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# Condition / recondition: Reconstruction of the city and its collective memory

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Condition | Recondition:
Reconstruction of the City and Its Collective Memory


by


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A thesis submitted in partial fulfillment
of the requirements for the degree of
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# Dedication

Para mi Mami, mi Papi y mi Hermano, porque sin su amor, apoyo

y ayuda no hubiese podído alcanzar esta meta.

Con mucho amor.

## Acknowledgements

The work in this document is the culmination of a long journey, a journey full of challenges, full of long days and longer nights. Three and a half years ago this moment seemed that it was going to take forever, but today it feels it went by very fast.

I would like to thank all of you who have helped me grow as a professional, as a person and as a friend. My professors who guided me through the studios, projects and critiques. Beverly, Cecilia, Vikas, Vanessa, Shannon and Trent. All my friends from studio who made this chapter of my life enjoyable. Claudia, Carlos, Erica, Javier, Fernando and Alberto thank you for your help, encouragement, great memories and sincere friendship.

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# Table of Contents

# List of Tables

# List of Figures

# Condition | Recondition: Reconstruction of the City and Its Collective Memory

Camilo Lopez

ABSTRACT

Worldwide, dense urban spaces have been organized and transformed by cultural values. However, in many cases, changes in economic and social conditions have resulted in fragmentation of neighborhood typologies, in terms of their physical characteristics and uses. Such spaces are a manifestation of development, expansion, dislocation and marginalization; a condition that can be improved through an architectural and urban strategy which inscribes emerging forces into the neglected zones of marginal territories.

The contemporary context calls for a re-evaluation of public space. To fully engage the people, it is a necessary function of public space to blur landscape, architecture and infrastructure, as these three elements are rarely used in isolation. Public space can no longer be conceived as layers of these components of the built environment superimposed, but rather as an integrated network.

As an investigation of the environmental potential of existing urban areas, this thesis attempts to use an integrated network approach to create a local, social and cultural identity in a Detroit neighborhood. By focusing on the important role the public realm plays within the urban landscape, the project creates a dialogue between the natural and built components of the urban realm by taking advantage of the potential of existing infrastructure, social factors and context.

The main focus of this thesis creates a design strategy that gives character and identity to an area of the city that has been fragmented as a result of recent changes in economic and social factors. The project achieves this by weaving nature into the urban fabric. The research in this thesis culminates in a project which identifies a marginal area in Detroit and suggests alternative uses for the surrounding spaces, giving emphasis to the natural component of the urban landscape as a tool to critique the re-appropriation of spaces that outlived their original vitality. The concepts and findings from this thesis could be applied in any city towards the ecological reconditioning of marginal areas.

Figure 1.01 - Bringing Nature back in our life.
(http://argus.iica.ac.cr/Eng/conocimiento/infoTema/Pages/default.aspx)

"We, as citizens, have a common territory that in fact pertains less and less to us as time goes by. The cities in which we live, the stages of our daily efforts, the world of our routine and our maps of obligations and pleasures, are getting broken up into limited domains. It is a conflict that has existed for years, a conflict that involves the public sphere being sucked into the private spiral at the rate of land revaluation."[1]

As human beings, we must adapt to the natural environment and coexist with it. One has to live with the spirit of a place, the genius loci. Christian Norberg-Schulz (1926-2000) was a Norwegian architect, architectural historian and theorist whose concepts of the ground, the sky and the optic array shape the basic elements for describing places in built environments on various scales. According to Norberg-Schulz, our built environment is part of an architectural totality in which we belong. Often, our everyday activities take place in built environments, without us noticing what our surroundings look like. Seemingly, the more normal our living environment looks, the more it is taken for granted. It is only when something disturbing or uncommon changes occur that people first tend to react to it. According to Norberg-Schulz, a place must possess three important characteristics in order to make meaningful places for human beings. The three characteristics to understanding the structure of place, based on physical and sensorial attributes that can be engaged and understood by people are:

"One such idea in understanding this concept is beginning to see the distinction between both the natural and man-made environments"[2]

"Another idea that is also apparent is the existential dimension of space through the understanding of certain spatial relationships such as that between earth and sky, as well as, the distinction between inside and outside"[3]

"A final occurrence that is perceived in understanding the structure of place is its character"[4]

1 - Fernández Per, Aurora, and Javier Arpa. *The public chance: nuevos paisajes urbanos = New urban landscapes.* Vitoria-Gasteiz, Spain: a+t ediciones, 2008.
2 - Norberg-Schulz, Christian. *The Phenomenon of Place.* New York: Princeton Architectural Press, 1996.
3 - Ibid.
4 - Ibid.

## Main Objective

The main objective of this thesis is to devise a series of strategies that serve as a tool to critique the re-appropriation of spaces that outlived their original vitality, giving emphasis to the natural component of the urban landscape, borrowing Norberg-Schulz's first idea as the preliminary foundation. The concepts and findings from this thesis could be applied in any city towards the ecological reconditioning of marginal areas. Landscape is conceived both as the main problem and as the main opportunity for intervention and improvement.

"Landscape Urbanism describes a disciplinary realignment currently underway in which landscape replaces architecture as the basic building block of contemporary urbanism…landscape has become both the lens through which the contemporary city is represented and the medium through which is constructed."[5]

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5 - Waldheim, Charles. *The Landscape Urbanism Reader.* New York: Princeton Architectural Press, 2006.

The contemporary context calls for a re-evaluation of public space. To fully engage the people, it is a necessary function of public space to blur landscape, architecture and infrastructure; as these three elements are rarely used in isolation. Public space can no longer be conceived as layers of these components of the built environment superimposed, but rather as an integrated network (Fig. 1.02).



urbanism

infrastructure

landscape

architecture

integrated network
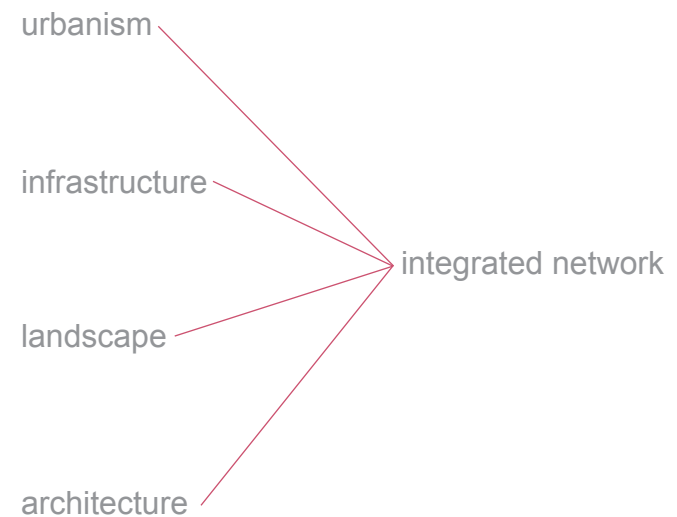
Figure 1.02 - Integrated Network Diagram.
(Source: Author)

By focusing on the environmental potential of existing urban areas (Fig. 1.03) as opposed to peripheral new developments, an integrated network approach will create a local, social and cultural identity through the rehabilitation of marginal zones in an urban area by focusing on the important role the public realm plays within the urban landscape; enhancing the sense of place, and creating a dialogue between the natural and built components of the urban realm; taking advantage of the existing infrastructure, social factors and context; at the same time adding meaningful value and identity to the community.

**A World Wide Issue**

According to the United Nations [6], 29% of the world's population was urban in 1950, 36% in 1965, 50% in 1990 and in 2025 it is expected to be 57.2% increasing to 69.6% by the year 2050. The average annual rate of change of the world's population from 2005 to 2010 will be 2%. Between 2007 and 2050, the population living in urban areas is projected to gain 3.1 billion, increasing from 3.3 to 6.4 billion (Table 1.01-02). How will cities accommodate this growth in population? Where will everyone live? Under what conditions? Will there be public spaces? What will they look like? What will happen to the natural component of the urban fabric?



1.03 - A



1.03 - B

6 - http://www.un.org/en/development/progareas/population.shtml

Figure 1.03 - Parque Mirador, Medellin, Colombia. (Source: Online)
A) February 12, 2004
B) October 14, 2004

| Country or area | Population (thousands) Urban 2007 | 2025 | 2050 | Rural 2007 | 2025 | 2050 | Percentage urban 2007 | 2025 | 2050 | Average annual rate of change (per cent) Urban 2005-2010 | Rural 2005-2010 | Population of the largest urban agglomeration Agglomeration* | Population (thousands) 2007 | As percentage of urban population 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **World** | **3 293 944** | **4 584 233** | **6 398 291** | **3 377 283** | **3 426 276** | **2 792 995** | **49.4** | **57.2** | **69.6** | **2.0** | **0.4** | | | |
| More developed regions[a] | 909 975 | 994 720 | 1 071 393 | 313 029 | 264 250 | 173 854 | 74.4 | 79.0 | 86.0 | 0.5 | -0.5 | | | |
| Less developed regions[b] | 2 383 969 | 3 589 513 | 5 326 899 | 3 064 254 | 3 162 026 | 2 619 141 | 43.8 | 53.2 | 67.0 | 2.5 | 0.5 | | | |
| Least developed countries[c] | 224 743 | 452 444 | 966 884 | 579 707 | 734 473 | 775 074 | 27.9 | 38.1 | 55.5 | 4.1 | 1.7 | | | |
| Other less developed countries[d] | 2 159 226 | 3 137 070 | 4 360 014 | 2 484 547 | 2 427 554 | 1 844 067 | 46.5 | 56.4 | 70.3 | 2.4 | 0.2 | | | |
| Less developed regions, excluding China | 1 815 031 | 2 758 464 | 4 290 101 | 2 296 875 | 2 538 454 | 2 237 589 | 44.1 | 52.1 | 65.7 | 2.5 | 0.9 | | | |
| Sub-Saharan Africa[e] | 289 938 | 539 458 | 1 064 736 | 517 488 | 654 124 | 695 989 | 35.9 | 45.2 | 60.5 | 3.7 | 1.7 | | | |

Table 1.01 - Estimated Urban Population.
(http://www.unpopulation.org)

# Distribution of the world's urban and rural populations, major areas, 1950, 2007 and 2050

| | 1950 | 2007 | 2050 |
|---|---|---|---|

**URBAN**

1950 Urban:
- 1%
- 4%
- 32%
- 39%
- 9%
- 15%

2007 Urban:
- 1%
- 11%
- 8%
- 14%
- 16%
- 50%

2050 Urban:
- 1%
- 6%
- 11%
- 19%
- 9%
- 54%

**RURAL**

1950 Rural:
- 0%
- 11%
- 15%
- 5%
- 3%
- 66%

2007 Rural:
- 2%
- 0%
- 18%
- 4%
- 6%
- 70%

2050 Rural:
- 3%
- 2%
- 1%
- 27%
- 4%
- 64%

Legend:
- Africa
- Asia
- Europe
- Latin America and the Caribbean
- Northern America
- Oceania
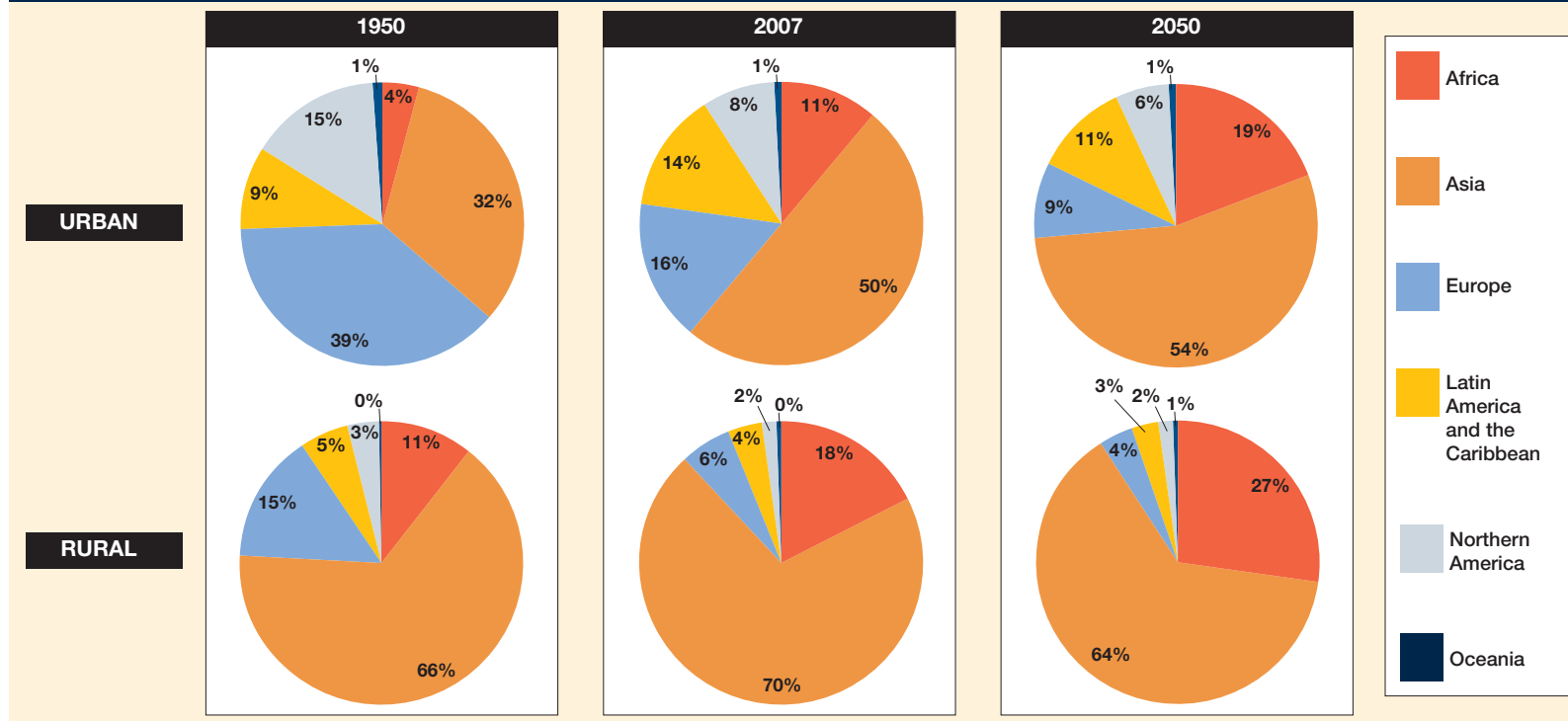
Table 1.02 - Population Distribution
(http://www.unpopulation.org)

16

According to urban ecologist Herbert Girardet, cities must implement a "circular metabolism" (Fig. 1.04), by implementing efficiencies and maximizing the recycling of resources. With the aim to accommodate for this growth, current conditions must be studied, analyzed, critiqued and adjusted to allow for nature to be weaved into the urban context, thus thinking about nature first, followed by the city, then the public realm and finally the buildings. This approach will create an integrated network design for the urban landscape.

place; and creating a dialogue between the built and the natural components of the city. This research study will take on the ideas behind ecological urbanism, social identity and sense of place.

**Research Methods**

To collect the most effective information, the research methods that will be applied to this thesis are: Case Studies, Design Methodology for Architectural and Urban Conditions, and Qualitative Data. As a starting point for the thesis project, the main generators of catalytic ideas will be research and thorough analysis of built and un-built projects in which the main driver is the re-interpretation and revitalization of neglected zones of marginal territories that outlived their original vitality, creating a sense of



A) 'Linear metabolism' cities (consume and pollute at a high rate)
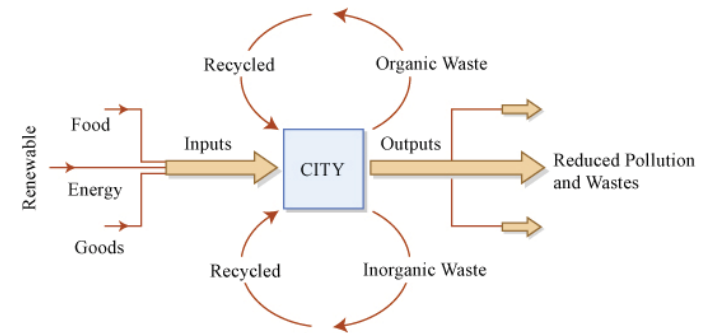
B) 'Circular metabolism' cities (minimise new inputs and maximise recycling)

Figure 1.04 - Metabolism of Cities: Towards Sustainability. (Source: Online)

## Design With Nature

In order to create a meaningful relationship between these two components of the urban fabric, this thesis learns from Ian McHarg's *Design With Nature*, where he explains his idea of how the urban design should incorporate the natural features of the area. McHarg emphasizes that in order for man and nature to coexist as one, man has to take into consideration the natural ecology of the site and build around it and with it (Fig. 1.05). But, what if man has disregarded this natural ecology? How can these forgotten ecosystems be brought back, as if taking over underutilized areas of the city, to where they belong?

"The world-wide growth of urban populations and grossly inefficient patterns of living are accelerating the rate of increase of pollution and erosion."[7]

McHarg's concepts of the two components of the urban landscape will be used in the design of the strategies for revitalization. The relationships between natural environment and built context need to be studied. How are natural areas connected as a network? How does nature and built form relate? Which one is

7 - Rogers, Richard George, and Philip Gumuchdjian. *Cities for a Small Planet.* Boulder, Colo.: Westview, 1998.
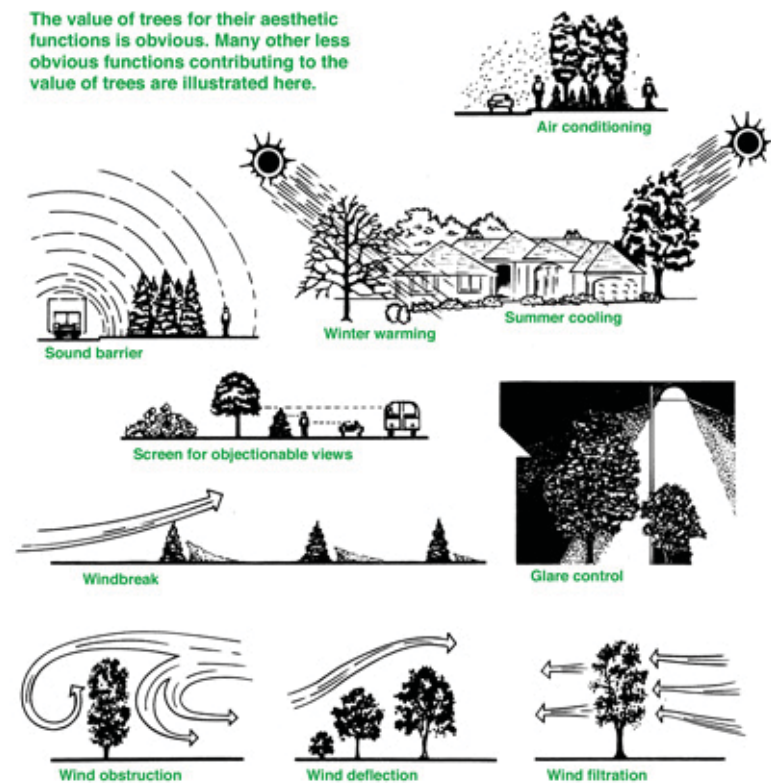


Figure 1.05 - Designing with nature can promote a healthier living environment. (Source: Online)

more important? Could it be a symbiotic relationship where both components benefit? For this thesis, the natural component possesses hierarchy over the built component.

**Public Space**

"Beyond providing opportunities for employment and wealth, cities provide the physical framework for an urban community. In recent decades and throughout the world the public realm of cities, the people's spaces between buildings, has been neglected or eroded."[8]

The interweaving of pedestrian through the major public spaces is important to the social life of a city (Fig. 1.06). While pedestrian movement is crucial, places of congregation must also be implemented. Somewhere in recent history, mankind has traded a world of interaction, relationships and social consciousness for an inner sanctum of introversion; although, in daily life minimal or necessary interaction takes place, something has been lost. The weekly dose of social interaction that used to dominate our lives has been replaced by the individualized realm, domestic technologies that have taken the place of true company. The mass, the crowd, the collective is no longer a part of daily life; it is the exception, the accident, the insignificant, and yet we still thirst for it. The urge to belong to something that is larger than self overrides all societal laws and personal boundaries; it can be as disastrous as it is wonderful and therefore must be guided. A collective event re-



Figure 1.06 - Downsview Park Proposal, Toronto, Canada. Stan Allen Architects. (Source: Stan Allen Architects)

8 - Rogers, Richard George, and Philip Gumuchdjian. *Cities for a Small Planet.* Boulder, Colo: Westview, 1998.

quires more than just people. There must be a common stimulus and a willingness of the participants to become part of the event by abandoning their sense of self. By varying the degree to which a space suppresses the self and the type of stimulus employed, the degree of collectivity within an environment can be varied to suit different events and activities.

"'SCAPE©,' a term introduced by Rem Koolhaas, implies a reading of the urban territory as landscape… [it] is an idiom for the edgeless city, in which the distinction between center and periphery, between inside and outside, between figure and ground is erased. The city is understood as a continuous, topologically formed field structure, its modulated surface covering vast extensions of urban regions… The boundaries between architecture, infrastructure, and landscape dissolve while de-centering the notion of the architectural object as a closed entity"[9]

The edges of public spaces need to be reconsidered, they must break the mold; their surface cannot merely wait to be activated by events, but rather needs to provide activated surfaces for events to occur. The main concept of public space is to be an urban centre for exchanging ideas (Fig. 1.07), for voicing views, for influencing opinions.

"Public space in the city must surely be more than mere token compensation or vessels for this generic activity called "recreation". Public spaces are firstly the containers of collective memory and desire, and secondly they are places for geographic and social imagination to extend new relationships and sets of possibility."[10]



Figure 1.07 - Responsive-Democratic-Meaningful.
The social processes that transform spaces into places, and the values and meanings people attach to places.
(Source: Online)

9 - Angélil, Marc and Anna Klingmann. 1999. Hybrid Morphologies. Daidalos, Volume 73. p. 16-25.
10 - Corner, James. "Terra Fluxus" *Landscape Urbanism Reader.* Ed. Charles Waldheim. New York: Princeton Architectural Press, 2006. 21-33.

Public spaces are an area or place that is open and accessible to all citizens, regardless of gender, race, ethnicity, age or socioeconomic level. In his book *Public Space*, Stephen Carr , et al., defines the three primary values of public space [11].

1) responsive: designed and managed to serve the needs of its users

2) democratic: protect the rights of user groups

3) meaningful: allow the people to make strong connections with the place

**Outcome**

The main objective is to devise a design strategy that proposes an integrated network approach, landscape, infrastructure, architecture and urbanism, to revitalize urban spaces marked by culture, economy and development. The thesis project can influence the creation of a local, social and cultural identity, enhancing the sense of place, adding meaningful value and identity to the community.

11 - Carr, Stephen, et al. Public Space. Cambridge series in environment and behavior. Cambridge [England]: Cambridge University Press, 1992.

Figure 2.01 - Shrinking cities.
(Source: Online)

22

**Brief**

The case studies that instigated the idea for this proposal are Proyecto Urbano Integral, P.U.I., (Integral Urban Project) in the city of Medellin, Colombia. A project which creates a "city of cities"[12] linked through an architectural, green, infrastructural and cultural system. The next case study is The High Line in New York City, which gives a unique example of how existing infrastructure can be adapted to a new use, giving back its elevated surface to the city. Located near New York City, the Sustainable South Bronx Greenway project proposes a safe and integrated network of streets and waterfront linkages, creating a series of urban trails which connect key points of the area such as transit hubs, neighborhoods and civic destinations. Rethinking the actual and proposed land uses (such as jails) along the waterfront

edge of the community and providing new a new cultural identity to the residents of South Bronx.

Next, an architectonic approach to an urban/public space and environmental problem is seen in Madrid, where the Eco-boulevard proposes the integration of technology and urban design to serve as catalysts of public life, thereby improving the generally poor quality of public space in the extensions of the city limits, resulting in a sustainable stimulator of public life. Another case study is Fiber City Tokyo 2050, which proposes the concept of how to design with nature and uses that idea to mitigate future catastrophes related with earthquakes. It proposes a series of strategies which react and adapt to the existing conditions of the urban fabric.

The next case study is Parc Nus de la Trinitat in Barcelona, Spain, it takes advantage of the left over land defined by a highway junction loop, this park serves a medium density neighborhood, providing green space and recreational zones. It uses nature to mitigate its location and provide a tranquil place.

12 - Martignoni, Jimena. "Strategies for Medellín." *Topos 64: Growing Cities.* München: Callwey (2008). 18-23

The last case study is the Boston Central Artery. Although it was a drastic answer to the problem of connectivity the city of Boston faced, it buried an elevated highway, which was a physical and visual barrier between the central part of the city and its waterfront, connecting neighborhoods while adding value and identity to each.

In addition to these case studies, research and comparison will be made between the ideas and solutions behind growing cities, as well as shrinking cities, on how the public spaces are treated and the tactics incorporated. In order to make a stronger thesis, the project will be cohesive at macro and micro scales, from urban relationships to the design of a specific area showing the relationships between natural and built components.

**Proyecto Urbano Integral (P.U.I.), Medellin, Colombia**

Medellín, located in the center of the department of Antioquia, Colombia, is the urban nucleus of the Aburrá Valley which includes ten municipalities within an area of 1.152 km2 (Fig. 2.02). Its excellent climate, an average 76ºF, has earned it international recognition as the city of eternal springtime. The city is locate 1.538 meters above sea level and covers an area of 382 square km2. During the 1980's Medellín was known for the conflicts and violence related with drug trafficking. But since the late 1990's, this indignity has been losing ground, guiding the city towards the reshaping of its overall image, responding to rapid growth and deficient planning [13].

As an strategy for these problems, the Integral Urban Project acts as an urban intervention tool which encompasses the physical, social and institutional aspects of the urban fabric (Fig. 2.03), with the aim to solve the specific problems of a defined area of the city where a general absence of the state has been felt, seeking the improvement of the living conditions of its inhabitants through community participation (Fig 2.04).

