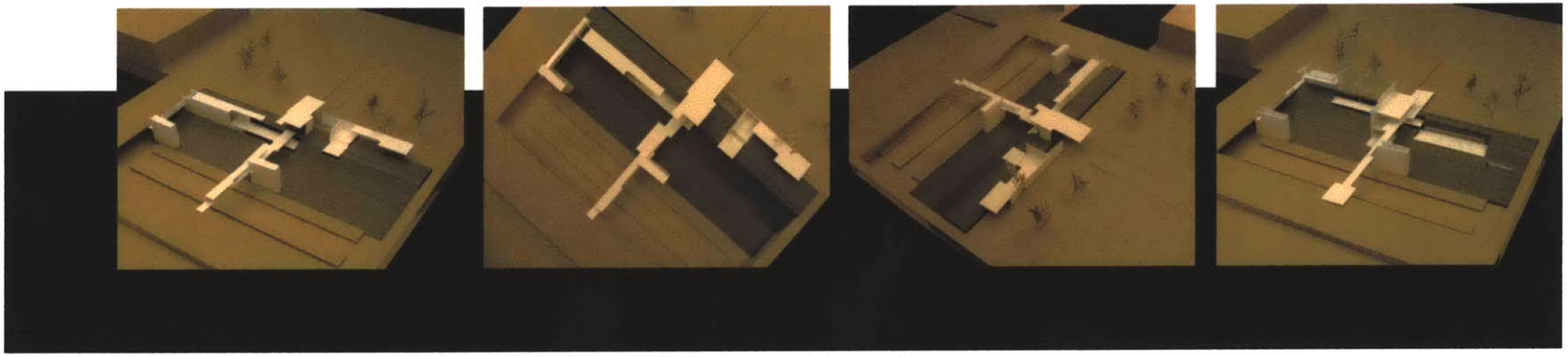
"Can the connection between the various parts of the park be made stronger?"

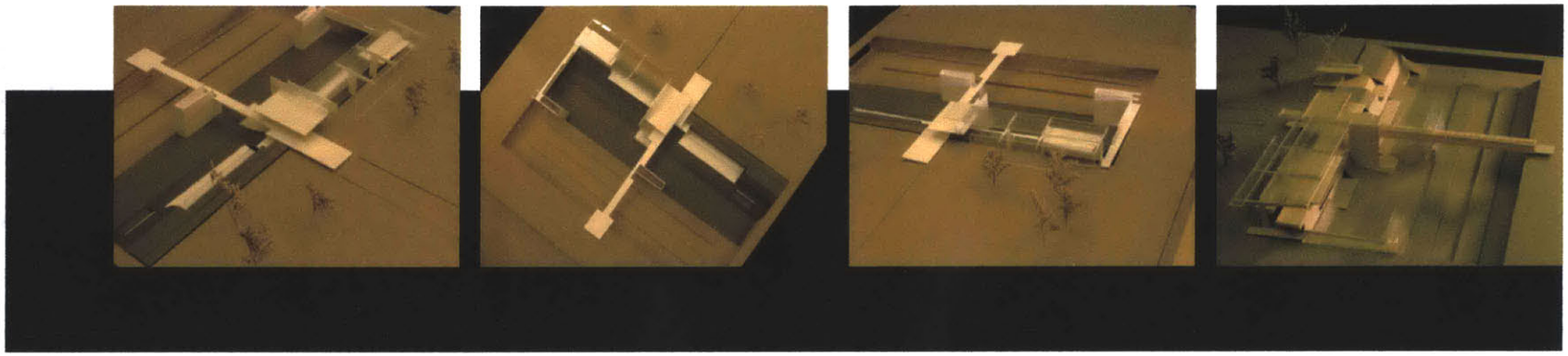
"Can the stage have a dual function or triple?"

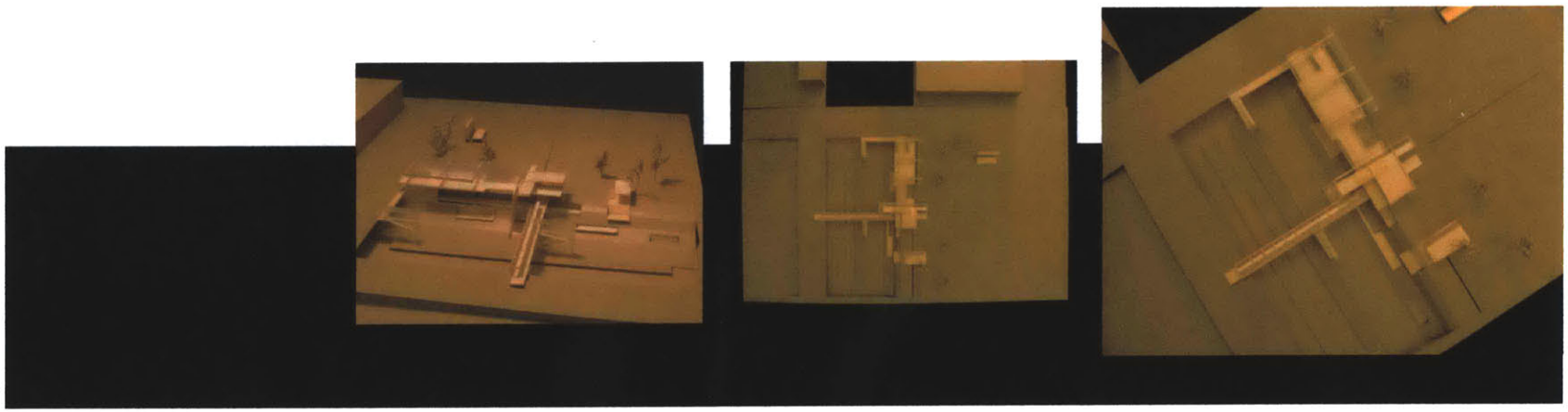
"Will the structure be more like a pavillion that opens up during the summer and contracts durig the winter?"

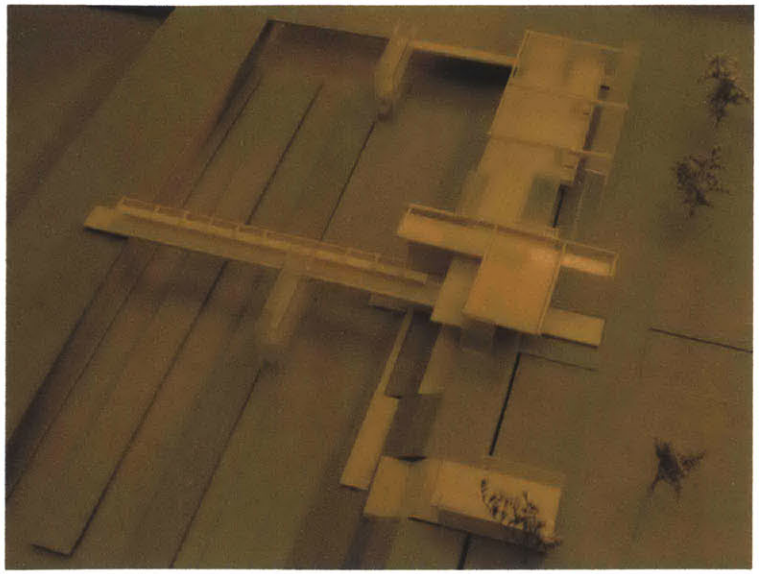
"Use the idea of flux to solve all of your problems."

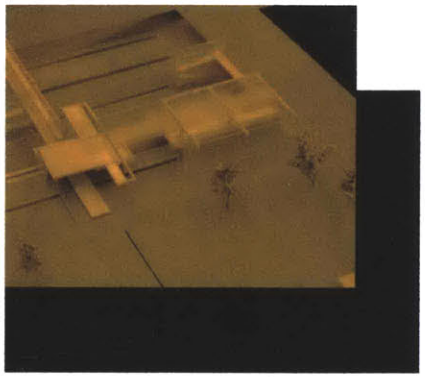


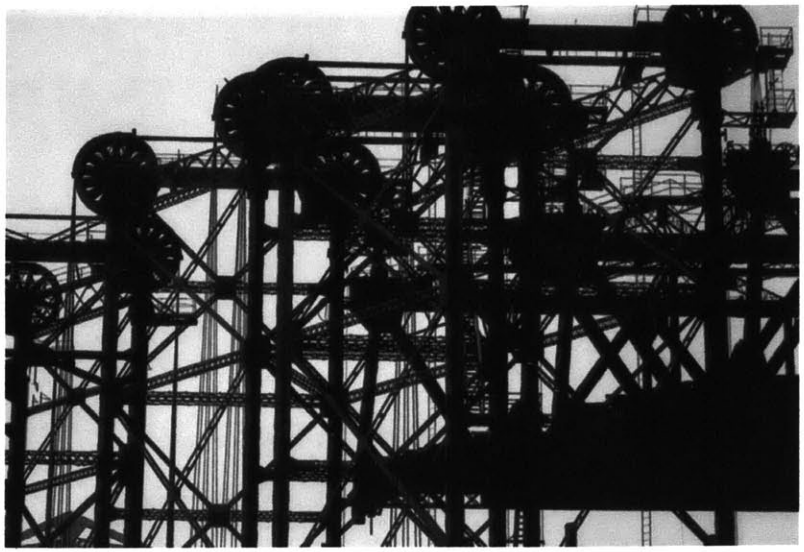






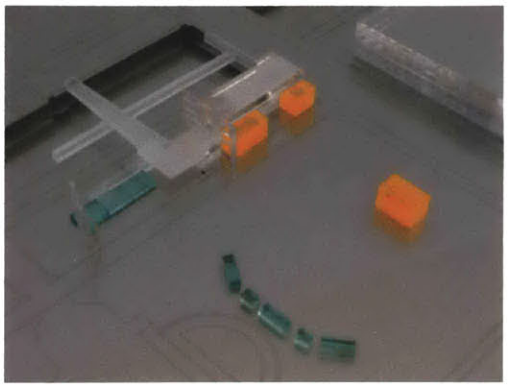






"We go and find out what the machine can do, and then we fit our designs to that. Nick is very practical, but wants to remain on the cutting edge. This makes our buildings economic and affordable. Many architects do not know the process for making things or what the machines can do, and they should."

Eion Billings



Designing for Flexibility

Eion Billings, the director of the Industrial Design Department within Nicholas Grimshaw and Partners, gracefully allowed me to conduct an interview with him. One of the most important moments of the conversation I recall is the point at which he said, "practicality is a big thing in the office," as well as the concept of speculation of the future needs which creates the flexibility (or room) for it that is desired. As I proceeded with the development of this transformer, now a "media center", I considered this issue. The intervention needed to be adaptable and address the issue of flux at the urban scale, an intermediate building scale, and at the human scale. In order to address the issue of the major rift between the city and this green space, caused by the rails 20' trench, a sloping terraced landscape was proposed to run the entire length of the park. This added landscape feature would act as a transition zone between the park and the infrastructure, provide an extensive degree of flexibility between the immediate and specific zones within the park, provide for landscape opportunities for the future development of any other structures along the edge, and create a major feature that would tie the entire park together. This slope would extend the park into the city, causing it to "spill over" into the trench. It became the essence for the potential of a **"cultural corridor"** along the same path that is now a wasteland of rail lines and a service road.

The current construction of the new amphitheater in Millennium Park provides a form of entertainment and education that caters to the sense of hearing. The Art Institute has a focus on the sense of sight. What if these two cultural nodes perpetuated the development of more moments along the same edge of the park? The Media Center could act as a synthesis of both the visual and audio forms creating a third node along the potential **"cultural corridor"**. Other nodes could develop in the future depending on programmatic needs and desires. The Framework Plan (2002) called for the renovation of Roosevelt Station in the near future and a portion of the rail lines will in fact be decked over. Perhaps the concept of a **"cultural corridor"** could play a major part in the development of any future plans for this current wasteland of rail lines.

