

## ABSTRACT

Title of Document: [RE]CONNECTING COMMUNITIES:  
ACTIVATING THE INFRASTRUCTURAL VOID

Marcela P.Trice, Master of Architecture, 2010

Directed By: Assistant Professor Michael A. Ambrose, Chair  
Professor Steven W. Hurtt, AIA  
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**“Once, a city was divided in two parts.  
One part became the Good Half, the other part the Bad Half.  
The inhabitants of the Bad Half began to flock to the good part  
of the divided city, rapidly swelling into an urban exodus.  
If this situation had been allowed to continue forever, the  
population of the Good Half would have doubled, while the Bad  
Half would have turned into a ghost town”**

**\_ Rem Koolhaas**

There is a tendency in recent urban development to allow for networks outside of architecture and urban planning to guide the development and growth of cities. To the cities' detriment they have become disconnected and isolated fragments of a once functional and united community. In his *Exodus, or the Voluntary Prisoners of Architecture*, Rem Koolhaas calls for an “architectural warfare against undesirable conditions.” The highway interchange system found in many cities around the world could be considered such a condition. However, there can be more optimistic interpretations of such a site. The interchange provides an opportunity to rethink the interstitial spaces of a wasted landscape. An architectural intervention woven into the figure of an interchange can be the structure needed to graft the city back to its original system of connectivity.

The goal of this thesis is to investigate the possibilities of placing a unifying architectural form into an infrastructural wasteland.

[RE]CONNECTING COMMUNITIES: ACTIVATING THE INFRASTRUCTURAL VOID

By

Marcela P. Trice

Thesis submitted to the Faculty of the Graduate School of the  
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Advisory Committee:  
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*To my family,  
Aaron, Elias and Laina.*

*Thanks to  
Professor Ambrose for believing in this project,  
and my studio mates who watched Laina while I pinned up.*

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BACKGROUND

## Wasted Landscapes

### Infrastructural Wastelands

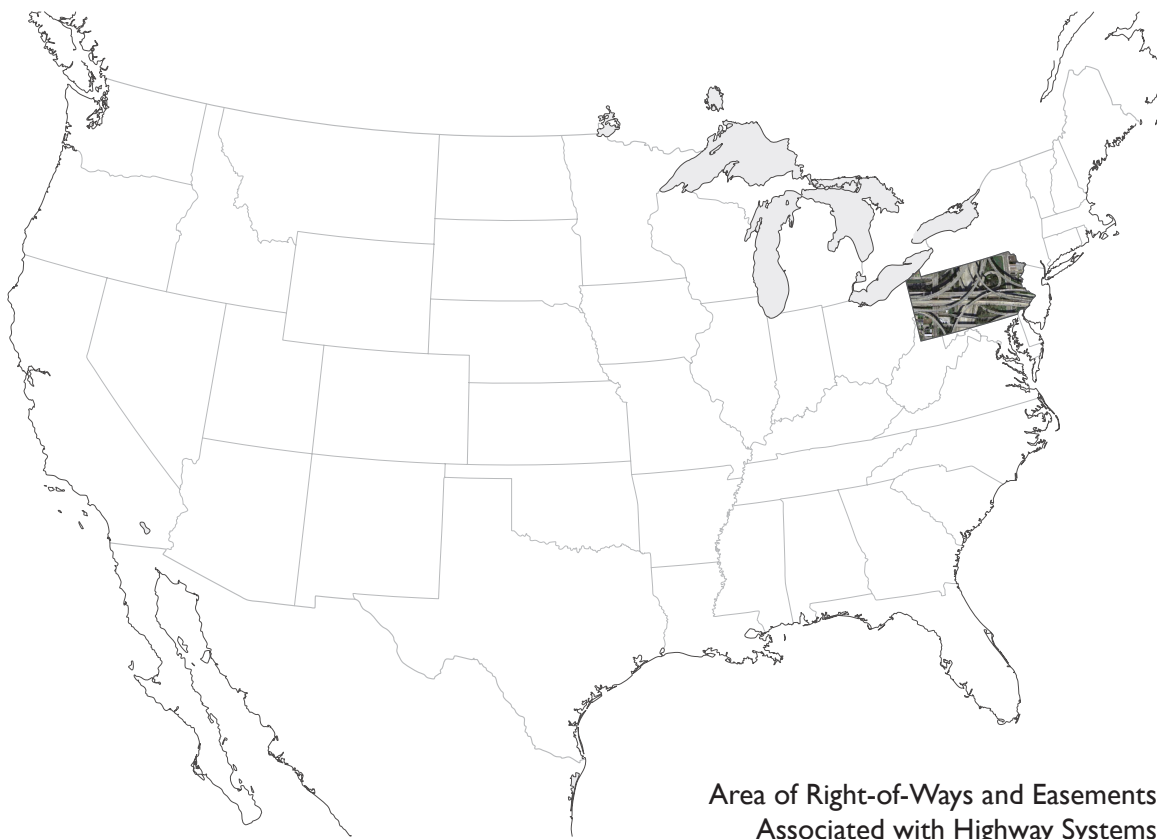
In 2006 there were over 4 million miles of highway infrastructure, public roads, in the United States, not include the area of land associated with the highways right-of-ways. Richard T.T. Forman estimated that in 1999 there were approximately 27 million acres of landscaped corridors, medians, and right-of-ways associated with these public roads.<sup>1</sup> This is estimated to be roughly the size of the state of Pennsylvania

In his book *Drosscape: Wasting Land in Urban America*, Alan Berger defines various types of dross, or worthless, landscapes ranging from areas that house actual consumer waste to the wastelands of infrastructure. Infrastructural wastelands not only include the actual system, utilities, rails, and highways, but also the easements and right-of-ways associated with them. As urban areas have continued to grow so has the infrastructure needed to maintain the development and its people. Berger argues that there is no urbanization without some waste production, consumer or land, and that landscape architects, architects, and city planners all have the opportunity to rethink the remnants of deindustrialization and horizontal growth.

Deindustrialization has resulted in an increase of abandoned Brownfield sites, many which have begun to be redeveloped. Adaptive-reuse strategies have been employed to revive abandoned building and their sites but no strategies have been adopted to consider the under-fill of highway infrastructure.

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<sup>1</sup> Alan Berger, *Drosscape : Wasting Land in Urban America* (New York: Princeton Architectural Press, 2006), 170.



**Area of Right-of-Ways and Easements  
Associated with Highway Systems**  
approx. 42,200 sq. miles  
**Area of Pennsylvania** 46,000 sq. miles  
**Area of Virginia** 42,800 sq. miles

In 2006 there were over 4 million miles  
of public roads in the United States  
approx. 160 trips around the world.

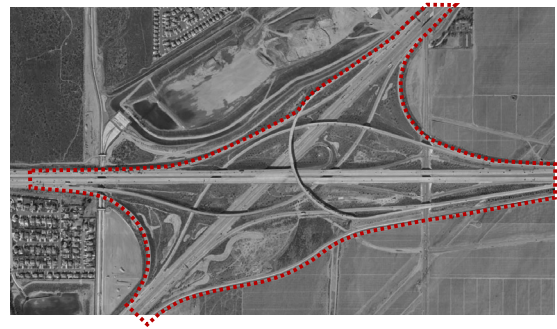
*Figure 1 \_ Area of right-of-way and easements associated with Highway Systems*

## Existing Infrastructural Wastelands'

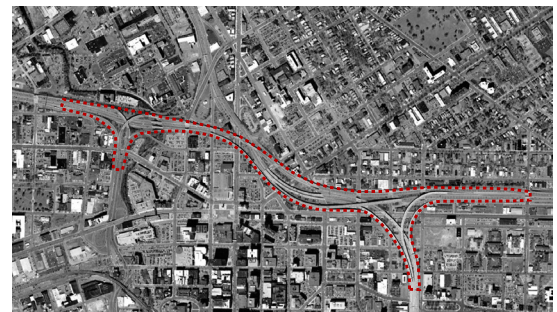
**Omaha, Nebraska**  
Interstate Highway 80 and  
US Highway 75  
Area \_ 2,486,942 ft<sup>2</sup>  
57 acres



**San Bernardino, California**  
Interstate Highways 210 and 15  
Area \_ 11,195,868 ft<sup>2</sup>  
257 acres



**Syracuse, New York**  
Interstate Highways 690 and 81  
Area \_ 2,093,179 ft<sup>2</sup>  
48 acres



**Wichita Falls, Texas**  
US Highways 82 and 287  
Area \_ 3,567,940 ft<sup>2</sup>  
82 acres



*Figure 2 \_ Various existing interchanges conditions throughout the United States shown at a comparable scale.*



**“Cars give people wonderful freedom and increase their opportunities. But they also destroy the environment, to an extent so drastic that they kill all social life.”  
\_ Christopher Alexander**

## Highway Systems

### ReUse of Infrastructural Right-of-Ways

Currently regulations do not allow developers to build within a highway systems right-of-way. However highways are allowed to come as close as they need to an existing structure and through right-of-way acquisition highway departments are allowed to displace people and places in order to expand a given vehicular path. Thus, the system works in favor of vehicles rather than people. If architects and planners were allowed to consider the interstices of a highway interchange for development a city could potentially see a large quantity of land begin to be better utilized and help stimulate a reduction in land consumption. These regulations have created a tendency to populate the peripheries of cities and generated horizontal growth, promoting more land waste and consumption through urban sprawl. Through dispersal and distancing people begin to lose connections with each other and the community. Community amenities also begin to separate and are no longer accessible without relying on highway systems to reach them. Victor Gruen pointed out, during the planning for downtown Fort Worth, Texas in 1955, “the more space that is provided cars in cities, the greater becomes the need for use of cars, and hence for still more space for them”<sup>2</sup>.

### Liabilities

Some of the challenges associated with developing in and around highways include environmental and socioeconomic issues. Highways are generally considered generators of congestion and noise, air pollution and considered eyesores. Hazards associated with structural failure in either the highway system itself or nearby buildings are also dangers that need to be considered.

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<sup>2</sup> Jane Jacobs, *The Death and Life Great American Cities*, (New York: Random House, 1961), 351.

## Missed opportunities and the Need for Intervention

Typically what is found under an interchange is parking, essentially more paved area. However more recently there have been attempts to revitalize these areas through landscaped park systems. While these systems do provide some connectivity, park systems alone do not mitigate the issues of density and urban sprawl.

## THE VOID: Site and Context

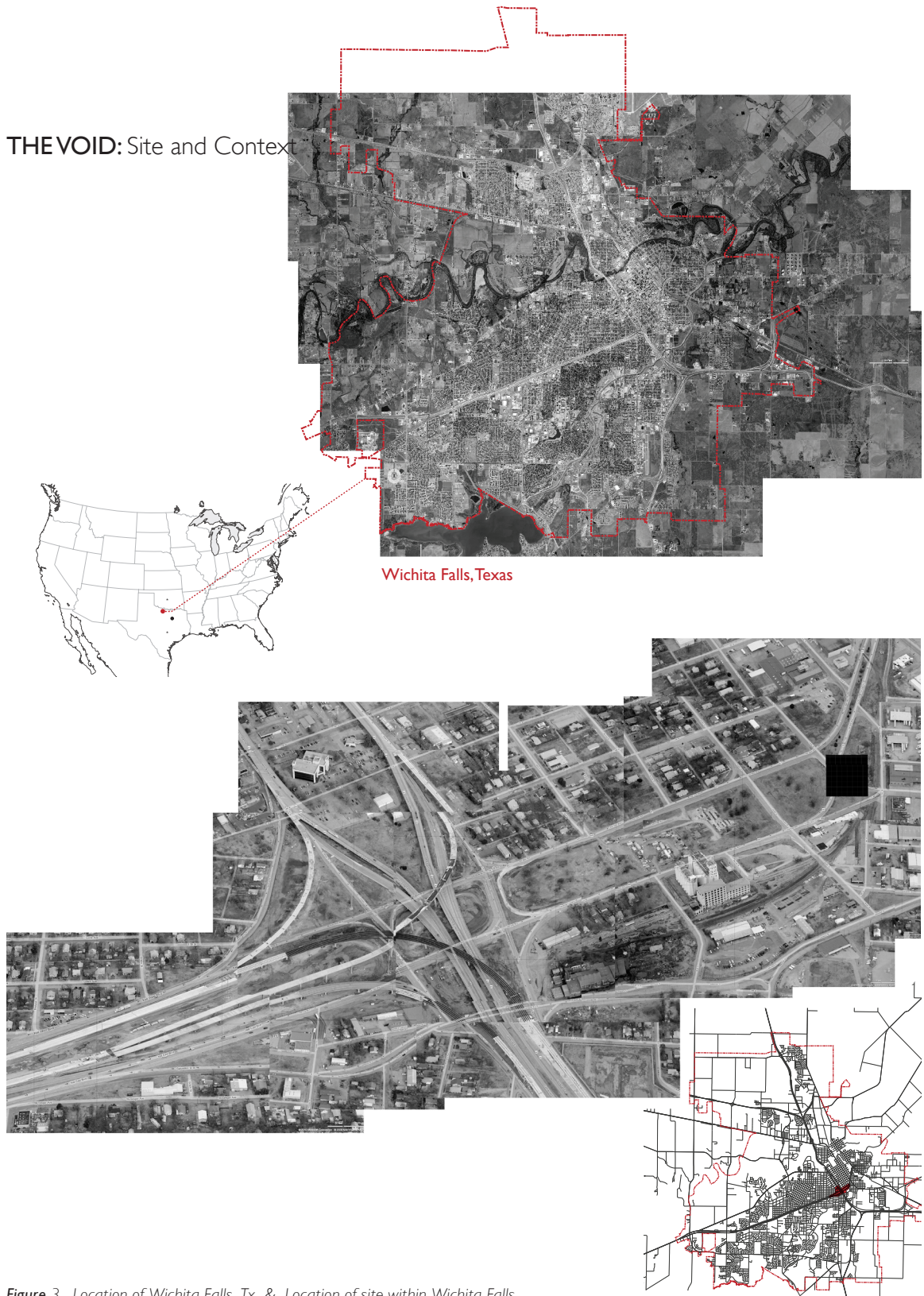


Figure 3\_ Location of Wichita Falls, Tx & Location of site within Wichita Falls.

## Wichita Falls, Texas

Wichita Falls is located midway between the east and west coast in the south central region of the United States. The original town site was platted in 1876 but a settlement boom did not begin until 1882. After an agreement with the Fort Worth and Denver City Railroad to extend the rail line through the new settlement a rise in town lots sales triggered the growth of the new town. Two very influential men in the continued growth and development of the community were Frank Kell and Joseph A. Kemp. Together they established the first grain and mill company, built additional railroads, lakes, developed a streetcar system, and various manufacturing plants. This helped to establish the town as a major supply and trade center of manufactured goods and agricultural products in northwest Texas. Even though the town site is located adjacent to the Wichita River, water driven trade and power generation from the river could never be realized. In addition to the newly established agricultural and manufacturing industries, the discovery of oil brought many people to the area. Another major economic and growth contributor to the area is Sheppard Air Force Base, which opened in 1941.<sup>3</sup>

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<sup>3</sup> Kenneth E Hendrickson Jr., *Images of America Wichita Falls*, (Charleston: Arcadia, 2009).

The major contributing industries to the development of the city remain the same today. The largest employers of the city are found in the local health care and education systems. However the largest being the government, Sheppard Air Force Base, employs nearly 15 percent of the population. Following these large sector employment industries are various manufacturing plants and the white-collar service sector that also employ a large portion of the city. There is still a growing need for industries that provide employment to the citizen of Wichita Falls. According to the Wichita Falls Chamber of Commerce and Industry, target market industries still include inbound call centers, manufacturing plants in support of the aerospace industry, and food processing plants.<sup>4</sup>

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<sup>4</sup> *Wichita Falls Chamber of Commerce and Industry*. 2007. <http://www.wichitafallcommerce.com/>.

## Wichita Falls Timeline

### 1880

1882 ..... Forth Worth and Denver City Railroad arrive

### 1890

1897 ..... Wichita Mill and Elevator Company established. Sold to General Mills in 1928.

### 1898

### 1900

1901 ..... Discovery of oil in nearby town of Petrolia, before the discovery agriculture dominated the economy. Major crops included wheat, oats, and cotton.

### 1908

1909 ..... Regular Streetcar services began and ran until 1934. Development of line credited to Frank Kell.

### 1920

1910 ..... One of the first automobiles appear. Union Depot opened.

1918 ..... Oil boom in Nearby Burkburnett (15 mile north of WF).

### 1919

1925 ..... Memorial Auditorium Built, hopes to attract conventions and major entertainers.

1933 ..... Last Street Car ride.

### 1940

..... By the 1960 State Highway 287 reached the downtown area and merged with Broad and Holiday Streets

### 1960

1967 ..... Union Depot closed when passenger services were terminated.

### 1980

### 1995

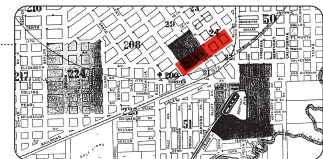
### 2005

### 2000

2007 ..... Interchange, Falls Flyover, opened to the public. Construction began in 2005.

### 2009

### 2020



**Figure 4** \_ Timeline highlighting significant events in the history of Wichita Falls, including city development at the site. A portion of the site is highlighted for comparison.

## Population Density<sup>5</sup>

Land Area \_ 70 square miles

Population Density \_ 1,474 people per square mile

Counties \_ Wichita

Area Cities \_ Archer City, Burkburnett, Dundee, Electra, Holliday, Henrietta, Iowa Park, Kamay, Mankins, Megargel, Petrolia, Scotland, and Wichita Falls

## Demographics

While there are a number of institutions of higher education located in the Wichita Falls region, only about 47% of the population has had any form of higher level education, leaving the remaining 53% with only a high school diploma or less. Associates, Bachelors, and professional degrees are offered at Midwestern State University, Vernon College, and Wayland Baptist University.<sup>6</sup>

## Climate

Wichita falls is located in the north central rolling plains and its climate is considered continental. For an average of 104 days temperatures reach over 90 degrees and fall below 32 degrees for about 67 days. Average rainfall is about 28 inches for the year generally accruing in March to mid November. Snowfall averages about 6 inches per year.<sup>7</sup>

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<sup>5</sup> *U.S. Census Bureau*, <http://quickfacts.census.gov/qfd/states/48/4879000.html>.