This model of integral urban intervention has the components of community participation, inter-institutional coordination, improvement of public space and mobility, adequacy of facilities and restoration of the natural environment. A key point is that this model is replicable in areas with similar conditions where specific

13 - Martignoni, Jimena. "Strategies for Medellín." *Topos 64: Growing Cities.* München: Callwey (2008). *18*-23



Fig. 2.02 - Aerial view of Medellin.
(Source: Online)

# INSERCIÓN POLÍTICA Y COMPONENTES:



| | planning | | | strategies | | | urban components |
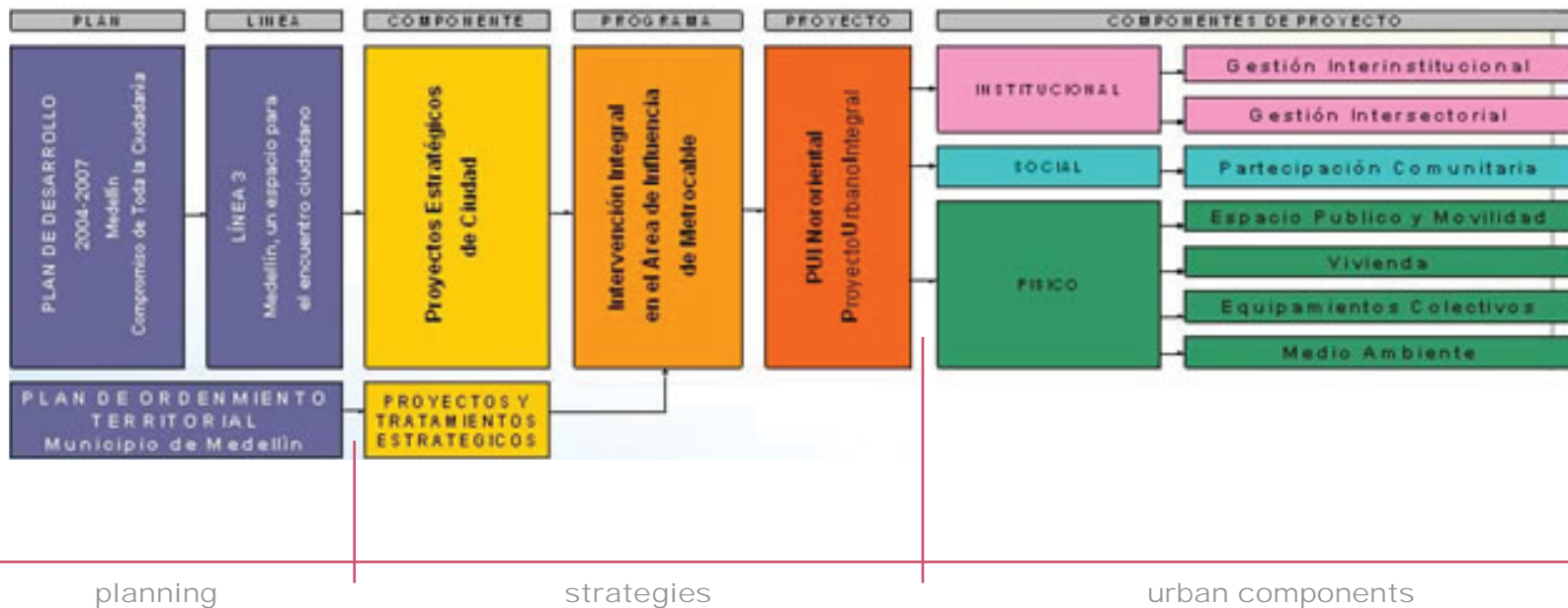
Table 2.01 - Political intervention and P.U.I. components. This diagram shows the basic framework of a P.U.I., from the political/governmental aspects to the urban aspects.

**PLANIFICACIÓN**

| DIAGNÓSTICO | FORMULACIÓN |

**GESTION**

| DISEÑO | EJECUCIÓN | ANIMACIÓN |

| Etapa 1 | Etapa 2 | Etapa 3 | Etapa 4 | Etapa 5 | Etapa 6 | Etapa 7 | Etapa 8 | Etapa 9 | Etapa 10 |
|---|---|---|---|---|---|---|---|---|---|
| Reconocimiento Físico - social | Perfil del Proyecto | Anteproyecto Arquitectónico | Proyecto Arquitectónico | Insumos contratación | Contratación | Obra | Planteamiento | Gestión | Ejecución |

Figure 2.03 - Methodology of a P.U.I.: the methodology is designed in such a way that the community is always present in the planning process, which legitimizes each of the interventions developed within the framework of the Integral Urban Project.
(Sorce: Online)

27

problems can be resolved adapting to the context. This strategy has three main components, social, institutional and physical.

*Key Components*

Social: This is a methodological strategy to achieve development of the area with public participation, strengthening community organization and promotion of leadership, enabling the recovery of the social fabric. The community actively participates in all stages, from identifying problems and opportunities through



Figure 2.04 - Planning and design process meeting with the participation of the community.
(Source: Online)

field trips to the formulation and approval of projects through the use of participatory design practices. The social management goals of a P.U.I. are to promote the participation of leaders, groups and community in the Integral Urban Project, in addition to inviting organizations to establish mechanisms for participation and consultation, and communicate information and facilitate cooperation with the community ownership of the intervention.

Institutional: This component deals with the coordination of the actions of all agencies of the municipality in an area. It also promotes partnerships with the private sector, national and international agencies and community organizations.

Physical: This includes the construction and improvement of public spaces, housing, adequacy of public buildings such as libraries, and restoration of the environment, through the construction of parks. An outcome of the P.U.I. is to raise the living conditions of local residents through the implementation of devel-

opment initiatives that bring together the municipal administration with the communities, through ongoing community participation, employment generation and strengthening of commercial activities.
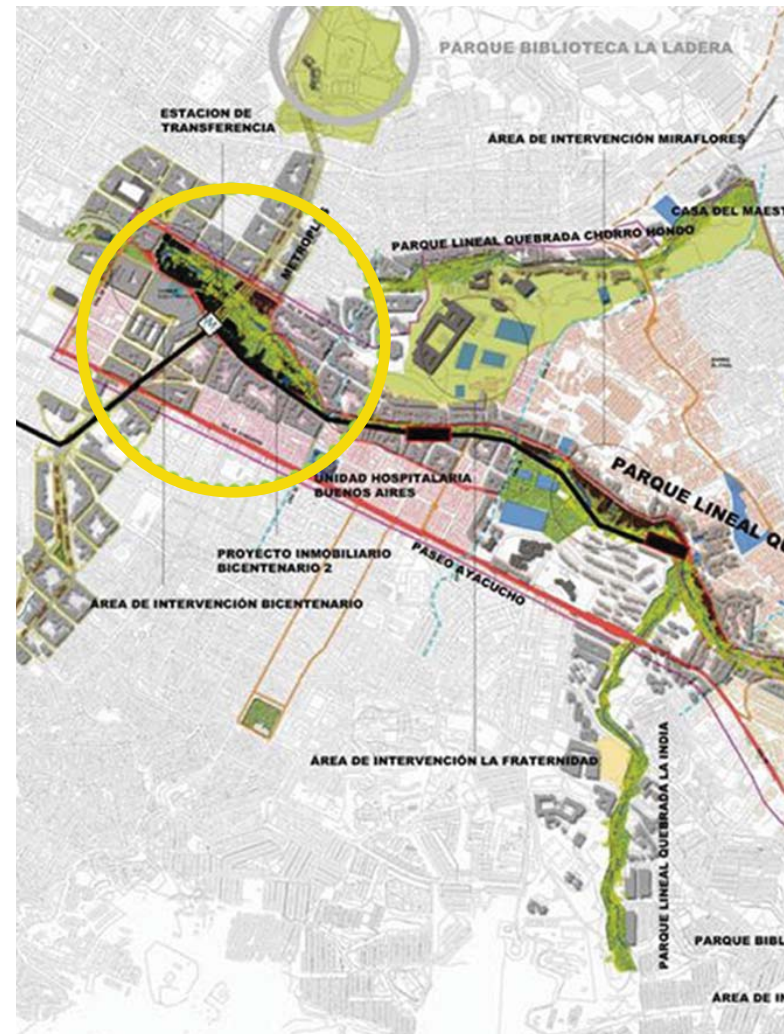


Figure 2.05 - Master plan of P.U.I. Centroriental, showing the liner parks, metro plus station, connectivity of public spaces and one of the five library-parks of the city.
The area in yellow shows the intervention at Bicentenario neighborhood. The importance of the social, institutional and physical components can be seen in the plan, showing an important interaction between the natural and the built components of the urban landscape.
(Source: Online)

Figure 2.06 - Detailed plan of Bicentenario neighborhood intervention showing the interaction between the three components of a P.U.I.
(Source: Online)



Figure 2.08 - Recreational facility in the park.
(Source: Online)



Figure 2.07 - Section thru proposed music building and parks area.
(Source: Online)



Figure 2.09 - Public space deeper in the urban fabric.
(Source: Online)

## The High Line, N.Y.

Built in the 1930's, the High Line is a 1.5 mile long, elevated rail line part of a massive public-private infrastructure project called the West Side Improvement (Fig. 2.10). No trains have run on it in over 20 years. A lush urban wilderness, nearly seven acres in total, has seeded itself on the High Line's tracks. Friends of the High Line, a community-based non-profit group, formed in 1999 when the historic structure was under threat of demolition. This group works in partnership with the City of New York to preserve and maintain the structure as an elevated public park [14].

The High Line project is a special example of weaving nature into the urban fabric (Fig. 2.11-12). The project reuses an existing, abandoned, elevated railway that cuts through the industrial section of Manhattan, which goes thru, in-between and next to buildings (Fig. 2.13). After the railway was abandoned nature

14 - http://www.thehighline.org/about/high-line-history



Figure 2.10 - Aerial view of the High Line, showing relationship to buildings. (Source: Online)

natural components

natural areas

water

vegetation

built components

buildings

access and circulation
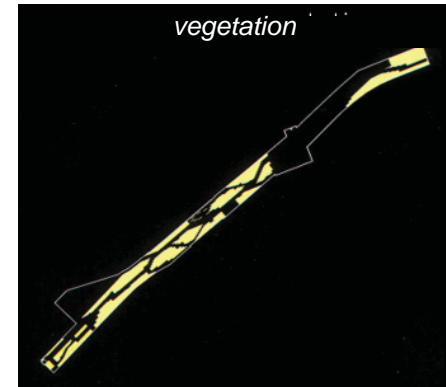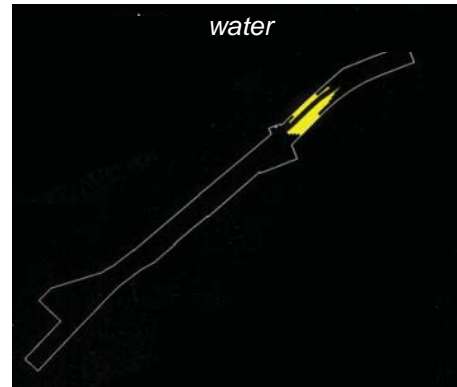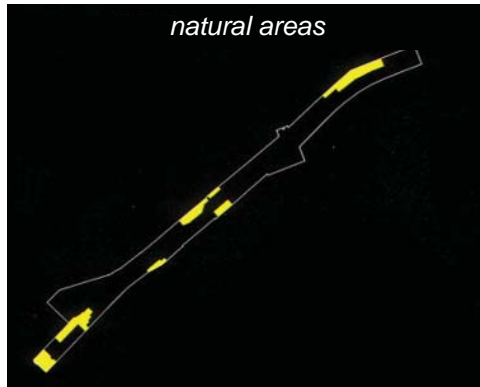
programmed zones
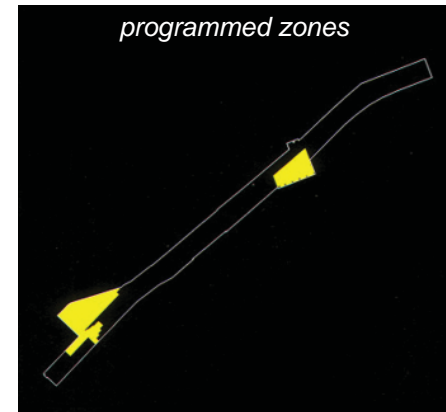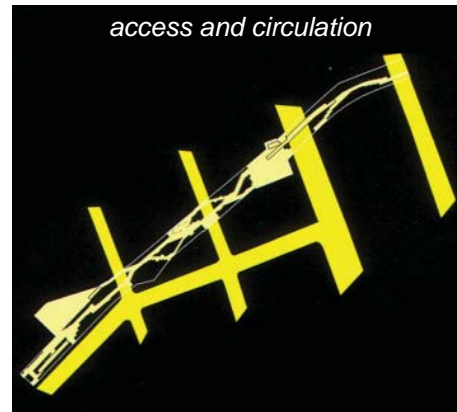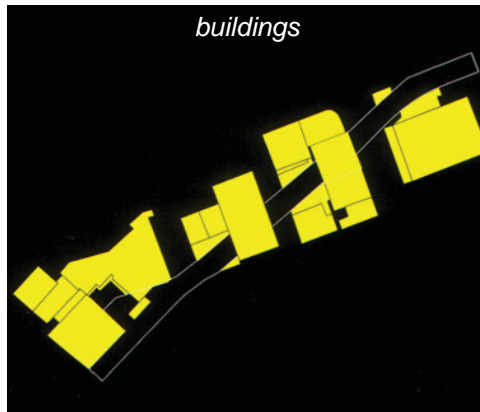
Figure 2.11 - Diagrams showing the different layers of the project.
(Source: Fernández Per, Aurora, and Javier Arpa. *The public chance: nuevos paisajes urbanos = New urban landscapes.* Vitoria-Gasteiz, Spain: a+t ediciones, 2008)

Seccion A ascensor con césped
Section A lawn lift

JARDINES CON SETO
HEDGE GARDENS

Bosque tribuna
Grandstand woodland

Sección B jarcín con seto
Section B garden hedge

Acceso negociado
Negotiated access

Playa zona húmeda
Grandstand

Sección C arboleda flotante
Section C  Floating grove

Sección D ascendor-árbol
Section D Tree Lift

Bar y entrada Gangsevoort
Gangsevoort entry + bar

Gansevoort
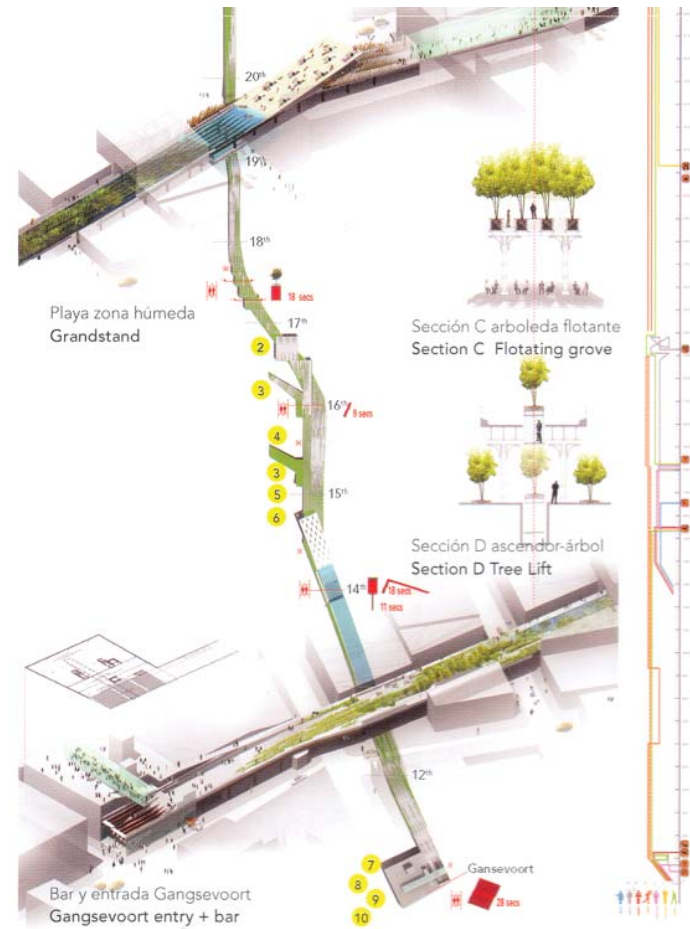
Planta general de toda la línea
High Line general plan 1:7.500

| | |
|---|---|
| 1 GRADERÍO | 1 GRANDSTAND |
| 2 PISTA DE BAILE | 2 DANCE FLOOR |
| 3 ASEOS | 3 W.C. |
| 4 RECUERDOS | 4 EVENT SLEEVE |
| 5 ZONA WI-FI | 5 WI-FI ZONE |
| 6 PLAYA URBANA | 6 URBAN BEACH |
| 7 MAYORISTA DE ALIMENTACIÓN | 7 WHOLESALE FOOD |
| 8 MERCADO ELEVADO | 8 ROOF MARKET |
| 9 BAR | 9 BAR |
| 10 GALERÍA | 10 GALLERY |

Figure 2.12 - Concept diagram.
Shows different sectional qualities, relationships between built and natural elements and the zoning of programmed areas.
(Source: Online)

33

began to grow on it, appropriating of a man-made structure, creating a natural layer of green space, elevated thirty feet above the street. By introducing nature and the materials and construction methods used in this project (Fig. 2.14-15), a responsive and flexible system of organization was created, on which diverse ecosystems may grow.

Although the context of this project is a major, dense urban area, the idea can be translated into similar or different urban environments. By looking at the hidden potential behind areas which los their original vitality, the city of New York has been able to add value and a richer sense of place to the community.

The ideas and principles can be used to form an interesting, linear, urban landscape system that could be implemented to weave nature back into the urban fabric.



Figure 2.13 - Conceptual rendering.
Showing differnt zones of the park.
(Source: Online)

Figure 2.14 - Modular planking and planting system adds a rich variety to the horizontal plane of the park.
(Source: Online)



| POZO | LLANURAS | PUENTE | MONTÍCULO | RAMPA | PASARELA ELEVADA |
|------|----------|--------|-----------|-------|------------------|
| PIT | PLAINS | BRIDGE | MOUND | RAMP | FLYOVER |
| 0% : 100% | 40% : 600% | 50% : 50% | 55% : 45% | 60% : 40% | 100% : 50% |



| TERRENO PANTANOSO | ALTA PRADERA | ZONA HÚMEDA | BOSQUE ESPESO | PRADERA PERENNE MIXTA | PRADERA PERENNE MIXTA |
|-------------------|--------------|-------------|---------------|----------------------|----------------------|
| MOSSLAND | TALL MEADOW | WETLAND | WOODLAND THICKET | MIXED PERENNIAL MEADOW | MIXED PERENNIAL MEADOW |
| *Dieranum* húmedo wet | *Avena* seco dry | *Aster* húmedo wet | *Adiantum spp.* humedad/media wet/average | *Artemisa* sequedad/media dry/average | *Agastache* medio average |
| *Leucobryum* | *Festuca* | *Carex* | *Asarum* | *Eryngium giganteum* | *Buxus sempervirens* |
| *Polytichum* | *Miscanthus* | *Epimedium* | *Betula nigra 'Heritage'* | *Heuchera* | *Cercis canadensis* |
| *Thuidium* | *Pennisetum* | *Luzula* | *Clethra barbinervis* | *Monarda* | *Lavatera* |
| | *Sorghastrum* | *Lythrum* | *Sassafras albidum* | *Persicaria* | *Rhus chinensis* |
| | | *Verbena* | *Osmunda spp.* | *Sanguisorba officinalis* | *Salix eleagnos* |
| | | | *Viburnum dilataum* | *Salvia* | |

Figure 2.15 - Surfaces: Varying ratios of hard to soft surfaces.
(Source: Online)

**Sustainable South Bronx Greenway, N.Y.**

Sustainable South Bronx (SSBx) is a community organization dedicated to Environmental Justice solutions through innovative, economically sustainable projects that are informed by community needs. In 2001, SSBx was created to address policy and planning issues like land use, energy, transportation, water, waste, education, and, most recently, design and manufacturing[15].

By focusing on neglected industrial areas and marginalized residential areas, the South Bronx Greenway takes advantage of the underestimated potential behind these voids in the urban context (Fig. 2.16). These neighborhoods have numerous assets, including a waterfront location, proximity to Manhattan, economic engines (such as the Hunts Point Food Distribution Center), and a strong local organizational infrastructure.

At the same time, these areas have "one of the highest poverty and unemployment levels in the City, with poor community health, noxious uses, commercial traffic, substance abuse, and prostitution issues"[16]. For a long time, these neighborhoods have suffered severe deterioration in property and living conditions, and only in the past decade, they have begun to receive the attention needed to regenerate.

This project proposes a safe, integrated network of streets and waterfronts linkages essential to the greenway (Fig. 2.17). The proposed connections create a series of loops of various lengths that offer users a choice based on their available time and level of physical ability. The routes travel along streets, easements and

15 - http://www.ssbx.org/index.php?link=2#history
16 - Ibid.



Figure 2.16 - View of South Bronx.
(Source: Online)

along the water to provide direct access to the waterfront from a variety of locations (Fig. 2.18). The project creates specific insertions within the urban landscape, which are programmed with mass transit stops, employment centers, cultural and educational facilities, recreational facilities, and residential neighborhoods, as well as the networks of greenstreets and 1.5 mile of waterfront

perimeter as riverwalks (Fig. 2.19).

This concept creates living wage jobs, cleans the air by reducing oversize traffic and adding natural components, and using alternative energy sources. The governmental administration is taking a step to demonstrate how environ¬mental, economic, community, city, regional, and global interests can be served in a
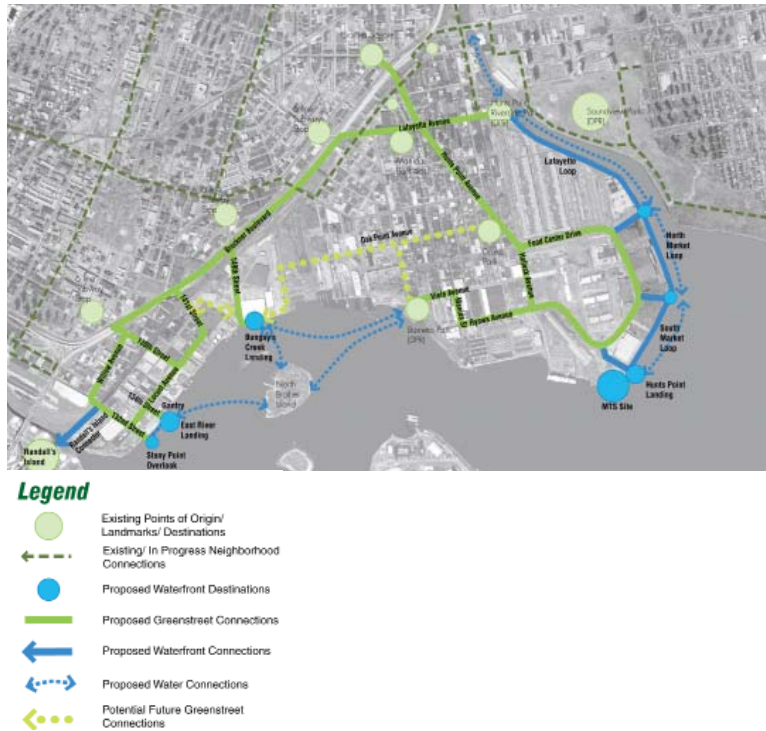


Figure 2.17 - Sustainable South Bronx Greenway masterplan.
(Source: Online)
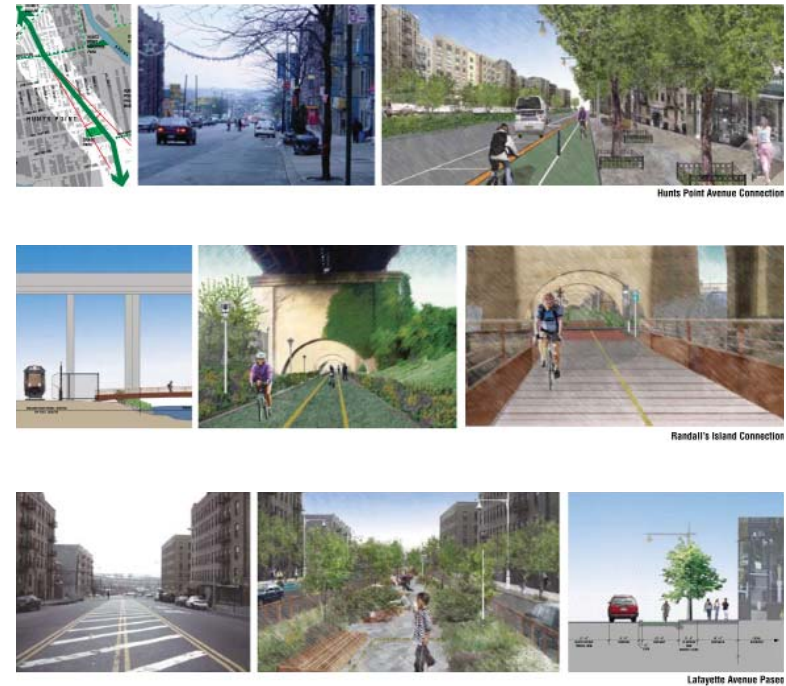


Figure 2.18 - Existing conditions and Greenway Proposals.
(Source: Online)

single project that will inspire many more to come, creating a long term sustainable economy.