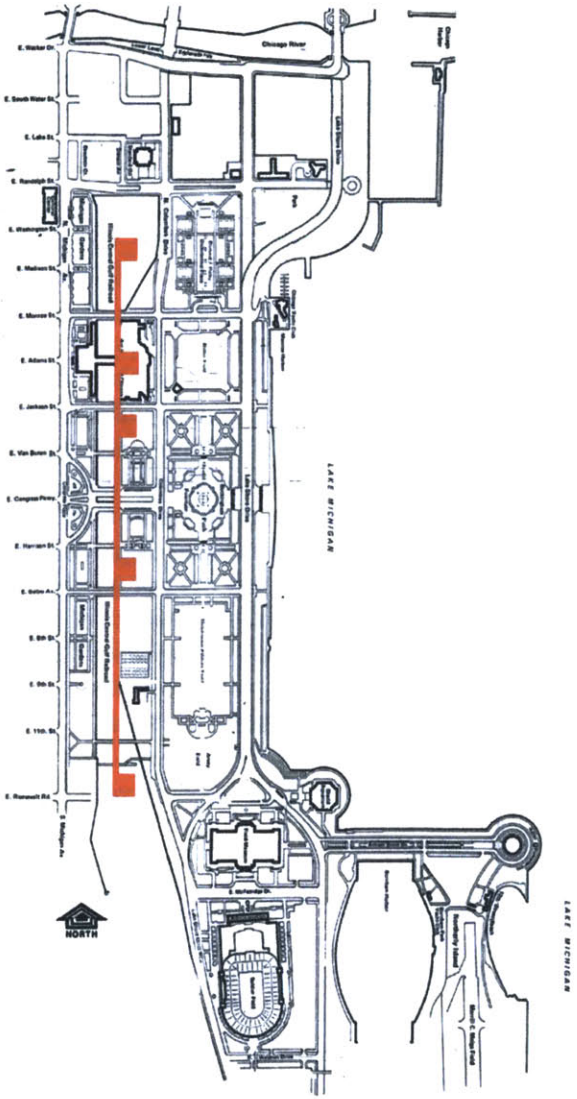
AUDIO

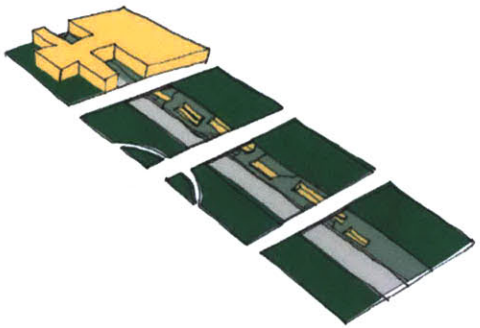
VISUAL

AUDIO AND VISUAL

FUTURE DEVELOPMENT

STATION RENOVATION

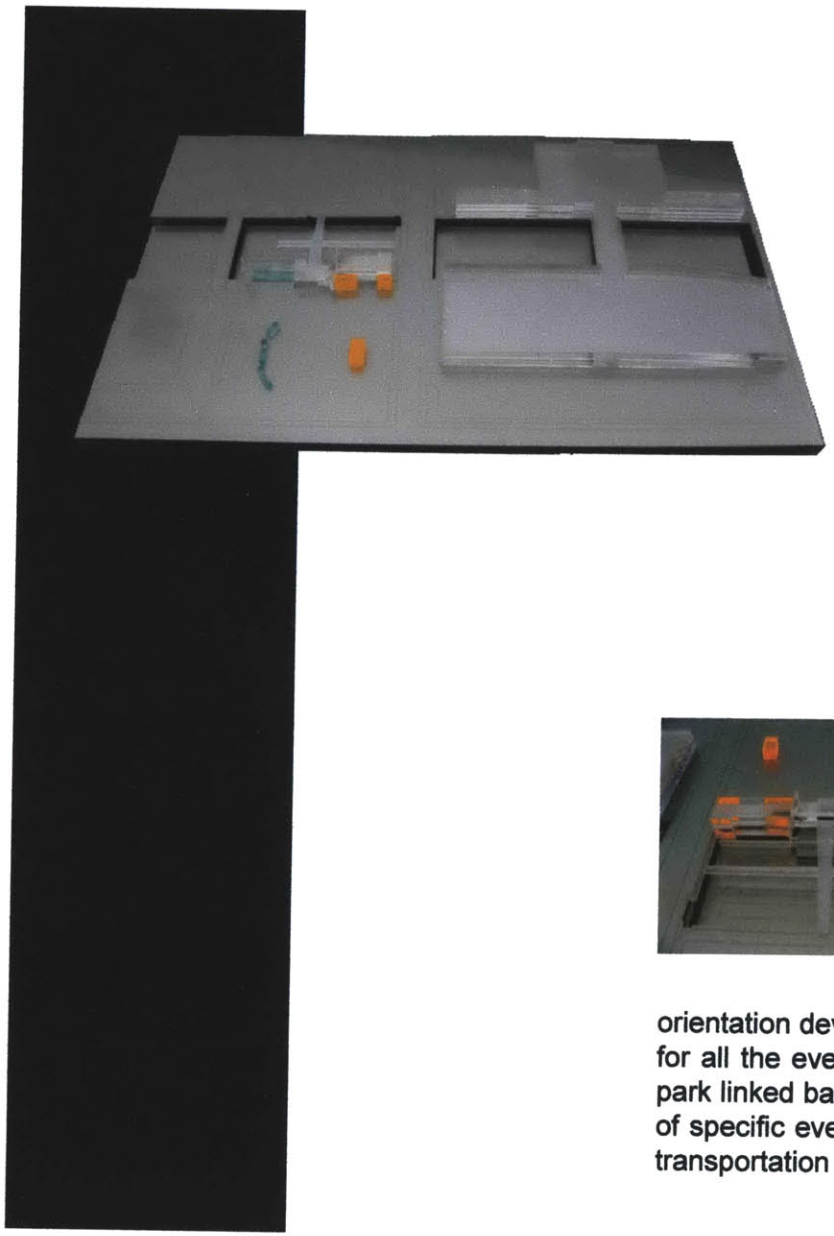


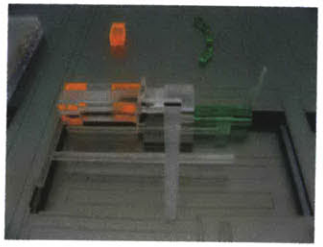


The "Media Center" itself would rest in this terraced sloped landscape allowing for the service road that currently only serves "convention buses" to have direct access to the new facility and consequently the rail lines. The terraced landscape would provide a variety of exterior rooms for galleries, exhibitions, and recreation directly adjacent to the intervention, while simultaneously acting as a moment of improved transition between the rail lines and the park. The transformer, with its main galleries on the first level, commercial entities on the level of the service roads, a media library on the second level, and film studios, classrooms, an auditorium, and offices on the third and fourth levels, would ensure a year round explosion of events. Its structural system was designed to allow for the reconfiguration of its interior walls for variable floor designs as required by the occupants and events. The articulation of its main façade was designed to breakdown into three transportable stages that could be moved into the adjacent open green space to accommodate the park's live performances and movie projections. The deployable stages would provide the physical elements needed to carry out the function of several of the festivals, primarily The Taste of Chicago and the Film Festival, and perhaps even the Blues Festival. Although their position could be limitless if they were deployed by compressed air (hovercraft technology), the ideal location for the stages would be parallel to Jackson Street. This placement would cause the re-orientation of this green space. The viewers would then be enclosed by the lose fenestration of trees and Columbus drive on the west; the backdrop of the city, the Art Institute, and the perimeter of trees all behind the stage on the North; a semi-permeable and quite urban Media Center, providing for their immediate needs on the east; and a row of dense trees and the Lincoln memorial behind them. The scheme would redefine the idea of a "building in the park".

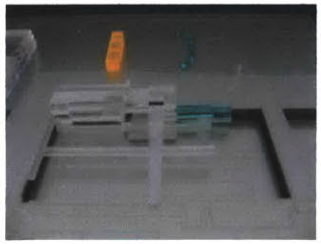
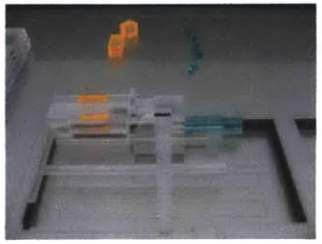
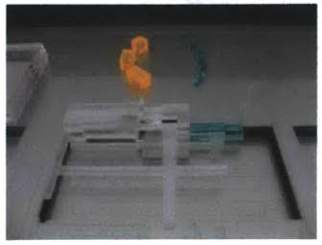
A single bridge would connect the two sides of the park providing for a controlled promenade between the two green spaces and over the rail lines. Upon entering the bridge, the occupants would have a view directly through the Media Center and into the park. Immediate access to the rails, the park, and the various programs of the *transformer* would be possible via this stitch between the metropolis, the infrastructure, and the park. In the end the Media Center would be a gateway to the park, another iconic moment in the city of Chicago, and an

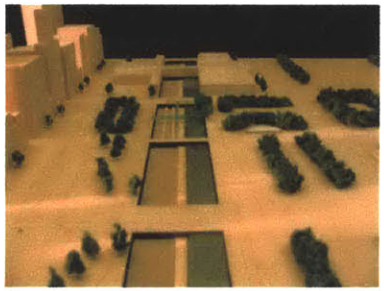
Modes of The Media Center:
The diagrams illustrate the unfolding of the Media Center over time. The top diagram illustrates the state of the center during the winter months, the second and third convey the spring and fall, and the fifth diagram depicts the Media Center fully expanded during the summer.

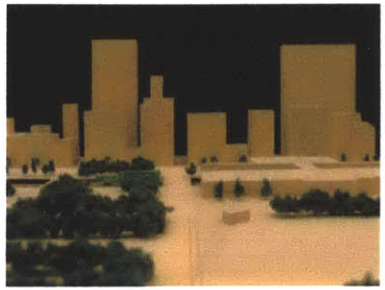


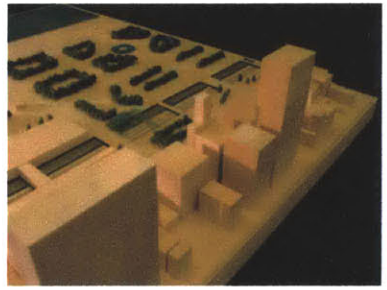


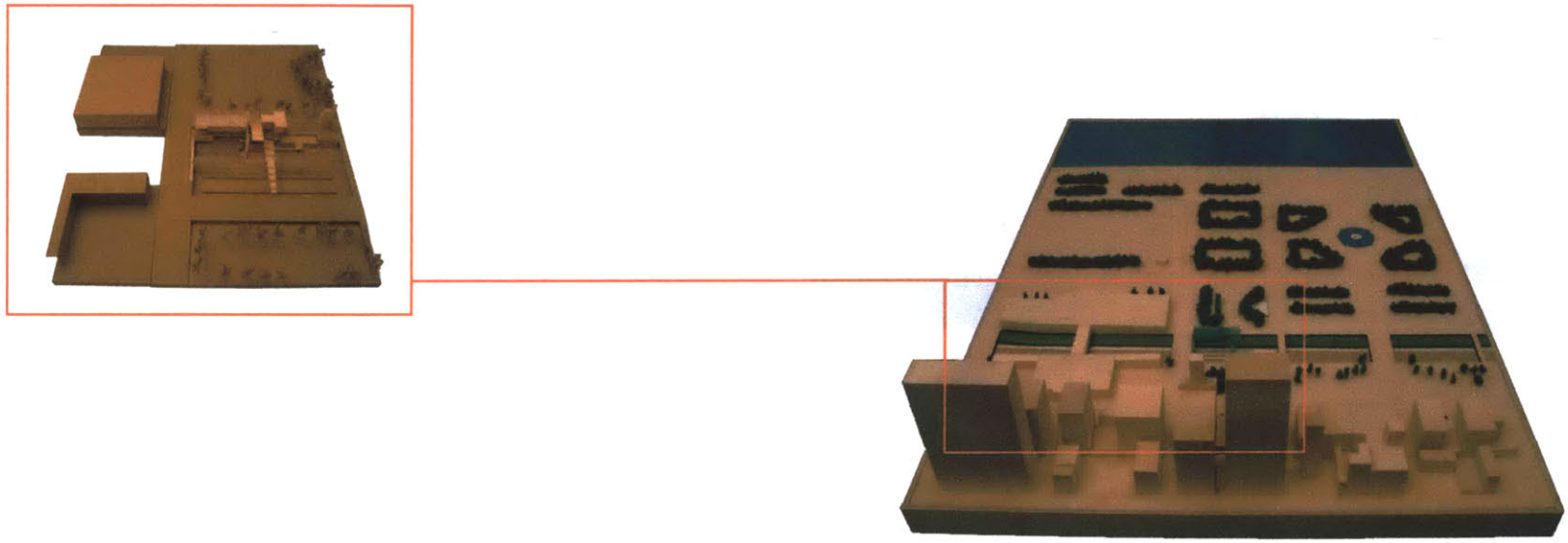
orientation device for all of its occupants. It would serve as an information center for all the events of Grant Park with a network of INFO Stations throughout the park linked back to its main lobbies, enabling visitors to find out the exact location of specific events, their friends, and the departure and arrival times of the public transportation systems.