<sup>6</sup> "2009\_Community Data", *Wichita Falls Chamber of Commerce and Industry*, <http://www.wichitafallcommerce.com>.

<sup>7</sup> *Ibid.*.



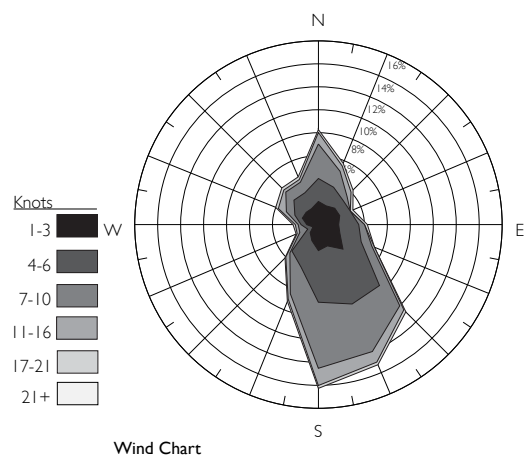
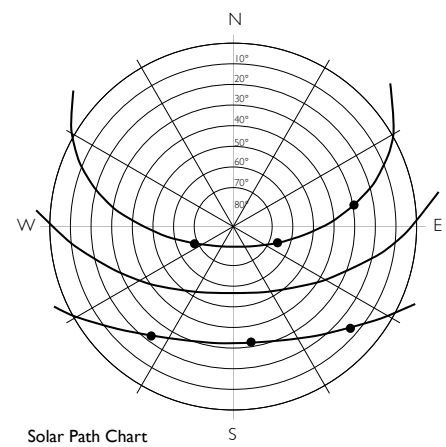
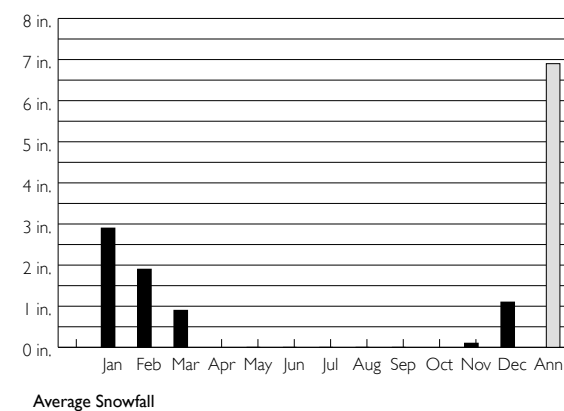
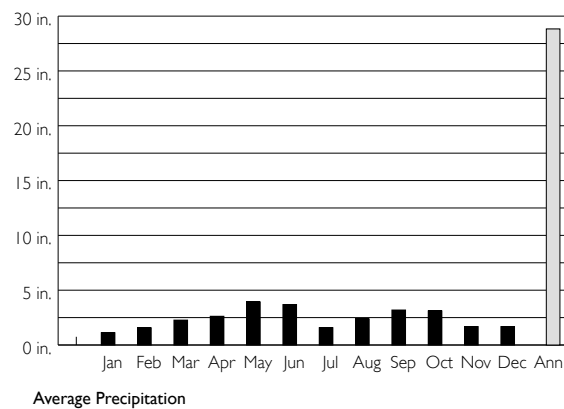
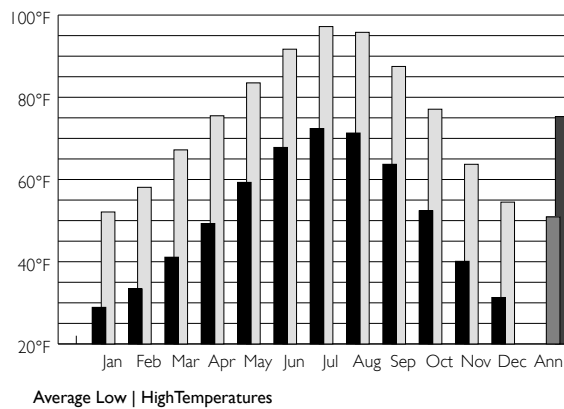


Figure 5 \_ Climatological Data



## Highway Interchange US 82 and 287

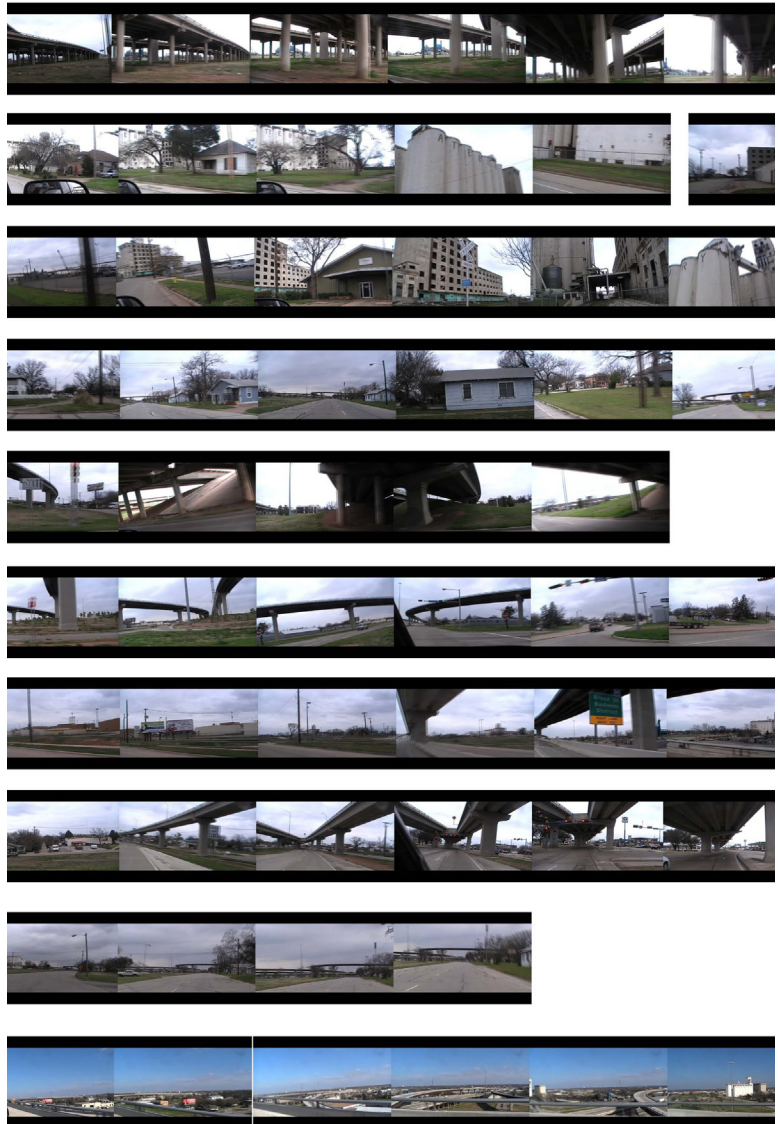


Figure 6 \_ Site Visit March 2010

### Site Description

There are two portions to the site that will be investigated in this thesis, one the figure of the highway interchange and second the empty site adjacent to the interchange.

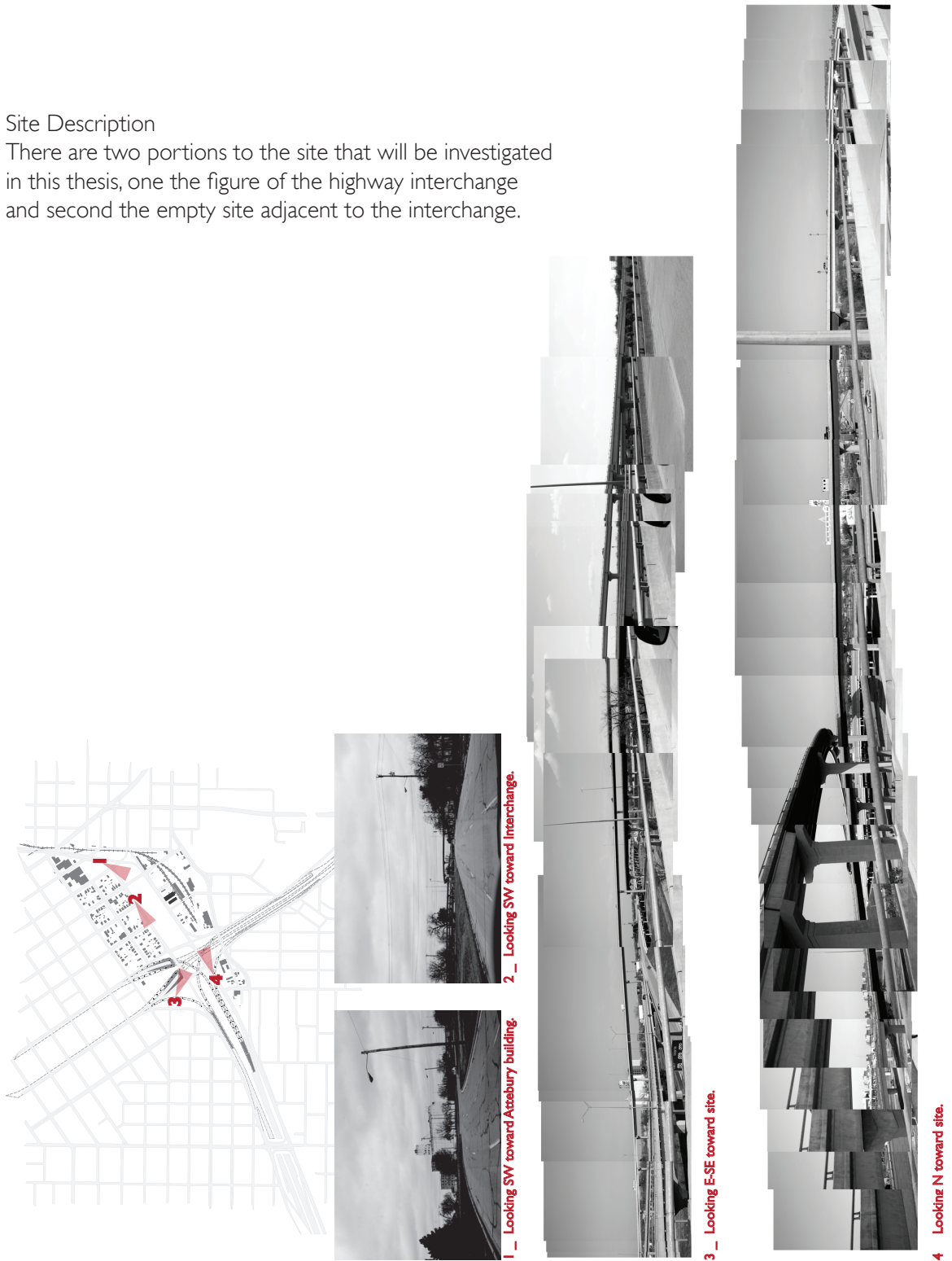


Figure 7 \_ Views approaching the Site.

## History

Historically the site, both under the interchange and the empty lot, had been residential. However since the addition of the highway systems within the city the site has been owned and maintained by the Texas Department of Transportation. Both sites have remained empty for several years until the construction of the interchange. With future plans to continue the Kell Freeway, US 82, under the elevated ramps connecting it to Business Highway 287, part of the site remains vacant.

## Attebury

Adjacent to the site is located a historic remnant of the city's industrial growth. Frank Kell established the Wichita Mill and Elevator Company around 1897 and the buildings as they stand today were constructed in support of the company. Two of the structures served as grain elevators while the third functioned as the offices for the business. Today the buildings are owned by Attebury Grain Inc. and are no longer in use. The office building has been allowed to deteriorate and now sits as an industrial ruin. These buildings are one of the few remaining structures of the original town site. Overhead Interchange



Figure 8 \_ Attebury Building

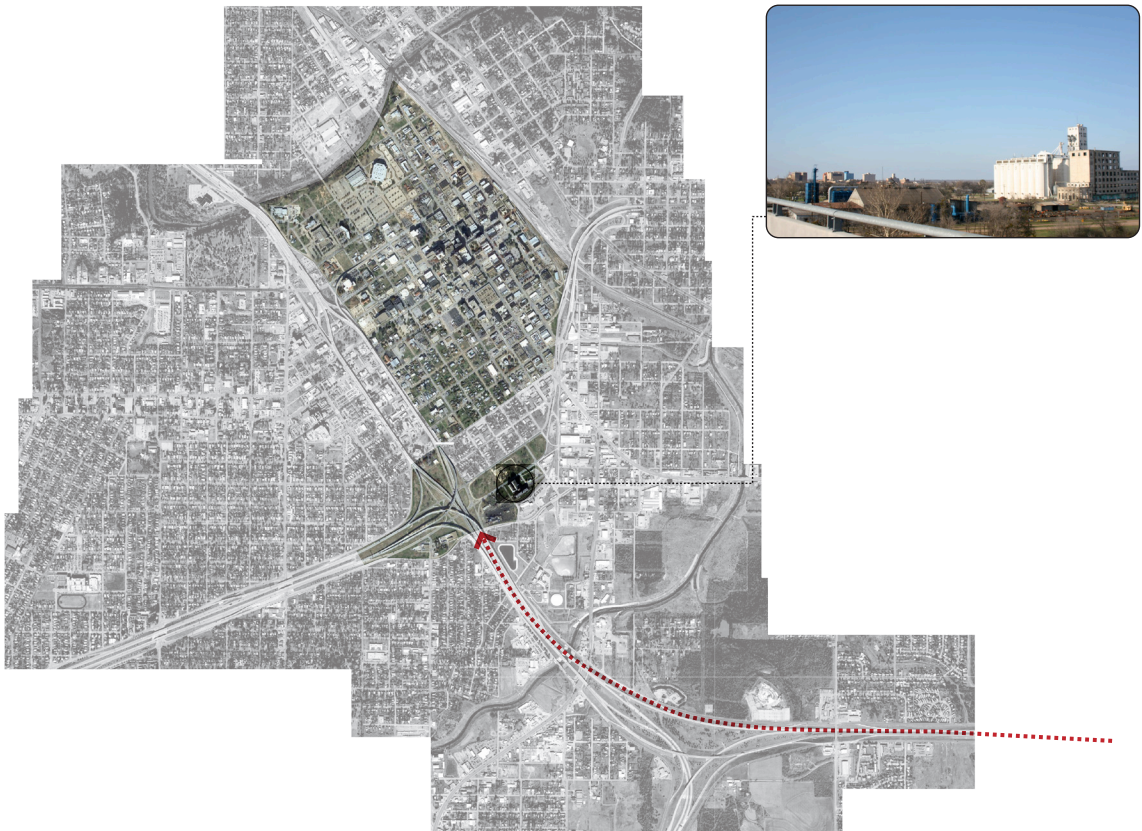
The construction of the overhead highway system has been a more recent addition to the city. The construction of the system came in phases starting around 2001 and completing the final phase, which includes the elevated ramp system, in 2007.



Figure 9 \_ Overhead Ramps | Bridges | Ground Network

## Gateway

One of the major access points into the city from the south is located at the intersection on which the site is located. Before the addition of the elevated highway, US Highway 287 ended at 15th street just beyond the site. Now however, travelers have the option of continuing on the system bypassing the city all together, or ramping off the highway just before crossing Kell Boulevard, making the site the main access point in to the city form the south. While the highway system allows travelers to pass the city, the elevation of the highway and its ramps are such that give motorist a privileged view of the site.



*Figure 10 \_ Site | Historic Downtown | Attebury | Southern Approach.*



## Site Selection

While there is an abundance of highway interchange conditions throughout the United States, this site in particular has great potential. Its location provides the opportunity to serve as a major gateway in to the city. However in its current condition the site is more of an eyesore than a grand entrance. A new architectural gesture can begin to operate as a landmark and together with the historic building can create a memorable entrance into the city.

The proximity of the site to the historic region of the city, the downtown, also has possibilities. The historic center, which has been in competition with a shopping mall built in the 1970's, has suffered a lot of deterioration and has been in need of revival. Since the completion of the interchange the downtown area has virtually become a ghost town with many of its buildings laying empty and unused. With a transformation of this intersection into a viable live-work community full of activity and people, there is the potential to revive the historic center as well.

Another possibility presented on this site is the opportunity to look at the interchange condition in a more optimistic manner. There can be more collaboration in integrating the city's infrastructure with the needs of the community. An architectural intervention can promote interaction through the void of the infrastructure to mitigate the major fragmentation caused by the movement systems, which are also much needed elements of the city. The spaces generated from these interchanges tend to be under utilized and simply become wasted landscapes. However the scale of these spaces are appropriate for imagining ways to bridge the resultant fragments of the city together. Not only does it help to reconnect the city but also it promotes density, efficient land use, and livable communities.

This site has the potential to become a new exciting architectural landscape.

PRECEDENT

## **A8ernA**

Client | Zaanstad Deinst Stad

Location | Koog aan der Zaan

Architects | NL Architects

Program | Supermarket, fish and flower shop, and public spaces including a church square, covered square, marina, kid zone, and park

Size | public space 242,000

ft<sup>2</sup>, shopping 16,000 ft<sup>2</sup>

Completed | 2006

Located near Amsterdam on the river Zaan, the Koog aan der Zaan community took the opportunity to rethink the interstitial space created by its infrastructure. In the 1970's an overhead highway was constructed in order to provide connection across the river at the same time it divide the village. The highway sits twenty-three feet in the air, which allows for the possibility of under fill. The under-fill strategy invigorated a once derelict space and provides several amenities to the community while providing a more safe and enriching connection within the existing urban fabric<sup>8</sup>.

8 NL Architects, <http://www.nlarchitects.nl/django/>.



## **Olympic Sculpture Park**

Client | Seattle Art Museum

Location | Seattle, Washington

Architects | Weiss Manfredi Architects

Program | Art, performance, and education Pavilion, café, underground parking, and sculpture garden

Size | 8.5 acres

Completed | 2007

This is an 8.5-acre project that transforms a former fuel storage and transfer station into a sculpture park that connects the building site to the waterfront on Elliot Bay. The site is split in two different locations parallel to the waterfront by both a vehicular movement system and a rail system, Elliott Avenue and Burlington Northern Santa Fe Railroad respectively. Bridging is used as a design strategy to reconnect the three fragments of the site over the existing infrastructure and to the waterfront. The existing topography is manipulated and new ground planes created to allow for a unified site condition.<sup>9</sup>

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<sup>9</sup> Weiss Manfredi, <http://www.weissmanfredi.com/projects/>

### **Yokohama International Port Terminal<sup>10</sup>**

Client | Port and Harbour Authority  
& City of Yokohama, Japan

Location | Yokohama, Japan

Architects | Foreign Office Architects

Program | National & International

Passenger Handling Zone, Customs  
and Immigration, Shops, Restaurants,  
Conference Space, Parking

Size | Total 48,000 m<sup>2</sup>,

Completed | 2002

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<sup>10</sup> Foreign Office Architects, <http://www.f-o-a.net/#/projects/465>, <http://www.osanbashi.com/en/index.html>.