*Goals*

-Create a continuos, safe path and bikeway along the waterfront

-Improve waterfront access

-Provide inland routes

-Create a connected greenway system

-Improve streetscape

-Improve water and air quality

-Use a comprehensive planning process

-Develop phasing plans and strategies

-Develop creative solutions for stewardship



Figure 2.19 - Existing conditions and Greenway Proposals.
(Source: Online)

Randall's Island
Connection

Willow Avenue
Connection

Bruckner Boulevard

Lafayette Avenue
Paseo

Hunts Point Avenue
Corridor

Ryawa Avenue
Connection

Food Center Drive

Hunts Point Landing

South Market Loop

North Market Loop

Proposed short-term greenway routes and destinations
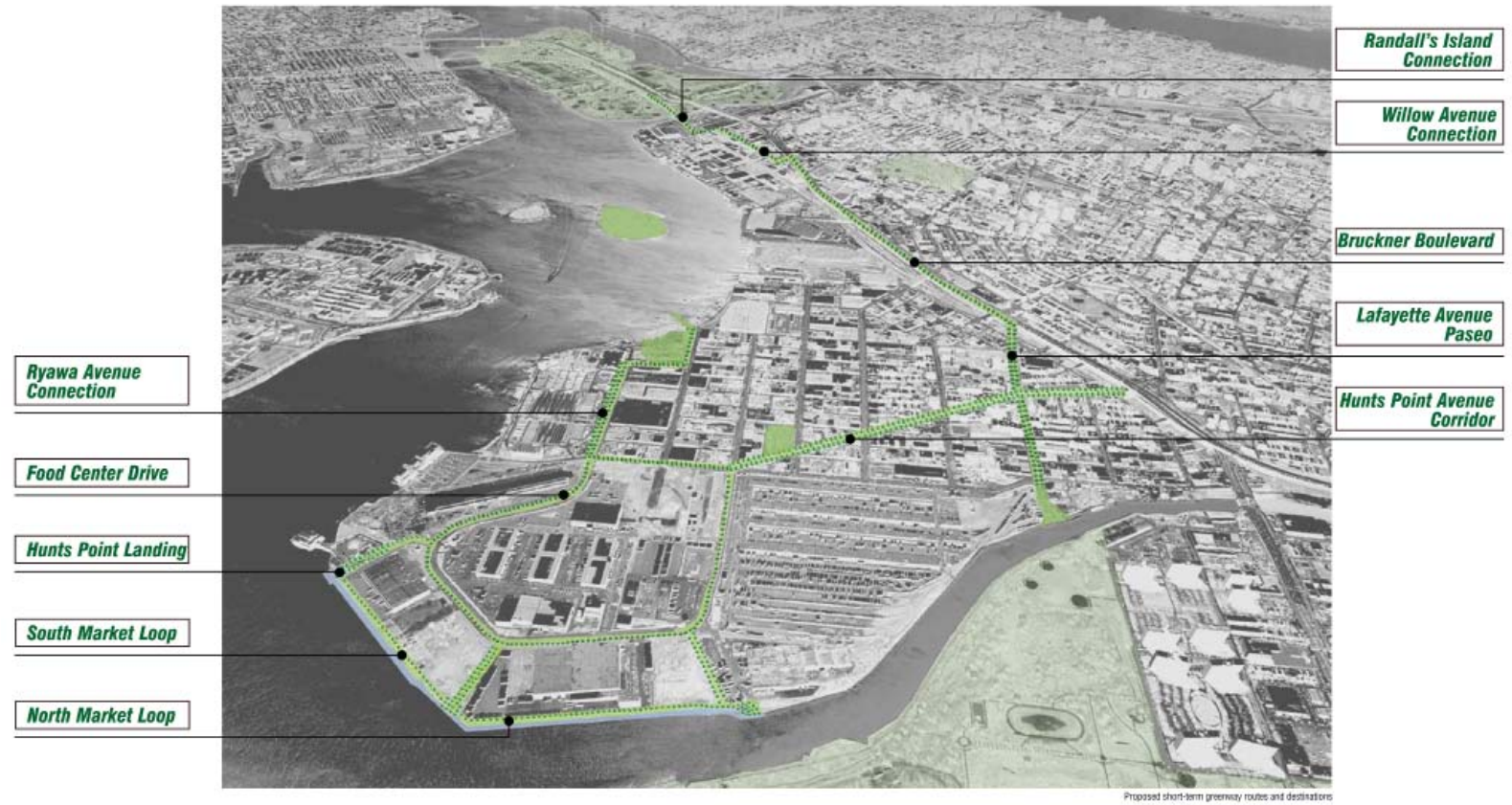
Figure 2.20 - Components of the Greenway system.
(Source: Online)

## Eco-boulevard, Barcelona, Spain

The proposal for the Eco-boulevard in Vallecas, can be defined as a self-sustainable, urban revitalizing intervention, consisting of the following actions: the installation of three artificial trees for energizing social character, the densification of existing tree canopy, and improvement of the existing context [17].

The idea behind this project is that the structures can be easily built and taken apart, making them temporary interventions that promote public life and improve local environmental conditions. When a structure finishes its job in a neighborhood, it can be transplanted to another marginalized area with poor environmental conditions and poor quality of public life, thus working as generators of public space (Fig. 2.21).

The structure is self-sufficient, only consumes the energy that is capable of harvesting using photovoltaic panels. Its compo-

nents are: a metal structure, a breathing thermal screen, climbing plants, photovoltaic panels, wind sensors and atomizers make it possible to regulate the temperature and humidity conditions of the place (Fig. 2.22).

The objective of Ecosistema Urbano is to make up for the serious deficiencies of certain forms of uncontrolled planning. Easy to take apart and moved about, these objects can be put up wherever a regeneration of urban activity is in needed (Fig.2.23).
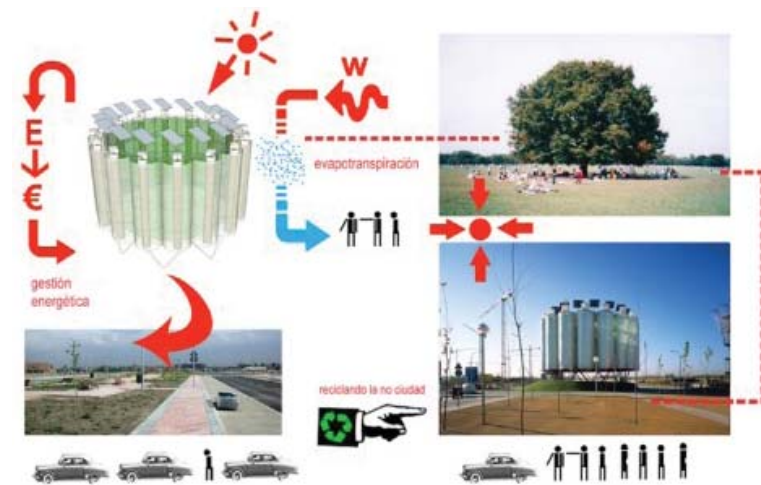


Figure 2.21 - System Diagram.
The main idea is that the structure resembles a tree.
It harvests energy from the sun, cools down its interior, provides shaded public space and works as an economic stimulus for the neighborhood by selling the excess energy generated to the city grid.
(Source: Online)

17 - http://www.ecosistemaurbano.org

estructura base

árbol mediático

árbol lúdico

árbol mediático
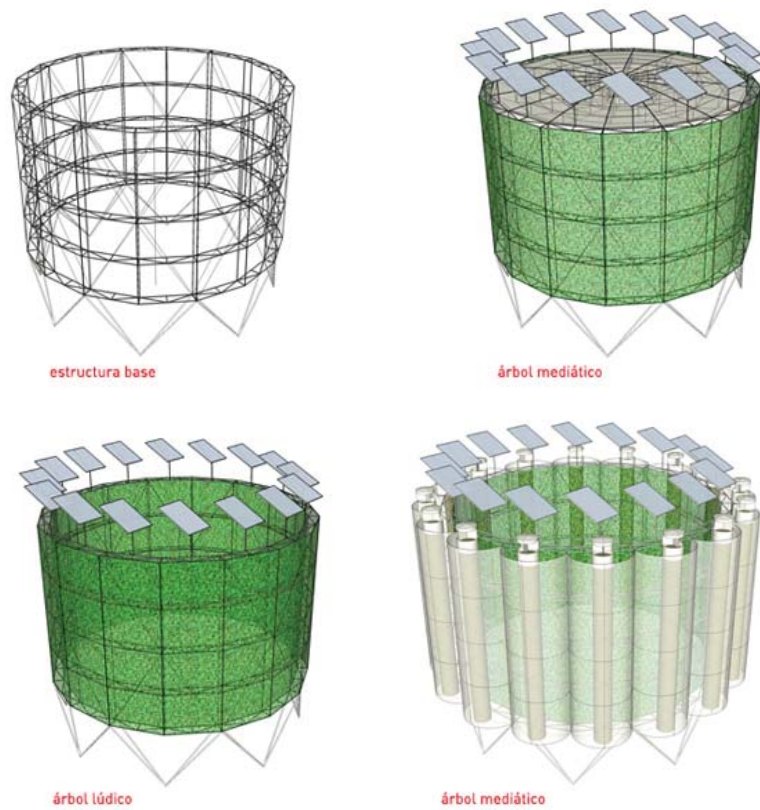
Figure 2.22 - Structure and three different configurations of the system.
(Source: Online)



Figure 2.23 - Community public space.
(Source: Online)

**Fiber City, Tokyo 2050**

Hidetoshi Ohno's proposal works as a comprehensive model of a shrinking Metropolis, based on landscape urbanism. The fact that cities are shrinking gives the opportunity for this concept to be adapted anywhere in the world. His idea is based on using four strategies, through the use of urban fibers to develop an alternative model of the metropolis in an era of shrinking cities.

*Purposes*

      -Reactivation of the city.

      -Reorganization of residential areas.

      -Disaster mitigation.

      -Amendment of transportation policy.

      -Enrichment of green space.

"To find an economical rational solution that with the

18 - http://www.fibercity2050.net/eng/fibercityENG.html

smallest intervention that would have the largest effect."[18] These four strategies are: the Green Finger, the Green Web, the Green Partition, and the Urban Wrinkle.

*Strategies*

Green Finger: The Green Finger (Fig. 2.24) is a strategy that converts the areas located more than a walking distance from a transit station into a green belt. The rail line is combined with a green strip that adds to the environmental sustainability of this urban design. This forces the areas around the transit station to become more dense and walkable. The more remote properties are
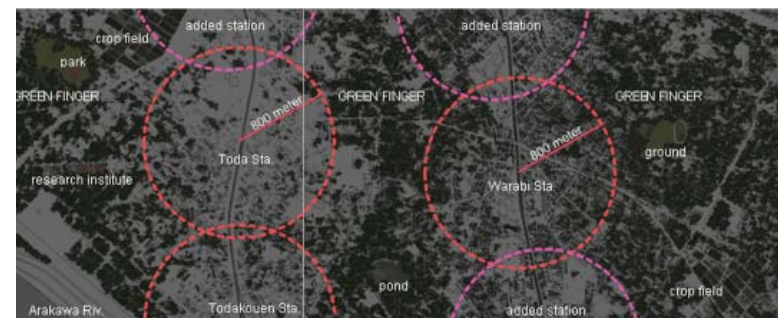


Figure 2.24 - Green Fingers conceptual plan.
(Source: Online)

converted into green spaces that could be used as parks, farm-land and preservation areas. With the use of suitable incentives it is possible to create green areas within walking distance for the housing districts arrayed around the train stations (Fig. 2.25).

Green Web: The Green Web is an urban design that con-verts the existing highway system into a linear park (Fig. 2.26). The highways will not be needed anymore because of the transit system and the reuse as a green strip will allow the corridors to stay intact for emergency use and also provide for a green ame-nity to the city. This also helps alleviate the city's heat island effect reducing its impact on the environment.

Green Partition: The Green Partition is an attempt to al-leviate the impact of natural disasters on the city by compartmen-talizing the residential areas of Tokyo. The greatest threat facing Tokyo is earthquakes. If an earthquake struck, fire would easily spread throughout the city and the entire city would be in danger. Through the use of Green Partitions, Ohno creates voids between the buildings that would act as gaps to keep the fire from spread-ing (Fig. 2.27). These areas would be used for vegetation offset-ting the impact of the built environment.



Figure 2.25 - Green Fingers in context with existing conditions.
(Source: Online)
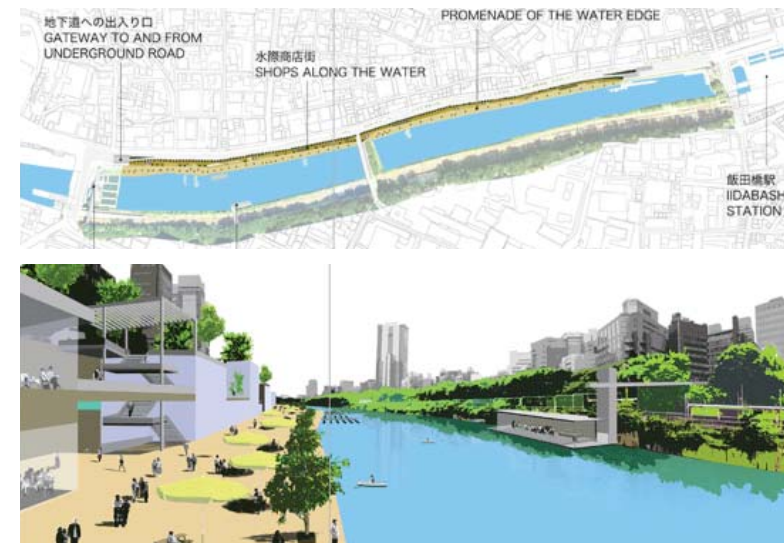


Figure 2.26 - Green Web plan and perspective view.
(Source: Online)

Urban Wrinkle: The Urban Wrinkle is an urban design strategy that seeks to improve and renovate linear places within a city in order to draw out their potential. This idea would reuse some of the existing conditions in the city and turn them into gathering places (Fig. 2.28). This will add a new dimension into the city by creating places of interest spread through the urban fabric.

Ohno's concept comes together showing how all of these strategies could work as a whole, creating an environmental landscape urbanism.



Figure 2.27 - Green Partitions become parks for residents.
(Source: Online)
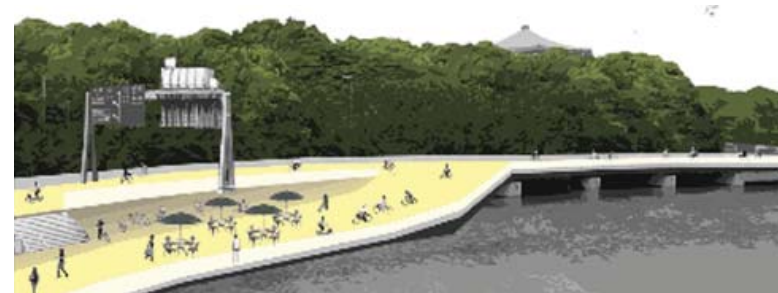


Figure 2.28 - Urban Wrinkle perspective view.
(Source: Online)

## Parc Nus de la Trinitat, Barcelona, Spain

Located in Barcelona, Parc Nus de la Trinitat was designed in 1993 by Joan Roig & Enric Batlle. The park is in north east Barcelona, inside a circular highway junction. The park covers six hectares of land, defined by a framework of trees and concrete roadways. The designers take advantage of nature by providing rows of trees which act as visual and physical barriers from the highway junction around the park. The sculpting of the land to create berms, provides different levels for different activities and zones within the park. A circular gallery divides the park into an inner and an outer area (Fig. 2.29).

The park serves a medium density residential area, offering the residents passive and active recreation opportunities, as an individual user as well as in groups. The park also works at a macro scale, connected with the rest of the city, by serving as a station to Barcelona's metro system.

This park was a compromise by the highway system to the residents of the area, to make up for the highway junction knot and all the inconveniences it would bring to the neighborhood.



Figure 2.29 - Aerial view of the park. Shown is the highway knot system. The use of natural features enhances the quality of the place.
(Source: Online)

**Boston Central Artery, Boston**

The Central Artery opened in 1959; it was an elevated six lane highway running through the heart of the city. It was one of the most congested highways in the country, carrying upwards of 200,000 vehicles per day (Fig. 2.30). Traffic was not the only problem the old Central Artery caused in Boston. The elevated highway displaced 20,000 residents when it was built, it blocked off the North End and Waterfront neighborhoods from the downtown acting as a physical and visual barrier, limiting these areas' ability to participate in the city's economic life. It also took its toll on the environment due to the waste of fuel and emissions from vehicles in stalled traffic.

The project called for replacing the six-lane elevated highway with an eight-to-ten-lane underground expressway directly beneath the existing road. After the underground highway opened to traffic, the remnants of the highway were demolished and in its place are a series of open spaces that connect to the Emerald Necklace (Fig. 2.32). The new open space connects the more active and densely populated neighborhoods of Boston and links them with the water's edge (Fig. 2.33). Pavilions, subway access points, crosswalks and infrastructural improvements provide public amenities and services to residents and visitors. The public space components began to address each of the nearby neighborhoods: North End, Wharf District, Dewey Square, and Chinatown Park (Fig. 2.34), connecting them at street level and adding value and identity to each.



Figure 2.30 - Previous conditions before the Central Artery was put underground. (Source: Online)

vegetation and water     buildings     circulation     natural areas     programmed zones
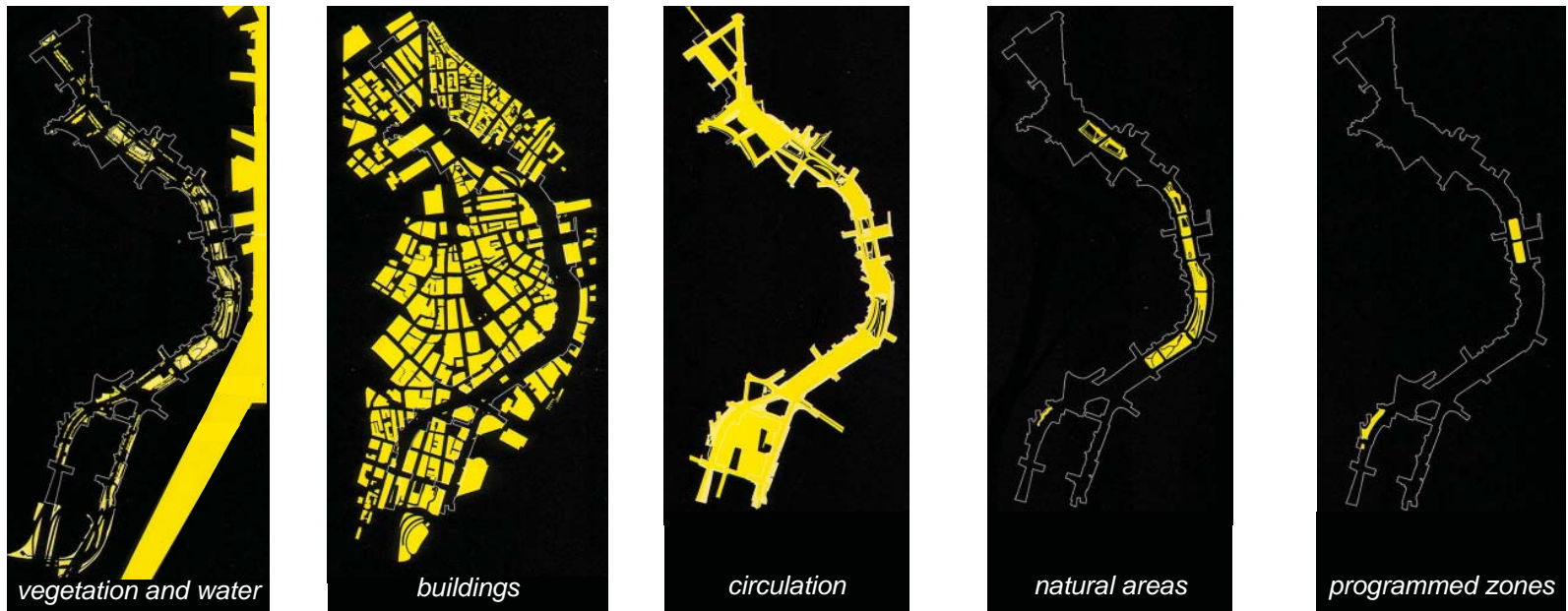
Figure 2.31 - Diagrams showing the different layers of the project.
(Source: Fernández Per, Aurora, and Javier Arpa. *The public chance: nuevos paisajes urbanos = New urban landscapes.* Vitoria-Gasteiz, Spain: a+t ediciones, 2008)

Figure 2.32 - Boston's Emerald Necklace, designed by Frederick Law Olmsted.
(Source: Online)



Figure 2.33 -Chinatown park.
(Source: Online)



FUTURAS
CONSTRUCCIONES
FUTURE
BUILDING SITE

ESPACIOS
PÚBLICOS
PROYECTADOS
DESIGNED
OPEN SPACE

ADOQUÍN BRICK
PAVIMENTO
ESPECIAL
SPECIAL PAVING

PAVIMENTO
DE GRANITO
GRANITE PAVING

CIP HORMIGÓN
CIP CONCRETE
HUERTOS
PROPUESTOS
PROPOSED
MASSACHUSETTS
HORTICULTURAL
SITE

PARCELS
19,21,22

Planta de situación Site plan 1:10.000

Figure 2.34 - Central Artery masterplan.
(Source: Online)

Figure 3.01 - Project poster.
(Source: Author)

## Foundation

In order to create a strong foundation for the thesis investigation to grow from, a series of catalytic questions were formulated to guide the research and design processes. The first questions begin to address the macro scale of the project, and as the list grows and the project matures, they begin to zoom into a micro scale to become more specific to a smaller intervention area.

1) How can existing conditions be transformed to a new dynamic set of uses in areas with a strong identity but with obsolete functions? (areas which lost their original vitality)

2) How can urban life be intensified in spatially and socially marginalized areas?

3) Can adaptation of existing conditions into new urban components add value to the community?

4) Can a landscape urbanism strategy promote revitalization of underutilized industrial areas?

The process to devise the design strategies began from the ideas of Kevin Lynch's *Image of the City* and James Corner's *Terra Fluxus.* These are very different concepts, Lynch looks at the three dimensional forms that make up an urban environment, while Corner explores a series provisional themes that influence the landscape urbanism approach to cities.

## Perspective of a City

Lynch explains how there are images engraved in the citizens' minds. Each person has a unique image of a common part of the city in which they live; although there may be some images which are universal. Lynch categorizes these images of physical



Figure 3.02 - Nature introduced in a urban development as part of recreation. (Source: Online)

forms into "five types of elements: paths, edges, districts, nodes, and landmarks."[19]

According to Lynch, paths are linear elements which are related to movement and circulation. Edges are the defining elements of space, such as physical borders or breaks in the continuity of the urban fabric, they can act to separate or join areas of the city. Districts are sections of the city in which the "observer mentally enters inside of"[20] and have a unique identifying character, such as a central business district or a downtown core. Nodes are areas of importance that act as attractors of people and activities. They can be related to the intersection of two or more paths, or to the main area of activity within a district. Finally, Lynch describes landmarks as points of reference, which can be buildings, monuments, etc…and can work as way finding elements. This thesis

acquires the organizing principles behind Lynch's ideas, but then gathers important landscape and ecological inspiration from Corner's theories.

## Landscape Urbanism

"The reappearance of landscape in the larger cultural imagination is due, in part, to the remarkable rise of environmentalism and a global ecological awareness, to the growth of tourism and the associated needs of regions to retain a sense of unique identity, and to the impacts upon rural areas by massive urban growth."[21]

James Corner sees landscape as an organizing tool and his landscape urbanism ideas reflect an emergent urbanism. He proposes four themes: "processes over time, the staging of surfaces, the operational or working method, and the imaginary"[22]. The first refers to the processes of urbanization-capital accumulation, deregulation, globalization, environmental protection-as more significant the spatial forms. This also includes ecological diversity and processes that occur over time, and how nature can inform new ways of living in an urban context, while mediating

19 - Lynch, Kevin. *The Image of the City.* Cambridge [Mass.]: Technology Press, 1960.
20 - Ibid.
21 - Corner, James. "Terra Fluxus" *Landscape Urbanism Reader.* Ed. Charles Waldheim. New York: Princeton Architectural Press, 2006. 21-33.
22 - Waldheim, Charles. "A Reference Manifesto" *Landscape Urbanism Reader.* Ed. Charles Waldheim. New York: Princeton Architectural Press, 2006. 13-19.

possible poor environmental qualities of a city. He states that "cities and infrastructures are just as ecological as forests and rivers"[23]. The second theme is concerned with the horizontal plane and the continuity of surfaces, landscape and building. He suggests that an urban surface can set the stage for uncertainty and promise, allowing for new networks, linkages and opportunities. In this theme, Corner clearly defines that landscape should be an object that makes space-Central Park, N.Y. (Fig. 3.03) instead of an object in space-Squares in Savannah, G.A. (Fig. 3.04).

The third theme of landscape urbanism is the operation or working method. This is the professional practice point of view, the interdisciplinary approach to design, the mixing of ideas, medias, techniques, and people. Lastly, the imaginary, where he states

"Public space in the city must surely be more than mere token compensation or vessels for this generic activity called recreation. Public spaces are firstly the containers of collective memory and desire, and secondly they are the places for geographic and social imagination to extend new relationships and sets of possibility."[24]

Corner concludes that a landscape urbanism must be an open-minded operation, ready to adapt, change and propose new ways of designing the city. These foundations for the thesis begin to inform the strategic devices developed throughout the entire project.



Figure 3.03 - Central Park, N.Y.
(Source: Author)



Figures 3.04 - Squares of Savannah, G.A.
(Source: Author)

23 - Corner, James. "Terra Fluxus" *Landscape Urbanism Reader.* Ed. Charles Waldheim. New York: Princeton Architectural Press, 2006. 21-33.
24 - Corner, James. "Terra Fluxus" *Landscape Urbanism Reader.* Ed. Charles Waldheim. New York: Princeton Architectural Press, 2006. 21-33.