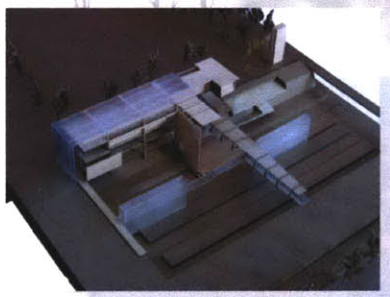




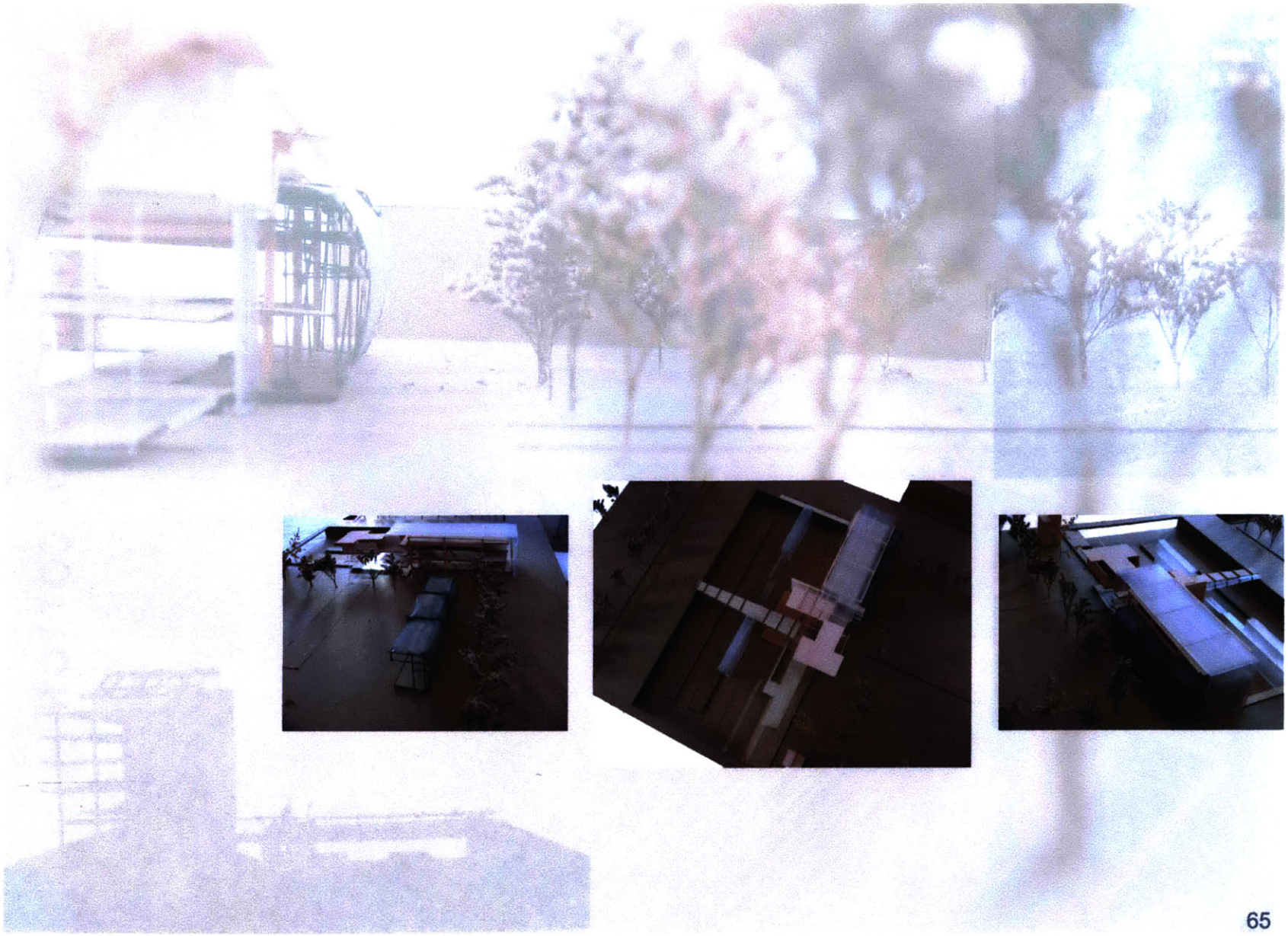












Review 4: Final Thesis Presentation

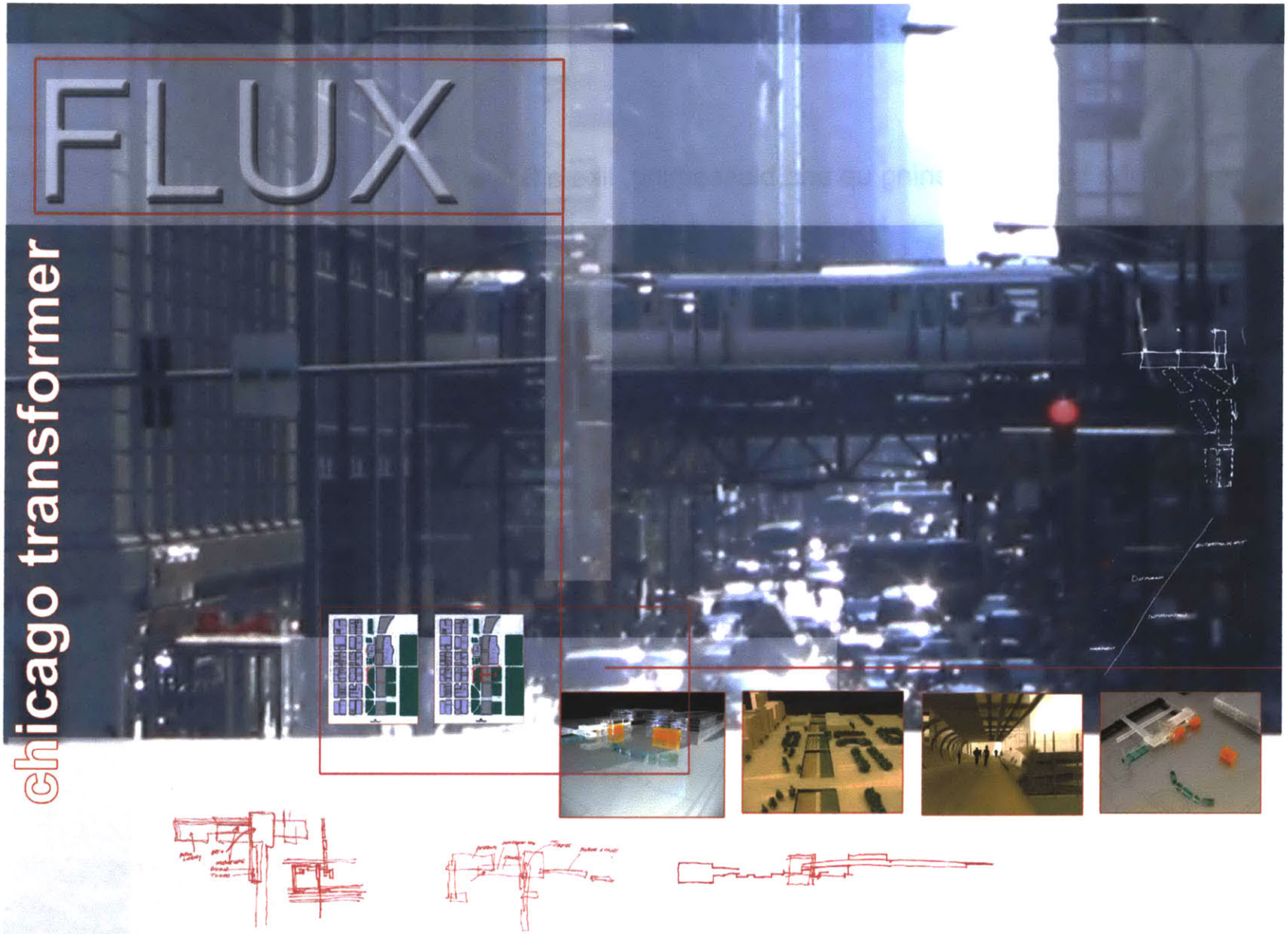
"The idea of a building opening up and blossoming, like a flower is beautiful."

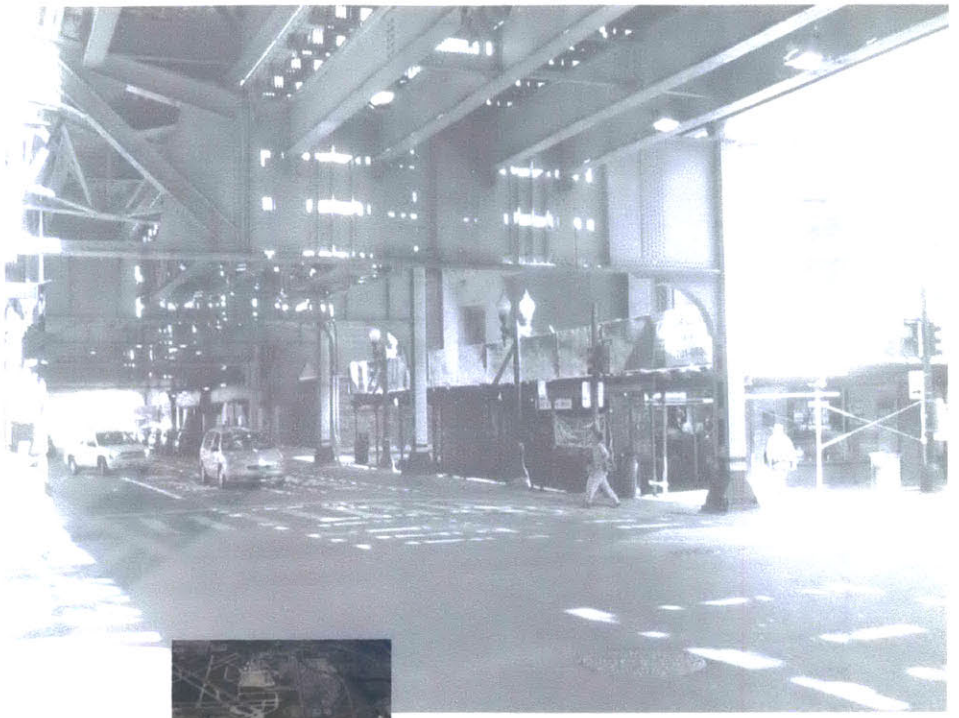
"I don't quite get the gesture of the single bridge."