**IIT \_ McCormick Tribune**

**Campus Center<sup>II</sup>**

Client | Illinois Institute of Technology

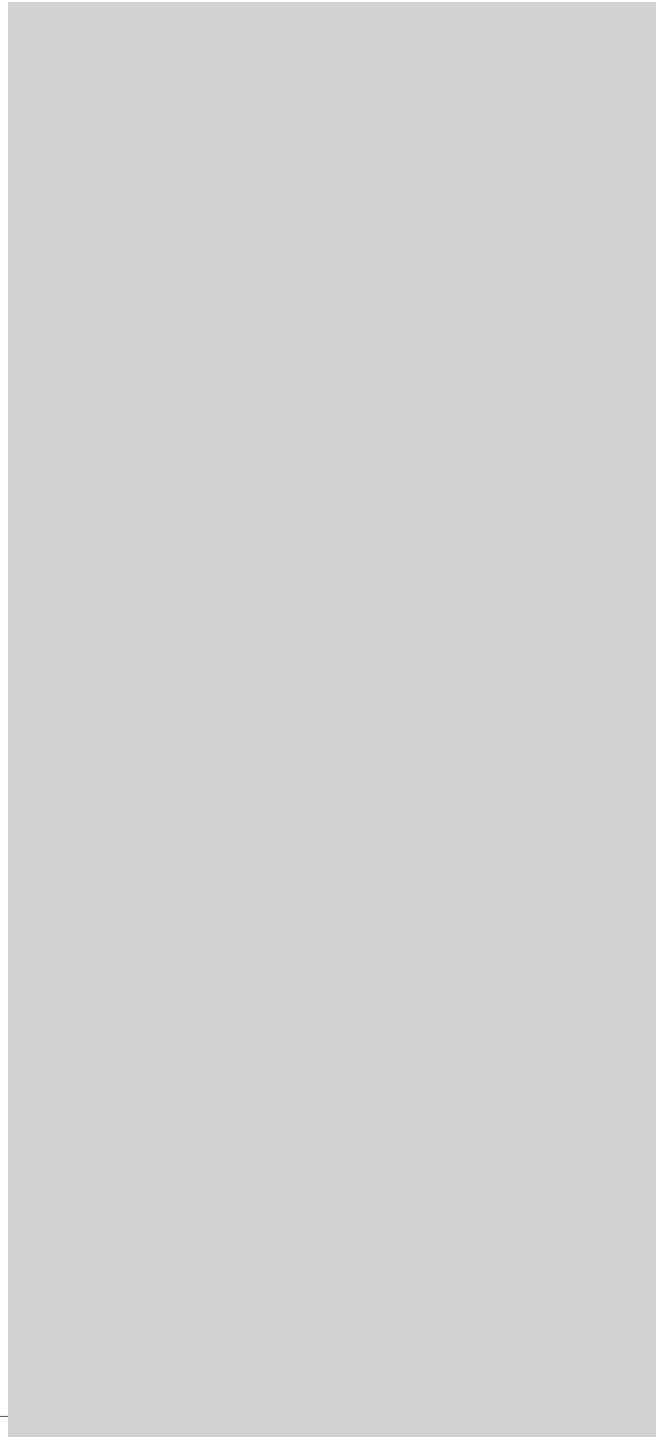
Location | Chicago, Illinois, USA

Architects | Ram Koolhaas \_ OMA

Program | Campus Center

Size | 115,000 ft<sup>2</sup>

Completed | 2003



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II OMA, [www.oma.eu](http://www.oma.eu).



## ACTIVATING THE VOID

The challenge for designers is thus not to achieve drossless urbanization, but to integrate inevitable dross into more flexible aesthetic and design strategies”  
\_ Alan Berger

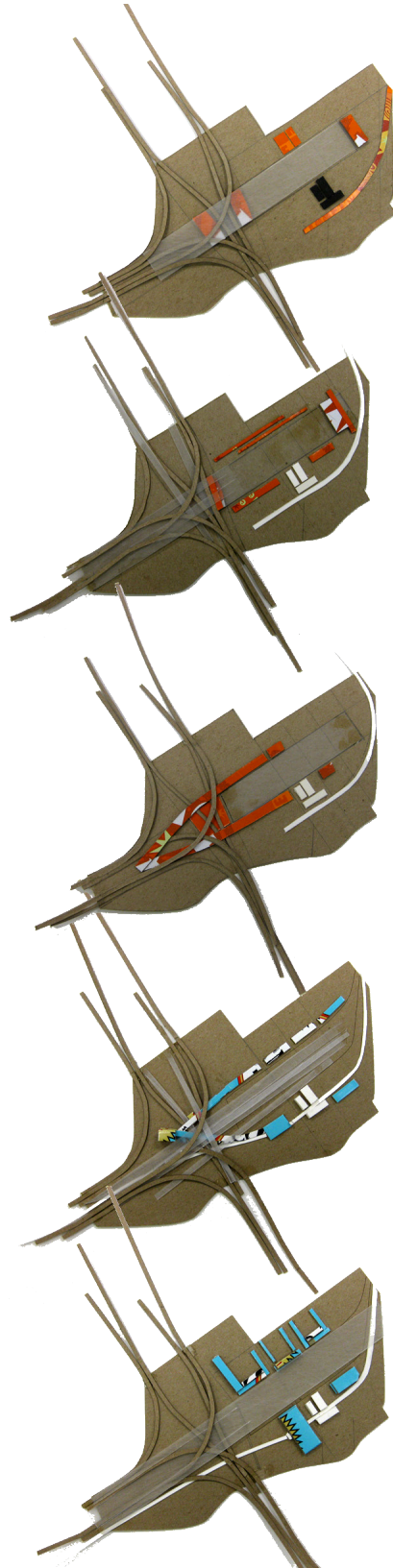


Figure 11 \_ Initial Site Massing Explorations

## Site Conditions

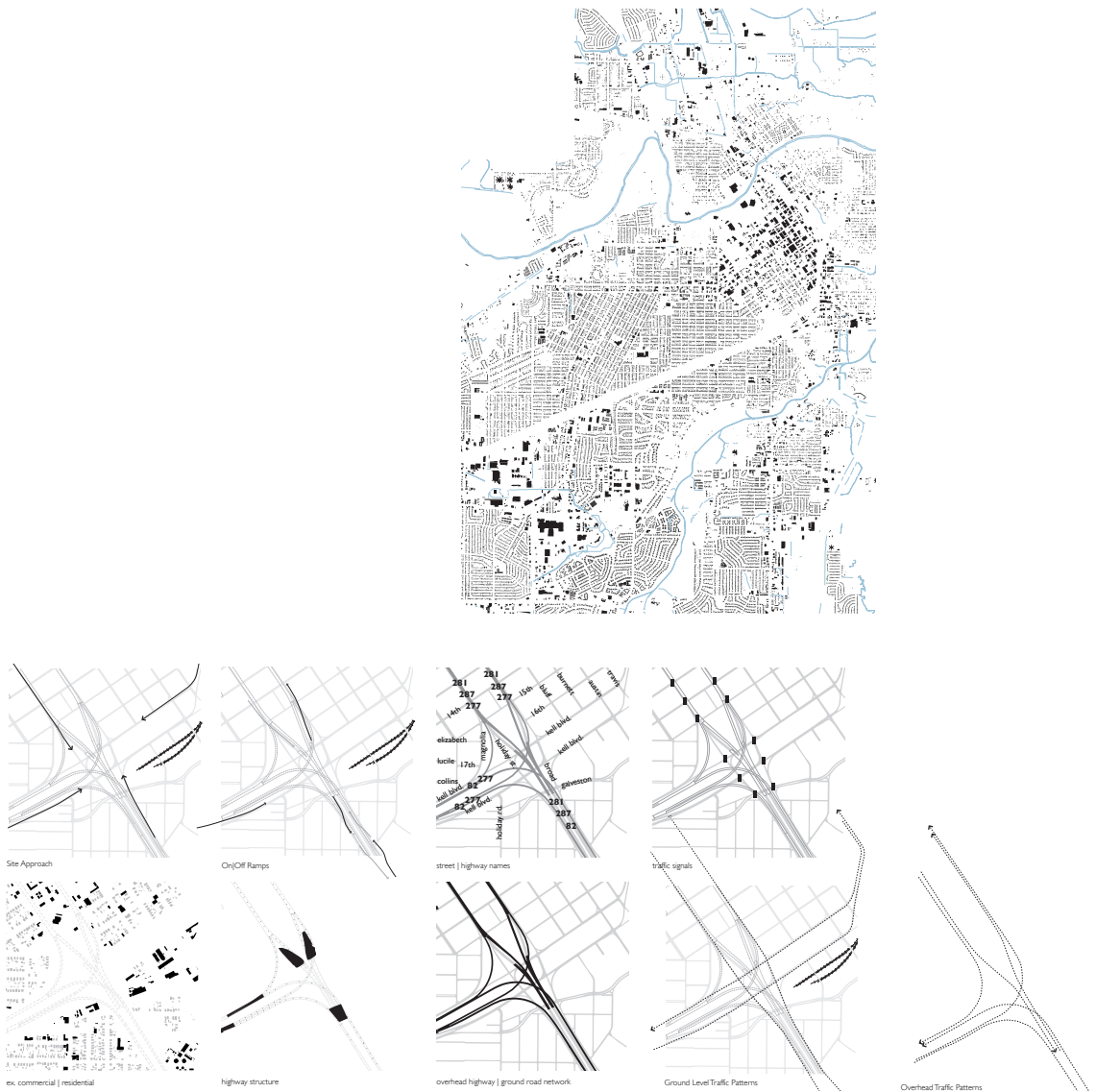


Figure 12 \_ Existing Figure Ground | Site Data

Site Dimensions

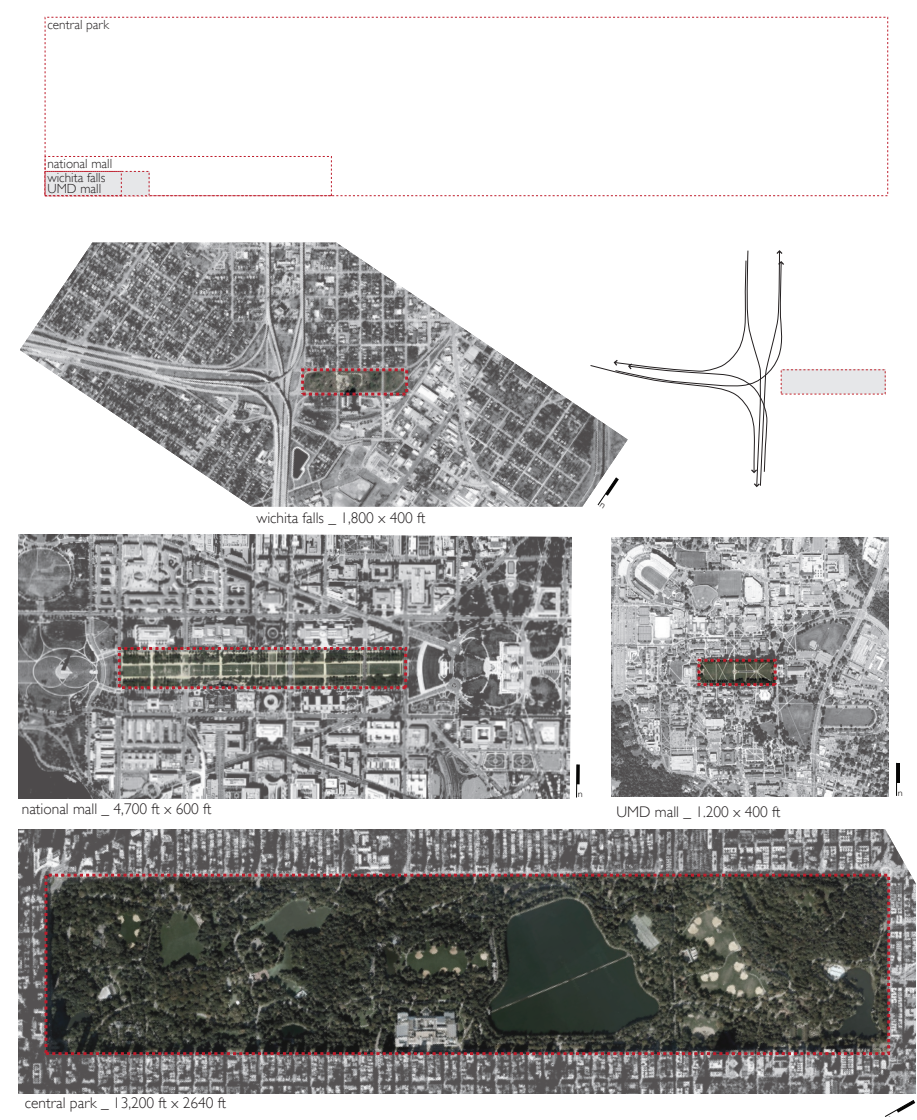


Figure 13 \_Site Dimensions | Various Parks at Comparable Scale

## In-between \_ The Interstitial

“This transformation of what could be called *poché* from an inert mass between form, or something from which void space is cut, to something deformed, highly mobile, and volatile can be seen to be a subversion of the form of both traditional solids and their traditional organizations in space. This modification of the material condition can be given the new name: the interstitial.”

\_ Peter Eisenman

“Drosscapes are interstitial.”

\_ Alan Berger

Taking the idea of stratification, can we build a system of passages that essentially take the void of the ground plane to various strata, which allow for an inviting system of pedestrian movement?



Figure 14 \_ Traffic patterns at the site.



## City Connectivity

### Grid as City Organizer

The Jeffersonian grid of the 1780's generated a system of organization for the west that is evident in the organization of Wichita Falls. Originally platted on a 640-acre site, the original grid of the city seems to respond to the river and the rail line for which the city owes its growth. Angled at about forty-five degrees from north the downtown grid did not generate the pattern for the city's expansion. Subsequent grid systems have followed the north-south pattern of the Jeffersonian grid that can be seen in the two quadrants to the west of the site. The site itself follows the original organization of the city but is also the place where the grids begin to overlap. Stan Allen describes grids as fields that have the potential to redefine figure ground relationships. He also states fields are generally a horizontal condition but that overlapping fields, *moirés*, begin to imply a sectional condition.<sup>12</sup> The site chosen for this investigation is located at such a junction where the *moiré* effects of the overlapping condition of the two grids, fields, can begin to arise in a more figural and/or sectional manner.

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<sup>12</sup> Stan Allen, *Point + Lines: Diagrams and Projects for the City*, (New York: Princeton Architectural Press, 1999) 97-98.