## Central Park Re-Configured



central park, N.Y.
843 acres (341 ha)
1.32 sq mi (3.4 km2)

2.6 mi
5 mi

2.6 mi | 2.6 mi
7.8 mi

2.6 mi

1/5 mi
1,056 ft
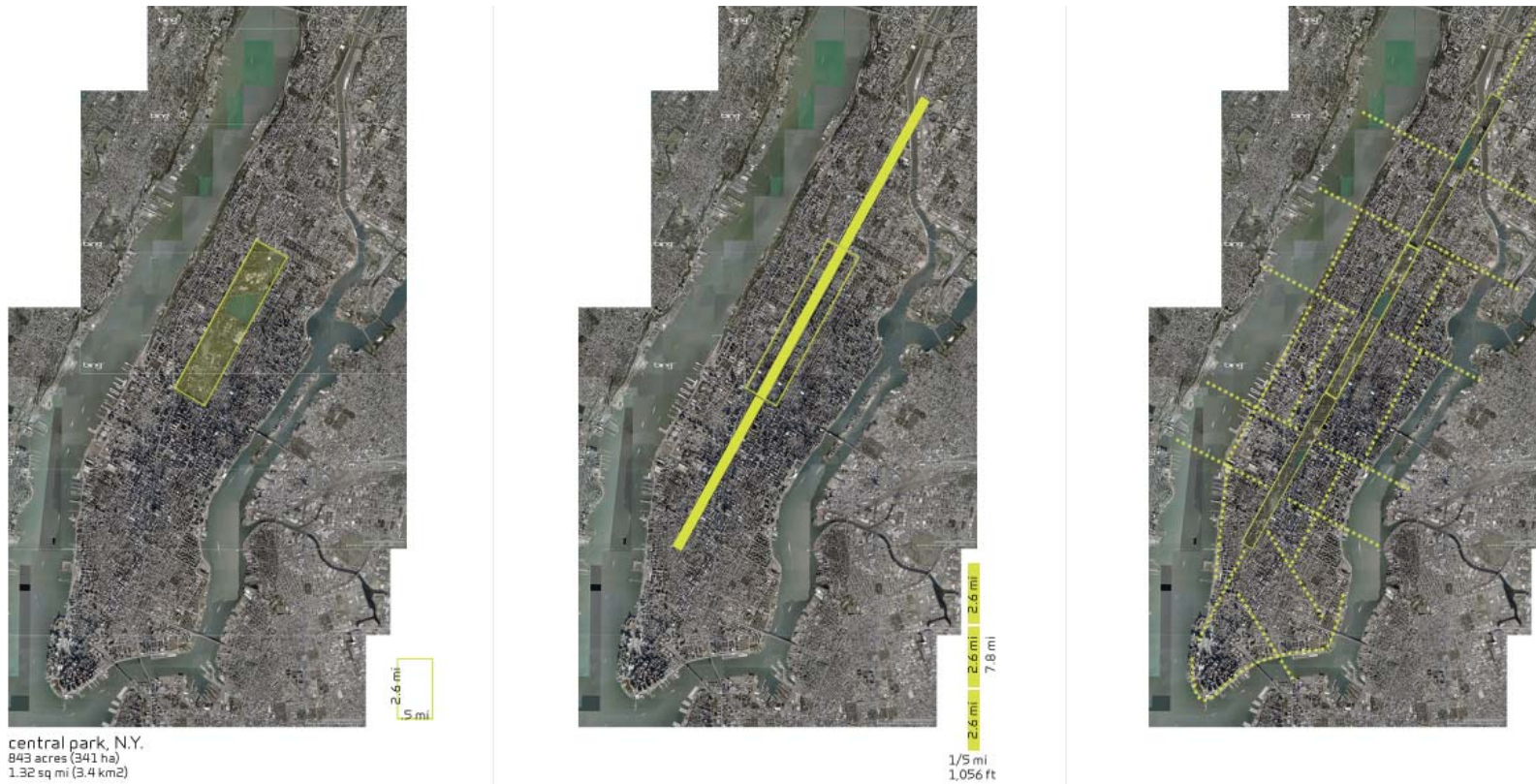
Figure 3.05 - Re-configuration of Central Park.
Re-configuration and linear possibilities create a network.
(Source: Author)

25 - Hidetoshi Ohno, Fiber City
(http://www.fibercity2050.net/eng/fibercityENG.html)

"In terms of practical application, a straightforward comparison of two parks of the same area, one square and the other linear, reveals that fibrous form offers more opportunities for interaction between the park and the people who live nearby. To put it plainly, the fiber can affect larger areas of a neighborhood by the simple expedient of its more lengthy perimeter. As such is a good example of the advantage of the fiber as a tool for revitalizing the city through minimal means."[25]

53
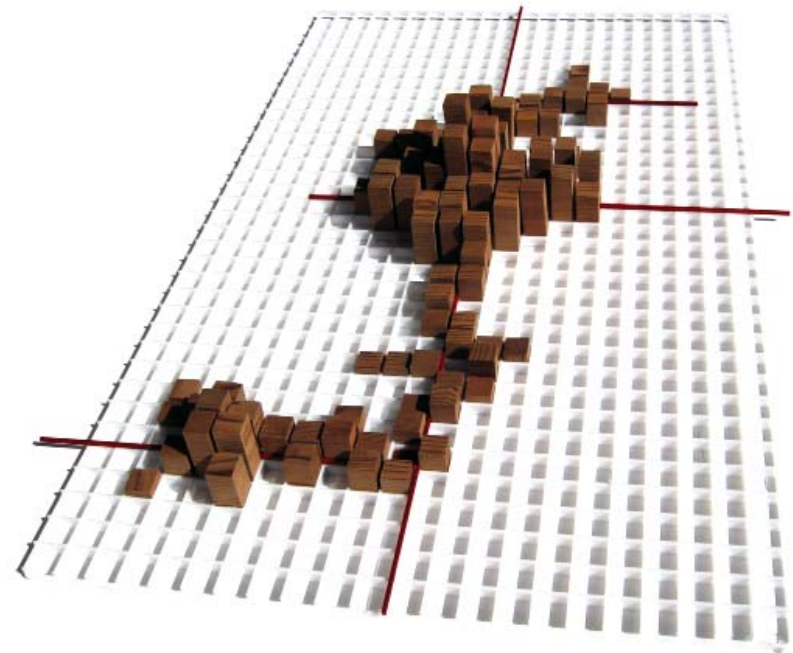
Figure 4.01 - Conceptual model.
(Source: Author)

## Possibilities

      This thesis proposal begins to devise the design strategies by looking at the existing conditions of a city environment and analyzing where landscape strategies can help revitalize areas that lost their original vitality. First, interventions on a macro scale could transform the city grid by adding a green network that responds to existing and future conditions (Fig. 4.02-03). These
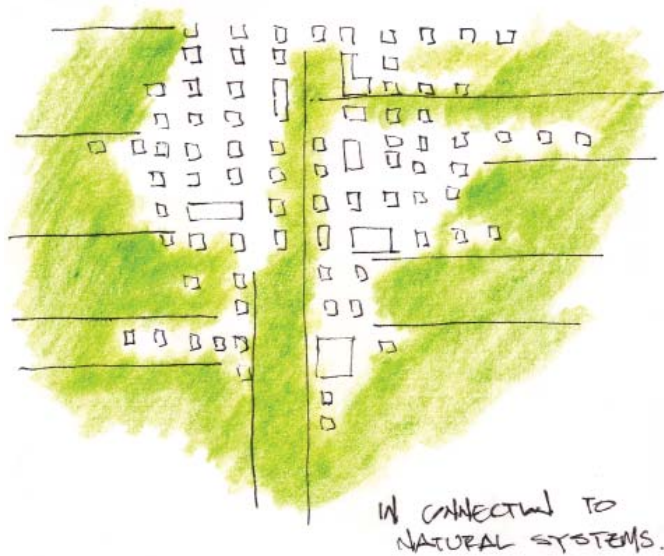


Figure 4.02 - Macro scale possibilities.
(Source: Author)
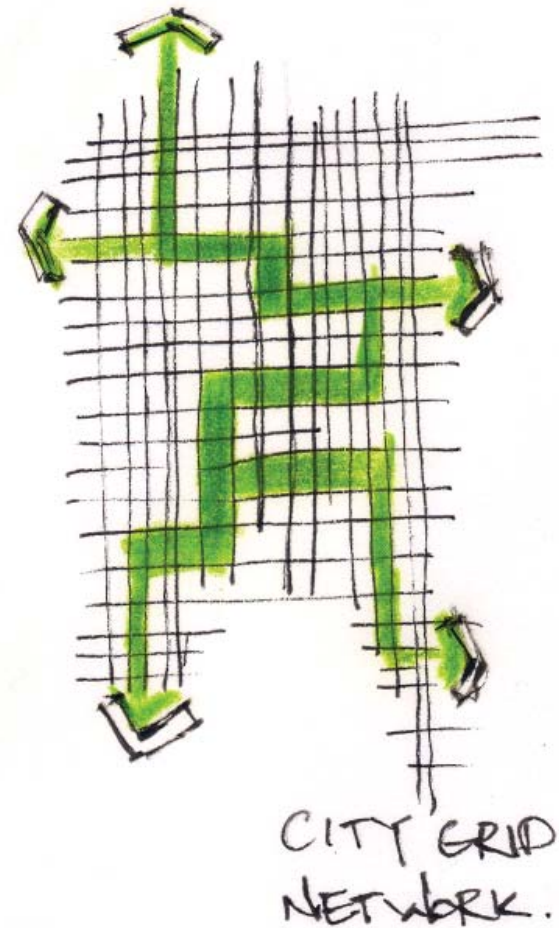


Figure 4.03 - Macro scale possibilities.
(Source: Author)

interventions have the ability to connect different areas of the city by creating physical links that allow for pedestrian movement and may have a relationship to vehicular circulation, while relating to the ground plane - on it, above it, or below it.

The main idea at this scale is that the existing fabric is analyzed as a whole. Then, strategic locations will be determined in order to generate catalysts of revitalization that reinforce the movements of the network. These areas begin to transform existing obsolete conditions and give them new meanings that are suitable to current conditions of living, working, socializing and learning, creating new conditions and meanings, while adding value to the community.

At the micro scale, the network could become a more community need based intervention. In relationship to living conditions, the network begins to weave nature into the city fabric by taking advantage of vacant lots, alleyways, streets and sidewalks (Fig. 4.04-.05). Responding to the adjacent uses and providing a
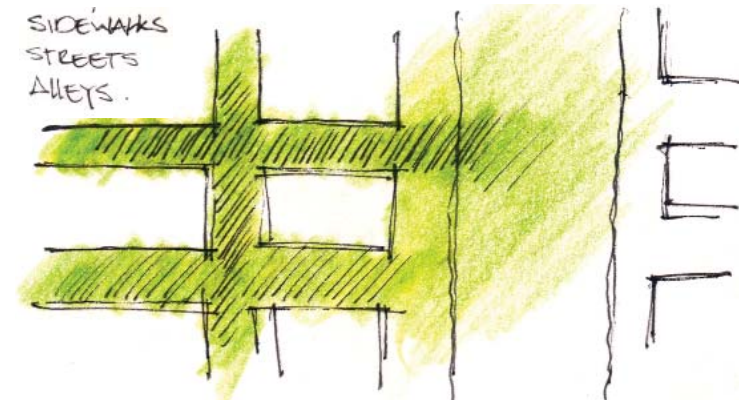


Figure 4.04 - Possibilities along lots and alleys.
(Source: Author)
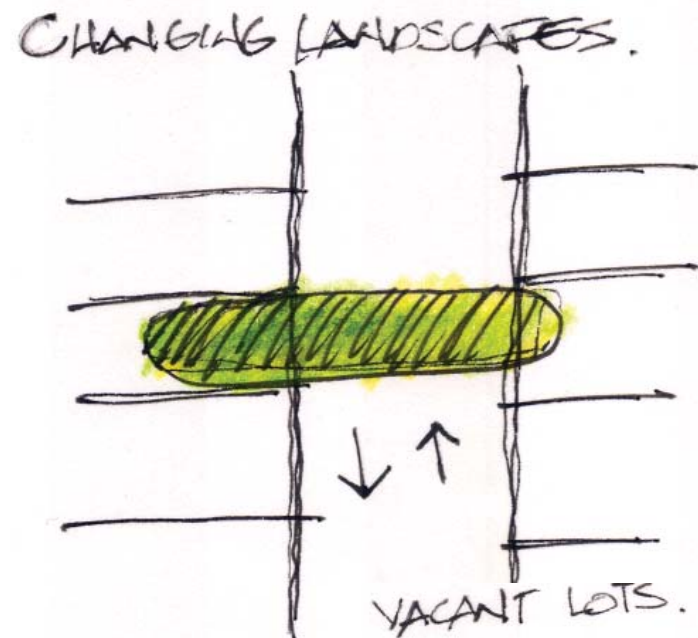


Figure 4.05 - Possibilities along lots and alleys.
(Source: Author)

great amenity to the neighborhood.

Another possibility deals with reusing existing buildings and the opportunity to intertwine nature within them (Fig. 4.06). This approach can occur on vertical and horizontal planes, inside and outside. It can be translated into public spaces as well as private spaces. It can happen along an adjacent condition and become part of the building. Therefore, reclaiming its surfaces and adding another layer to the urban fabric, such intervention can also happen within future buildings. By using existing structures

that are in good condition and of historic value, an adaptive reuse component gives new life to the neighborhood's past.

Other elements of the built environment that may be influenced by the integrated network approach are highways and transit corridors (Fig. 4.07-08). The idea is to use the linear nature of these elements to create points of interest along their length. These points of interest will be within a walking distance, an enjoyable bike ride or a short drive. As well as using the green buffer

Figure 4.06 - Possibilities along existing buildings.
(Source: Author)
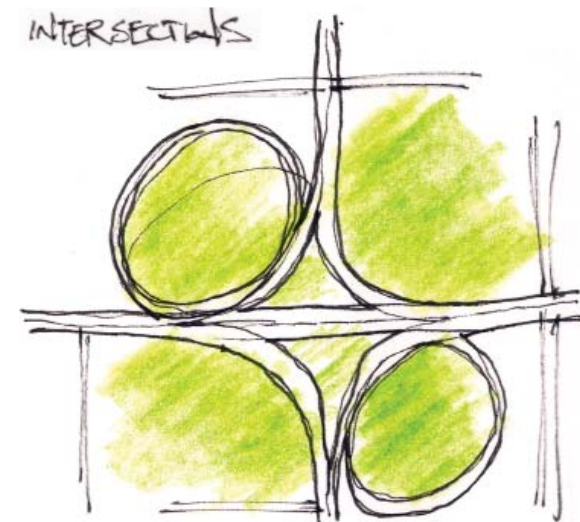
Figure 4.07 - Possibilities along transportation systems, highways, bridges, access corridors.
(Source: Author)

zones which these elements usually require by turning them into productive landscapes. The interventions that may happen within these conditions can occur along the sides, underneath, above, below and around the transportation arteries (Fig. 4.08).

## Strategies

As a response to these conditions (possibilities) a series of verbs were associated with the strategies. These words begin to influence the role each strategy plays within the network. The preliminary strategies are (Fig. 4.09):

-Strips

-Hot Spots

-Wedges

-Fingers

-Nodes

These strategies were then translated into a conceptual diagram informing the relationships between them (Fig. 4.11). The nodes, being the main strategy, become the centers of attraction, they support the community and the entire network. The fingers
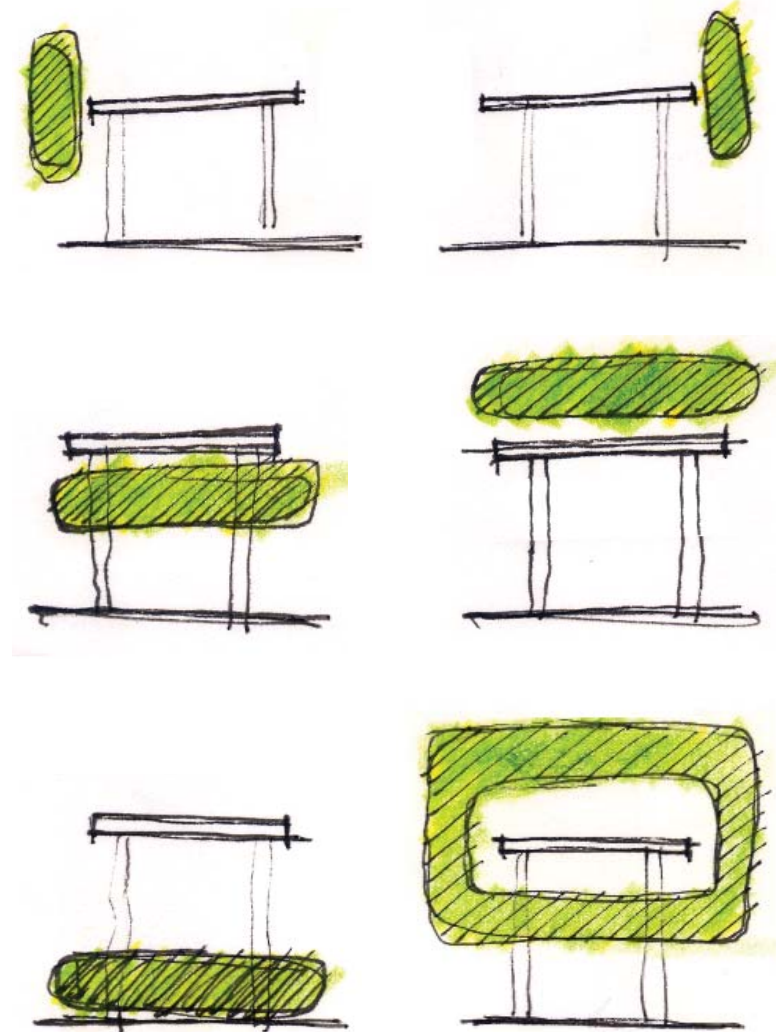


Figure 4.08 - Possibilities along transportation systems, highways, bridges, access corridors.
(Source: Author)

58

are the main connectors from one node to another, they reinforce accessibility. The strips are introduced in established neighborhoods, they connect other parts of the city with the network. The hot spots are intermediate points along the fingers, they ensure use of the network. The last strategy is wedges, which introduce natural systems into the existing urban fabric, they mediate between the built and the natural components of the city.
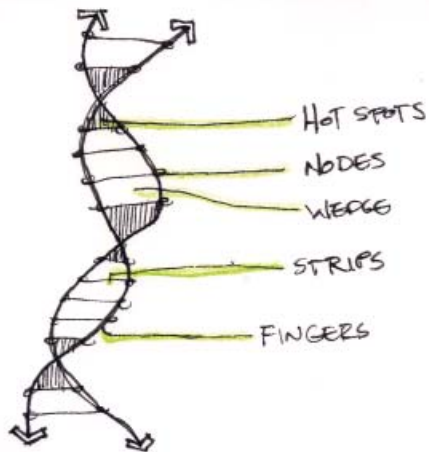


Figure 4.09 - DNA of network.
(Source: Author)
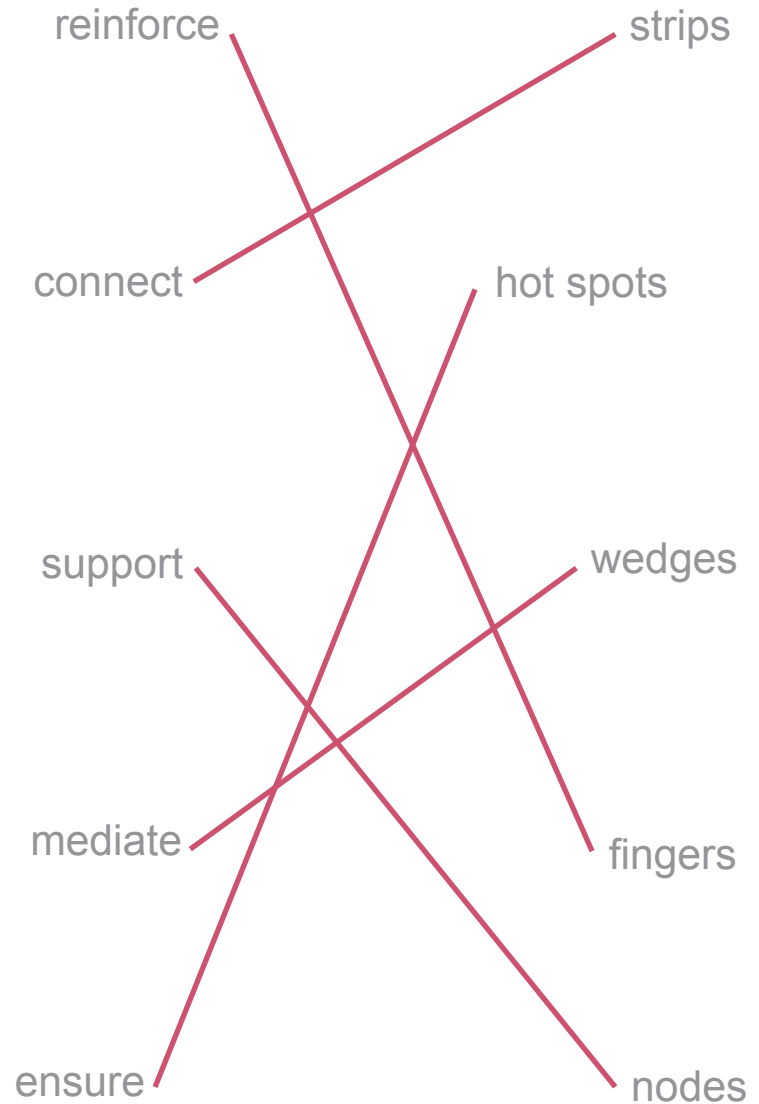


Figure 4.10 - Conceptual matrix of verbs and strategies relationship.
(Source: Author)

As the project continued, the strategies matured into a series of related words dealing with the weaving between the two components of the city. The new names for these strategies are:

-Strips = Slips

-Hot Spots = Collectors

-Wedges = Wedges

-Fingers = Strings

-Nodes = Knots

Through a series of analyses, research and discussions, the strategies were critiqued and one of them, the Collectors, was eliminated due to its similarity  to the idea of Knots but at a smaller scale.



nodes

fingers

strips

hot spots

wedges
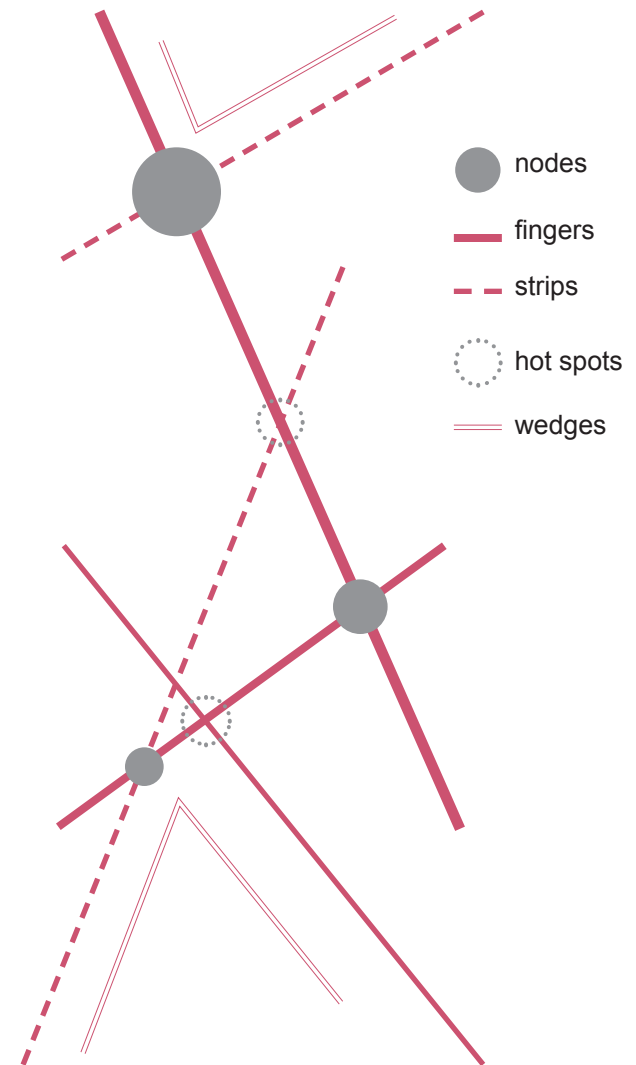
Figure 4.11 - Conceptual diagram of strategies.
(Source: Author)

**Knots**

(\ nät\)

Function: noun
Etymology: Middle English, from Old English cnotta; akin to Old High German knoto knot
Date: before 12th century

1 a: an interlacement of the parts of one or more flexible bodies forming a lump or knob (as for fastening or tying together) b: the lump or knob so formed c: a tight constriction or the sense of constriction <my stomach was all in knots>
2: something hard to solve : problem <a matter full of legal knots>
3: a bond of union ; especially : the marriage bond
4 a: a protuberant lump or swelling in tissue <a knot in a gland> b: the base of a woody branch enclosed in the stem from which it arises ; also : its section in lumber
5: a cluster of persons or things : group
6: an ornamental bow of ribbon : cockade
7 a: a division of the log's line serving to measure a ship's speed b (1): one nautical mile per hour (2): one nautical mile —not used technically
8: a closed curve in three-dimensional space. [26]
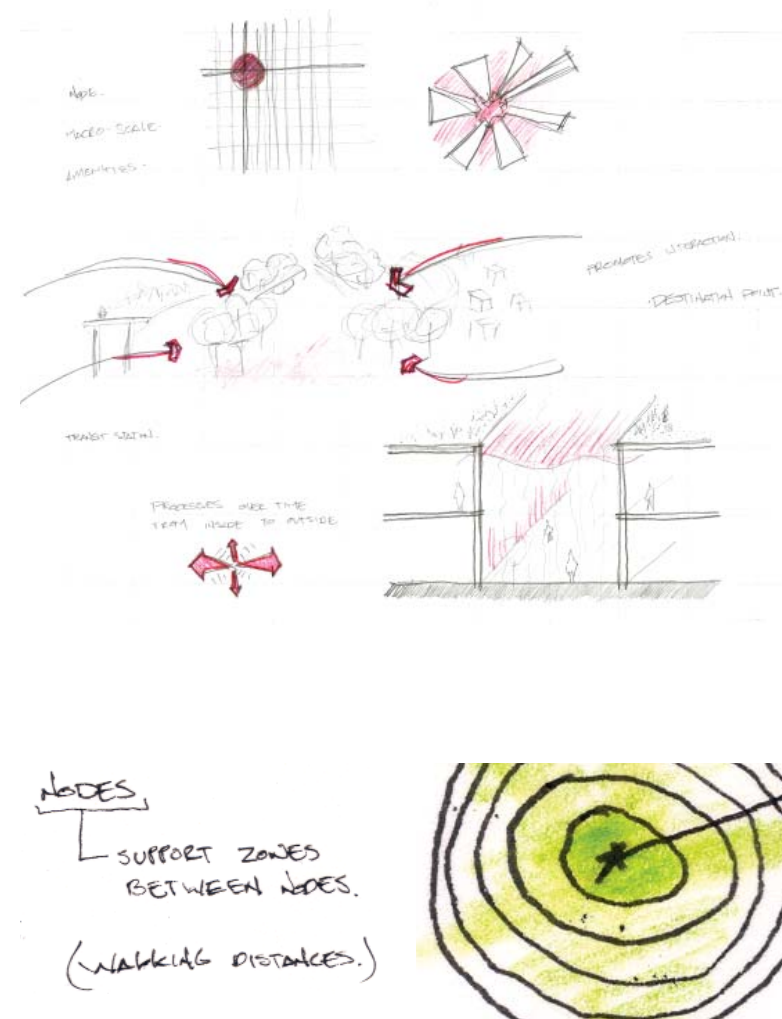
26 - Merriam-Webster Online Dictionary. 2009.
Merriam-Webster Online. 10 November 2009
(http://www.merriam-webster.com/dictionary/knots)