"It seems to me that this project wants to be much larger. I almost wish it could expand over the entire area, and take over this entire length of the park."

"The language of your architecture should speak more about flexibility. It seems too static."

"The range of scales you have worked at has added to the success of this project."


FLUX
chicago transformer



1855- City is raised out of the mud

1867- Chicago's first water tunnel is completed

1892- First elevated train begins operation

1943- State Street subway opens

1969- World's first commuter rail service on an expressway median opens on the Dan Ryan

1992- "Great Chicago Flood"

1837- Chicago is incorporated as a city

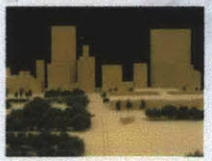
1871- "Great Fire"; 300 dead and 90,000 homeless

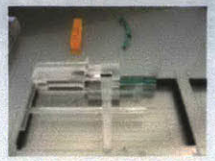
1880- Original Union Station built

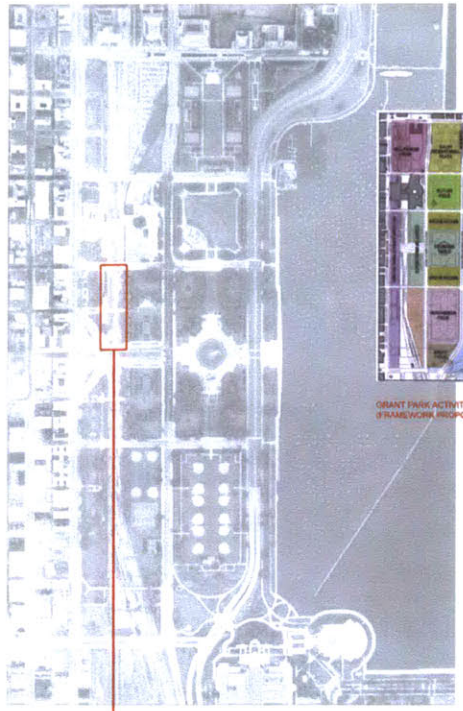
1955- O'Hare International Airport Opens

1960- Kennedy Expressway opens

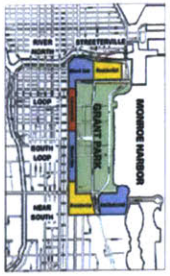
1996- The Museum of Contemporary Art moves into the first new museum building constructed in Chicago in 60 years







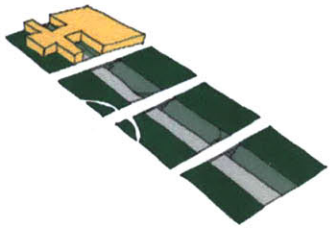
GRANT PARK ACTIVITIES AREA
(FRAMEWORK PROPOSAL)



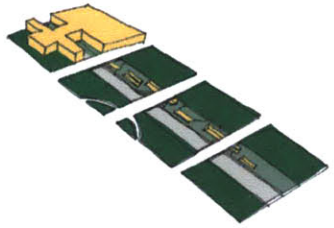
LAND USE PLAN (FRAMEWORK PLAN)

NORMAL DENSITY ESTIMATION

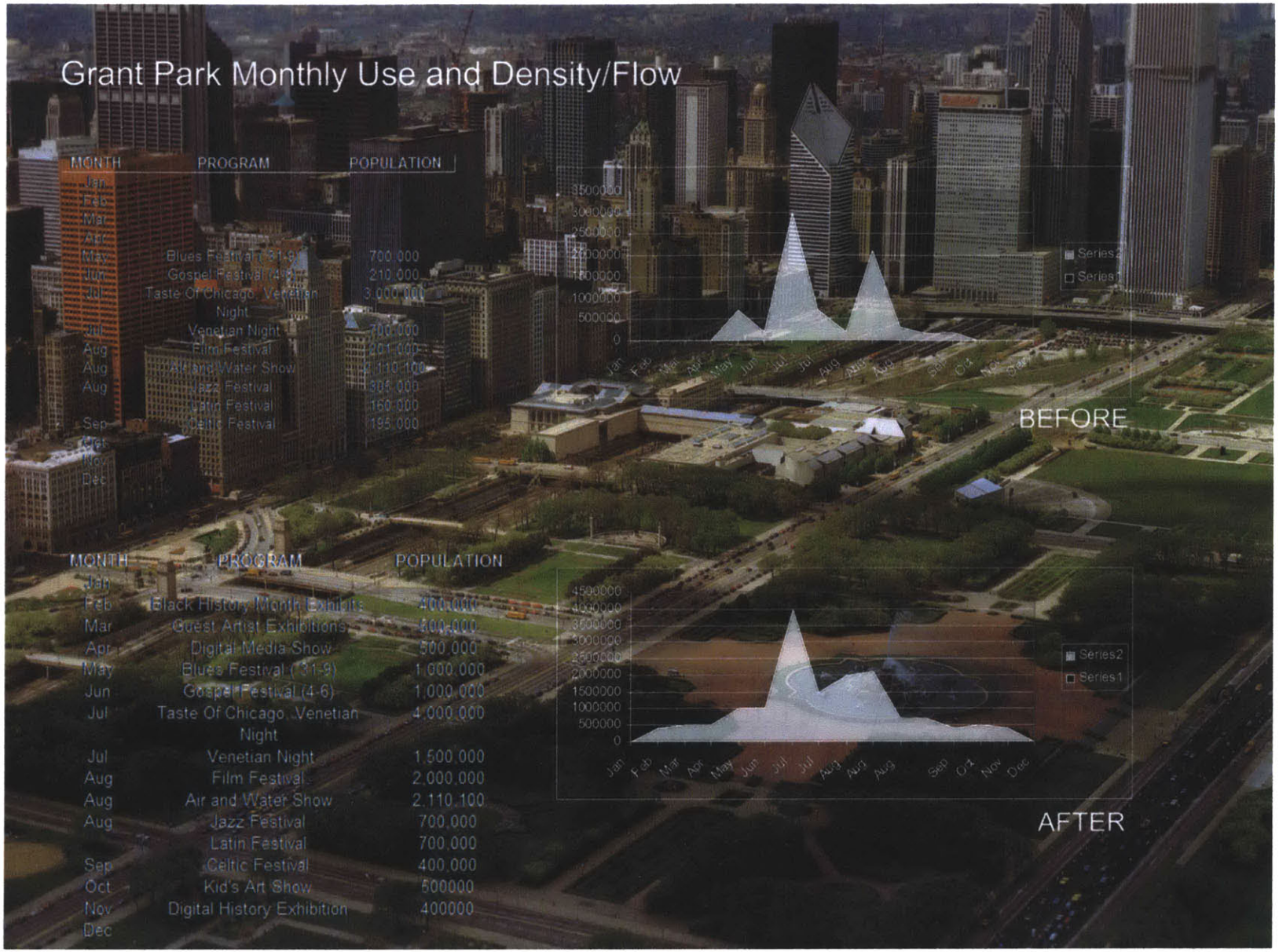
SPECIAL EVENTS DENSITY ESTIMATE



SLOPING LANDSCAPE EMPLOYED TO EXTEND THE GREEN SPACES OF THE PARK AND IMPROVE THE QUALITY OF TRENCH



SLOPING LANDSCAPE WITH INTERMEDIATE TERRACE NETWORK


Grant Park Monthly Use and Density/Flow
MONTH
PROGRAM
POPULATION
Jan
Feb
Mar
Apr
May
Blues Festival (31-9) 700,000
Jun
Gospel Festival (4-6) 210,000
Jul
Taste Of Chicago, Venetian Night 3,000,000
Jul
Venetian Night 700,000
Aug
Film Festival 201,000
Aug
Air and Water Show 2,110,100
Aug
Jazz Festival 305,000
Latin Festival 150,000
Sep
Celtic Festival 195,000
Oct
Nov
Dec
3500000
3000000
2500000
2000000
1500000
1000000
500000
0
Series2
Series1
Jan Feb Mar Apr May Jun Jul Jul Aug Aug Aug Sep Oct Nov Dec
BEFORE
MONTH
PROGRAM
POPULATION
Jan
Feb
Black History Month Exhibits 400,000
Mar
Guest Artist Exhibitions 800,000
Apr
Digital Media Show 500,000
May
Blues Festival (31-9) 1,000,000
Jun
Gospel Festival (4-6) 1,000,000
Jul
Taste Of Chicago, Venetian Night 4,000,000
Jul
Venetian Night 1,500,000
Aug
Film Festival 2,000,000
Aug
Air and Water Show 2,110,100
Aug
Jazz Festival 700,000
Latin Festival 700,000
Sep
Celtic Festival 400,000
Oct
Kid's Art Show 500000
Nov
Digital History Exhibition 400000
Dec
4500000
4000000
3500000
3000000
2500000
2000000
1500000
1000000
500000
0
Series2
Series1
Jan Feb Mar Apr May Jun Jul Jul Aug Aug Aug Sep Oct Nov Dec
AFTER