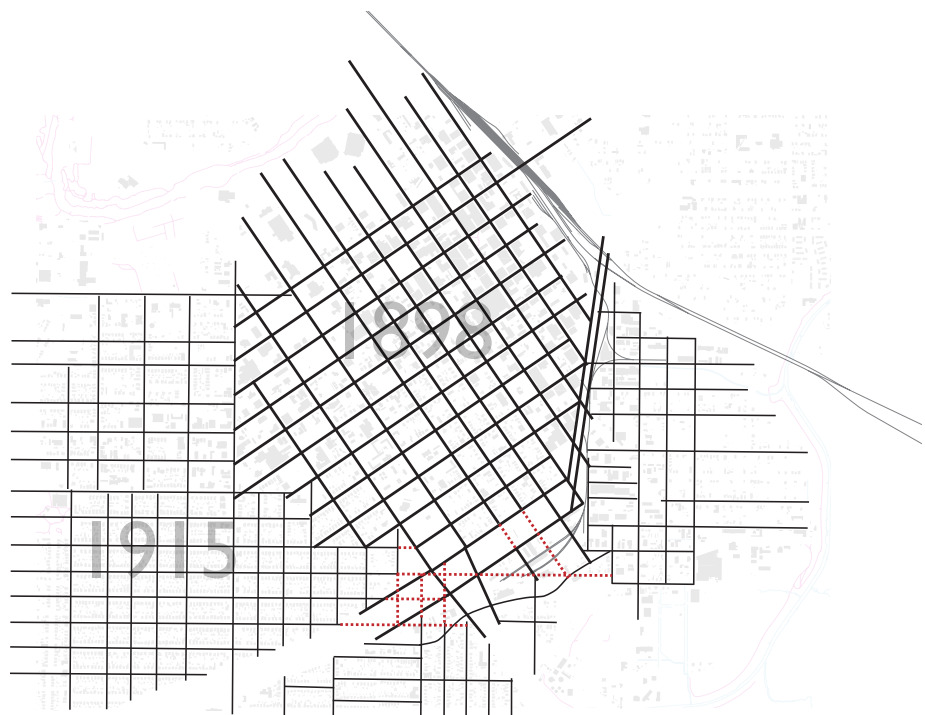


Figure 15 \_Existing Grids | Potential Grid Extensions

## Networks

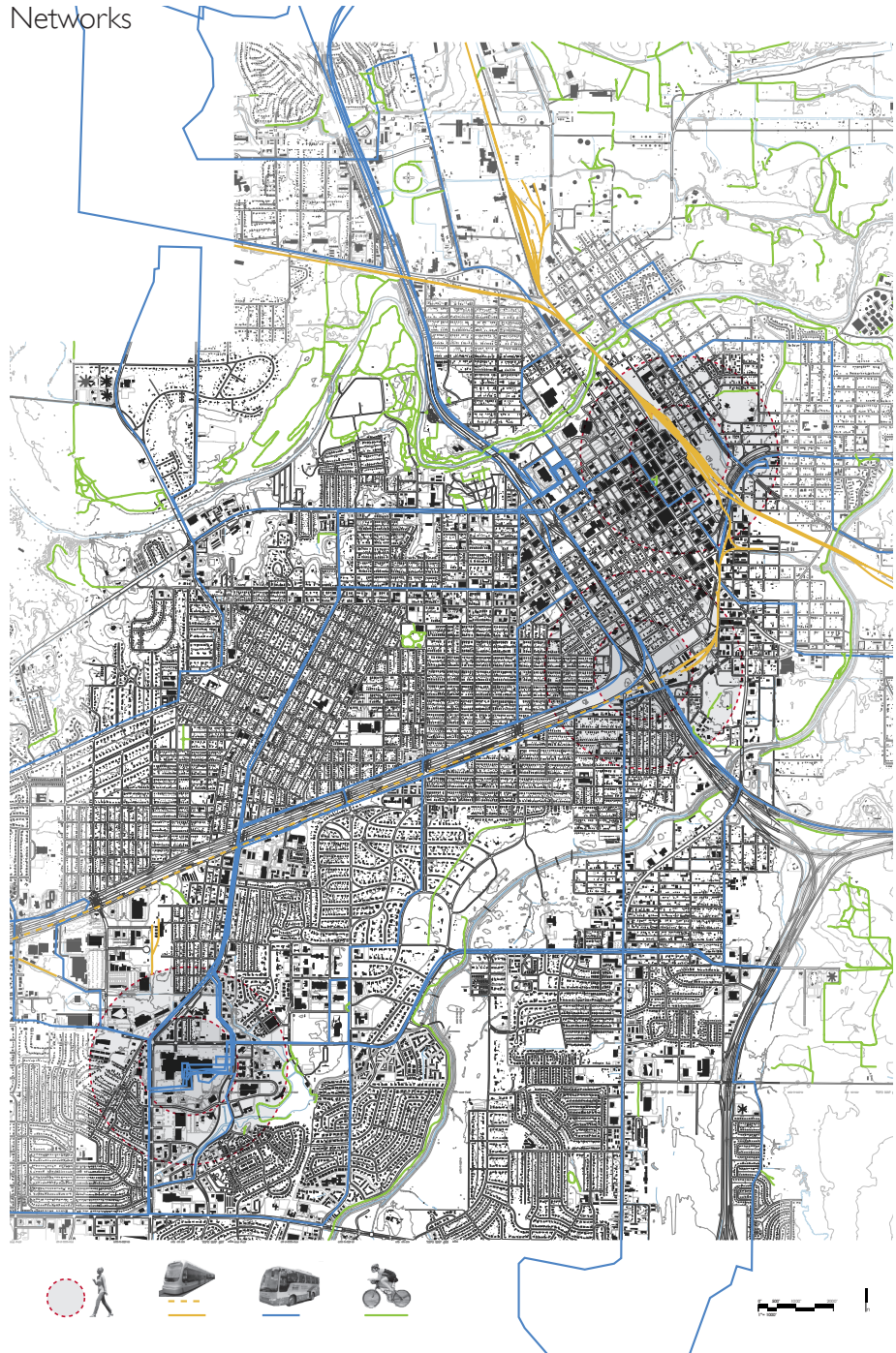


Figure 16 \_ Regional Connections.

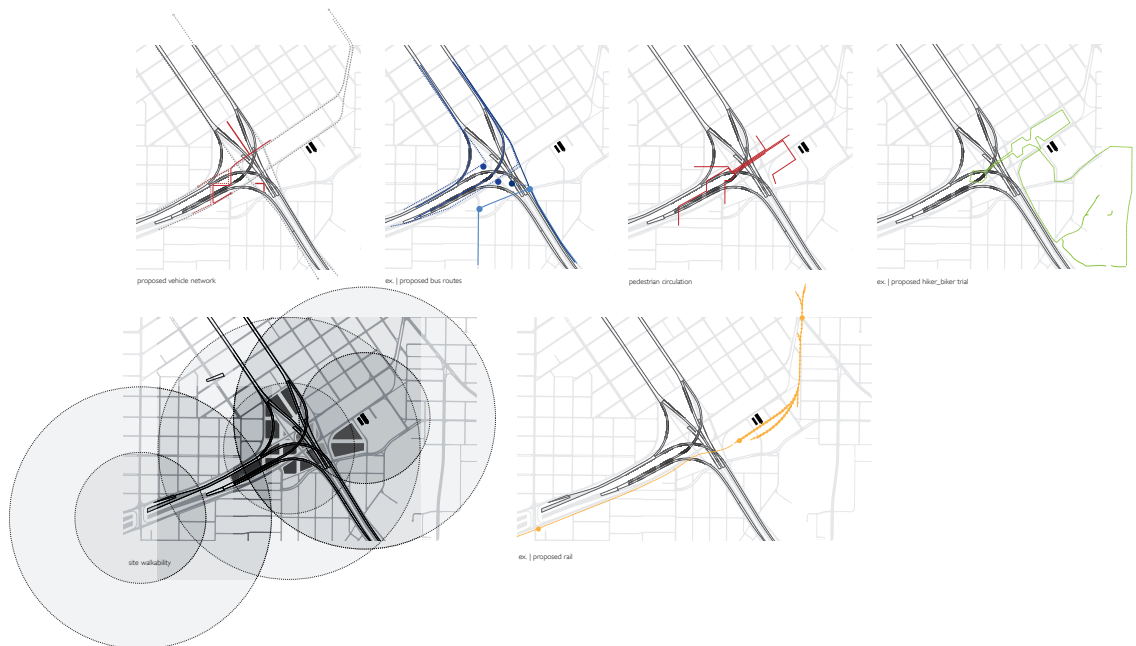


Figure 17 \_Local Connections

## Program

The tendency for highway systems to fragment the city and divide it into what could be termed the “good half” and “bad half” has lead me to question the viability of the site as a threshold.<sup>13</sup> Can the interchange, a place of directional change and distribution of vehicular movement patterns, serve as a distributor of people as well? Can the interstitial spaces of the interchange become a place of convergence for differing types of people, bridging together the conflicting demographics of the city?

The program selection is based on the idea that living and working in a mixed income community is the ideal situation in order to utilize building and program to unite differing groups of people. All people have the same basic needs that can be serviced in the same way without bias. However, because of the different education levels, differing income, different backgrounds people tend to separate, a separation that is greatly enhanced by highway systems that cut through a city. By selecting programs types that service the needs of multiple demographics, a community of integration and connection can begin to emerge.

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<sup>13</sup> Rem Koolhaas, and Bruce Mau, “Exodus”, *Small, Medium, Large, Extra-Large: Office for Metropolitan Architecture*, (Sigler, Jennifer, ed. New York: Monacelli, 1995), 5.

## Program Possibilities

### In-Bound Call Center

- Reception
- Waiting area
- Office Spaces
  - Private offices
  - Open Offices
- Copy/File Rooms
- Storage
- Lounge Room
- Kitchenette
- WC
- Community work spaces
- Conference rooms
  - Small
  - Large

- Cafeteria/Café
  - Kitchen
  - Serving Area
  - Seating area
- WC
- Loading Dock
- Storage
- Mechanical Spaces
  - Mechanical room
  - Electrical Closet
  - IT Closet

- Supermarket
- Restaurants
- Commercial
- Retail
  - Anchor Store
  - Local Retail
- Park System
  - Bike Trail
  - Skateboard Park
  - Dog Park
- Museum
- Housing
  - Low income
  - Mid Income
  - Elderly
- Day Care Center
- Fitness Center
- Union Station
- Parking

### Research/Education Center

- Reception
- Waiting area
- Office Spaces
  - Private offices
  - Open Offices
- Copy/File Rooms
- Storage
- Lounge Room
- Kitchenette
- WC
- Research Laboratories
- Classrooms
- Education Center
- Community work spaces
- Conference rooms
  - Small
  - Large

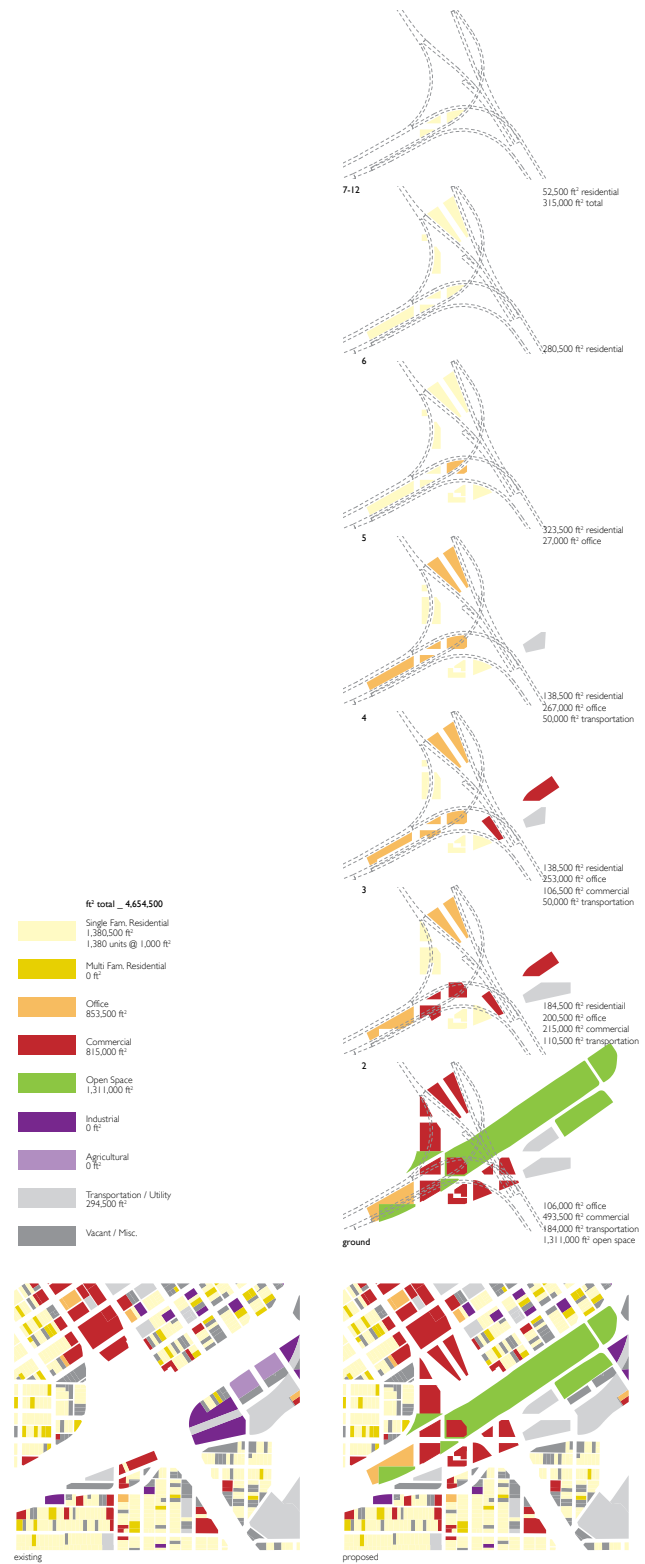


Figure 18 \_ Land Use Existing | Proposed

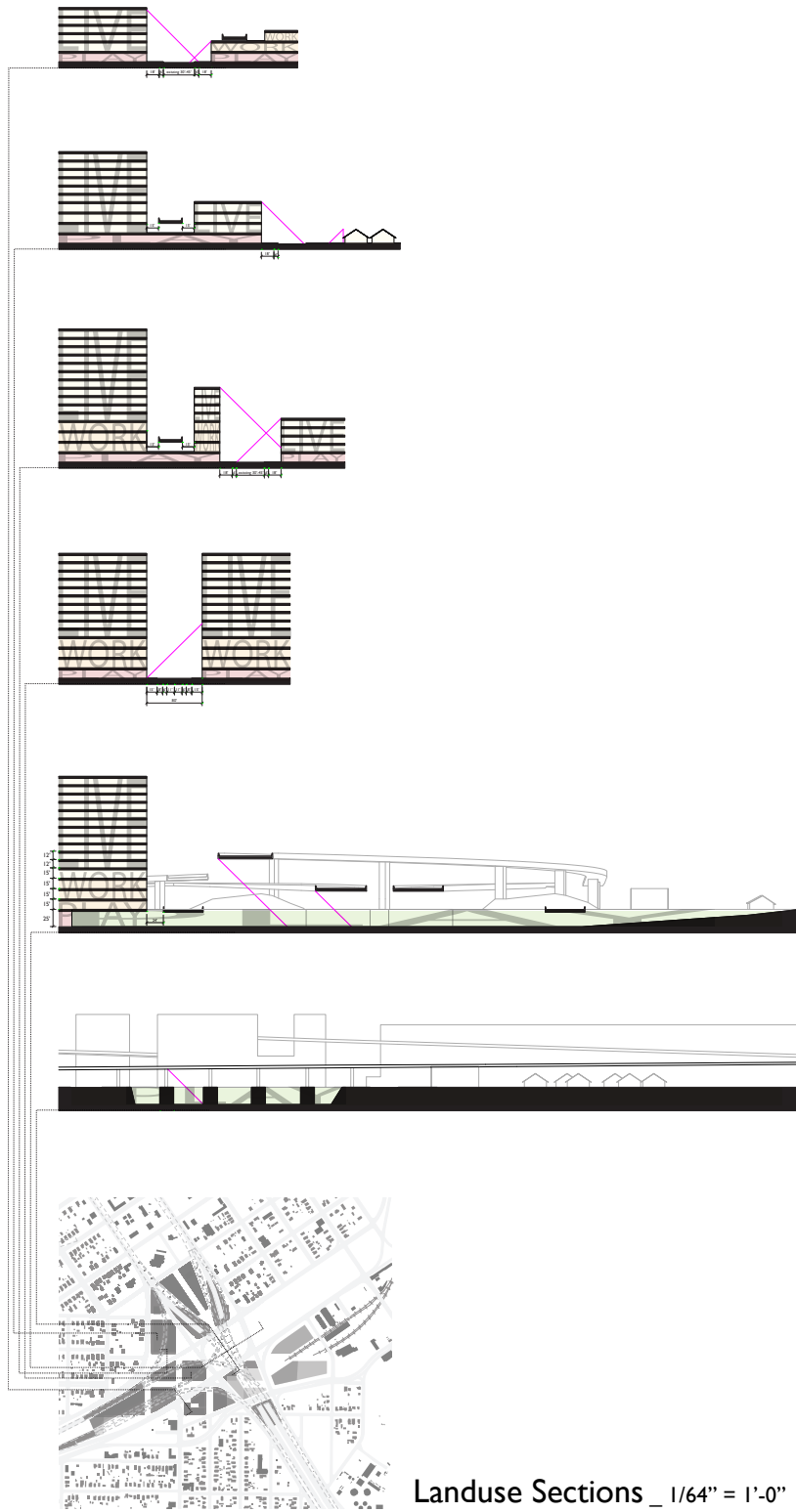


Figure 19 \_ Sectional Landuse



## Initial Design Strategies

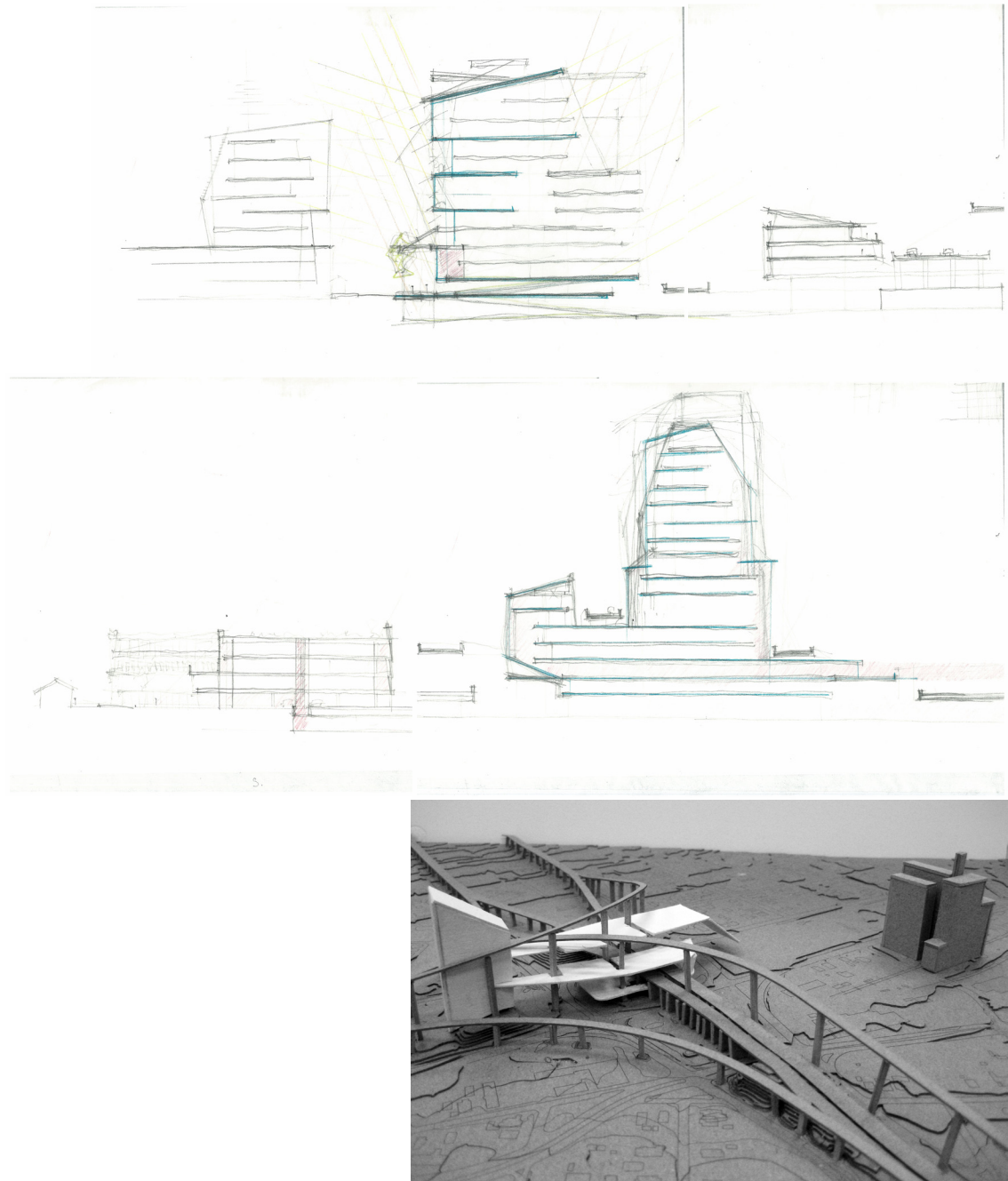


Figure 20 \_ Early sketch and model explorations

**linear \_ adj.**

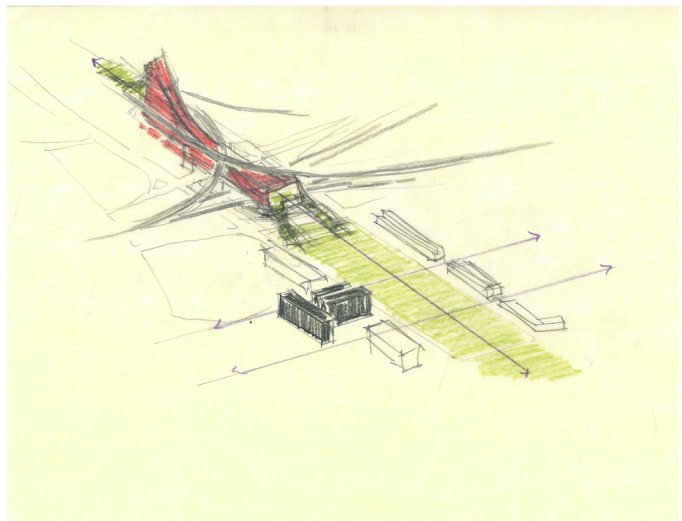
**Of, consisting of, or using lines: linear design.**

The Linear approach attempts to draw a rigid connection between the proposed park systems to the built structure following the grid system of the city and intends to penetrate the site in order to generate passages between the quadrants.