Figure 4.12 - Sketches of Knots strategy.
(Source: Author)

**Strings**
\ striŋ\

Function: noun
Etymology: Middle English, from Old English streng; akin to Old High German strang rope, Latin stringere to bind tight — more at strain
Date: before 12th century

1 a: a cord usually used to bind, fasten, or tie —often used attributively <a string bag> b: something that resembles a string <garnished with potato strings>
2 aarchaic : a cord (as a tendon or ligament) of an animal body b: a plant fiber (as a leaf vein)
3 a: the gut, wire, or nylon cord of a musical instrument bplural (1): the stringed instruments of an orchestra (2): the players of such instruments
4: the gut, wire, or cord of a racket or shooting bow
5 a: a group of objects threaded on a string <a string of fish> <a string of pearls> b (1): a series of things arranged in or as if in a line <a string of cars> <a string of names> (2): a sequence of like items (as bits, characters, or words) c: a group of business properties scattered geographically <a string of newspapers> d: the animals and especially horses belonging to or used by one individual
6 a: a means of recourse : expedient b: a group of players ranked according to skill or proficiency. [27]

27 - Merriam-Webster Online Dictionary. 2009.
Merriam-Webster Online. 10 November 2009
(http://www.merriam-webster.com/dictionary/strings)
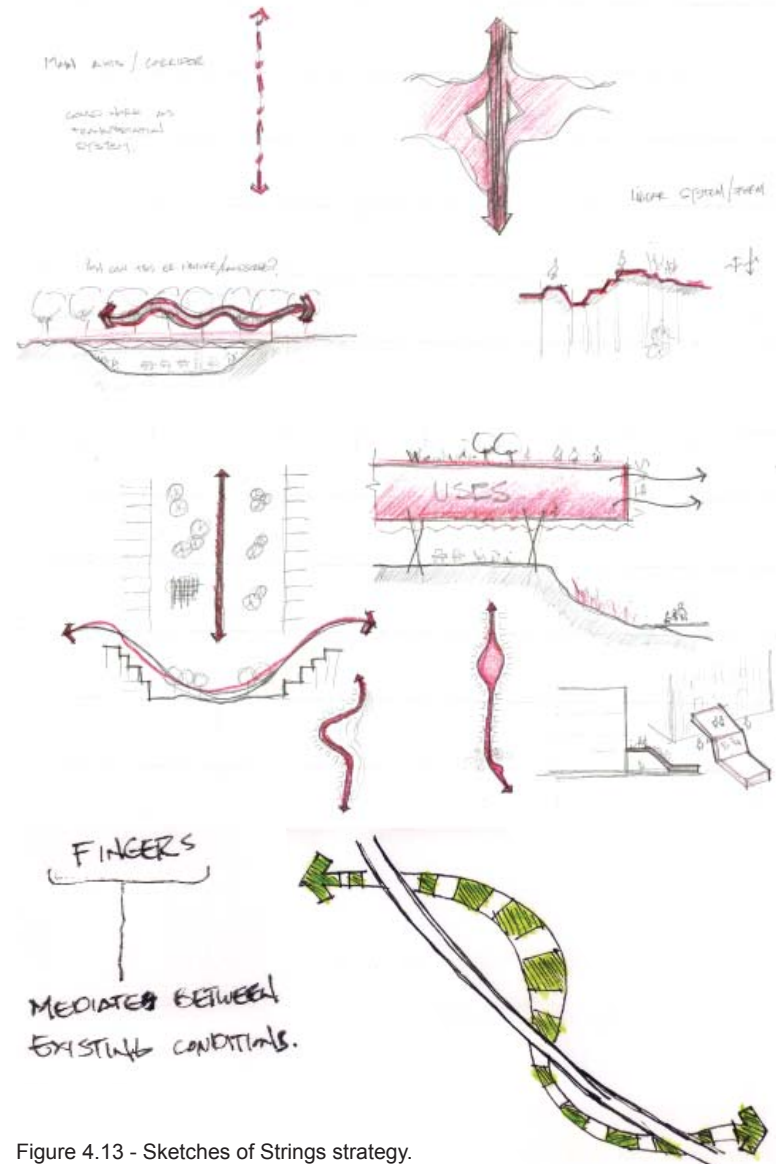
Figure 4.13 - Sketches of Strings strategy.
(Source: Author)

**Collectors**
\kə- lek-tər\

Function: noun
Date: 14th century

one that collects: as a: an official who collects funds or moneys b: a person who makes a collection <stamp collector> c: an object or device that collects <the statuette was a dust collector> d: solar collector
— col·lec·tor·ship. [28]
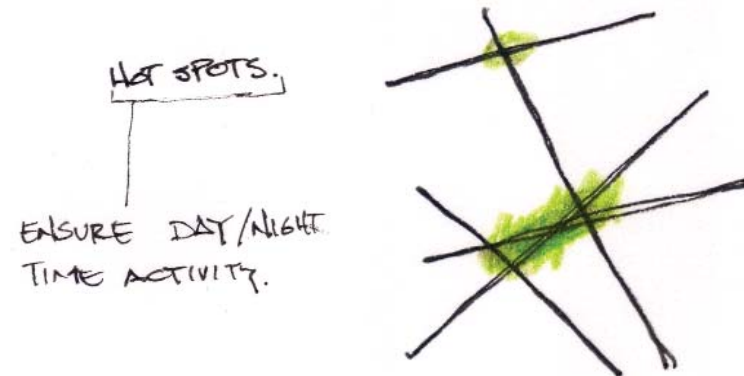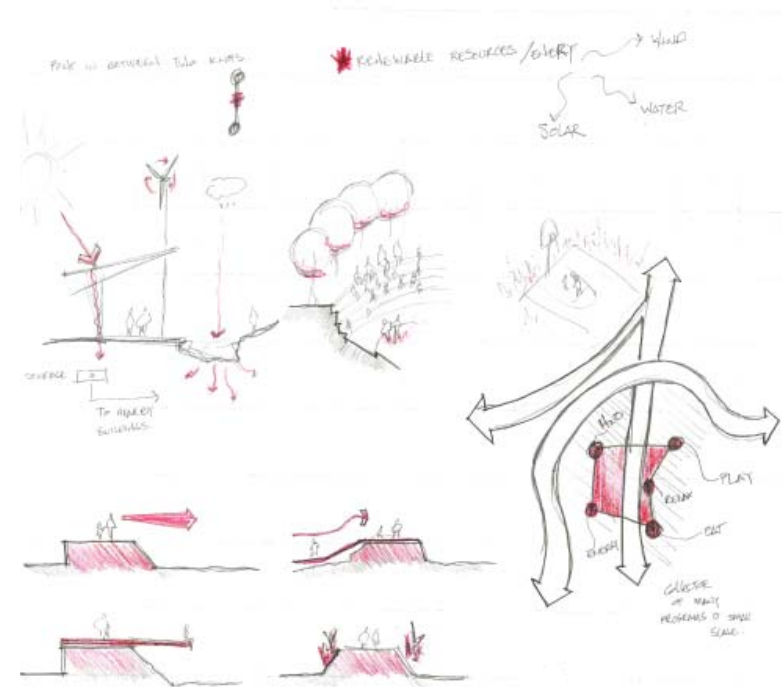
28 - Merriam-Webster Online Dictionary. 2009.
Merriam-Webster Online. 10 November 2009
(http://www.merriam-webster.com/dictionary/collector)

Figure 4.14 - Sketches of Collectors strategy.
(Source: Author)

**Slips**

\ slip\

Function: noun
Etymology: Middle English slippe, probably from Middle Dutch or Middle Low German, split, slit, flap
Date: 15th century

1 a: a small shoot or twig cut for planting or grafting : scion b: descendant, offspring
2 a: a long narrow strip of material b: a small piece of paper
3: a young and slender person <a slip of a girl>
4: a long seat or narrow pew. [29]
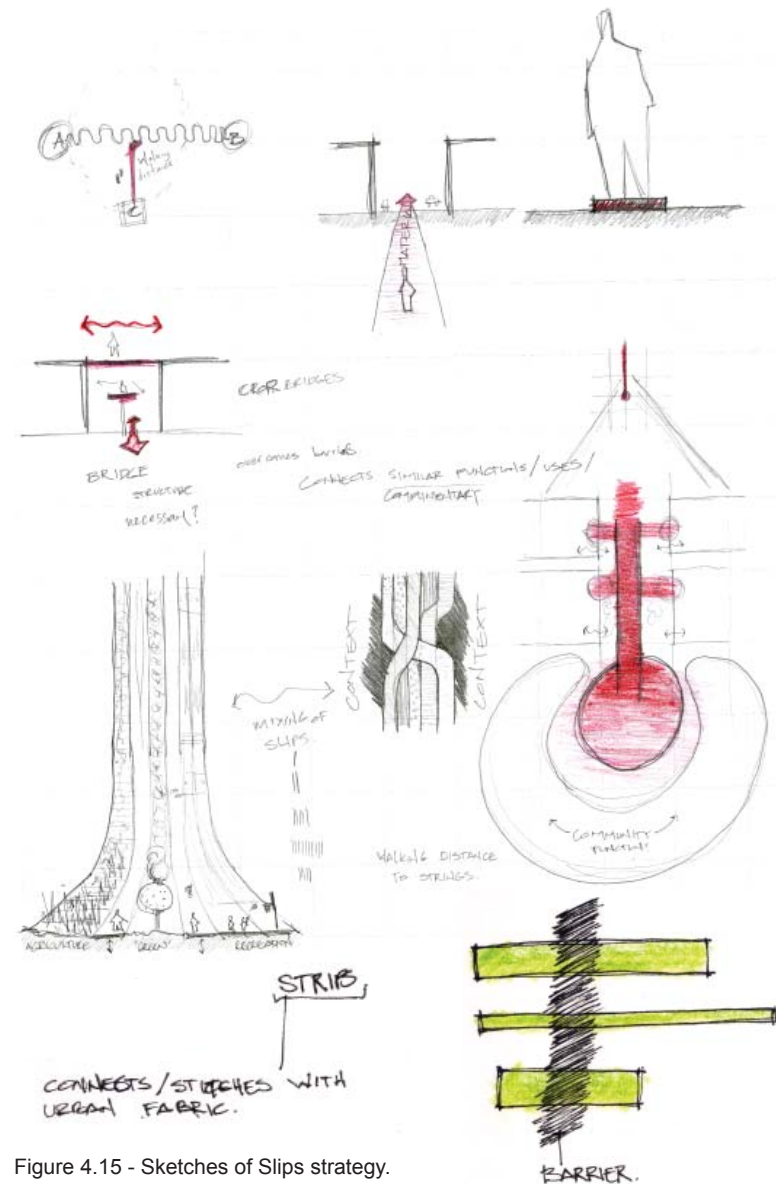
29 - Merriam-Webster Online Dictionary. 2009.
Merriam-Webster Online. 10 November 2009
(http://www.merriam-webster.com/dictionary/slips)

Figure 4.15 - Sketches of Slips strategy.
(Source: Author)

**Wedges**

\ wej\

Function: noun
Etymology: Middle English wegge, from Old English wecg; akin to Old High German wecki wedge, Lithuanian vagis
Date: before 12th century

1: a piece of a substance (as wood or iron) that tapers to a thin edge and is used for splitting wood and rocks, raising heavy bodies, or for tightening by being driven into something
2 a: something (as a policy) causing a breach or separation b: something used to initiate an action or development
3: something wedge-shaped: as a: an array of troops or tanks in the form of a wedge b: the wedge-shaped stroke in cuneiform characters c: a shoe having a heel extending from the back of the shoe to the front of the shank and a tread formed by an extension of the sole d: an iron golf club with a broad low-angled face for maximum loft
4: a golf shot made with a wedge —called also wedge shot. [30]
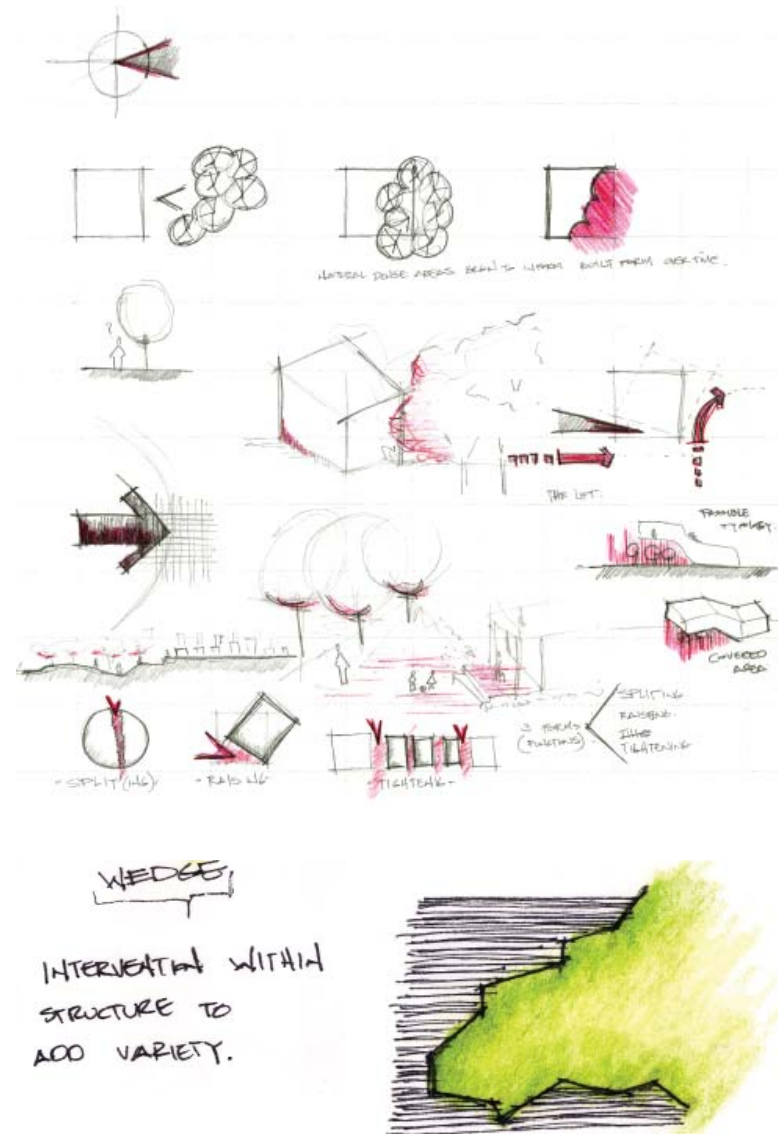
30 - Merriam-Webster Online Dictionary. 2009.
Merriam-Webster Online. 10 November 2009
(http://www.merriam-webster.com/dictionary/wedges)



Figure 4.16 - Sketches of Wedges strategy.
(Source: Author)

Figure 5.01 - Detroit locals.
(Source: Online)

## Site Selection

In order for the reconditioning of a city to be successful, certain criteria needs to be met. This criteria deals with the existing characteristics of the city at a macro scale. The project calls for a city with a wounded urban tissue that has the ability to morph, allowing for a new landscape urbanism network to revitalize specific marginal territories and gradually grow to a connected system of knots, strings, slips and wedges. It should not be a well established city, thus it may be a post-industrial city, a shrinking city [31], a resilient city [32], a city with the opportunity to reinvent itself and support its community. The main idea is to see the opportunities and advantages of such territories. Taking these characteristics into consideration, the city of Detroit, Michigan was chosen for its role in history and the possibilities it offers.

31 - http://www.shrinkingcities.com/
32 - http://sub.resilientcities.org/content/Home/tabid/36/Default.aspx

## A Brief History About Detroit

Detroit was founded on July 24, 1710 by the Frenchman Antoine de la Mothe Cadillac. Located in the Midwest region of the continental U.S., Detroit is the largest city in the state of Michigan. It is a major port city along the Detroit River and it is the only U.S. city located north of Ontario, Canada (Fig. 5.02). Detroit is known for its mark on the automobile industry and music.



canada

canada

united states

Figure 5.02 - Map of Michigan, highlighting the location of Detroit.
(Source: Author)

During the mid 1800's, the city began to experience a steady rise in shipping, building and manufacturing industries, bringing with it a rise in population (Fig. 5.03); and leading to the founding of the Ford Motor Company by Henry Ford in 1903. At

1928 - Ford Shifts production to the suburbs

1935 - The United Auto Workers is organized

1943 - Three days of rioting errupt over racial integration

1816 - The first automobile is driven in Detroit

1903 - Ford Motor Company is formed

1914 - Ford institutes the $5 a day salary and the 40 hour work week

1861 - The first speed limit is set for city streets: 6 mph

1923 - The KKK burns a cross at City Hall

1,568,000 pop.

1,623,000 pop.

1941 - Ford recognises the UAW

1947 - Henry Ford dies

1,850,000 pop.

1956 - Streetcar service ends

1,670,000 pop.

1963 - MLK leads 125,000 marchers through Detroit

1967 - Rioting engulfs Detroit, lasting a week and killing 47

1,511,000 pop.

1976 - Street gangs terrorize Detroit

1,203,000 pop.

1974 - Devil's Night activities peak, 810 reported fires

1,028,000 pop.

851,000 pop.

1851 - 28,000 pop.

1929 - The Great Depression sweeps the country

1930

1941 - the US enters WW II
1942 - Detroit retools for war production
1940

1945 - WW II ends

1950

1960

1970

1980

1989 - freeway construction ends

1990

2000

Figure 5.03 - Time line showing population growth and important dates.
(Source: Online)

68

its peak in 1950, the city was the fourth largest in the country in population. But since then, it has experienced a major change of its population moving out to the suburbs (Fig. 5.04). This settlement expansion was influenced by the automobile industry, as the cost of available land within the city was high, the land on the periphery was cheap and abundant, thus moving their operations
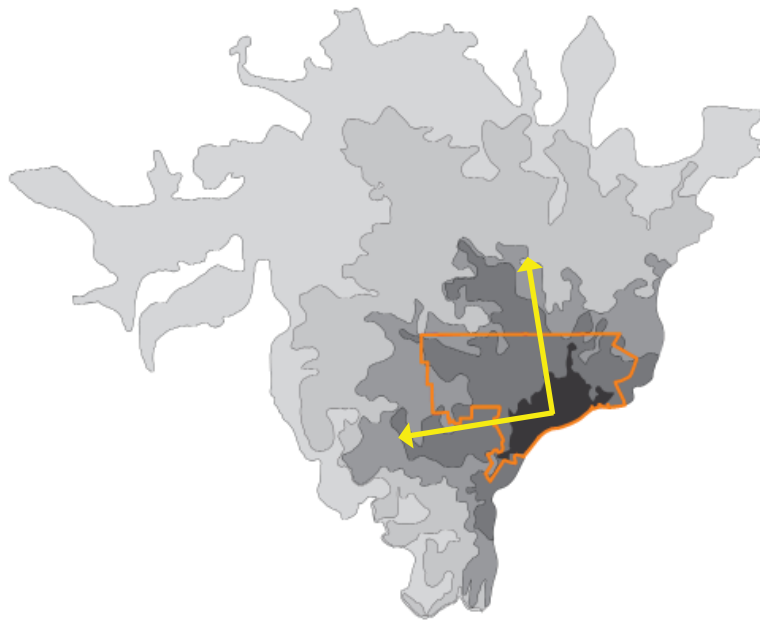


Figure 5.04 - Settlement area, from 1890 to present.
(Source: Online)

1860

1870

1880

1890

1900

1910

1920

1930
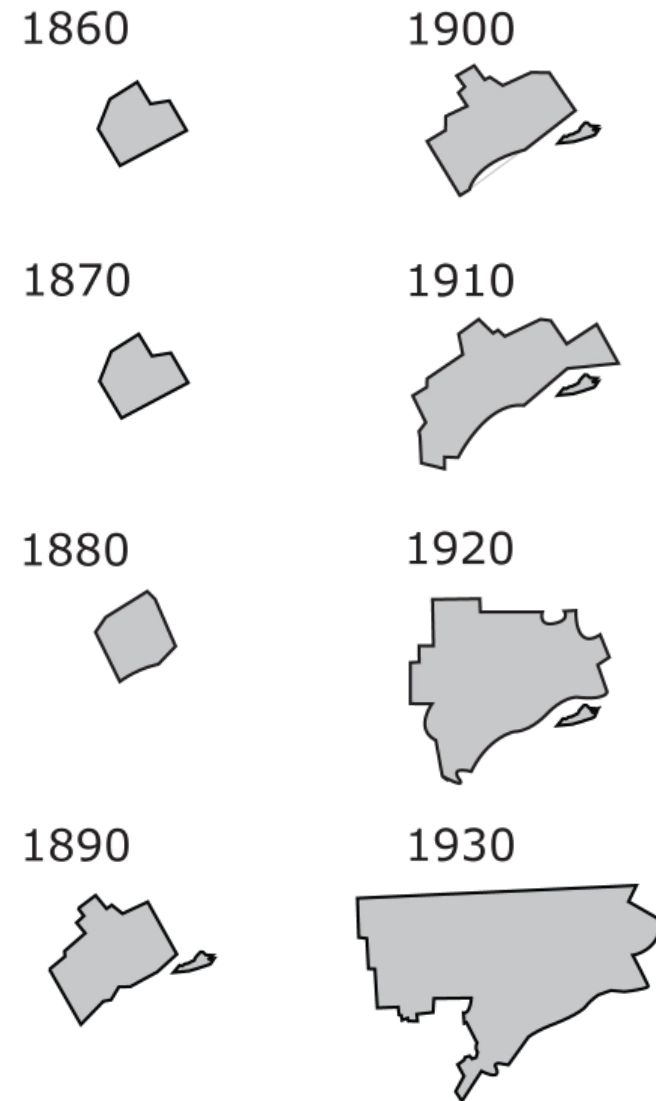


Figure 5.05 - Maps showing growth of Detroit.
(Source: Online)

and facilities out to the suburbs. In 2008, Detroit ranked as the nation's eleventh most populous city, with 912,062 residents [33], less than half its peak.

Today, the city's land area stands at 139 square miles in

## Comparing Detroit to three other major cities

SAN FRANCISCO
Population: 751,682
Square-mile area: 46.69

BOSTON
Population: 581,616
Square-mile area: 48.43

MANHATTAN
Population: 1,537,195
Square-mile area: 22.96

Boston, Manhattan,
San Francisco
TOTALS
Population: 2,870,493
Square-mile area: 118.08

DETROIT
Population: 933,043
Square-mile area: 138.77

Source: University of Detroit Mercy
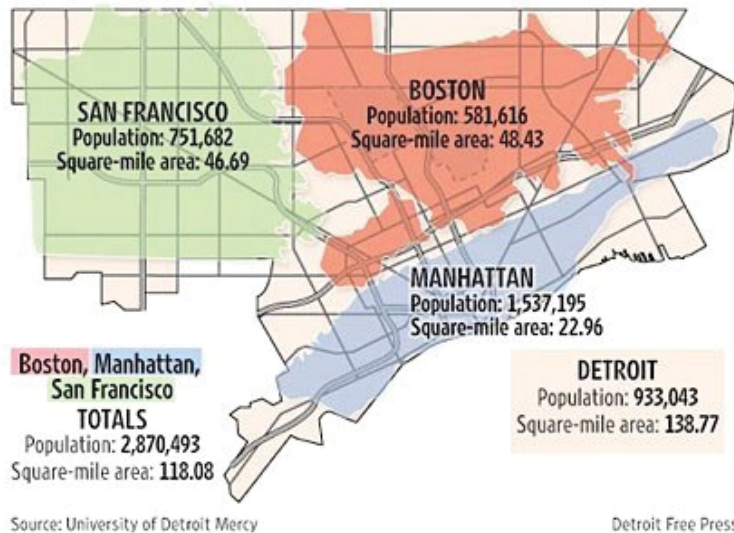
Detroit Free Press

Figure 5.06 - Size comparison.
(Source: Online)

which the three major cities of San Francisco, Boston and Manhattan can fit and still have extra space but the population is less than that of the three combined (Fig. 5.06), yet "experts estimate that Detroit has about 40 square miles of vacant land within its borders"[34]. As the U.S. automobile industry faced its decline, the population of the Motor City decreased leaving behind abandoned buildings ( Fig. 5.07), vacant lands (Fig. 5.08) and a city left for nature to reclaim (Fig. 5.09).

Figure 5.07 - Detroit book depot.
(Source: Online)

Figure 5.08 - Detroit vacant land.
(Source: Online)

Figure 5.09 - Feral building.
(Source: Online)

33 - "Annual Estimates of the Resident Population for Incorporated Places over 100,000, Ranked by July 1, 2008 Population: April 1, 2000 to July 1, 2008". US Census Bureau. (http://www.census.gov/popest/cities/SUB-EST2008.html)
34 - Detroit Free Press.