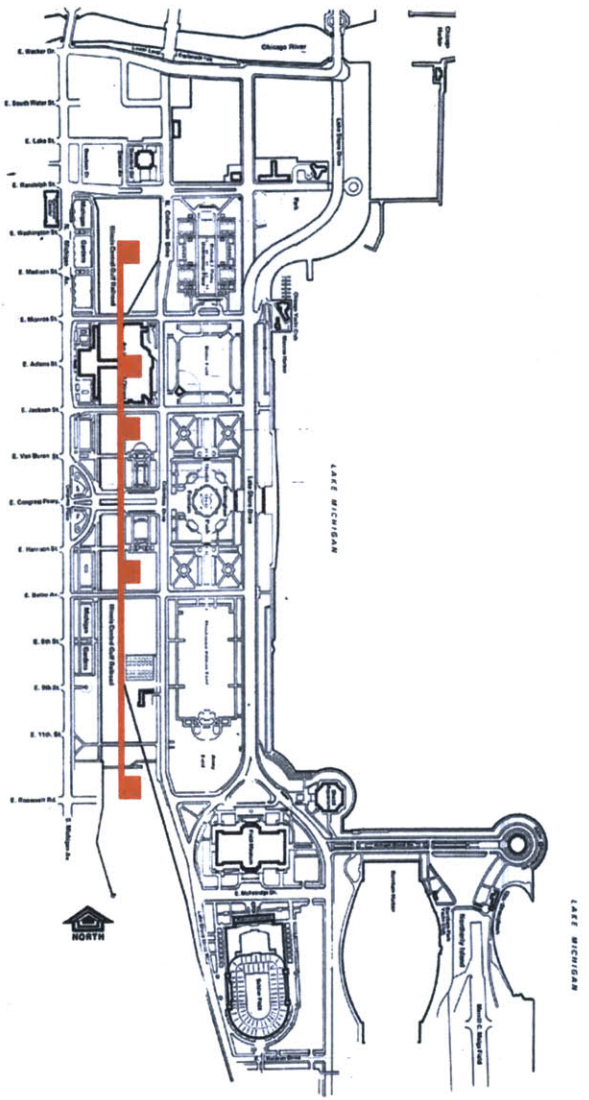
AUDIO

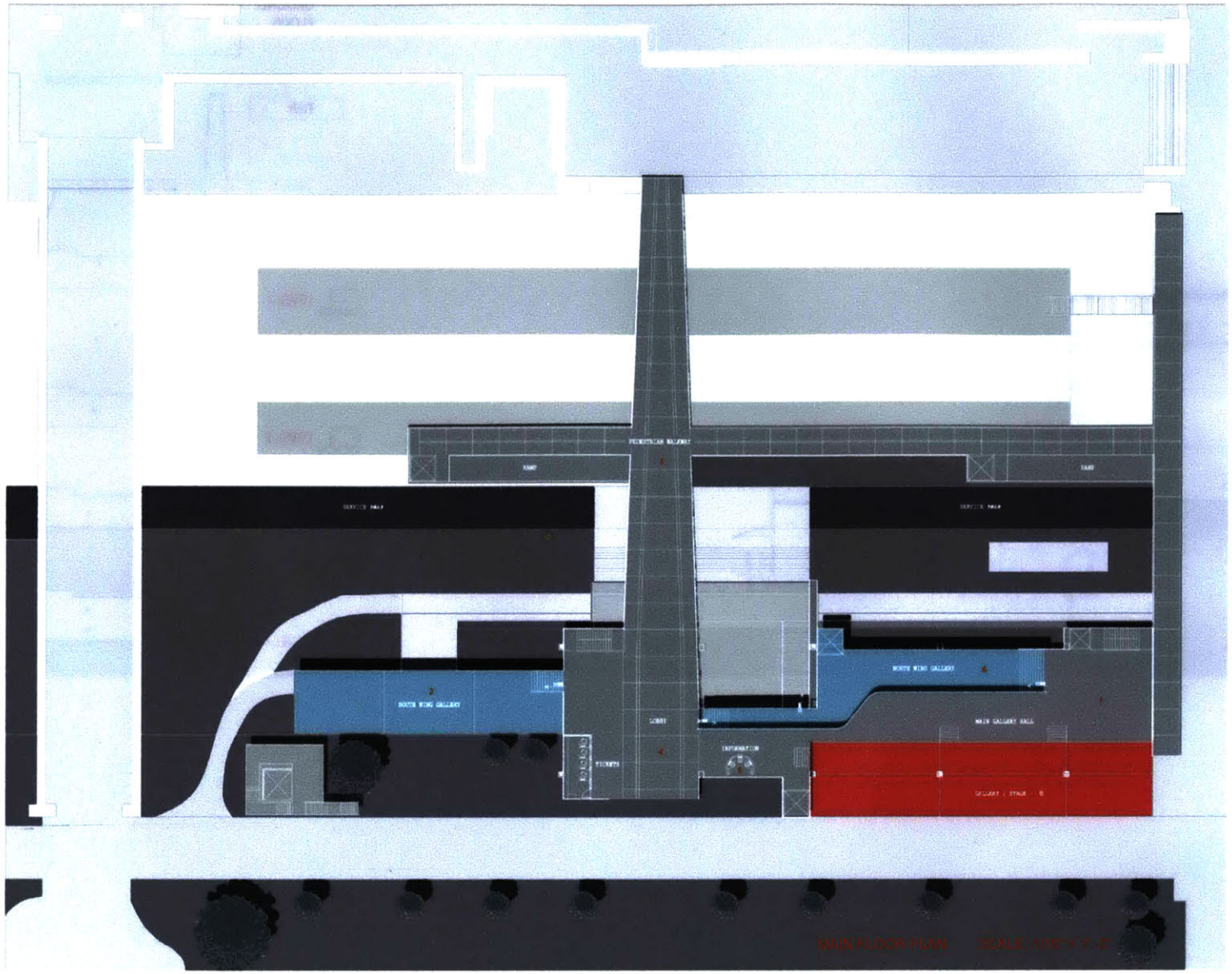
VISUAL

AUDIO AND VISUAL

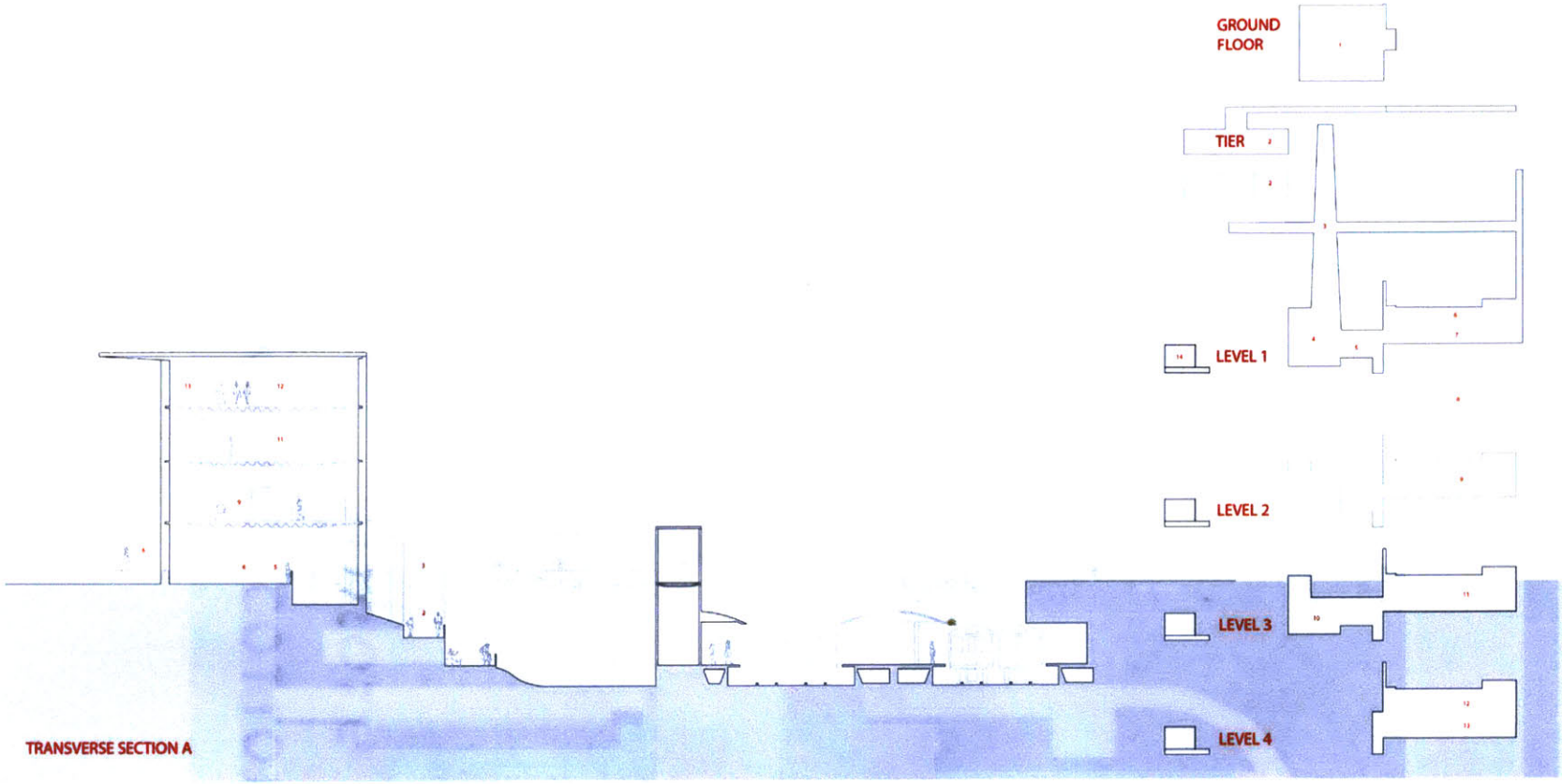
FUTURE DEVELOPMENT

STATION RENOVATION

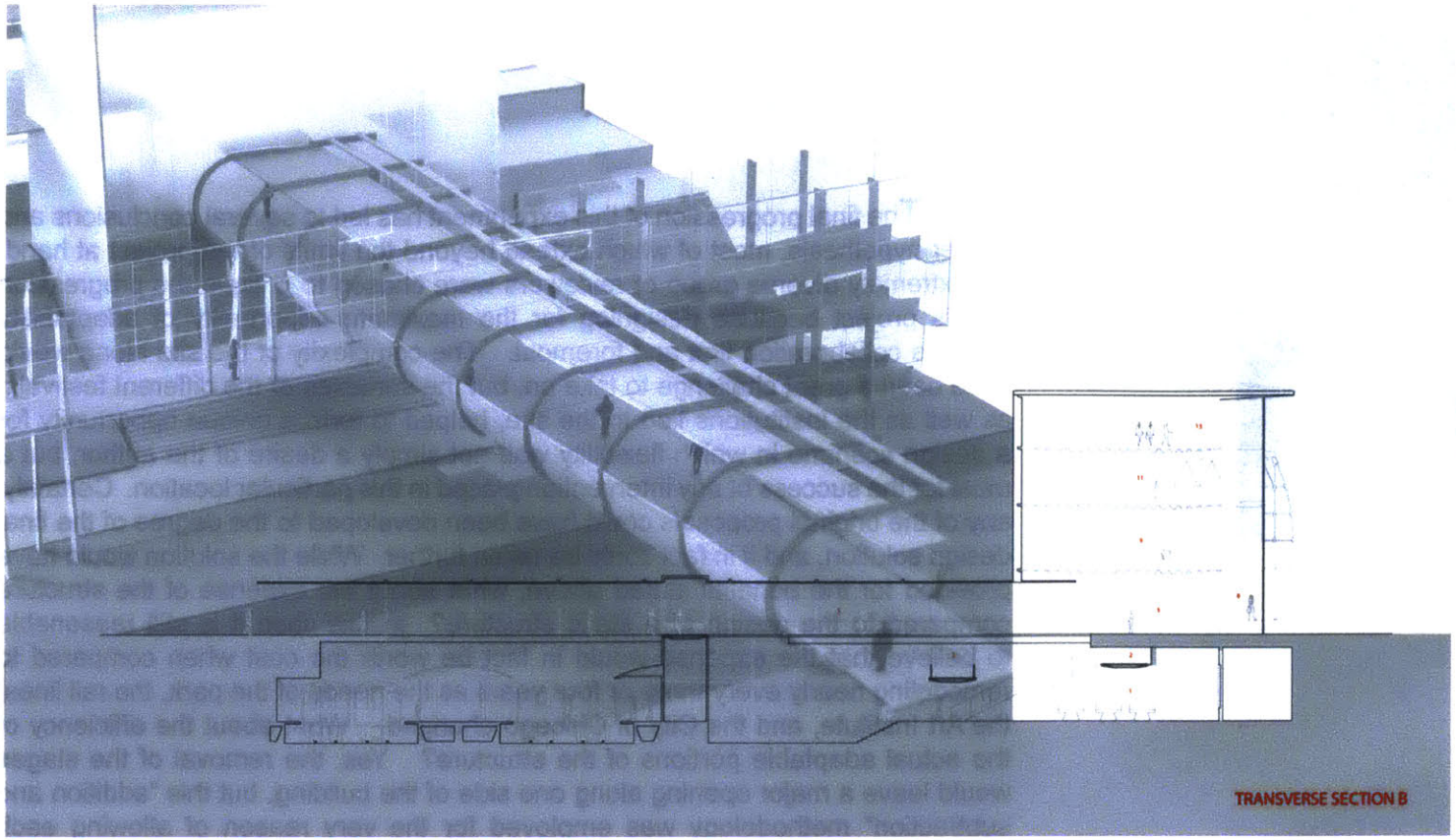




MAIN FLOOR PLAN SCALE: 1/8" = 1'-0"