**stratify \_ v.**

**To form or place in strata or layers.**

The idea of stratification and the use of layers to build up the site stems from a more three dimensional approach to the site. This idea attempts to unify the quadrants through generating passages by bridging over and under the existing infrastructure.

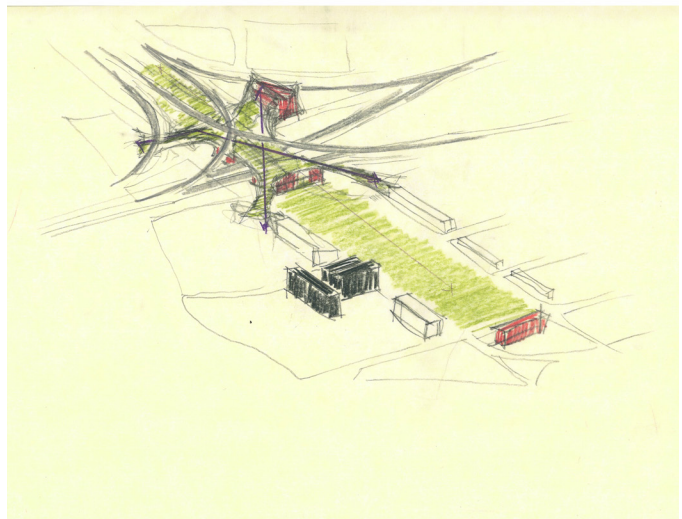


*Figure 21 \_ Sketch | linear*

**weave \_ v.**

**To form by combining various elements or details into a connected whole; to weave a tale; to weave a plan.**

Weaving as a design strategy speaks to the traditional idea of the urban fabric. A more three dimensional weave is explored.

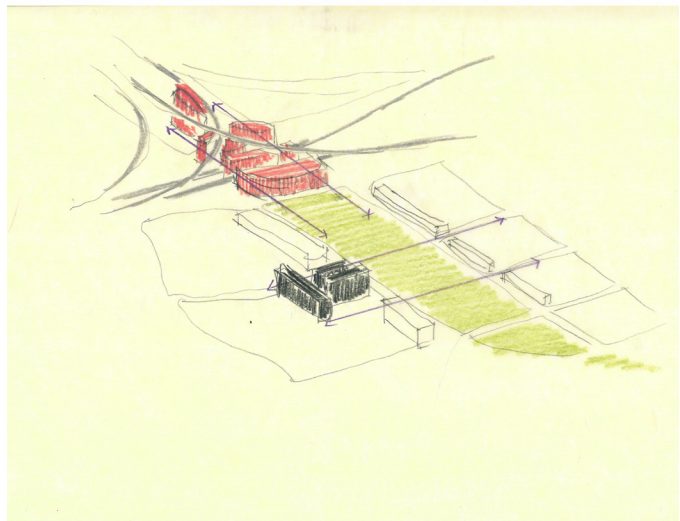


*Figure 22 \_ Sketch | weave*

**extrude \_ v.**

**To form (metal, plastic, etc.) with a desired cross-section by forcing it through a die.**

This design approach comes from the idea of filling the site based on a three dimensional extrusion of the ground plane within the negative spaces created by the overpass. This approach has positive implications in terms of creating density within the site but this scheme seems to privilege the highway as the dominant driving force of the development of the site. With this approach there are interesting forms generated, and in terms of connectivity it relies on a bridging system and ground plane connections in order to create passages to the quadrants and between the individual buildings generated by the extrusion.



*Figure 23 \_ Sketch | extrude*

## Design Development

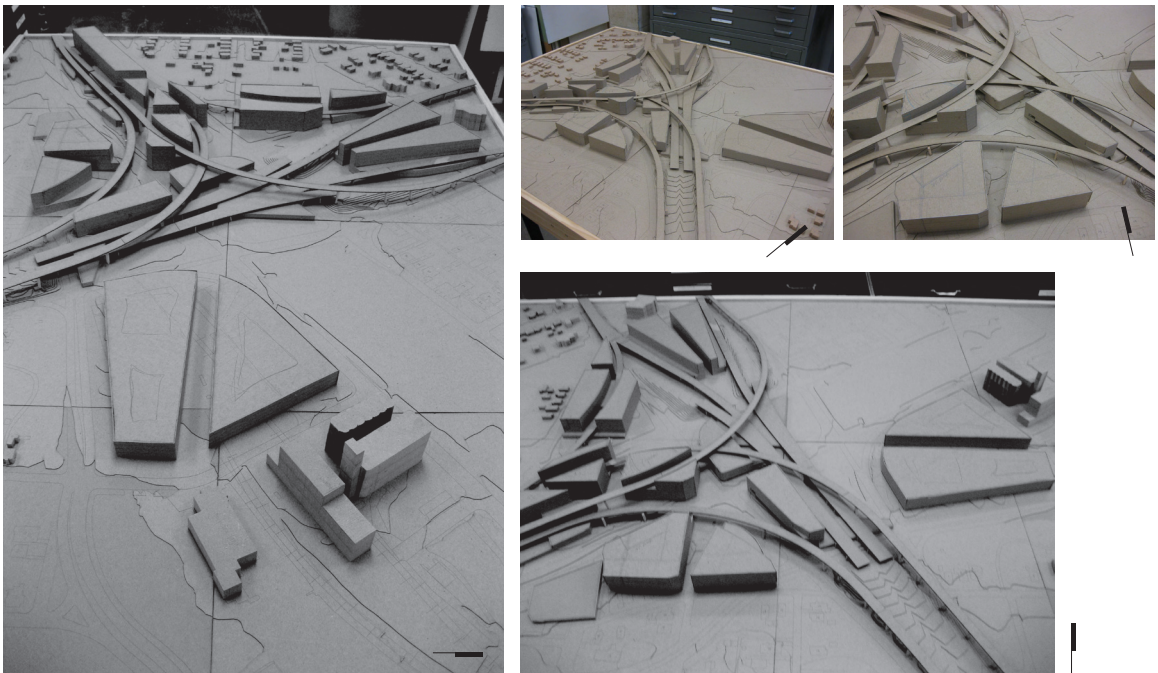


Figure 24 \_ Model Exploration | Maximum Mass



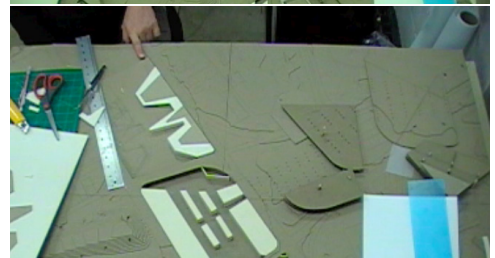
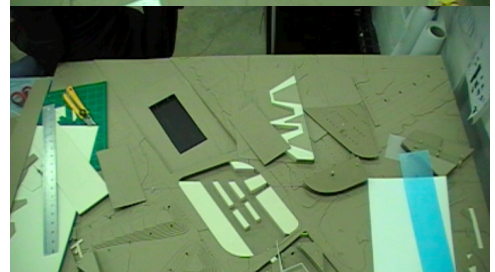
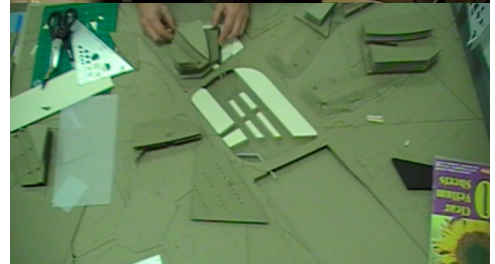
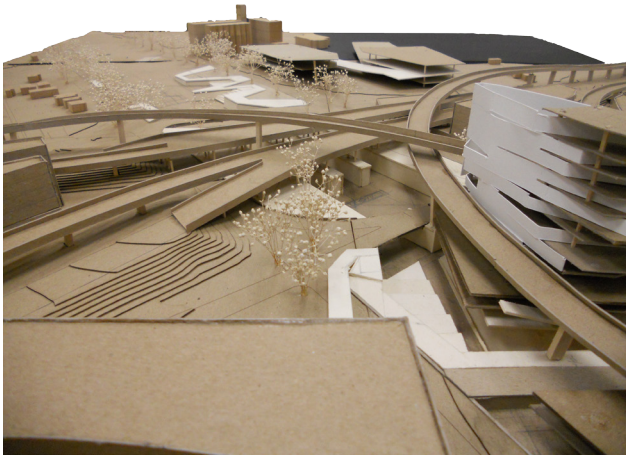


Figure 25 Construct Process | Final Product

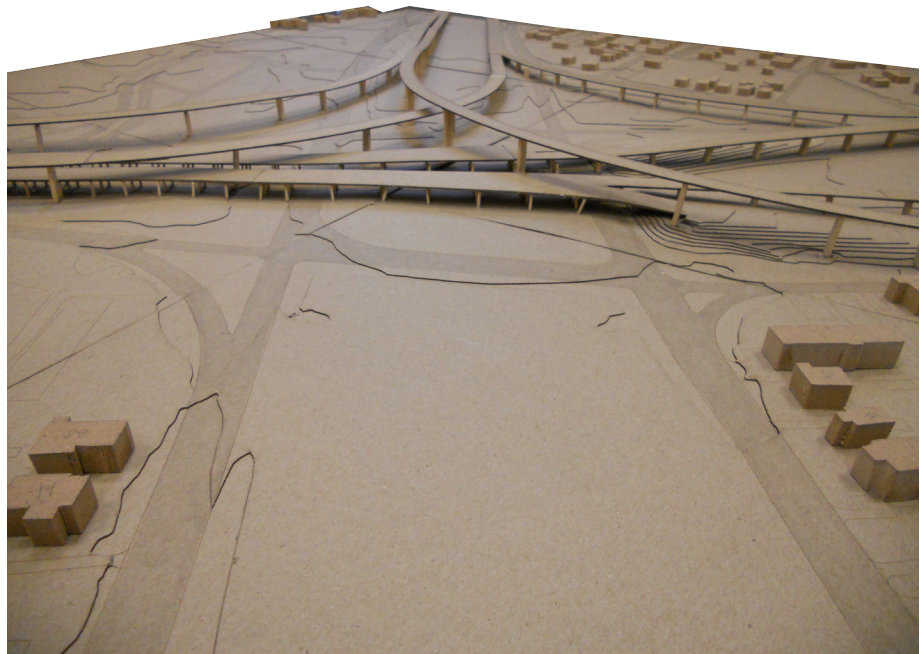


Figure 26 \_ Models: Existing | Proposed



## Sectional Urban Strategies

“The plan enables a topographic space via the deformation of the planar stratum. If multiple deformed planer strata coincide and intersect an interconnected sectional urbanism can be devised that will follow the network logic of intensification.”

\_ Michael Hensel and Tom Verebes

“Multiple grounds are an implication of sectional urban densification, challenging the status of ground +/- 0.00 as one single urban horizontal datum, and the vertical hierarchy of object to ground...A new horizontal order of spatial continuity can be established throughout existing urbanisms, unfolding both in space and time.”

\_ Michael Hensel and Tom Verebes

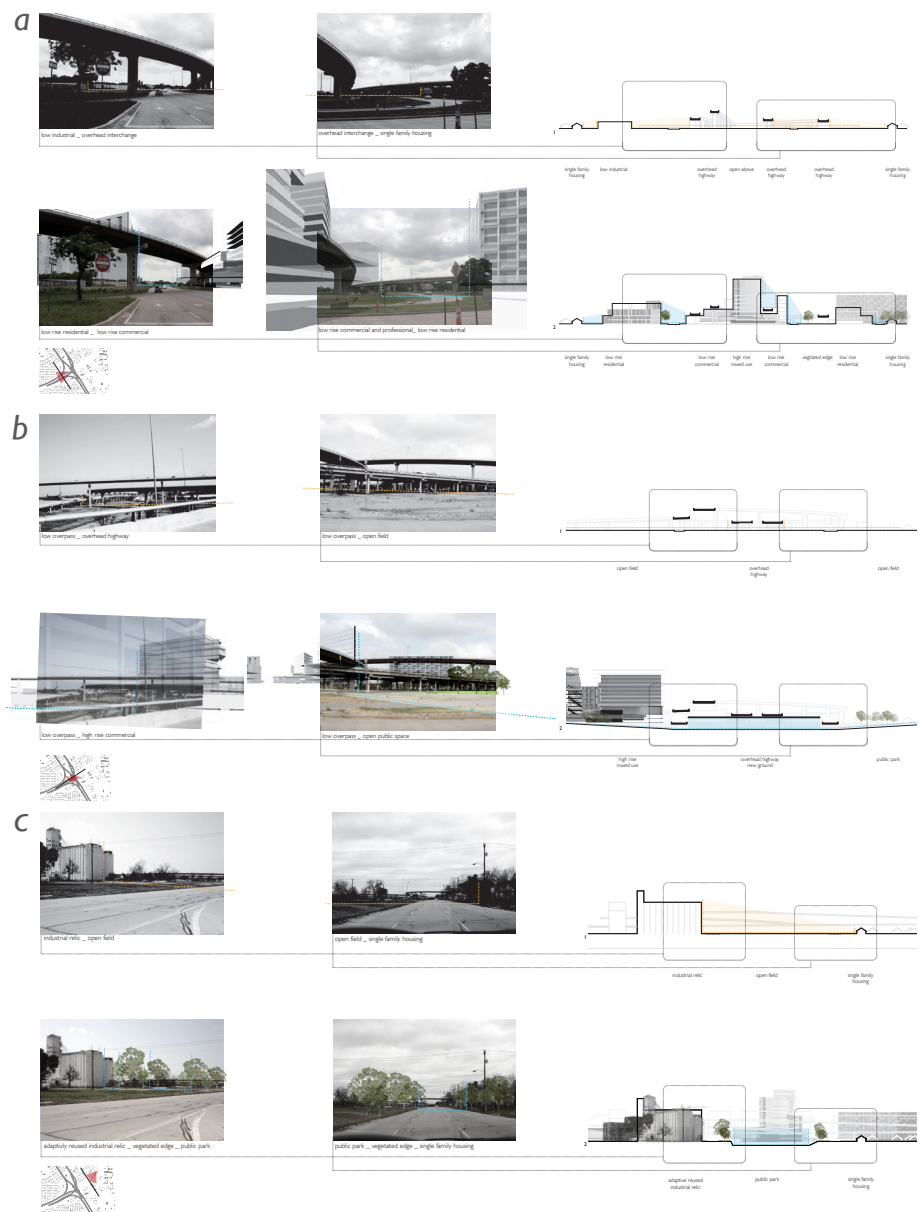
A sectional approach to urban planning can be considered the design solution for a highway interchange condition. Traditionally we have looked at the urban plan as a horizontal plane, however movement systems for vehicular traffic do not always lie on flat horizontal planes. Highways tend to respond to parameters such as natural topography, the need to move over or under an obstacle, and follow the natural movement flow of vehicles at a given speed. An interchange situation is designed for the optimal turning radius of a vehicle at a given speed in order to safely merge onto another highway system. In order to architecturally bridge through such a system, the same design approach could be taken. A new system of elevated or recessed ground can be generated in order to establish new interconnected ground planes at various levels.

Steven Holl has described the twenty-first century metropolitan space as being more active in section. He states that “Z” dimension has overtaken the planimetric and that as designers we must begin to think about the urban section first.<sup>14</sup> In three-dimensional cities we begin to have experiential relationships that are much different from moving solely on the ground plane. For motorist, highway interchanges provide a unique experience of the city, offering views not always accessible from the ground. A topographical move into the “Z” dimension could allow for unique spatial relationships between the pedestrian and the city.