Figure 5.10 - Population Density.
(Source: Online)

### Re-Birth of Detroit

On the other side of the story, the resilient community that lives in Detroit is very unique, making the most of what is available and striving to succeed. As the 2000 census tracts shows (Fig. 5.10), areas with the higher density are located towards the periphery of the city, leaving empty portions in the center. Most of these denser areas occur near the under-utilized and abandoned industrial corridors, by-products of deindustrialization. Even though many areas of the city are in decay, there are areas where the community is taking care of their neighborhoods and

the vacant land. A new type of urbanism is being felt in parts of the city where a strong sense of community is developing. A research conducted by Interboro Partners (Fig. 5.11) shows the initiative taken by citizens on the issue of vacant lots, where the adjacent vacant lots are bought inexpensively from the city or sometimes claimed by a fence [35]. The single lot increases in area (from a typical 30' x 135' to 90' x 135') allowing for expansion of the home as well as for productive and recreational uses. Such reclaiming of space occurs at an urban scale as well, people take advantage of the exposure of pedestrian bridges and sidewalks near established neighborhoods and use them as public space ( Fig. 5.12). These conditions informed the thesis project by providing ideas and guidelines for the interventions in vacant lots and strategies.
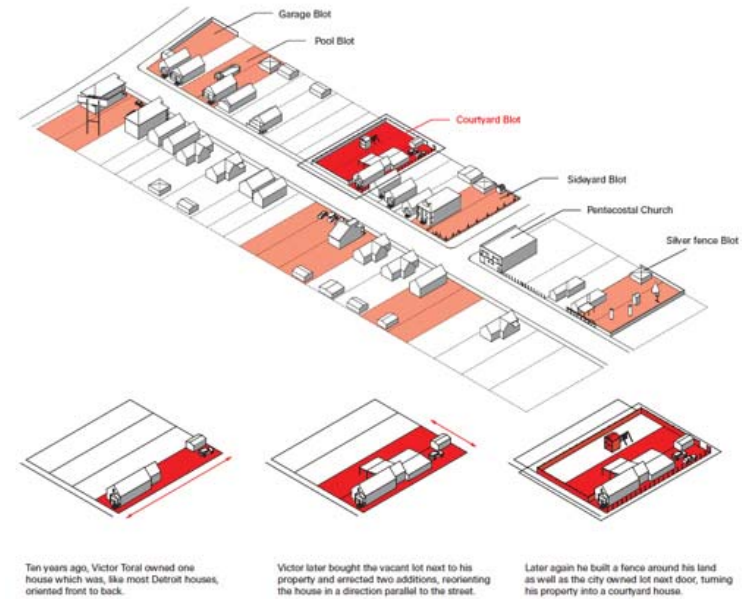


Figure 5.11 - Improve your lot! Blots.
(Source: Interboro Partners)



Figure 5.12 - Saturday morning at Eastern Market, Detroit. Local merchants take over the pedestrian bridge.
(Source: Online)

35 - Ballesteros, Mario. *Verb Crisis.* Barcelona: Actar, 2008. 240-69.

Site

Downtown Detroit

Industrial Zones

Roads
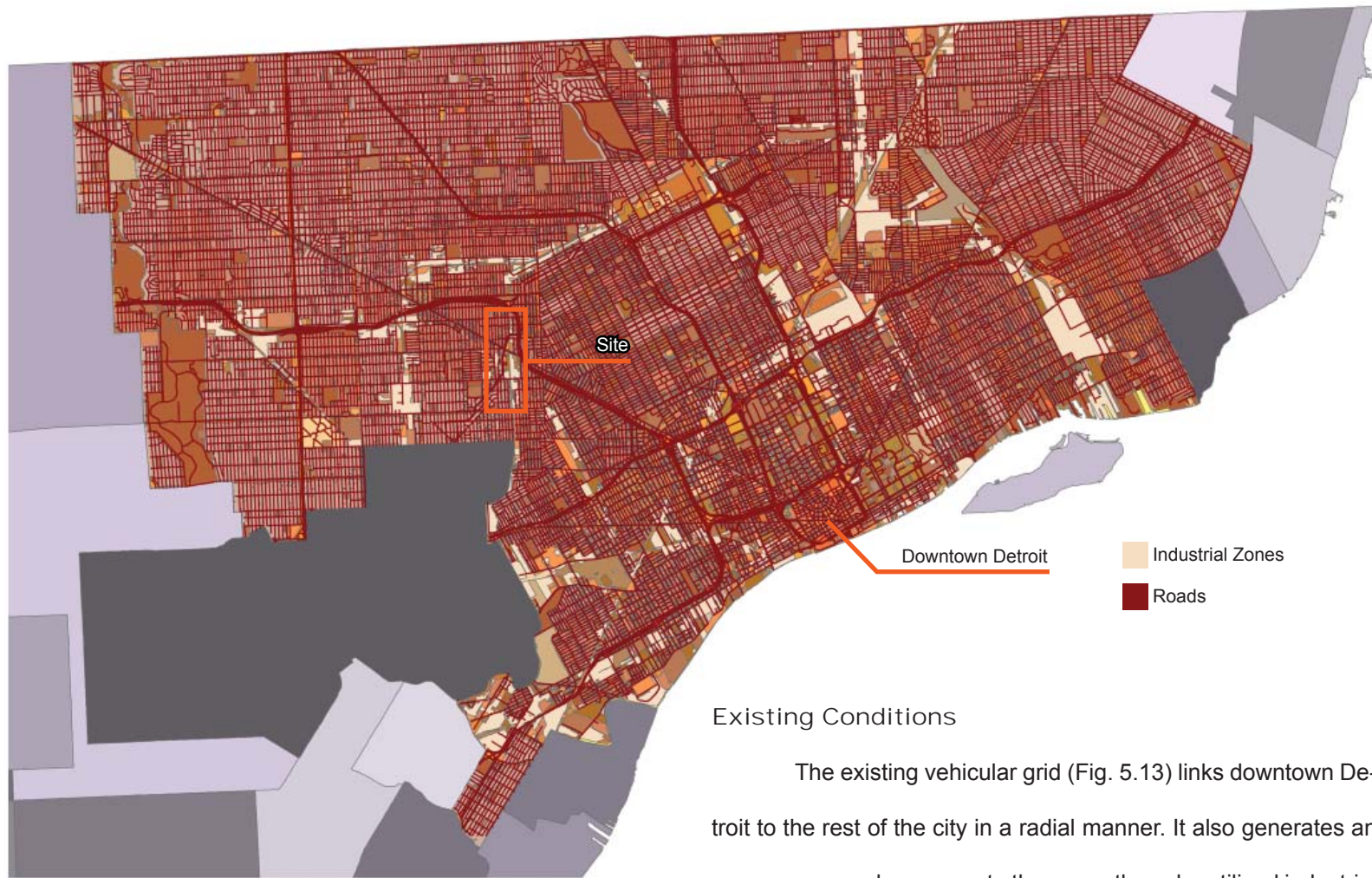
## Existing Conditions

The existing vehicular grid (Fig. 5.13) links downtown Detroit to the rest of the city in a radial manner. It also generates an easy access and exposure to the currently under utilized industrial areas. The existing, planned green and public spaces in the city are very scarce in contrast to the built form due to poor planning

Figure 5.13 - Vehicular grid.
(Source: Author)

Site

Downtown Detroit

Existing Parks and Recreation

and management, the lack of resources to maintain them and de-population (Fig. 5.14).

This conditions emphasizes the potential of planning these post industrial areas as a network system that could help manage and reconfigure the city of Detroit through the use of the project's strategies explained in Chapter Four.

Figure 5.14 - Existing parks and recreation areas.
(Source: Author)

Figure 5.15 - Proposed conceptual conditions.
(Source: Author)

Existing Parks and
Recreation

Proposed Ecological
Network
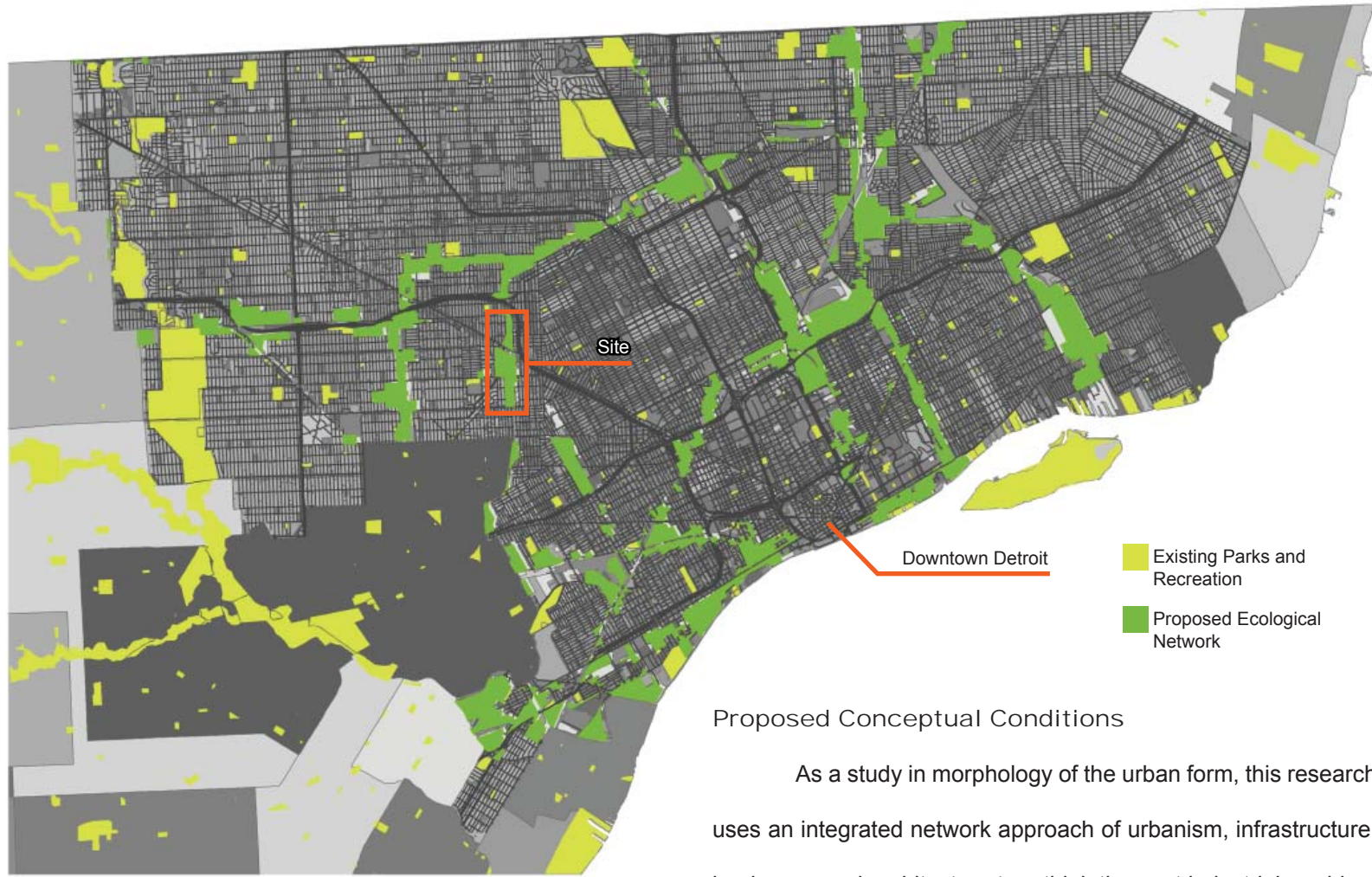
## Proposed Conceptual Conditions

As a study in morphology of the urban form, this research uses an integrated network approach of urbanism, infrastructure, landscape and architecture to rethink the post industrial corridors and vacant lots as new ecological interventions (Fig. 5.15). The selection of the site was influenced by its location, its context, and

EIGHT MILE W

EIGHT MILE E

Highland
Park

Hamtramck

MACK

Site

FORD FWY

Downtown Detroit

FORD RD

**Master Plan of Policies**
**Future General Land Use**
March 2004 Draft

Low Density Residential (RL)
Low / Medium Density Residential (RLM)
Medium Density Residential (RM)
High Density Residential (RH)

Major Commercial (CM)
Retail Center (CRC)
Neighborhood Commercial (CN)
Thoroughfare Commercial (CT)
Special Commercial (CS)

General Industrial (IG)
Light Industrial (IL)
Distribution / Port Industrial (IDP)

Mixed - Residential / Commercial (MRC)
Mixed - Residential / Industrial (MRI)
Mixed - Town Center (MTC)

Recreation (PRC)
Regional Park (PR)
Private Marina (PRM)

Airport (AP)
Cemetery (CEM)
Institutional (INST)

the 2004 Master Plan of Policies (Fig. 5.16) which identifies the
site as a future Mixed - Town Center with a light industry compo-
nent on the north and south zones and residential to the east and
west. Detroit's planning commission has located the Mixed - Town
Centers on specific zones where critical population exists. Most

Figure 5.16 - Future general land use (2004).
(Source: Online)

76

of these town centers are located along the main avenues that radiate from the downtown, creating a series of nodes that help concentrate the existing population into specific areas.

**Site Conditions**

The site selected is influenced by the zip codes 48204 and 48238 (Fig. 5.17). This area has a estimated population of 84,152 mostly African Americans, the majority of them are 40 or younger. The work force spends an average of 30 minutes driv-
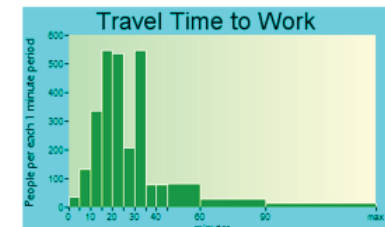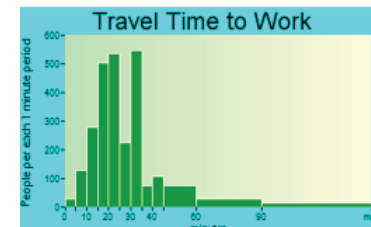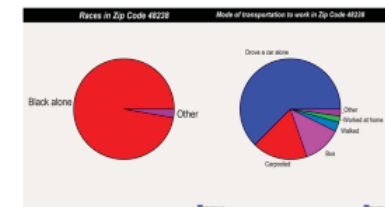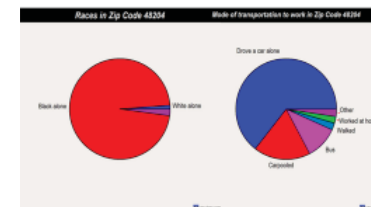
Figure 5.17 - Site information.
(Source: Online)

Well established neighborhoods

Oakman Blvd.

I-96 Jeffries Fwy.

Excessive surface parking

Grand River Ave.

Ground contamination

Vacant, abandoned buildings

Vacant lots

Linear, abandoned industrial corridors

Figure 5.18 - Existing site conditions.
(Source: Author)

ing to and from work. The area's home median price has began to increase in the first half of 2009. But the urban fabric of these neighborhoods is not adequate for future development. The site has a great potential for a redevelopment strategy focusing on the public and natural component; although there is a lot of ground contamination due to the site's previous industrial use, vacant and abandoned buildings, excessive surface parking and vacant lots, there are well established neighborhoods, great connectivity to other areas of the city and the potential for a post industrial landscape remediation (Fig. 5.18-21).

A           B           C

Figure 5.19 - Site Diagrams 1:
A)Existing condition, B)Block and lot structure, C)Transportation infrastructure.
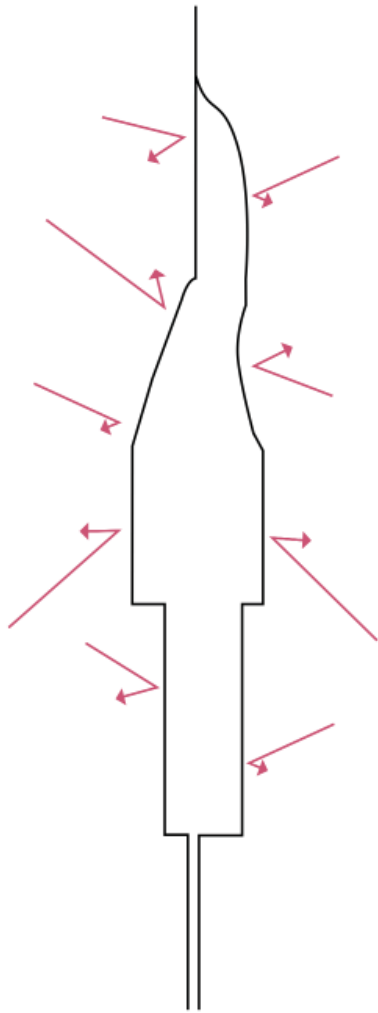
A



B



C

Figure 5.20 - Site Diagrams 2:
A)Existing edge condition, B)Figure ground, C)Vacant lots.

A

B

C

existing zoning

existing contamination

existing tree cover
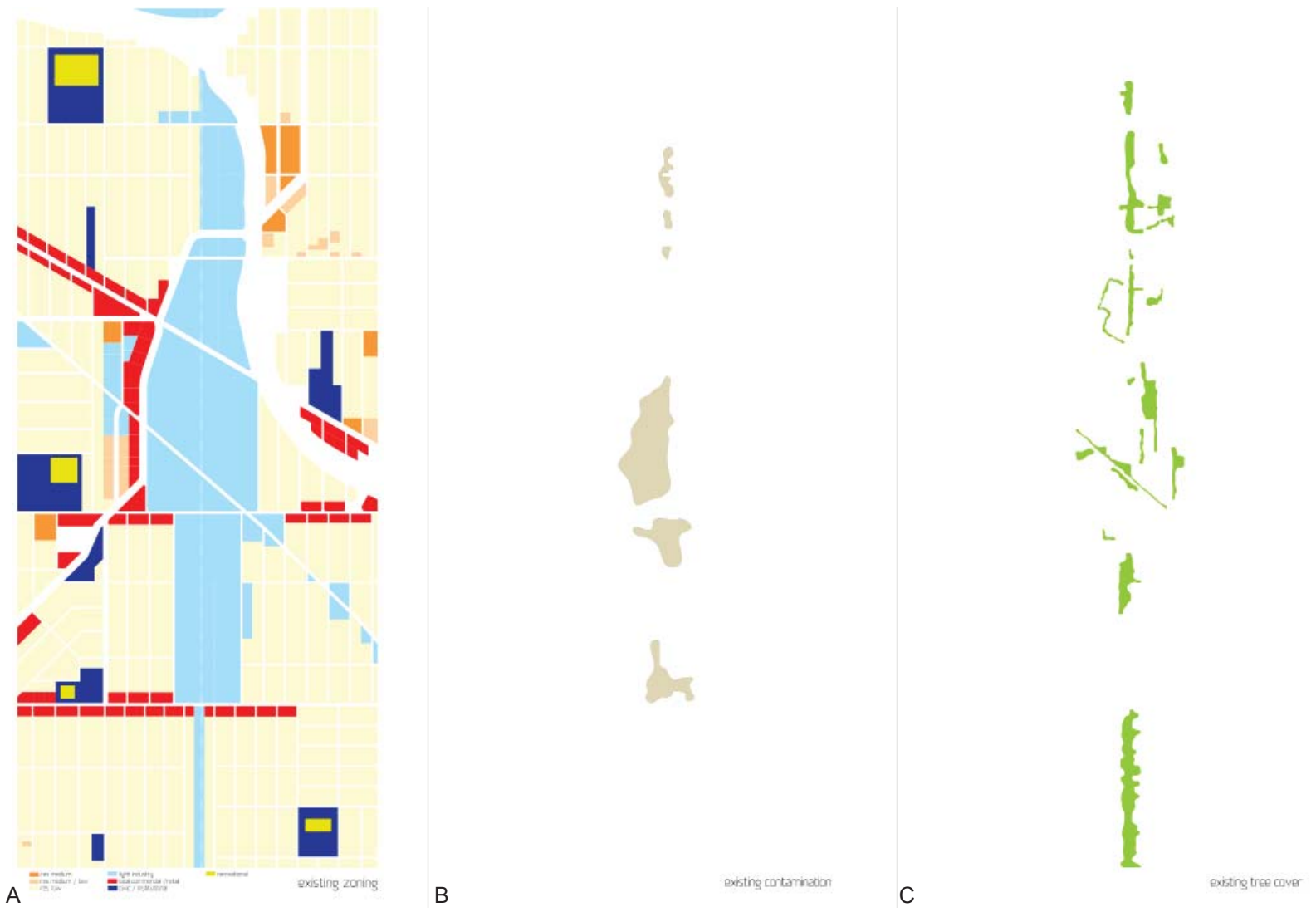
Figure 5.21 - Site Diagrams 3:
A)Existing zoning, B)Existing contamination, C)Existing tree cover

evolution
of detroit

present

currently, under-utilized industrial
areas in detroit are eye-sores to the
nearby communities

soil contamination is very high in
these areas due to their previous
uses

by focusing on these areas, existing
neighborhoods can stop disappearing

A

Figure 5.22 - Evolution of Detroit:
A)Present, B)0-7 years, C)7-14 years, D)14-21 years, E)Future.
(Source: Author)

## Conceptual Phasing

This phasing strategy, carried out over a period of 50 years, could be implemented as an idea of what the future of this area and the entire city may be look like. The creation of ecological habitats and planning for change and progress could lead to a greener Detroit focusing on green industry, mass transportation and dense urban knots.

clearing

revitalization

connectivity

light rail

buildings (conceptual)

Legend

B

0-7 years

improvement of "easy fix" areas:
vacant land, alleys, edges

support buildings:
renewable energy infrastructure,
market and urban agriculture

begin remediation of contaminated
areas

C

7-14 years

connectivity

support buildings:
training centers,
community center,
commercial oppor-
tunities

Figure 5.22 - Evolution of Detroit:
A)Present, B)0-7 years, C)7-14 years, D)14-21 years, E)Future.
(Source: Author)

**14-21 years**

implementation of mass transit light rail linking developed knots and neighborhoods

support buildings:
stations and residential components

as the automobile becomes obsolete, highway arteries can be adapted to the network

D



**future**

goal is to achieve a new detroit, structured within a network of productive urban landscapes in which social, environmental and economic sustainability are met.

E

Figure 5.22 - Evolution of Detroit:
A)Present, B)0-7 years, C)7-14 years, D)14-21 years, E)Future.
(Source: Author)

Figure 6.01 - Natural water filtration.
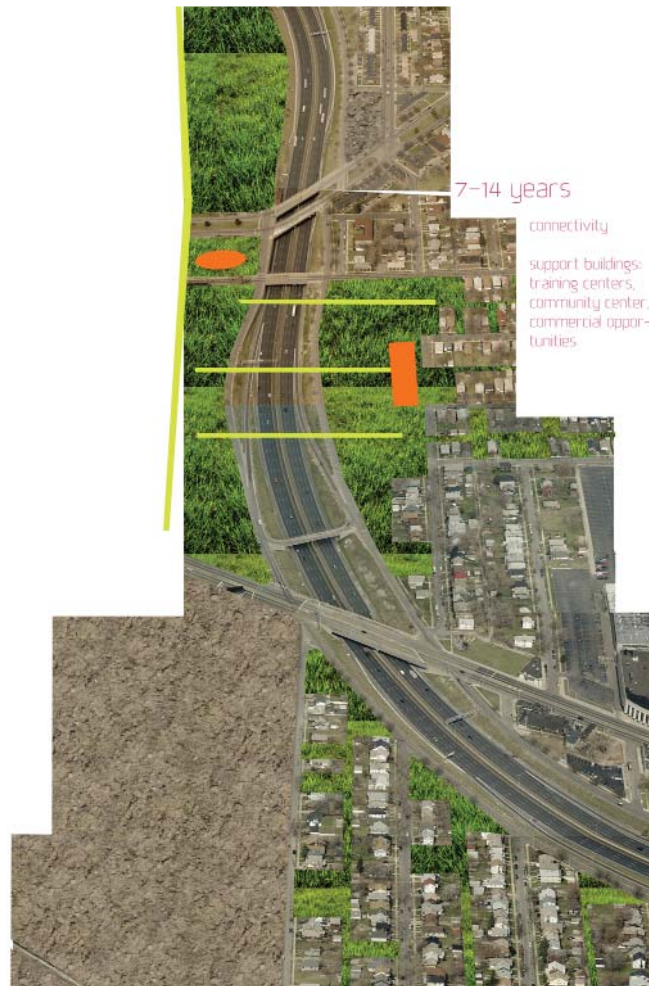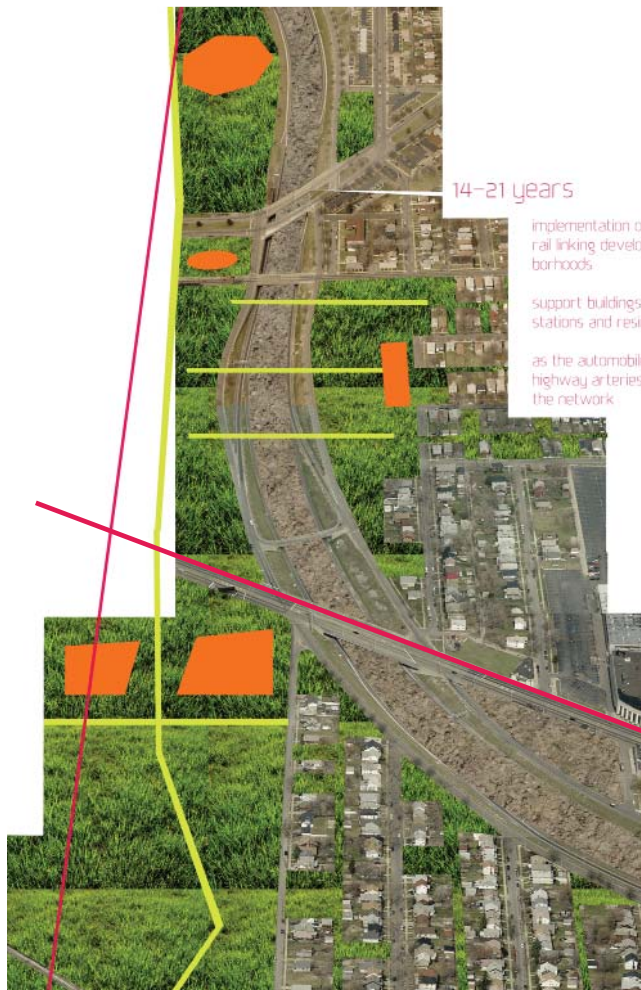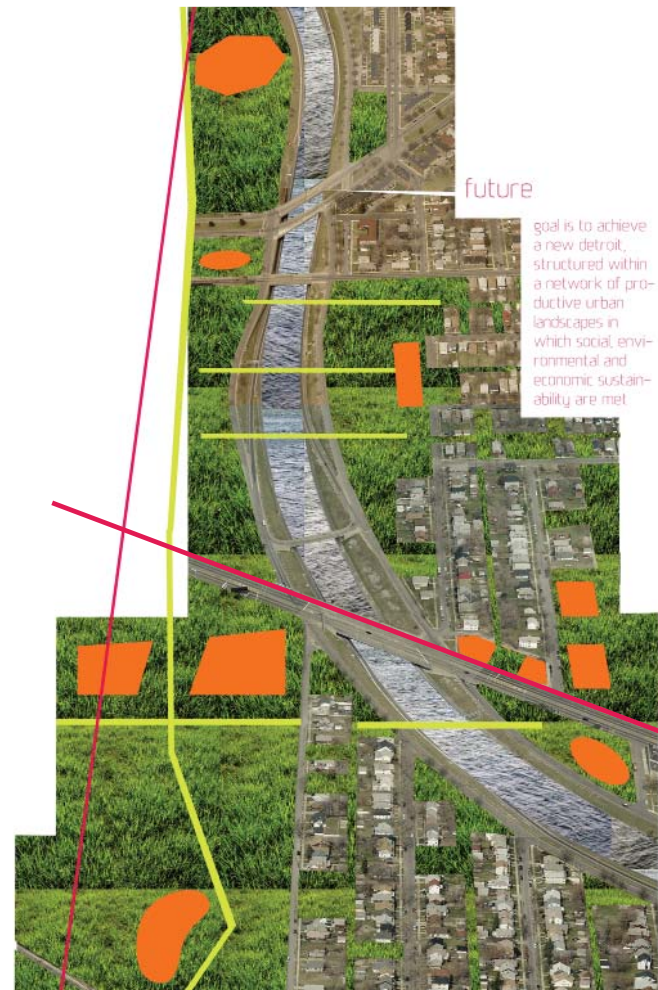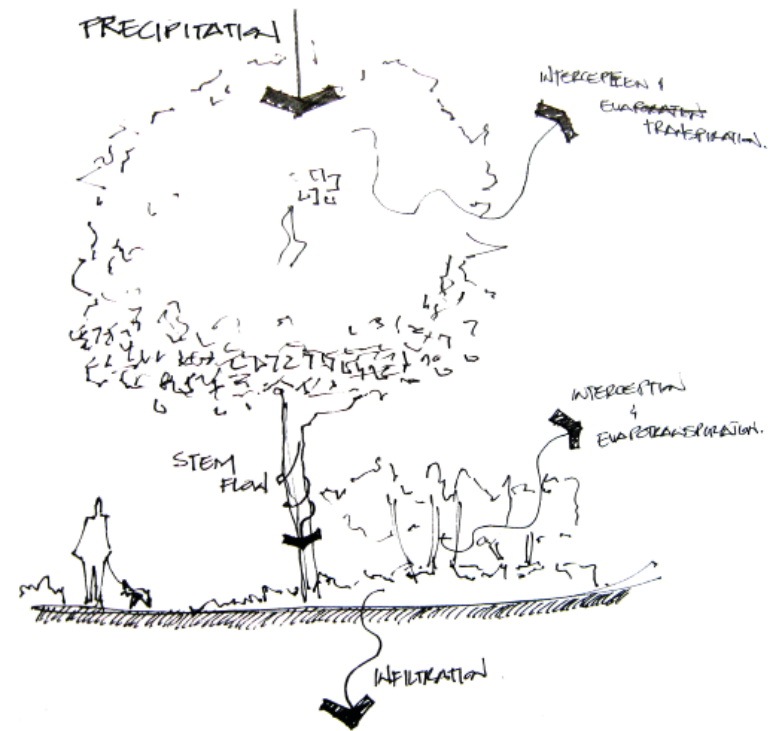(Source: Author)