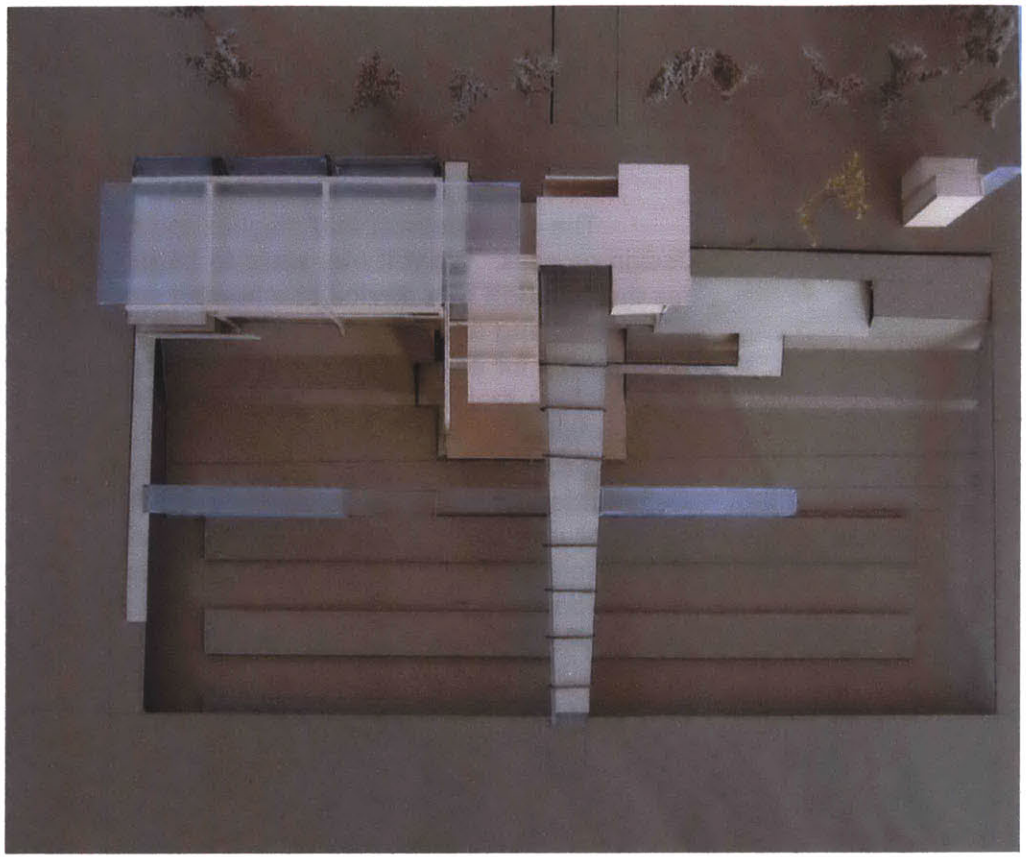


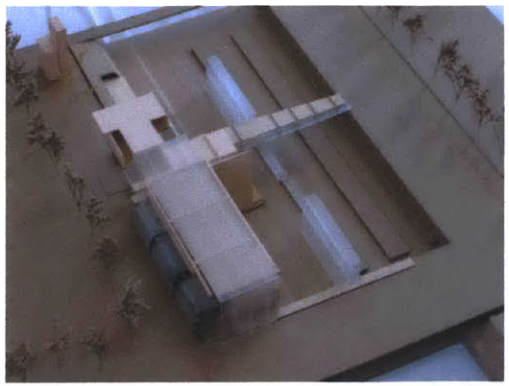
TRANSVERSE SECTION A


TRANSVERSE SECTION B

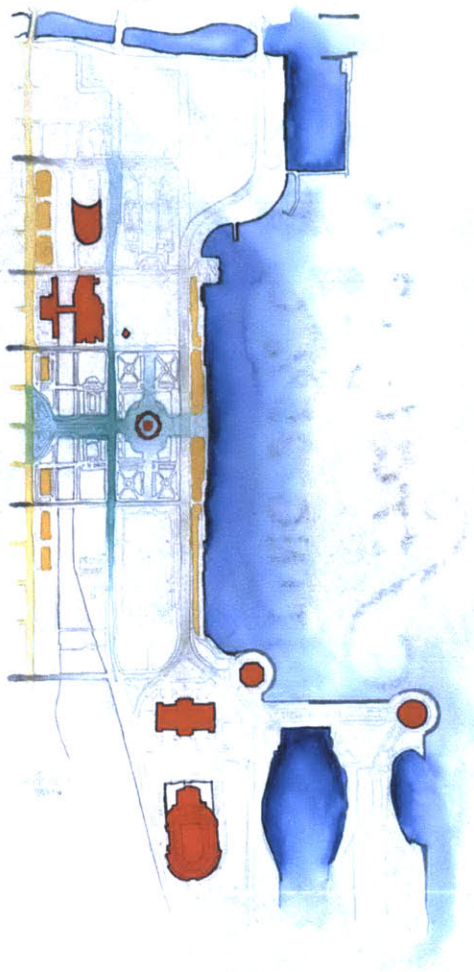
Conclusion: FLUX

The final progression of this experiment has led to several conclusions and further hypothesis, most of which extend beyond the limits of the project at hand. An extremely diverse group of reviewers were chosen to critique the progression of this project because designing for the maximum opportunity of adaptability requires collaboration first and foremost. The complexity of the site alone would have been a great challenge to take on, but the variables of the different festivals, as well as the institutions tied to the site, helped to form a unique opportunity for a design scenario in which flexibility was not simply a desire of the author, but a must for the success of any intervention placed in this particular location. Certainly, any of the original proposals could have been developed to the degree of the final design solution, and it in fact could be taken further. While the solution would have provided for the benefits stated above, what about the expense of the structure compared to the design of a static structure? In this case it is still reasonable to believe that the expense would in fact be worth the cost when compared to remodeling nearly every three or four years as the needs of the park, the rail lines, the Art Institute, and the City of Chicago changed. What about the efficiency of the actual adaptable portions of the structure? Yes, the removal of the stages would leave a major opening along one side of the building, but this "addition and subtraction" methodology was employed for the very reason of allowing each space to take on a brand new and grand character as parts of the structure were deployed, consequently signifying the use or change of program to all residents of the area. What about the solution to use only one bridge and the widening of the adjacent bridge (on Jackson Street) to improve access, direction, and amount of flow to and from the site? Perhaps this move was a bit more formal than necessary to achieve a desired experiential quality.





The one question that plagues me the most is concerned with the initial design process: **What if one were to begin with the design of a simple detail for the function of a device at a human scale initially, without considering all of the building and urban scale issues?** Would that in fact hinder the process of designing for flexibility or would it render an even more refined solution/model/ methodology that can be adapted to the design of office buildings, museums, transportation hubs, and institutional facilities? Is it possible to start from what would conventionally be considered the reverse, and design the smallest detail first in order to resolve the human body to object relationship, conversely allowing the detail and the larger scale issues to work back and forth on one another until completion of a project? The real issue at hand is attempting to allow infrastructure and temporary structures to teach architecture a lesson. Surely, these two items are significant features in contemporary society. They always have been. The question is: How do we adapt their qualities to the appropriate scale and scenarios in order to propel architecture into a more efficient and sustainable cultural product for a dynamic society? This is the beginning of an exploration for the author . . . . the point of my trajectory.



Notes

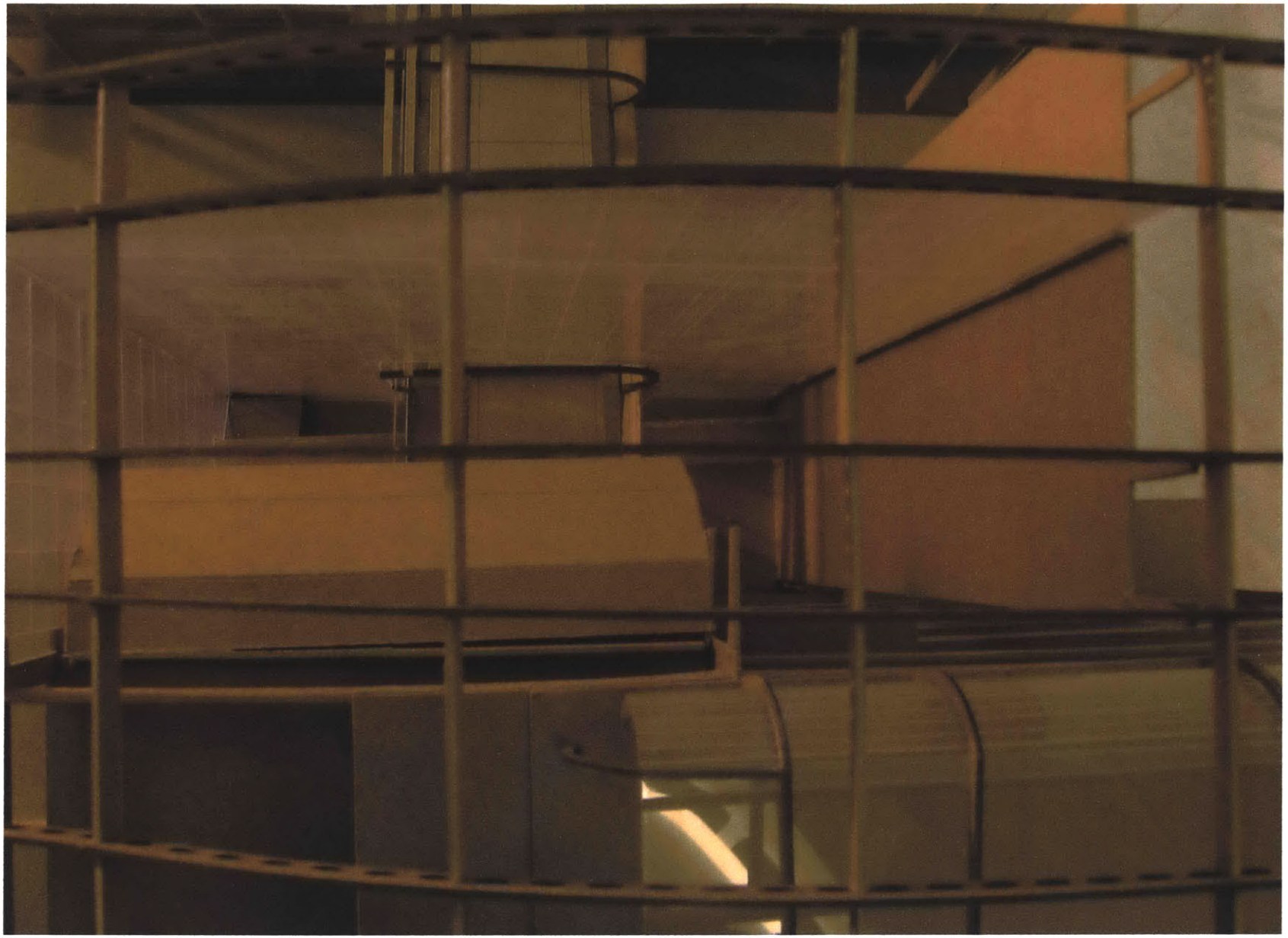
(Endnotes)