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<sup>14</sup> Steven Holl, *Urbanisms : Working with doubt.*, (New York: Princeton Architectural Press, 2009), 25.





site sections \_ 1/128" = 1'-0"

Figure 27 \_ Site Sections: Existing | Proposed

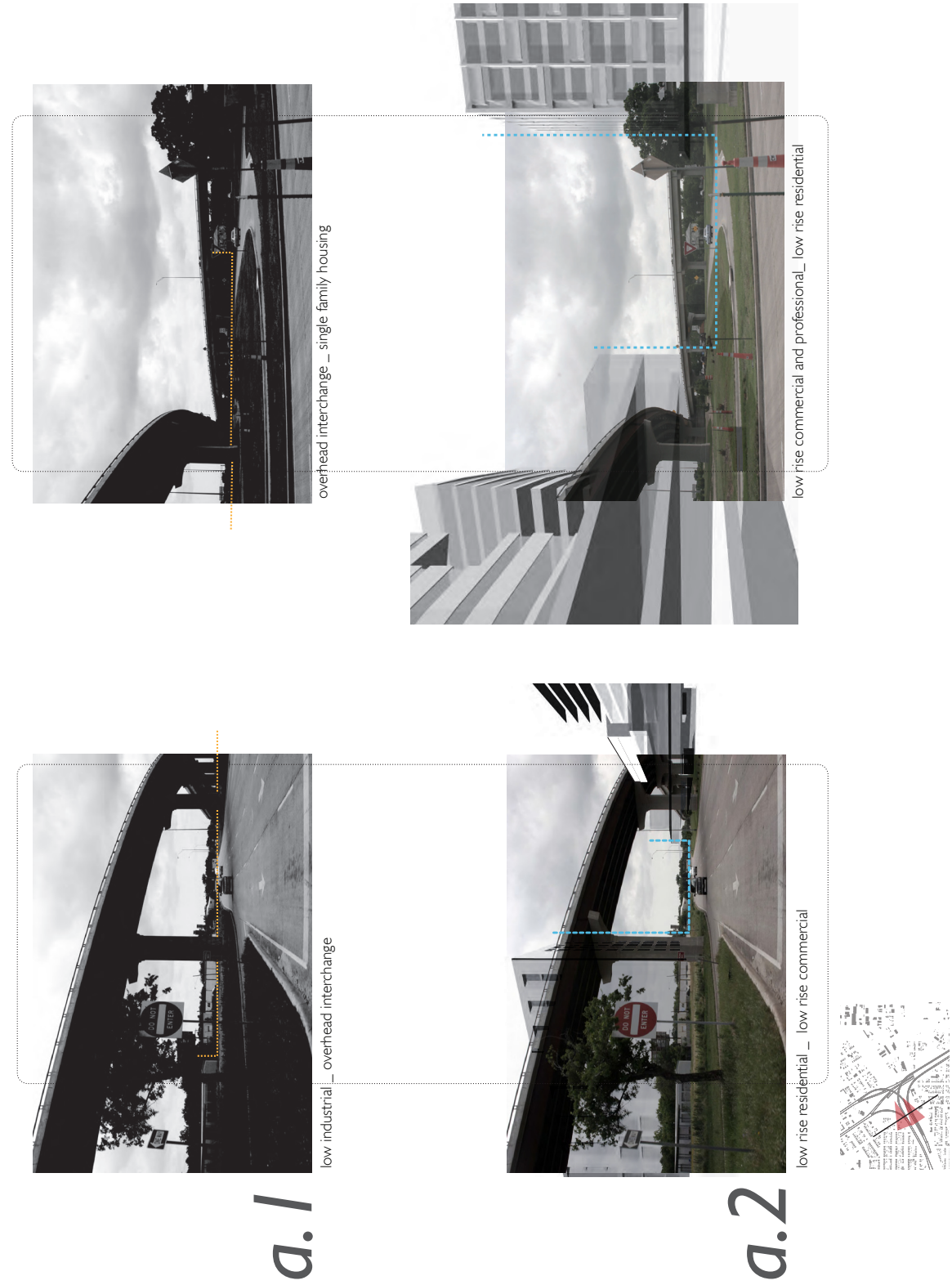


Figure 28 \_ Site Sections: a

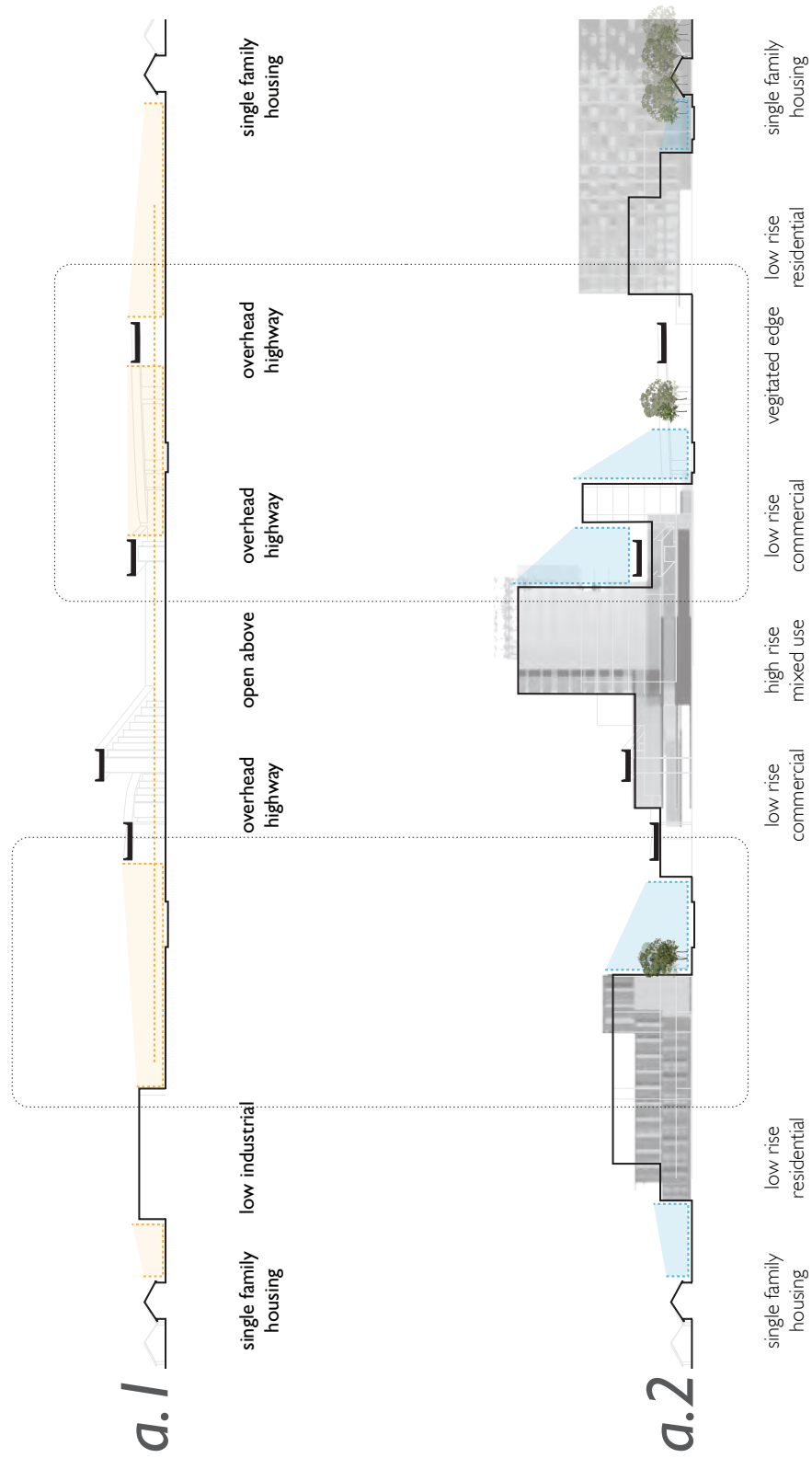


Figure 29 \_ Site Sections: a

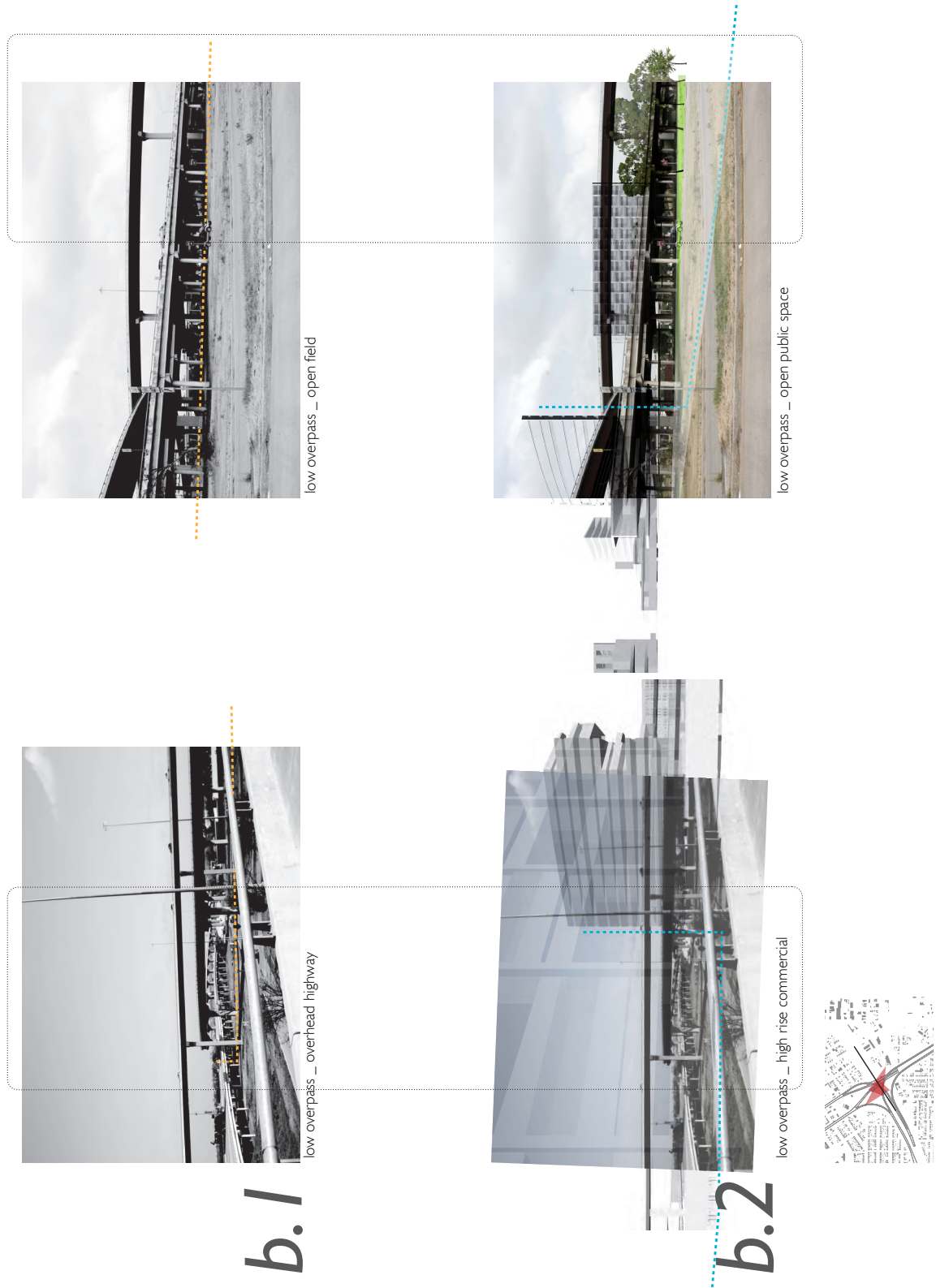


Figure 30 \_ Site Sections: b

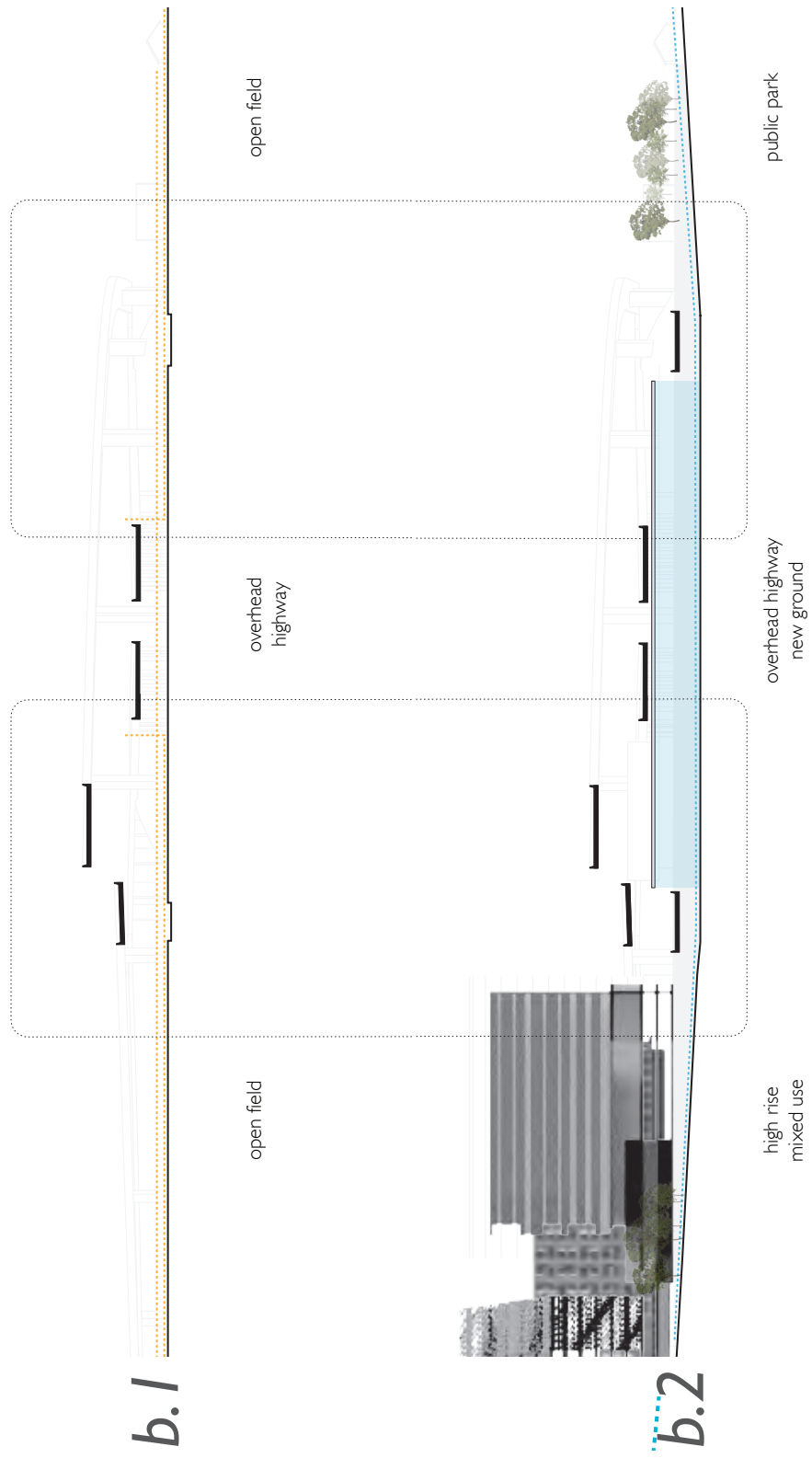


Figure 31 \_ Site Sections: b

Figure 32 \_ Site Sections: c





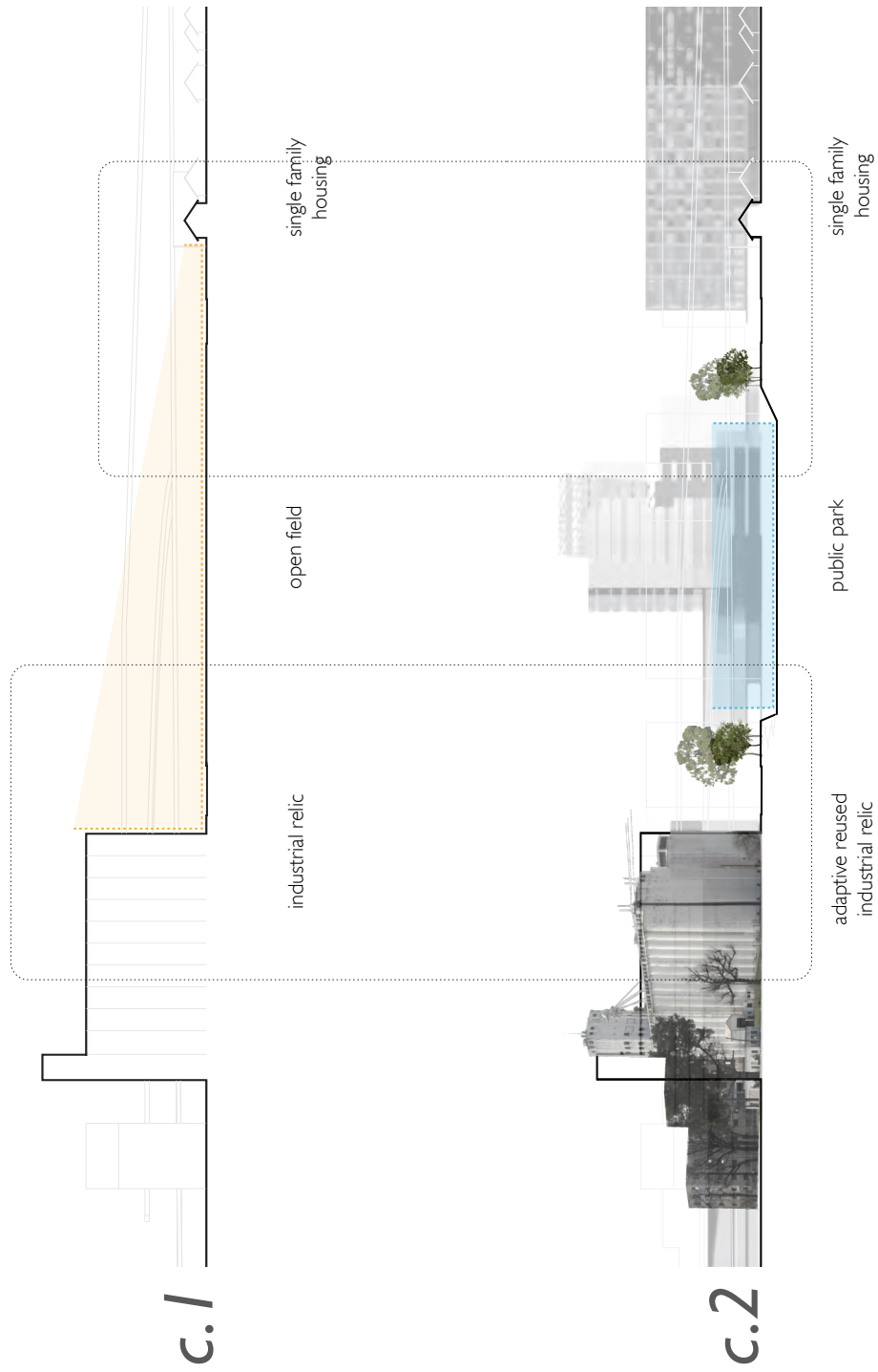


Figure 33 \_ Site Sections: c



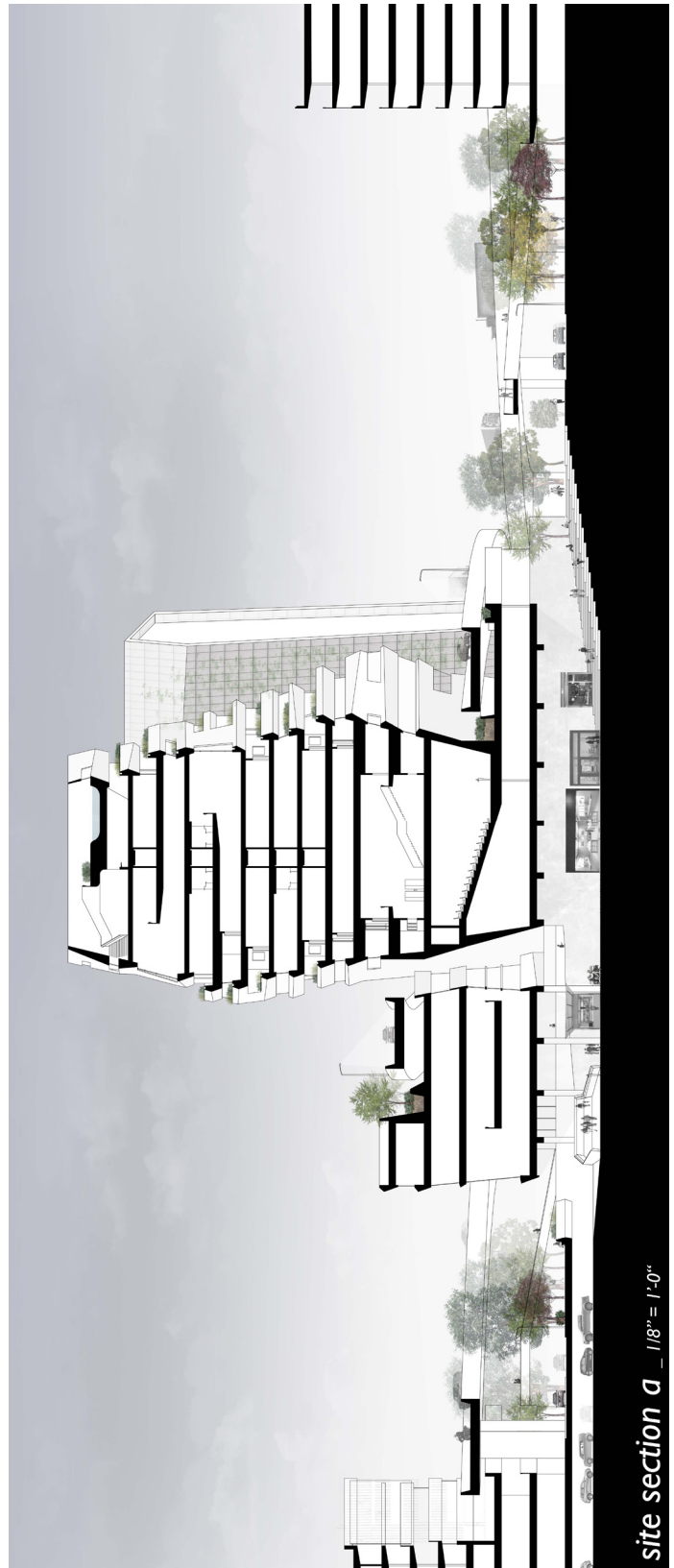
Figure 34 \_ Site Section: a





Figure 35 \_ Site Section: a

Figure 36 \_ Full Site Section: a



## Connection Through Landscape

Rem Koolhaas states that today urban voids tend to be the first places on which developers tend to “prey on”. But that rather than fill every corner of a void one should consider using open spaces as something people will stand behind<sup>15</sup>.

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<sup>15</sup> Rem Koolhaas, “Toward the Contemporary City,” in *Theorizing a New Agenda for Architecture: an Anthology of Architectural Theory 1965-1995*, edited by Kate Nesbitt (New York: Princeton Architectural Press, 1996), 330.



Figure 37 \_ Landscaped Connections from Park to nearby institutions.

## Scale \_ Urban, Architectural, Human

“Where a megaform tends toward being a unifying gesture at a large scale, a megastructure is primarily a structural invention that however much it may transform the topography and contribute to the sense of place, is still primarily a free-standing building.”

\_ Kenneth Frampton

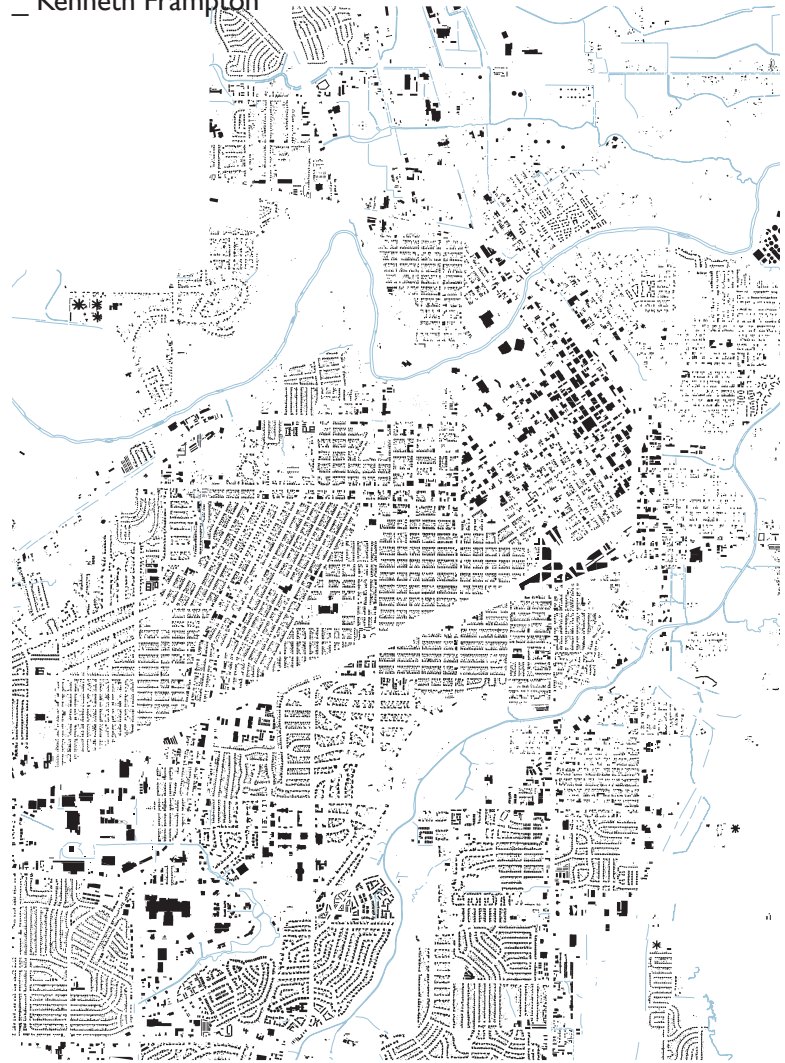


figure ground \_ proposed

Figure 38 \_ Landscaped Connections from Park to nearby institutions.