The early research, strategies and goals of this thesis were very broad and were conceived without a specific site in mind. Many of the strategies have not changed, but having now a site selected, they can be clearly defined. Along with the strategies, the site specific conditions to be addressed can also be more clearly explored. This chapter explains the strategies and their possibilities in detail and explains the site configuration approach as a possible solution for Detroit (Fig. 6.02).

**Key Points**

Assumption: Worldwide, dense urban spaces have been organized and transformed by cultural values. However, in many cases, changes in economic and social conditions have resulted in fragmentation of neighborhood typologies, in terms of their physical characteristics and uses. Such spaces are a manifestation of development, expansion, dislocation and marginalization.

Objective: To develop a strategy which converts under utilized areas into ecological, social and economic catalysts.

Solution: An integrated network approach strategy (landscape-architecture-infrastructure) as a set of interventions within the urban context.

Execution: With the overall goal being to take root on a neighborhood level and radiate a collective impact on a citywide scale, the strategy is implemented over a successive trajectory. Small scale manageable schemes invigorate the area in preparation of the next stage, creating the infrastructure needed to support a sustainable city.



Figure 6.02 - Proposed network diagram.
(Source: Author)

## Proposed Master Plan

The over all idea for the master planning is derived from a sustainable development approach to the site, taking into consideration the three aspects of sustainability: the environmental, the social and the economic (Fig. 6.04). Therefore, creating a sustainable community that can be self sufficient and when seen as a part of the whole network, Detroit can become a greener and stronger city. By approaching the master plan in this manner, a
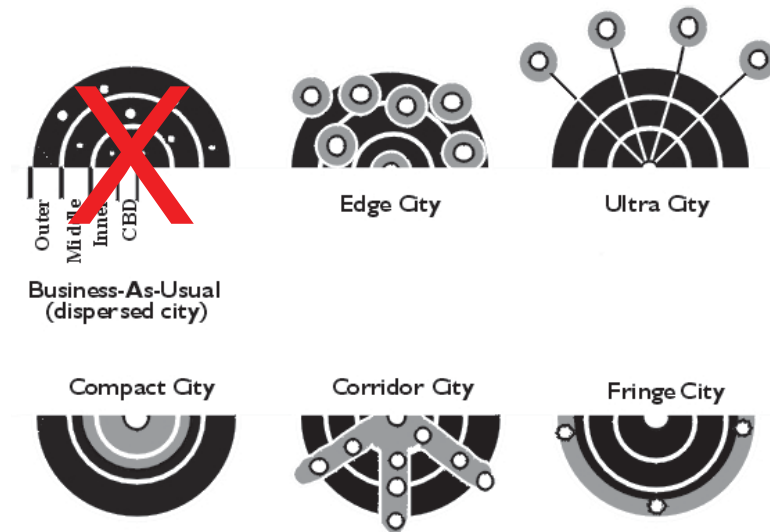
Figure 6.03 - Organizational patterns for a city.
(Source: Online)
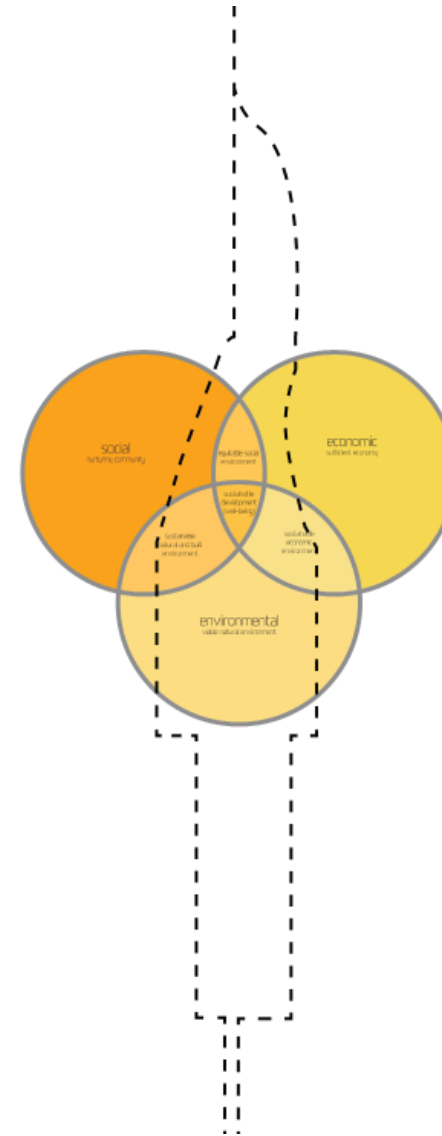
Figure 6.04 - Sustainable development idea for the site.
(Source: Author)

new meaning can be given to the area, focusing on the public realm and the natural component of the proposed urban fabric.

Figure 6.05 shows the preliminary idea for the final master plan, where the buildings (shown in black) create and hold the new green ecological space in the over all area. This new space has unique qualities, it is a productive landscape, a recreational area, and a community catalyst. The plan also shows the connectivity of the intervention to the civic and institutional buildings through the slips strategy. It shows how the edges of the project respond to the existing interweaving the built (old) and the landscape (new). The colors represent the initial planting strategy as a matrix of different native plants, giving the site a different appearance and smell each season (Fig. 6.06).

The diagrams that follow explain the proposed conditions and approaches to the final design (Fig. 6.07-08), followed by detail explanations of the strategies, overlaid on the plan diagram.
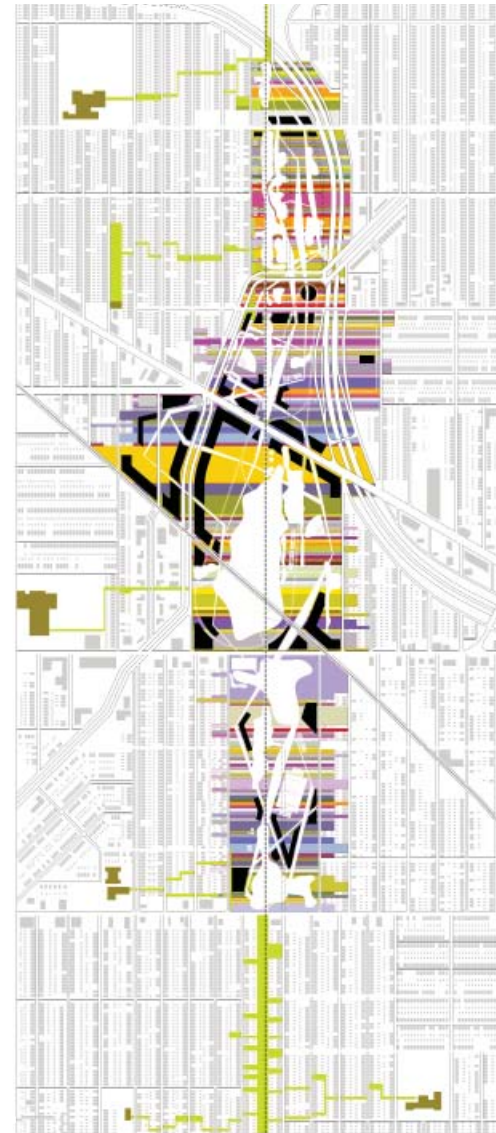


Figure 6.05 - Preliminary master plan.
(Source: Author)

88
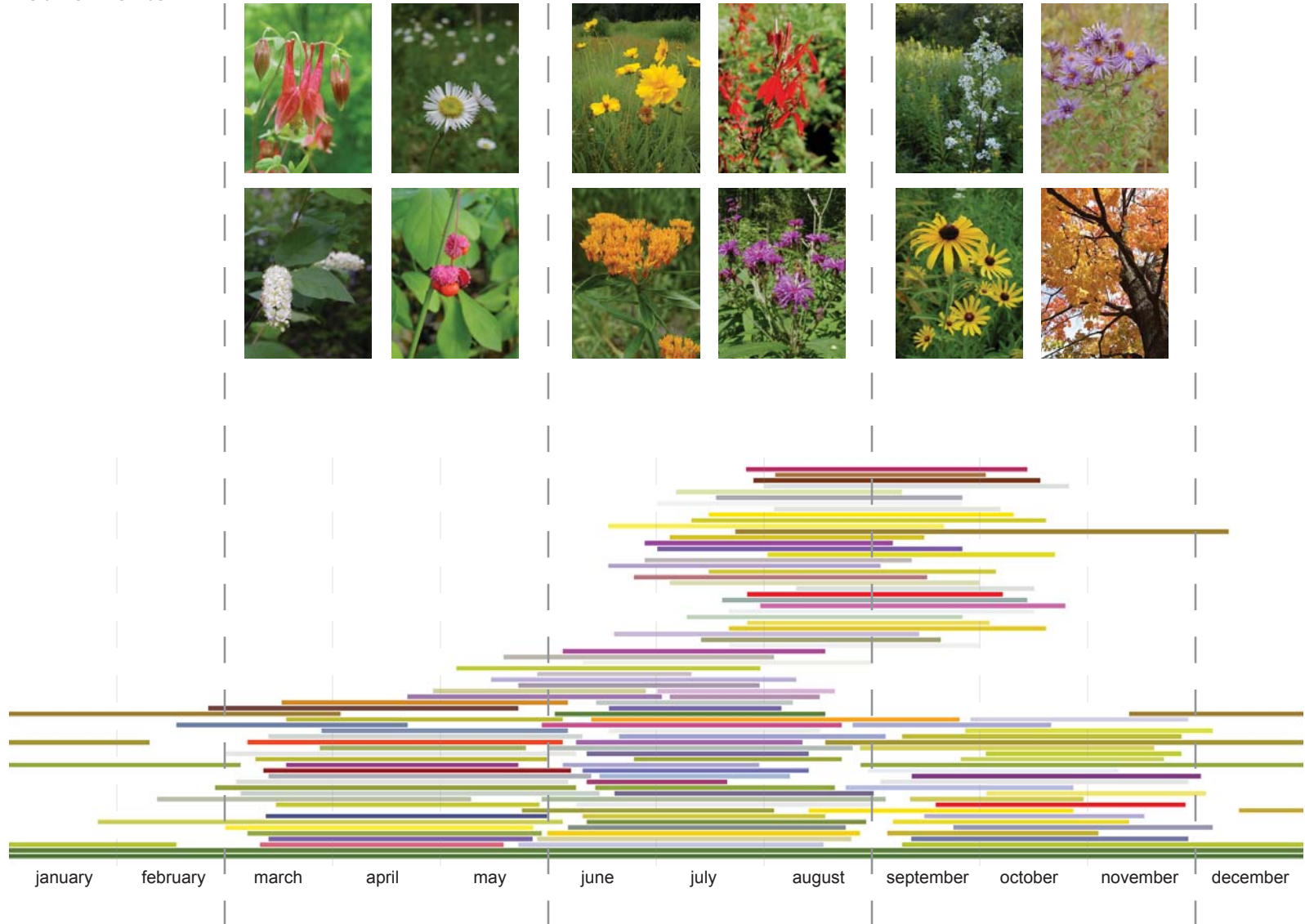
**Native Plants**



Figure 6.06 - Blooming schedule of native plants.
(Source: Author)

**Proposed Site Diagrams**



A

B

C
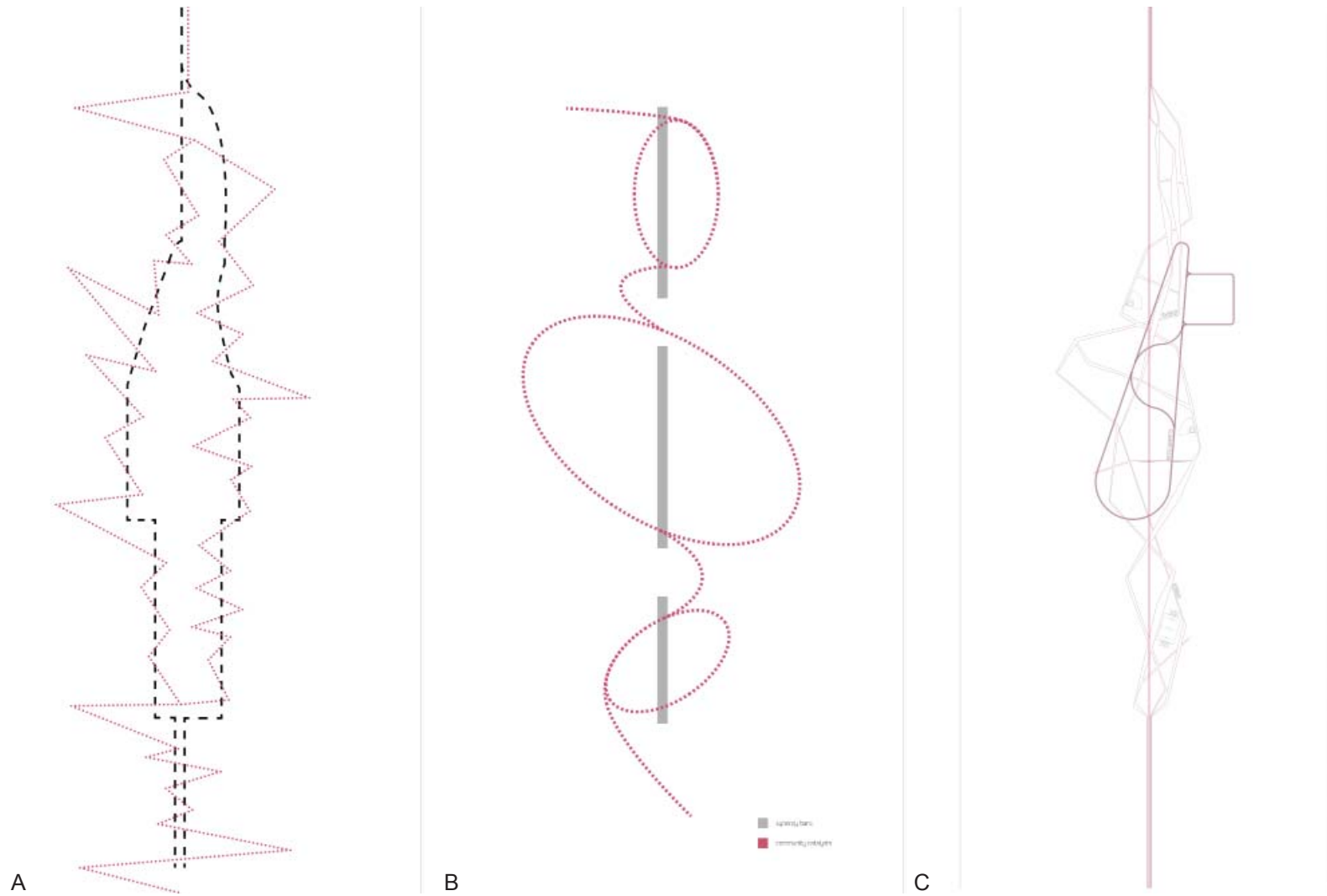
Figure 6.07 - New Site Diagrams 1:
A)Proposed edge condition, B)Frameworks, C)Pathways network and recreation.
(Source: Author)

A        spatial diagram     B        proposed figure ground     C        planting diagram
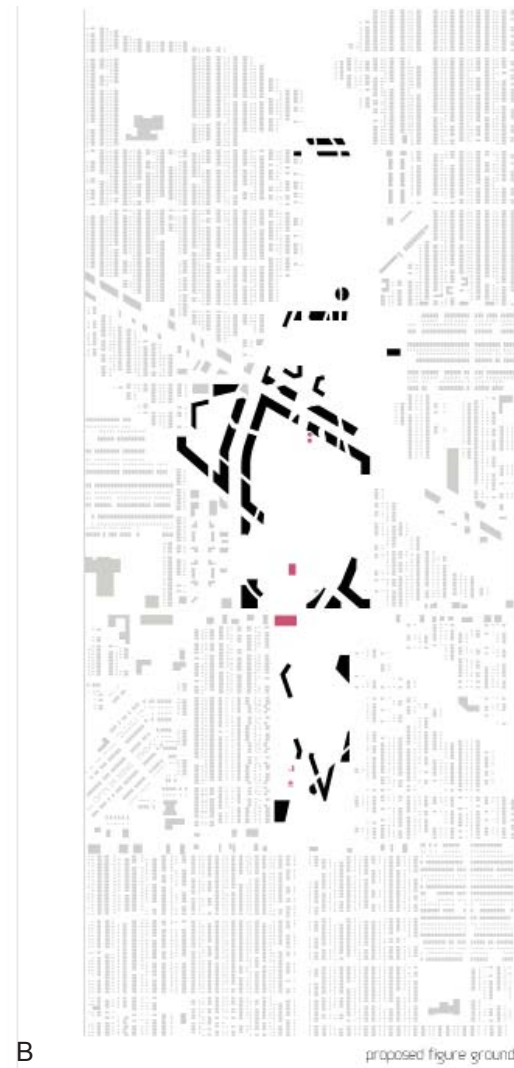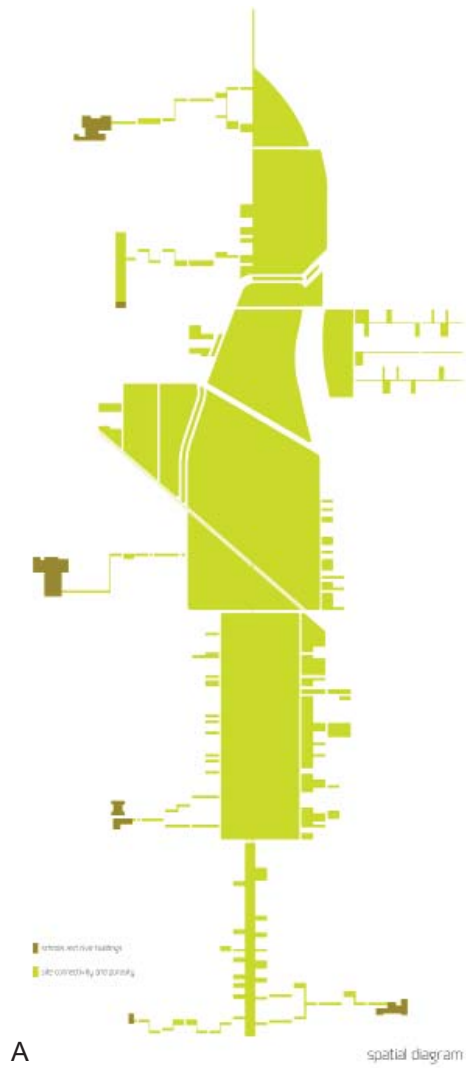
Figure 6.08 - New Site Diagrams 2:
A)Spatial diagram, B)Proposed figure ground, C)Preliminary planting diagram.
(Source: Author)

## Strategies Redefined

*Knots*

Are defined by their exchange of resources which provide an exceptional gain to the neighborhood's ecological, social and economic health and become a stronghold for the area. Knots become the new community catalysts where the existing sense of community is reinforced, providing jobs, self improvement opportunities and place. Giving life once again to areas that outlived their original purpose. Knots can offer many of the following functions: town center, job training, research and development center, recreation center, community center, housing development, recycling center, post office, nursery, after school program area, library, technology center and a marketplace.

Guidelines:

-Strong connection between building and landscape components.

-Strong interaction between all strategies.

-Responds to community needs.



Figure 6.09 - Knots symbol.
(Source: Author)



Figure 6.10 - Knot diagram.
(Source: Author)

*Strings*

Are a user based network of foot, bike and rail corridors which provide an everyday infrastructure of connections. Creating connections between knots and neighborhood spaces. Being the main ground plane intervention, the strings create diverse landscape zones that mitigate contamination, visual aesthetics, public space and productive landscapes. These are access routes, bike ways, walking path, fitness circuit, street tree planting, ecological corridors, running track, rail line, street crossings.

Guidelines:

-Follow existing industrial corridors and areas.

-Use of materiality to create zones.

-Interaction with existing and new buildings.

-Diverse pathways.

-Overcomes access barriers.



Figure 6.11 - Strings symbol.
(Source: Author)



Figure 6.12 - Strings diagram.
(Source: Author)

93

*Slips*

Vacant lots are conceived both as the primary problem in this community and as an opportunity for intervention and improvement. Branching off the strings, the slips connect vacant lots, alleys and sidewalks creating a unique sequence of spaces and circulation, leading to civic and institutional uses, known as Pathways of Desire. These small scale programmatic interventions promote community within a neighborhood and serve as a teaching tool. They can function as an art display area, basket ball court, picnic area, community garden, skate park, climbing wall, agriculture lot, compost area, energy generator, dog park, forest, fruit orchard, skating rink, performance space or reading garden.

Guidelines:

-Provide easy, barrier free and direct access to public destinations.



Figure 6.13 - Slips symbol.
(Source: Author)



Figure 6.14 - Slips diagram.
(Source: Author)

-Enhances walkways with landscaping and lighting.

-Clear sight lines and direct links to sidewalks.

-Existing building facade openings encourage comfortable and safe pedestrian use.

-Use of light and shade from adjacent buildings.

*Wedges*

Are interventions which connect neighborhood edges to park areas, weaving nature into the city grid, with the possibility of an economic vibrant edge condition. Wetlands, forest, bike path, park under highway, ecological education center, bird sanctuary, wildlife corridor, storm water retention, water park, urban agriculture gardens.

Guidelines:

-Emphasize the edge porosity of the integrated network approach.

-Enhances areas where residential zoning meets knots.

-Acts as a buffer between uses.