1 www.travelocity.com

2 www.exodus.ibelieve.com

3 Nicholas Grimshaw and Partners Office Visit: EB Interview

4 Nishen, INFO BOX: The Catalogue, 40.



Appendix A: Thesis Proposal


Are
you
ready?
FLUX
transformation/ movement/ kinetics/ flexibility

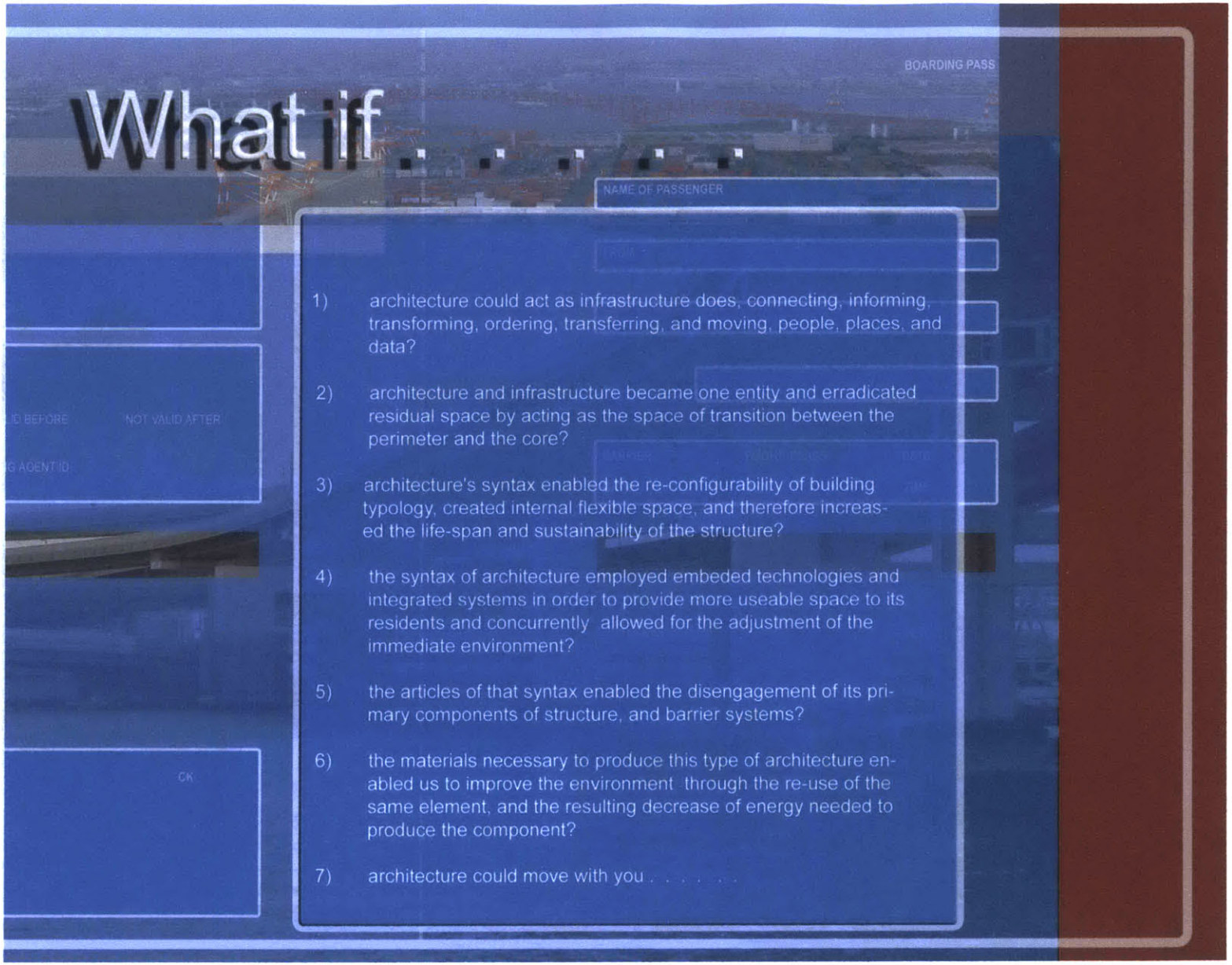
Abstract

"Nearly every American house I've lived in has long ago been demolished to make room for some other building. There is a delicious (though painful) paradox here: Americans long for stability, but all they get is stationary impermanence. . . ."
Andrei Codrescu

Contemporary society is being re-defined by continuous travel and motion, resulting in the collapse of time and space - the origins of globalization, and infinite, never ceasing data transfer; both of which have propelled us into the Information Age. The resulting cultures are hybrid, more complex, and always transforming. As corporations and communities continue to expand and contract, re-locate, emerge, and vanish, their need to be capable of adapting is increasing. On Monday, the client desires a mid-rise building with an open floor plan on all levels. The following Wednesday, his company's stock has gone through the roof and his financial advisors suggest a mixed use facility, with retail space on the lower three levels and ten extra floors of office space. By Friday, his architect will have designed a sky-scrapper. These fast pace changing needs, the various forms of infrastructure that facilitate transfer, and evolving technology confront architects with a major question: Can architecture become flexible, adaptable, and transformable in order to meet the ever-changing demands of contemporary society?

Infrastructure permeates every facet of our lives. It allows us to move to here and there, it brings resources, data, and entertainment to our very fingertips. It operates at various scales, and even provides stability within society. The thought of architecture fusing with or becoming like infrastructure is not a new subject matter. Theorist have written about it for years. The human species has always been transient, so why the need for a new architecture? Our new technologies have also prompted the degradation of our global environment, and caused the over utilization of various natural resources. Perhaps a more functional architecture that is kinetic, transformable, capable of disengagement, and reassembly could keep up with the occupants' need to have multiple programs taking place in one space, maintain economy, and alleviate the over use of energy and resources.

Aaron S. W. Greene



What if . . . . . .

1) architecture could act as infrastructure does, connecting, informing, transforming, ordering, transferring, and moving, people, places, and data?

2) architecture and infrastructure became one entity and erradicated residual space by acting as the space of transition between the perimeter and the core?

3) architecture's syntax enabled the re-configurability of building typology, created internal flexible space, and therefore increased the life-span and sustainability of the structure?

4) the syntax of architecture employed embeded technologies and integrated systems in order to provide more useable space to its residents and concurrently allowed for the adjustment of the immediate environment?

5) the articles of that syntax enabled the disengagement of its primary components of structure, and barrier systems?

6) the materials necessary to produce this type of architecture enabled us to improve the environment through the re-use of the same element, and the resulting decrease of energy needed to produce the component?

7) architecture could move with you . . . . . .

Precedents

Progress

"It is in our genes to be nomadic. For nearly all of human-kind's history, just to survive we have found it necessary to live our lives on the move. As the enduring protohuman species, Homo sapiens followed a hunter-gatherer existence, shifting "home" from place to place as required by the demands of hunger and climate. This movement was often seasonal and a pattern, but the flexibility and adaptiability it engendered in our species also enabled much bigger geographic shifts to take place as environmental change and natural disasters made reigions of the earth unihabitable."

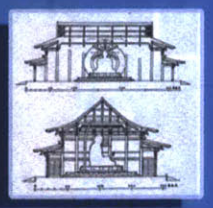
Rober Kronenburg (Mobile: The Art of Portable Architecture)

Alaskan Tent,
pre-historical

Dymaxion Deployment Unit, 1940

Institute of the Arab World, 1987

Lehrter Bahnof,
under construction



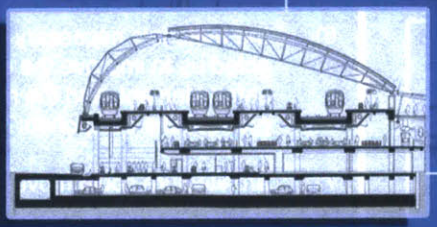
Todaiji, 734 A.D

"..... impossible to wait on the slow collaborations of the successive efforts of excavation, mason, carpenter, joiner, tiler, plumber..... Houses must go up all of one piece, made by machine tools in a factory, asembled as Ford assembles cars, on moving conveyer belts."

Le Corbusier (L'Espirt Nouveau)

The Crystal Palace, 1851

Grand Central Terminal, 1912



Waterloo Station, 1993

L'Hemisfe ric, 1998

Proposal:

Objective:

Contemporary society requires a more complex state of adaptability and economy. Through the design of a structure that acts as infrastructure (transfering people, data, and places) and has the ability to be disassembled, reasemmbled, or kinetic, depending on the issues of the context, the concept of flexible space will be brought into reality. This project is not grounded on the idea of producing a new architectural style or fashion, but **a thought process that considers the life-span of a structure, from the point of its conception, resulting in an innovative vocabulary of details, joints, and structural elements.**

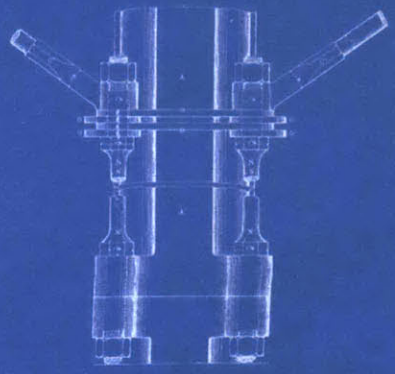
Intervention Opportunities/ Potential Scenarios:

1) Office buildings in which the corporation requires a variety of spaces, there are multiple clients, the firm intends to reside within the structure temporarily would provide an opportunity for the exploration of creating primarily internal flexible space and perhaps the development and design of specific structural systems, walls systems, and even floor and ceiling manipulation.

2) A transportation hub that may require extensions in the future and a viable link to both its remote and dense context could provide the opportunity to develope an approach, through the employment of infrastructure tactics, to urban design and transformation.

3) Transient/ Nomadic individuals could provide a scenario in which a structure (housing, stage(s), temporary work spaces, technology hubs) are developed for ultimate optimization.

4) A traveling institution (art gallery, exhibition hall, "library") could provide the opportunity for a building that is capable of being disassembled and reassembled, with new configurations based on its locations.



Potential Sites:
Chicago: The Loop / New York: near Brooklin Bridge / Osaka: Waterfront near Sakishima / Seoul, Korea / Shanghi / Tokyo: Waterfront near Fuji Center / Valparsio, Chile

Desired Site Properties:
significant public transportation system, potential for contrast of dense city core to remote areas, changing/ continuously developing zone(s)

Desired End Products:

Full development of a building, with various systems and details in both model and drawing form ranging from 1/32" to full scale mock-ups. The models of the details and systems will be the primary focus and result of all inquires and the beginning of the development, cataloging, and evidence that economic flexible space can be created in order to fullfill the desires of contemporary society.

Chicago

FLUX> Transformation, Transportation, Extension

aaron s. w. greene - www.aswg.net - aswg@mit.edu

Along major avenues in Chicago a festival is held in the summer, in which, the streets are completely consumed with the programs of dancing, eating, buying, socializing, entertaining, watching, ...living. The festival removes the activity of travel by automobile from the site. For five days the city is transformed by the Taste of Chicago. Temporary stages are developed, musicians perform, market tents are constructed and products are sold, vehicles with uncanny traces to the RV pull up and provide every type of service imaginable ranging from radio stations and game shows to electrical power and information for visitors.

This is where we begin . . . . . .