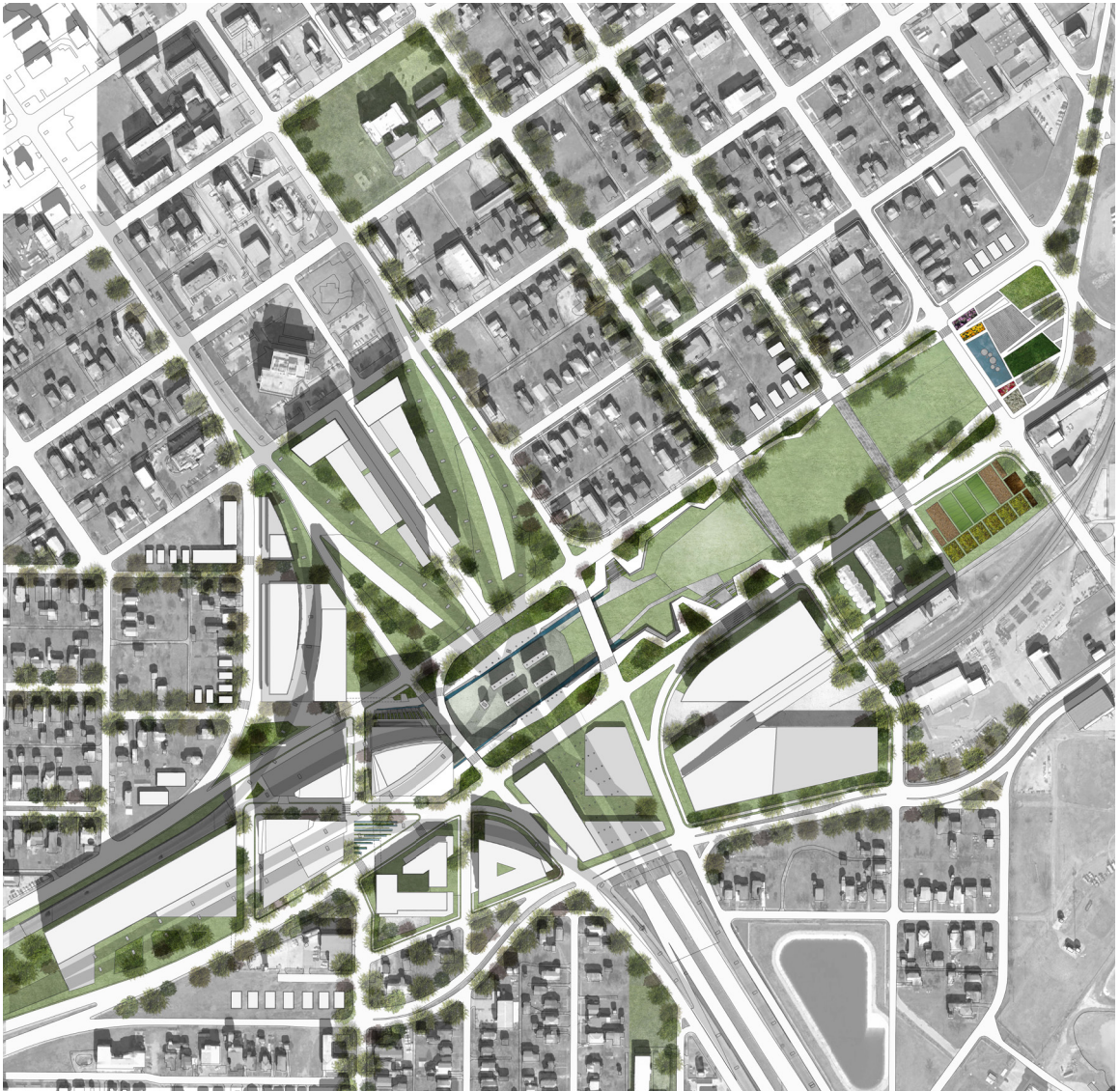


Figure 39 \_ Site Plan



Figure 40 \_ Site Plan Detail | I



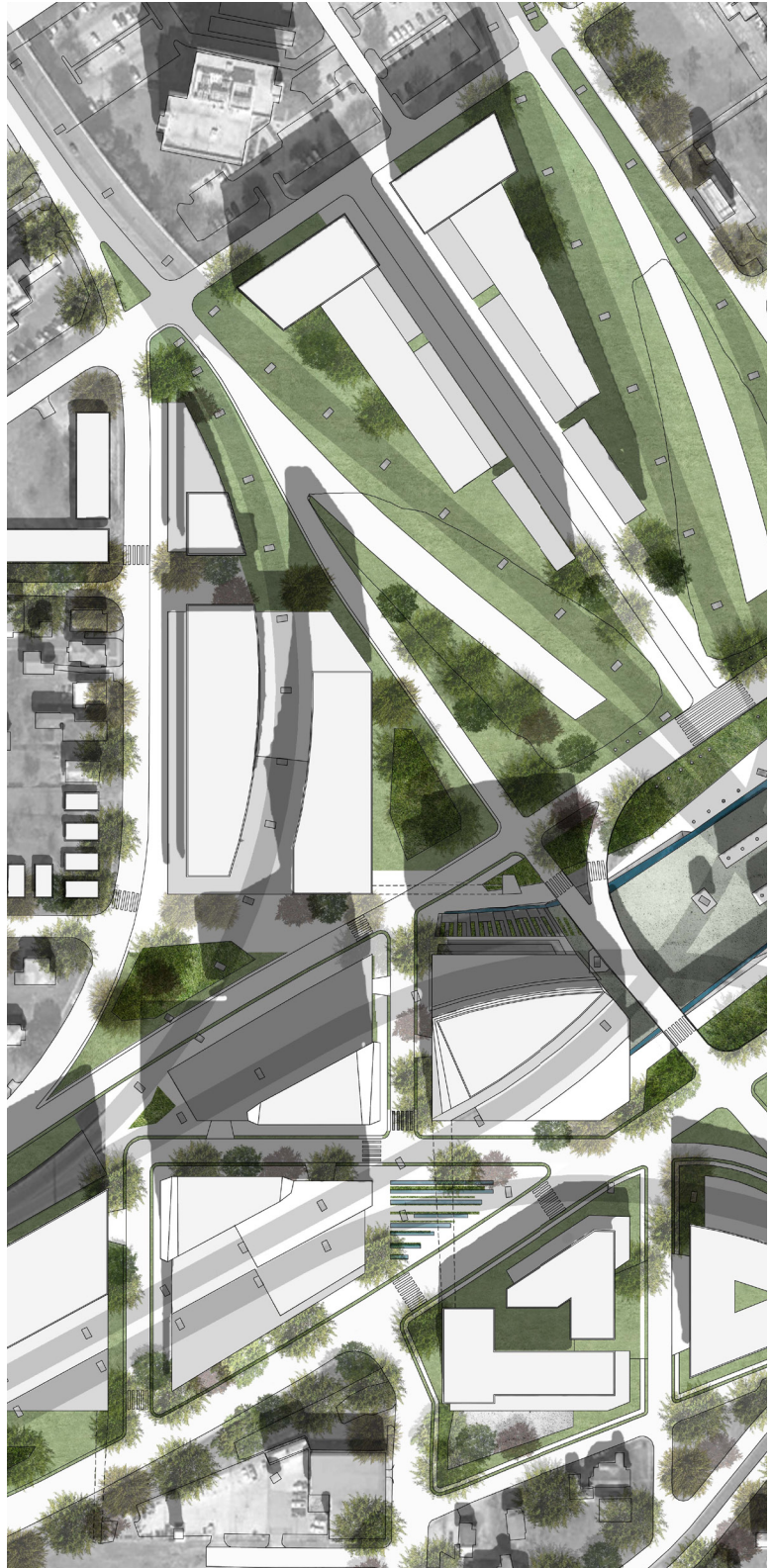


Figure 41 \_ Site Plan Detail | 2



Figure 42 \_ Site Plan Detail | 3





Figure 43 \_ Site Plan Detail | 4



Figure 44 \_ Site Plan Detail | 5





Figure 45 \_ Site Section a | Detail

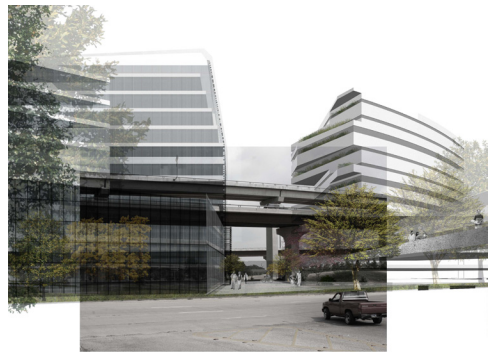


Figure 46 \_ Connection Corridors | Views

## Framed Corridors

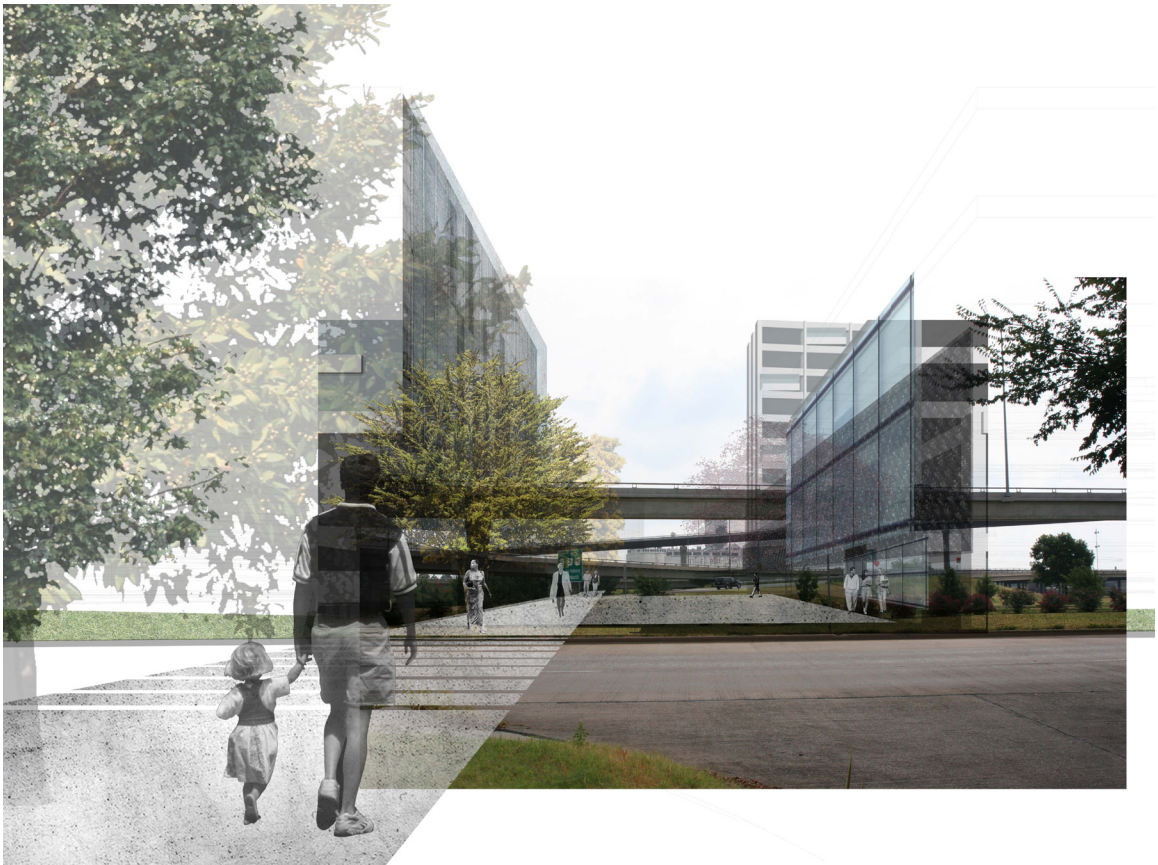
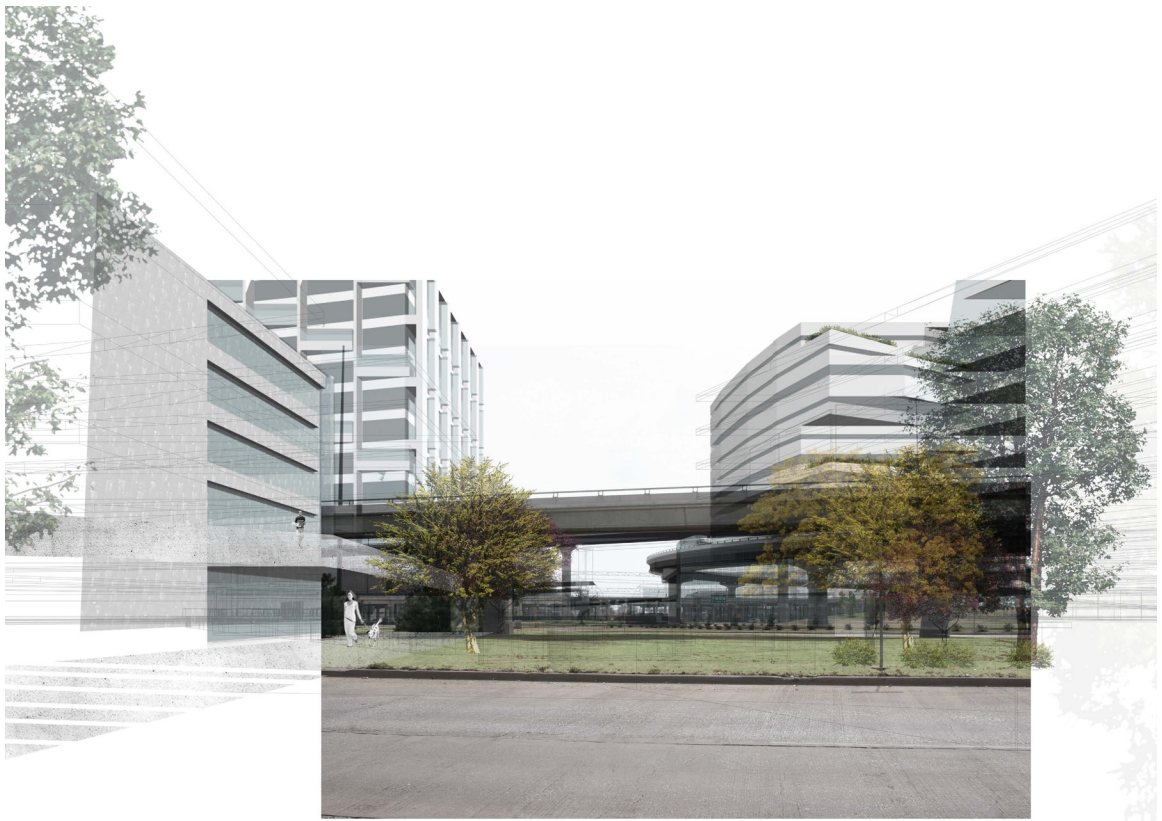


Figure 47 \_ Connection Corridors | View 1



*Figure 48* \_ Connection Corridors | View 2



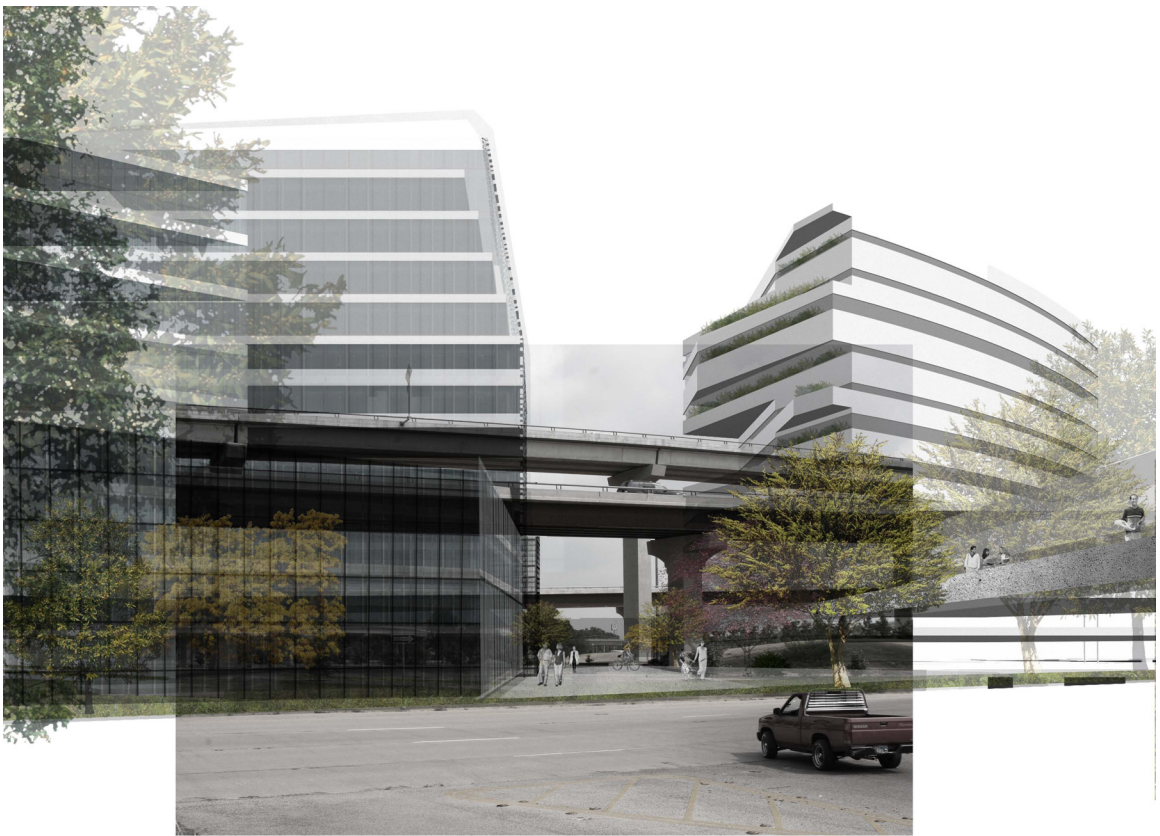


Figure 49 \_ Connection Corridors | View 3



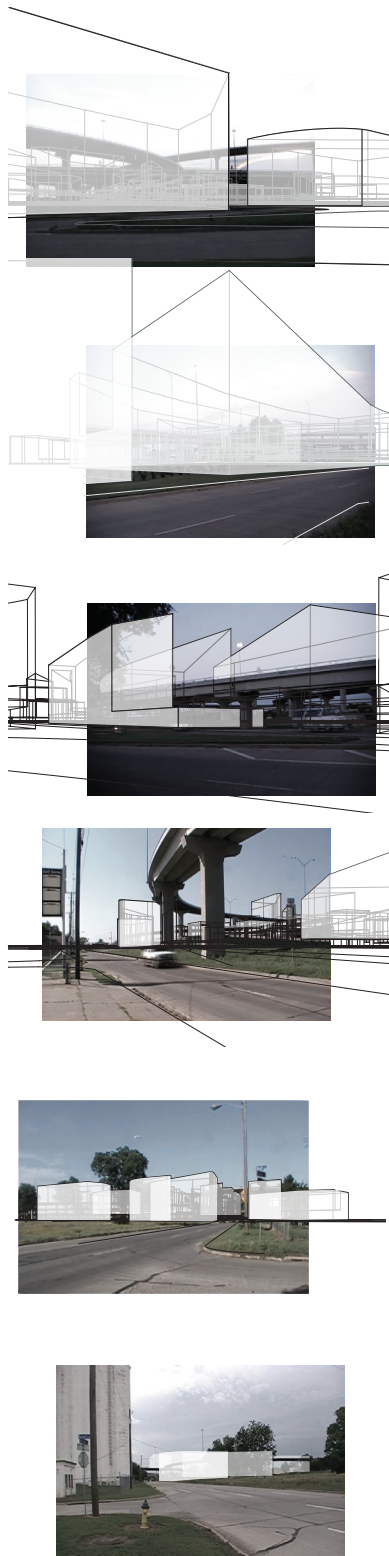


Figure 50 \_ Park View | Delaminated Ground Plane



*Figure 51 \_ Park View | Revitalized Civic Center + New Commercial Center*



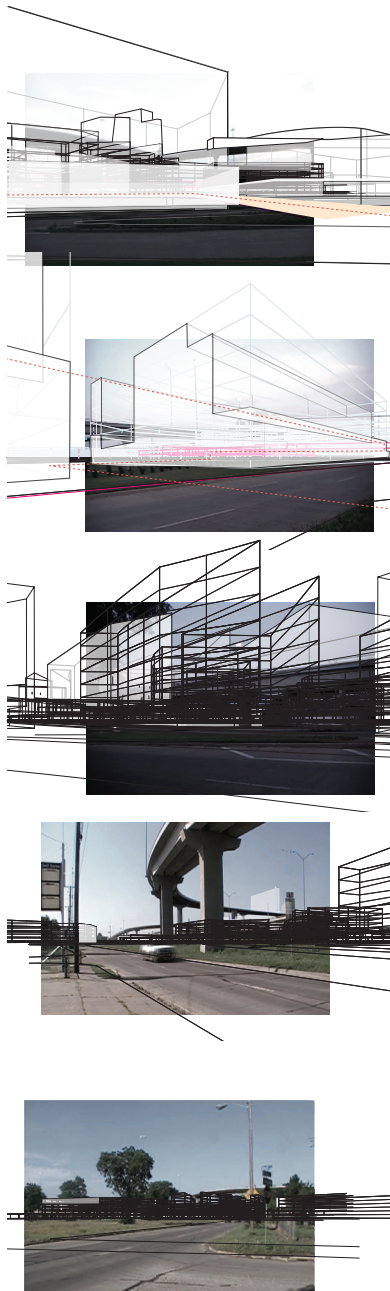


## CONCLUSION

This thesis sought to create a place of interchange between communities that have been fractured and disconnected by the destructive yet necessary highway system. The highway interchange already allows for a seamless flow between two highway systems, why not allow it to be a place of interchange for people as well? Taking the chosen site, a highway interchange, as-is allowed for an architectural intervention within the interstitial void to activate the space and provide areas of activity. Essentially this thesis sought to create a place within the barren infrastructural wasteland.

For this exploration the interchange was not questioned and was taken as-is. Another approach to the site could have been to propose demolition of all or some of the overhead access ramps. However, this thesis began with the idea that the site as it exists could provide interesting architectural responses. So for instance the decision to delaminate the ground plane allowed for the underside of the lowest bridges to become a more attractive space for pedestrian movement. It also provided a seamless flow between the center building and the adjacent park. This threshold space can be an active center for gathering, and provide commercial and retail activities. Another possibility would be to populate the empty lot next to the interchange rather than the interchange itself. However this approach would not be dealing with the issue of the infrastructural wasteland.

Figure 52 \_ Mass | Vertical Frame Studies VI



One area where the thesis has potential to continue to develop is in the center building and how the architecture respond to the issue discussed in this thesis. The form of the building responds to local site conditions through the sculpting of the mass. To mitigate the issue of noise the mass is expanded and contracted in a way that it begins to create noise shadows for the upper levels. Thick walls and soft vegetated edges were also employed to again soften the impact of the noise. Double skin systems could also be explored. Another way to respond to sound is through the placement of program. Because there are regulations concerning the amount of noise allowed for specific uses architects and planners have the opportunity to be creative about land use and program placement within the interchange system. For the building specifically programs that do not require openings could be places adjacent to the highway and program that requires the most light and air could be located at the highest levels further away from the noise source.