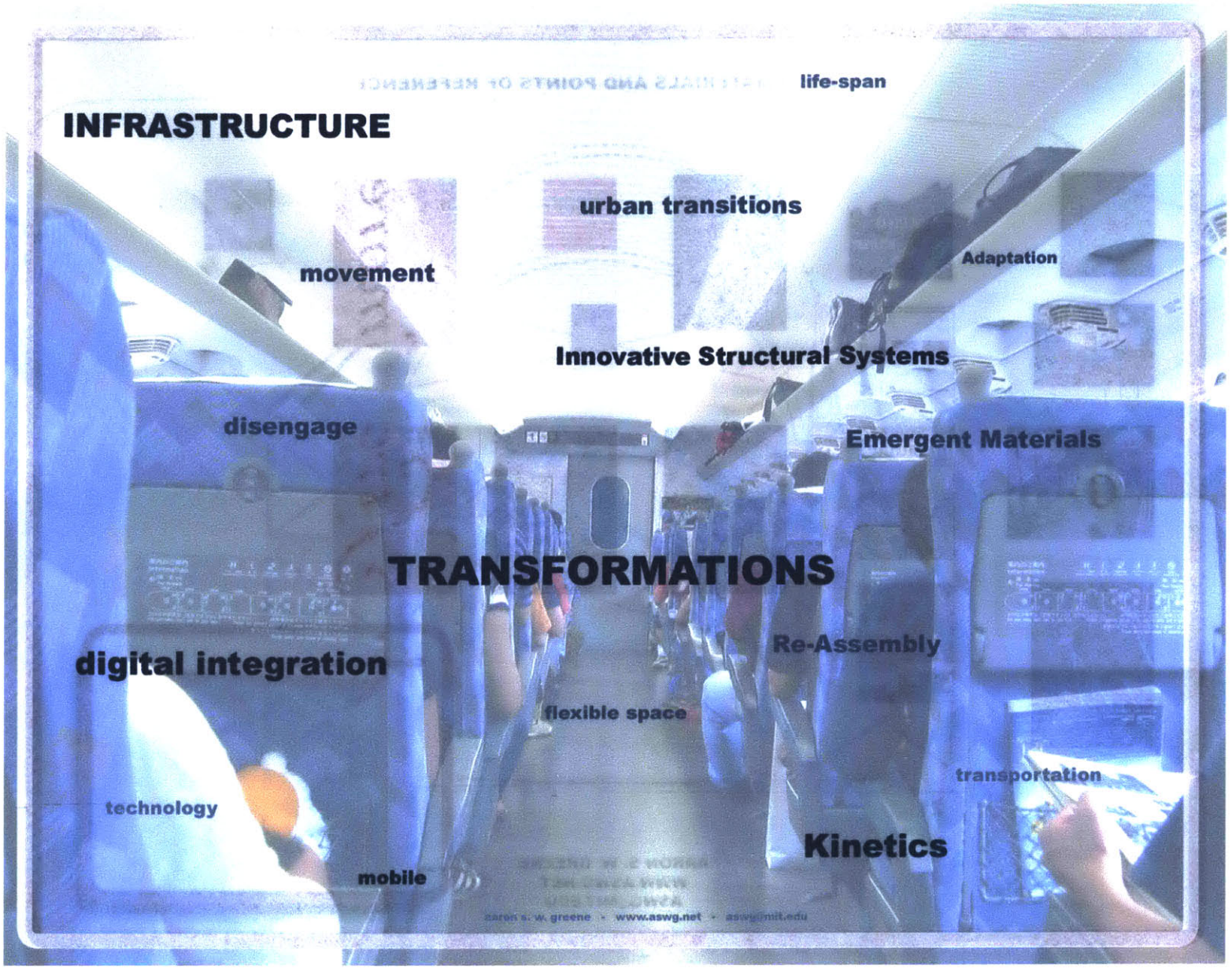
Program: The temporary wooden structures are the basis of the temporal environment created during the festival. They literally transform the space of the asphalt pavement, where motor vehicles normally dominate, into a zone of exchange, of commerce, of galleries, and entertainment. Every year these wooden structures are dismantled. Normally, because of the redirection of traffic, people who live or work in the Loop are blessed with immediate access to the festival as pedestrians. However, the bus system and the trains provide access to the location for "outsiders", and so the need for a local transportation hub is apparent. On one of the intersections that rest on park-land, where the vehicular traffic is eliminated in one direction, and cars rove in the other, I propose to create a transformer. One in which a portion of the structure is permanent and acts as a transportation hub, while the remainder of it may be taken apart, moved to another site, or reconfigured on this particular site, based on the specified programmatic needs of the occupants. The transformer would serve as physical means of connection for tourist and distant dwellers to arrive at the site, a mediator between traffic, green space and markets, and as a point of reference for the site.

Primary Function: Transportation hub (small scale – bus stop or L stop), **Secondary Functions:** Information Center, gallery spaces, **Extension Spaces**: Cafes, Internet access points, Stalls for the markets

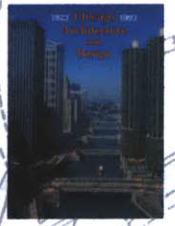
Issues: Time, Culture, and Technology

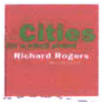
Time: One important consideration for this program will be to investigate whether or not, and how this transformer should act based on time. More specifically, does the structure operate with the extensions for primarily five days out of the year or more? Does the building change seasonally, or once a year during the summer? Does it change every five years? The time period of change will have a dramatic effect on the design and formulation of details and material selection for the structure.
Culture: The transformer is already grounded in one fundamental tradition of the city, is it possible for it to root itself further into the cultural events of Chicago?
Technology: How feasible will it be to re-configure this structure? Will it be designed to transform within 8 hours, 4 hours, ...72 .....or longer? This will obviously be a result of the decisions made based on the time factor. How much will this technology cost the client .....is it economic?

Objective:
Contemporary society requires a more complex state of adaptability and economy. Through the design of a structure that acts as infrastructure (transfering people, data, and places) and has the ability to be disassembled, reasemmbled, or kinetic, depending on the issues of the context, the concept of flexible space will be brought into reality. This project is not grounded on the idea of producing a new architectural style or fashion, but a thought process that considers the life-span of a structure, from the point of its conception, resulting in an innovative vocabulary of details, joints, and structural elements.


life-span
INFRASTRUCTURE
urban transitions
movement
Adaptation
Innovative Structural Systems
disengage
Emergent Materials
TRANSFORMATIONS
digital integration
Re-Assembly
flexible space
transportation
technology
Kinetics
mobile

RESEARCH MATERIALS AND POINTS OF REFERENCE





Comments and Suggestions:

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AARON S. W. GREENE
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Interview 2: Nicholas Grimshaw and Partners 11:00 am Tuesday, July 15, 2003

Eion Billings – Industrial Design Department Head

Eion seemed very concerned with the idea of my project as **infrastructure.**

Transformation Node: As Watrerloo is and it takes into account so many issues of **use** and improving the concept of and quality of transportation modes. (Paddington Station Renovation) "We took the information and dispersed it every where so that you could relax, and no matter where you were, having a cup of coffee, buying a newspaper you could see the information." This was the thinking behind the "information nodes" dispersed throughout the platforms & terminals of Paddington Station. They also saw to it that space was thoroughly programmed to get rid of the grim aspect of transportation hubs.

Activate Community
Increase Business
Obtain Faithful Occupants

Waterloo

-Acts in a similar manner, has details and joints that allow for extreme flexibility (vibration of station) and maintenance replacement.
-Its curved geometry follows that of its rails and edge conditions. "They were already set for us."

Fusion:

Exhibit on details to inform people of the process of fabrication as well as how the resulting produced components are placed together in order to create an enclosed space.

"We did not just want to display a bus stop, because there are preconceptions associated with it. People could miss the point. A bus stop is too familiar and the people would have glanced over the details."

So they create display cases that were flight cases, self -illuminating and all!

Advice on Project:

You should address the issue of the context! What works in one part of America cannot be the same in all, and if it does it is probably over-engineered. Recall: Miami Vs Wisconsin cladding panel example. "Claming that the system can work for both context. . . . "

Environment:
If you can create one and keep using it, it is better for the environment. And you decrease the amount of the energy used to create several.

Quality of Life or Space:

"Make it a pleasant, extremely pleasant experience: program it, take away the grim and grit, bring life and information to it! Make people enjoy being there, and want to come back to use it again."

<u>Flexibility:</u>

Most flexible buildings:

Ingus (in Colonge)

Industrial building with pods that can be moved around via air compressed underneath its footing.

The British Pavilion 92'

- British Pavilion is completely capable of being assembled, disassembled and moved about.
- Its foundations are permanent so those would have to be redone.
- A man (Indian gent.) actually purchased it to act as a reception hall for the huge wedding here in London, but its actually still in boxes down in the docks.
- The building was originally designed for Seville, but was supposed to be sent to Africa afterwards. One portion of the structure contains pumps that move water up to the top and pour it over glass wall to cool the people as they enter the structure. The pumps could have been used Africa for well to get good pure H2O. They were standard grade, as well as well as the durable containers. "We go and find out what the machine can do, and we fit our design to that." "Grimshaw is very practical, but wants to remain on the cutting edge." This makes our buildings economical and affordable. Many architects do not know the process for making things or what the machines can do, and they should."
- "Practicality is a big thing in the office as well as the concept of speculation of future needs", which creates the flexibility (or room) for it that I desire.

- Recall column detail with tracks and pressure looking pads at the base and top for desk and furniture.

- It is a movable system.

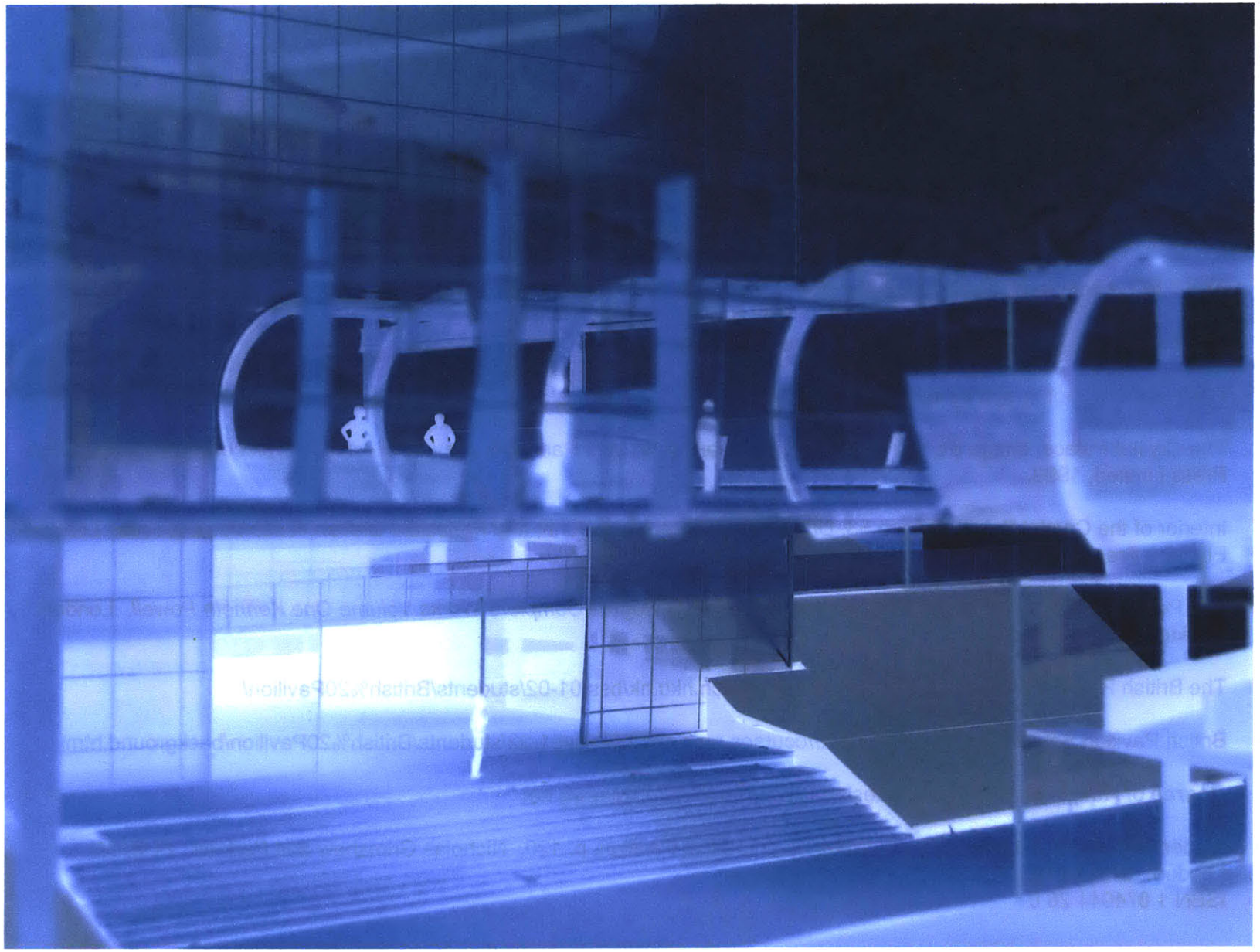
- Pad is a metal disk with foam between it and the surface to protect both and allow for compression of the element, hence locking in place.

Rapid Prototyping:

- Out sourced mainly
- Have done some of their own
- Use laser-centering technology
- Arc (or Ark) is who they work with and a part can normally be designed, revised and tested back and fourth with in two weeks. Arc could get them a model with in about 48 to 72 hours.
- Some of our own R.P. has been disaterous.
  Projects details are developed together sometimes, but the architects are pretty good at figuring it out after consulting us about specific issues.

Address context, the environment, and quality of life.

The office uses speculation about future use plus needs and practicality to produce economic, flexible expressive structures for its clients.



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Note: All other images are created/ designed by the author, unless otherwise stated.

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Animation:

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Thesis Proposal (PDF Format)

FLUX Thesis Book (PDF Format)

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Current State of Affairs

Measure of Resonance