One of the more interesting ideas that emerged from this thesis is the idea that a highway interchange could become a city center. Interchanges exist both in and outside of cities so this idea promotes the polycentric city. In this thesis the site became two distinct centers, one a commercial center focused around the central building and the second a civic center surrounding the historic grain elevators. It essentially bridged a gap between old city and new city allowing them to coexist. The grain elevators begin to live as an icon and reminder why the city came to be, next to the new icon of the cities future.

Figure 53 \_ Mass | Vertical Frame Studies V2





The idea that an interchange could become a center also speaks to the idea of connection both locally and regional. This particular site provided regional access via rail and bus. Hiker-biker trails can also be incorporated into the site and tied into the existing trail that runs through the city. The generation of local connections came as a response to the traces of the existing grids. In an attempt to revive that history connection corridors were created where the grid had once existed. Some became only pedestrian connections while others became both pedestrian and vehicular. What determined the use was again the site. All corridors made provide for pedestrian movement through sidewalks or sky links. However the highway structure and traffic patterns did not always allow for a vehicular connection through or the connection did not work with the existing movement pattern.

Another idea that emerged because of the site and the horizontal nature of the highway was that of vertical framing as a device for place making and focused view corridors. This exploration began with simple perspectives that were looking at the possible massing of the site. In the beginning they were quick drawings of white blocks on the site and continued to develop into collage drawings that spoke to the character of the place. The initial placement of vertical elements within the horizontal system of the highway led to discussions about the contrast between the horizontality of the existing conditions versus the verticality of the proposal. The vertical walls of the proposal generated corridors that within the horizontal site, focused views, and created enclosure, reinforcing connectivity. However the dominating nature of the ramps is something that could be explored further. In this proposal there was no attempt made to downplay the highway system but rather an attempt to merge the system with the built form.

Figure 54 \_ Mass | Vertical Frame Studies V3

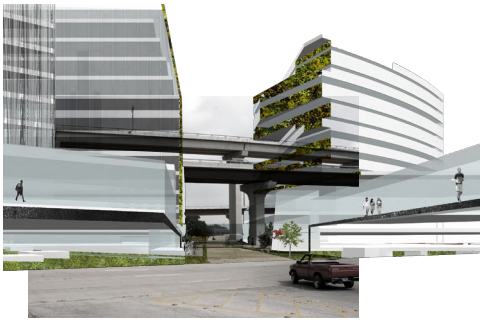
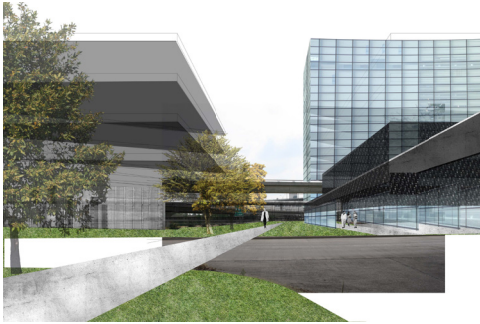


Figure 55 \_ Mass | Vertical Frame Studies V4

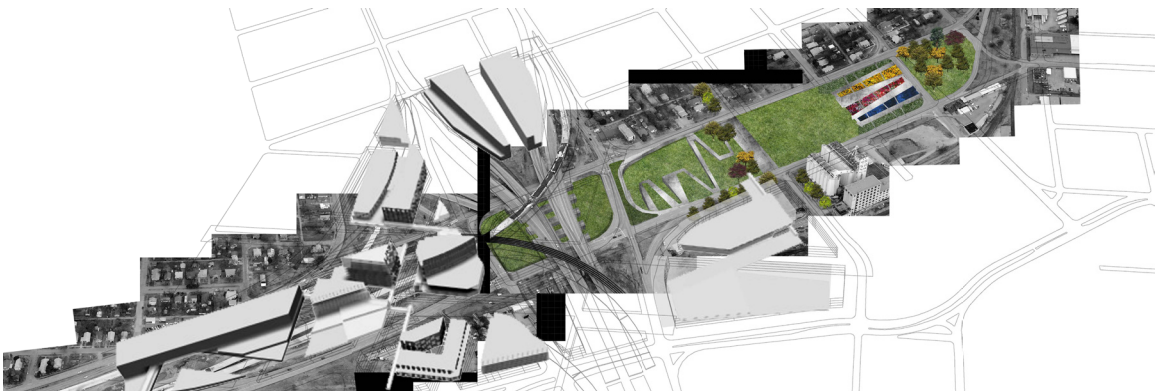
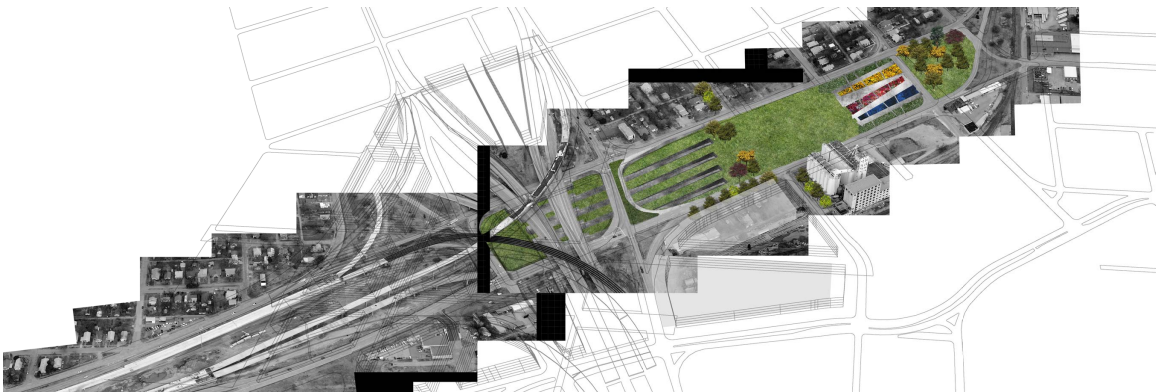


Figure 56 \_ Park Studies



Representation for this thesis was quite challenging due to the scale of the site. This exploration was an urban scale project that wanted to be at the human scale. However the project came to life through large models and perspectives. The models were quite effective in illustrating the three dimensional idea of the intervention as well as the reality of the highway system. Two-dimensional drawings alone could not explain the site and without the models the project would have been difficult to understand. This illustrates the disorienting nature of the interchange system and that by though framing the site can become more centered. Framing as a representational tool was also effective in reinforcing the idea of place making.



*Figure 57 \_ Park View | Revitalized Civic Center + New Commercial Center Detail*

The End

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