-Uses leftover spaces.
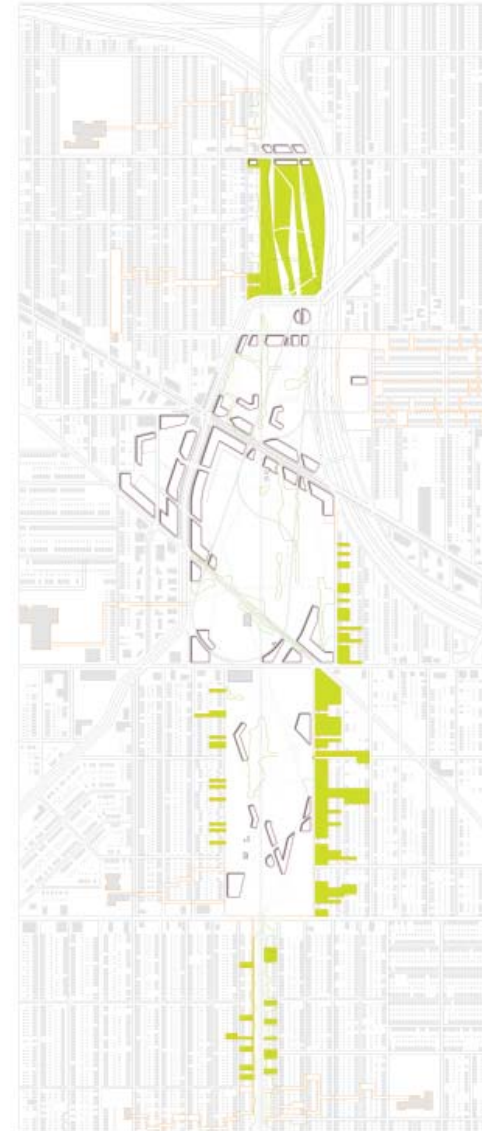


Figure 6.15 - Wedges symbol.
(Source: Author)



Figure 6.16 - Wedges diagram.
(Source: Author)

Figure 7.01 - Final site model (1).
(Source: Author)

The main idea of the thesis problem suggested that different scales of the design solutions needed to be addressed. At the city level, the creation of a network of linked knots that establishes a pattern for Detroit to change its direction into a more ecological pattern of shrinkage and evolution. This led to a strategy that gives character and identity to an area of the city that has been fragmented as a result of recent changes in economic and social factors. At the local scale, the use of slips to mediate the vacant lot issue in the neighborhood, the wedges to create a porous edge condition and the strings tie the community and knots together. Due to the scale of the project, the phasing strategies are devised to work at two levels (city and local) and on different but related time lines.

**Macro Scale**

As stated in chapter five, the currently under utilized industrial corridors create a unique opportunity for Detroit to manage its current depopulation. By focusing on populated areas first, the knots can occur in these strategic locations, offering new job opportunities in green technology industries and agriculture. The knots can continue to grow and appear as time goes by and as needed, in order to keep the population in the new, dense urban areas (Fig. 7.02). A great opportunity that this network benefits from is the connection of the inner part of the city to the river area because these industrial corridors often end in port areas by the
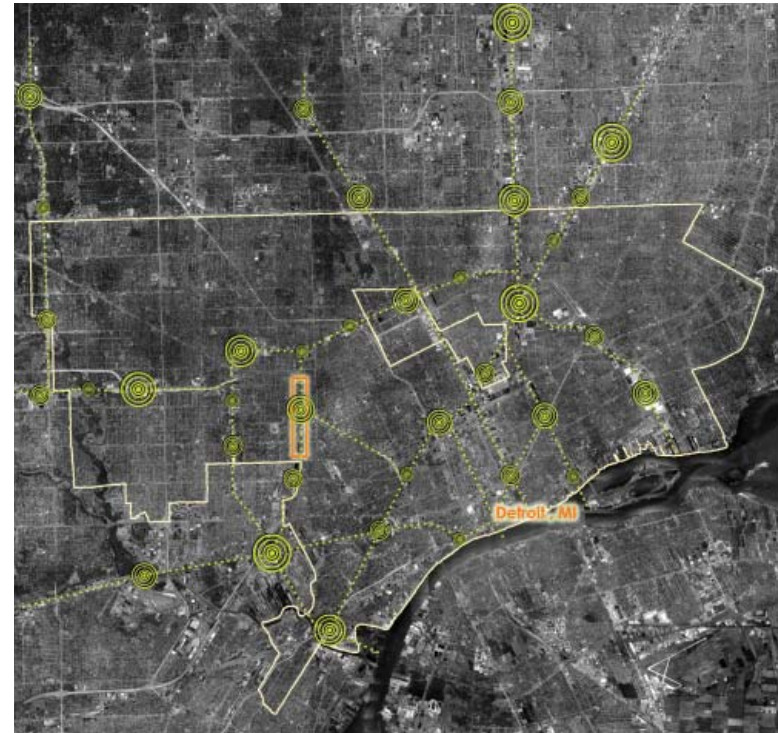


Figure 7.02 - Detroit, year 2065.
(Source: Author)

97

Detroit River. Eventually, the network will expand beyond Detroit's boundaries, connecting to other cities that may employ this approach to create a linkage of ecological knots.

## Micro Scale

The proposed design solution for the site bases itself on the idea of a new community town center, providing new jobs, new living conditions and new recreation and leisure opportunities while tying back to the existing context. Figure 7.03 highlights some areas where the strategies occur. The entire site covers a total of 256 acres plus the vacant lots used for the slips. The existing buildings have a total footprint of 1,458,154 square feet and they are placed throughout the site. The proposed buildings have a total footprint of 1,405,000 square feet, with the possibility of adding more buildings if needed. The buildings are organized in clusters that pay attention to Grand River Ave. (Fig. 7.04) and to Oakman Blvd. (Fig. 7.05) treating them as a main boulevard and a main street, respectively.



Strings

Knot

Wedge

Slip
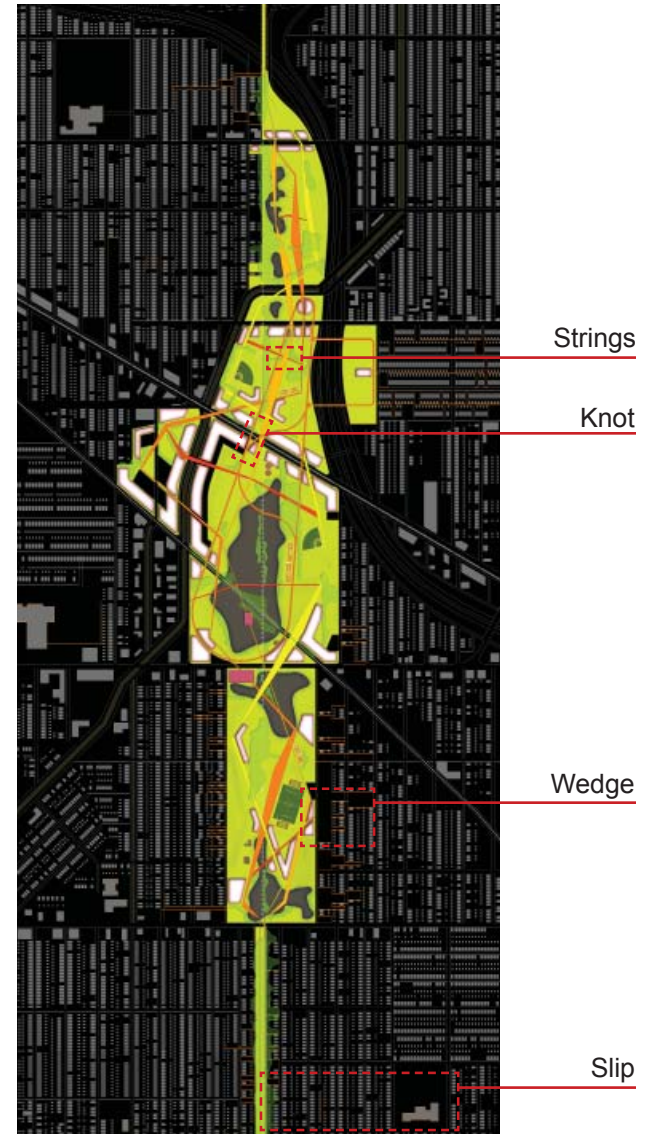
Figure 7.03 - Final site master plan.
(Source: Author)
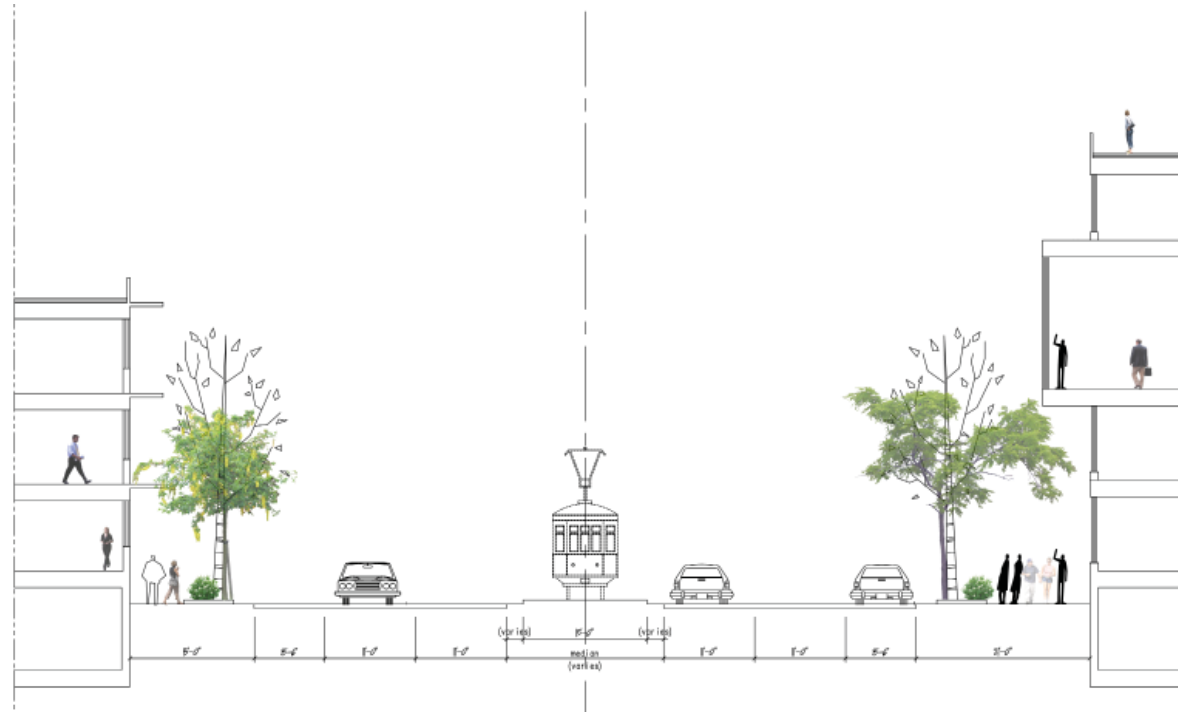
Figure 7.04 - Grand River Ave. proposed street section.
(Source: Author)

Figure 7.05 - Oakman Blvd. proposed street section.
(Source: Author)

**Phasing**

**Phase One:**

**Cataloging (2010) - Prioritizing Areas and Actions.**

Strategy:
- The existing structures area catalogued in order to see which will be demolished and which will be kept and reused.
- A catalogue of contaminated zones is created to establish important landscape features.

Principles:
- Adaptive-reuse of exisiting strucutres in acceptable condition, which will benefit the reconditioning of the area; historically and productively.
- Critiquing the existing urban form in order to create a new community catalyst.

Benefits:
- Removal of abandoned buildings which previous use can create harmful conditions to the environment.
- Recycling of materials from demolished structures helps the manufacturing of new goods and may be used in the landscape form.
- Closer to home jobs, entertainment and leisure areas means less driving and more time to be productive and enjoy life.
- Strengthening of community and improvement of place.



Figure 7.06 - Phase one.
(Source: Author)

**Phase Two:**

**Remediation (2011) - Landscape and Jobs.**

Strategy:
- The contaminated areas are dedicated to phytoremediators, specially accumulators of lead. These phytoremediators absorb the heavy metals and translocate it to their harvestable shoots. After they have grown for some time, they are harvested and incinerated or composted to recycle the metals.
- A buffer zone is planted between the contaminated and safe areas using native plants.
-Begin phase one of buildings: community center, farmers' market, green houses, green industry manufacturing, solar cell manufacturing plant, wind turbine manufacturing plant, research and development centers, mixed-use retail and residential.

Principles:
- Plants such as Sunflower can produce 4 times crops per year. So the volume of biomass can be used to produce energy, reducing the need for energy produced from fossil fuels. Selling this amount of crops for coal firing or production of cellulosic ethanol can help to offset remediation costs and create jobs for nearby residents.
- Lead in the biomass can be sequestered or recycled through post-harvest treatment techniques. This process will provide jobs for the community.

Benefits:
- Removal of soil-lead contamination reduces human health risks.
- High-biomass grasses can be used as barrier crops to help prevent erosion and fertilizer runoff.
- The creation of jobs in construction and related fields, as well as in manufacturing, agriculture and research industries. An estimated 4,500 jobs are created during this phase.



Figure 7.07 - Phase two.
(Source: Author)

**Phase Three:**

**Production (2016) - Urban Agriculture**

Strategy:
- The contaminated lands that have been constantly remediated with phytoremediators, get capped with an isolation layer of top-soil. This could foster urban agriculture in a format of self-organized assigned plots and also plots for community farming.
- The public amenities such as supermarkets, farmers market, kindergartens, commercial and retail uses are centralized at the walking distance of light train system. This allows for the public realm being accessible in a more convenient distance and also the excess crops could be sold for the use of adjacent neighborhoods.

Principles:
- Improves community connections through designing active social spaces focused on food and agriculture such as farmers' market areas and community gardens.
- Produces year-around crop for community, promotes healthy living and increases local food security
- Assist low income people by providing healthy fresh organic food at low cost and builds strong local economy.

Benefits:
- Improves soil structure to hold water.
- Increases biodiversity by using agricultural land not only to grow food, but as habitats for insects and birds.
- Significantly reduces use of fossil fuels.
- Treatment of black and Gray water into potable water.
- This phase creates an estimate of 3,000 jobs in construction, service, retail, commercial and institutional fields.
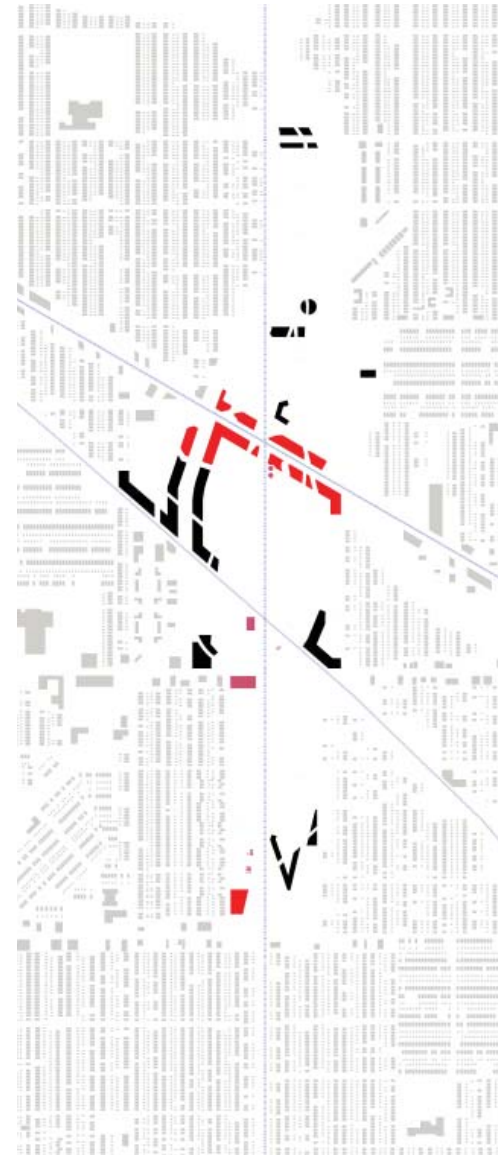


Figure 7.08 - Phase three.
(Source: Author)

**Phase 4:**

**Rebuild (2026) - Buildings**

Strategy:
- The scheme of high density-mixed used low rise smart buildings is proposed as a new typology of urban form.
- A light rail system which runs along Grand River Avenue is proposed to connect the new catalyst to downtown and other areas to the west and the abandoned Con-rail line is used to connect the proposed network.
- Building phase 2. This phase contains research and development centers, manufacturing of green technologies, an ecological center and a residential component.

Principles:
- Low energy/high performance.
- Operates on On- site sewage treatment system.
- Operates on On- site run-off treatment system.
- Provides water required for toilet flushing, water cooling and plant watering.
- Designed for low energy input.
- Building is designed for maximum day lighting and shading for the excess light during the summer month.
- Designed for durability and robustness through a communicative display skin which is sensitive to climate change.

Benefits:
- Reduces time spent driving to work and daily routines.
- The process of removing all different contaminates from the Gray Water and waste water treatment on-site would have a dual advantage. It would be environmentally beneficial and also could be sent to the nearest plant facility for biomass production.
-The implementation of this final phase brings an estimated 3,000 jobs in construction, services, manufacturing and research fields.



Figure 7.09 - Phase four.
(Source: Author)

## Zoning

The zoning strategy aims to locate the functions that provide new green industry factories along the freight rail line and adjacent to community areas. The main retail, commercial and living components are located on the main streets, mixed with institutional facilities. The main community center is located within a walking distance north of Grand River Ave.

The implementation of the phasing and zoning strategies brings a total estimate of (at least) 10,000 new jobs to the neighborhood over a 25 year period. Benefitting from access to rail services, skilled work force and training opportunities, this number directly depends on the type of green industries that see the potential of this area. A 200,000 ft$^2$ wind turbine manufacturing plant employs 100 workers and can produce 400 turbines per year [36].



research + dev.

retal + commercial

institutional

commercial + live

commercial

community

residential

Figure 7.10 - Zoning diagram.
(Source: Author)

36 - "IndustryWeek : New Wind Turbine Production Plant Opens in Iowa." *IndustryWeek - Connecting Manufacturing's Leaders.* Web. 18 Nov. 2009. <http://www.industryweek.com/articles/new_wind_turbine_production_plant_opens_in_iowa_15668.aspx>.
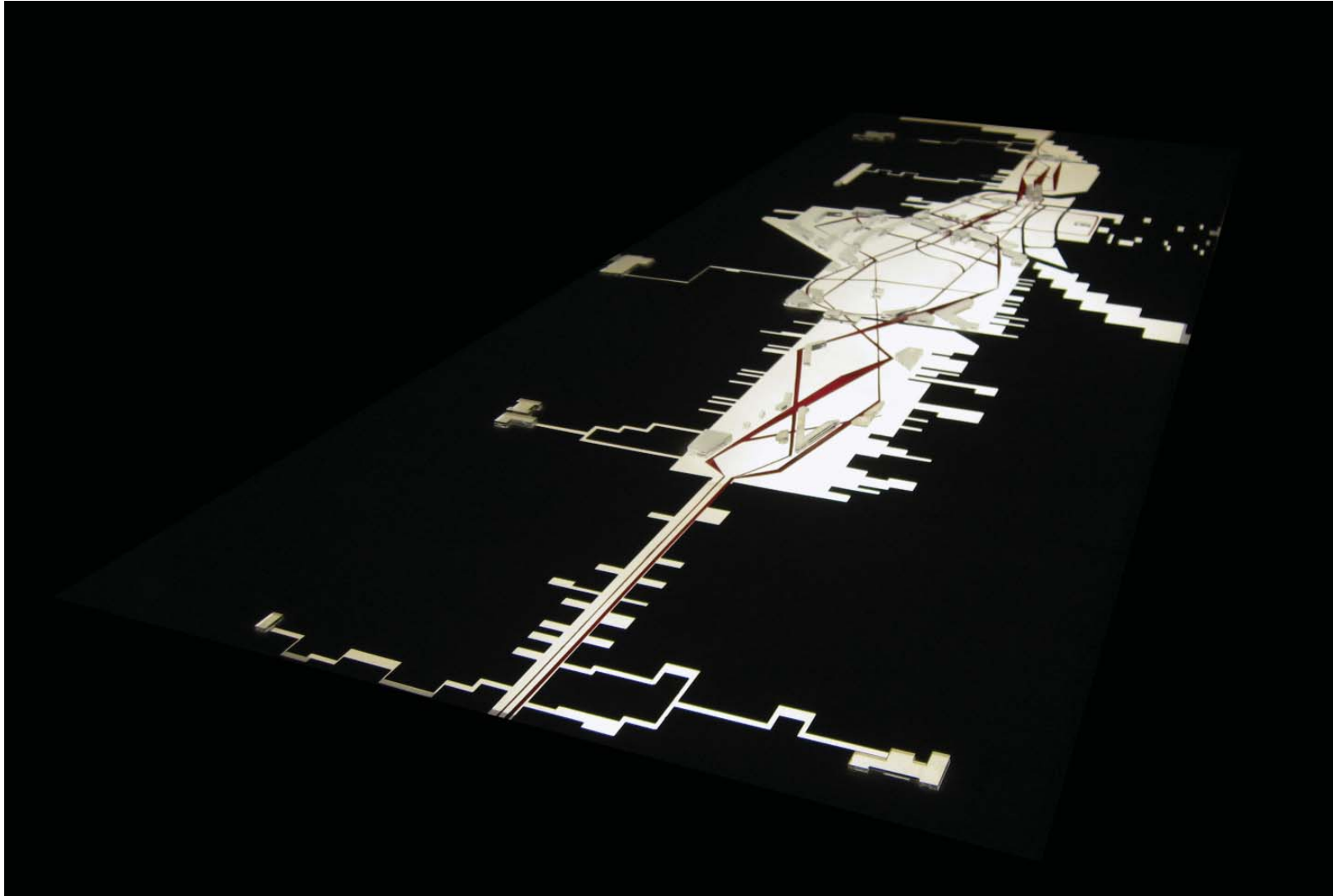
Figure 7.11 - Final site model (2).
(Source: Author)

## Remediation Phase

The contaminated areas are dedicated to phytoremediators, specially accumulators of metals. These plants absorb heavy metals and translocate them to their harvestable shoots. After they have grown for some time and improving the urban landscape, they are harvested and incinerated or composted to recycle the metals. Then the landscape can be used for agriculture, providing new jobs to the residents of the neighborhood (Fig. 7.12-16).



Figure 7.12 - Phytoremediators diagram.
(Source: Author)

Figure 7.13 - Existing conditions.
(Source: Author)

Figure 7.14 - One year from now.
(Source: Author)

Figure 7.15 - Five years from now.
(Source: Author)

Figure 7.16 - Ten years from now.
(Source: Author)

**Slip Strategy**

      The slip is a strategy to take advantage of vacant lots by turning them into community generators. They can become playgrounds, community gardens, basketball courts, art space and many more possibilities. Figure 7.03 on page 98, shows where this slip is located on the over all master plan.

Slip Components:

    22 vacant lots

    1 lot = ± 3,000 ft$^2$

    <u>15 lots = 1 acre = 43,560 ft$^2$</u>

    10 lots = ± 30,000 ft$^2$ of agriculture
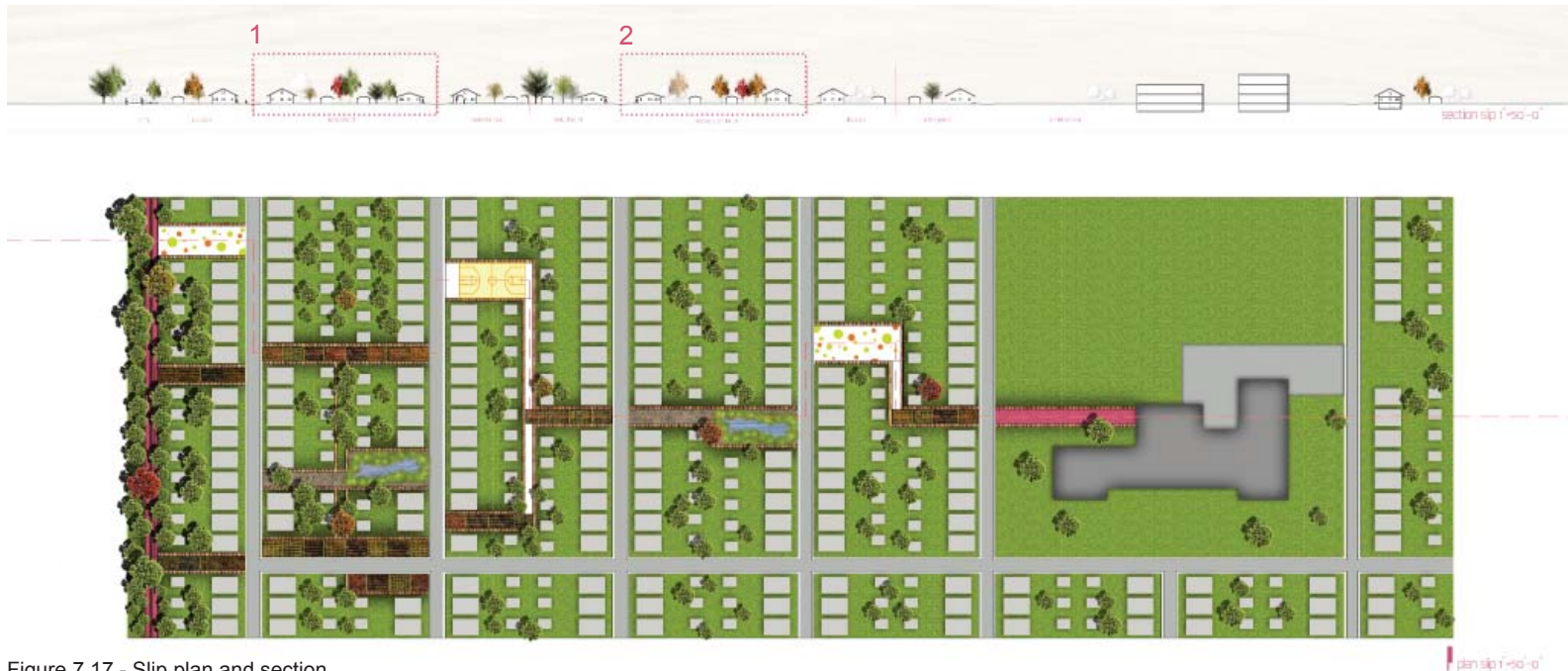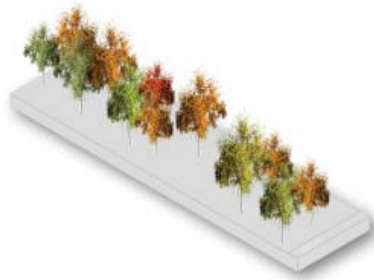
    12 lots = community generators



Figure 7.17 - Slip plan and section.
(Source: Author)

Figure 7.18 - Section thru agriculture lot. (1)
(Source: Author)



Figure 7.19 - Section thru residential garden lot. (2)
(Source: Author)

**Beech Maple Forest Lot**
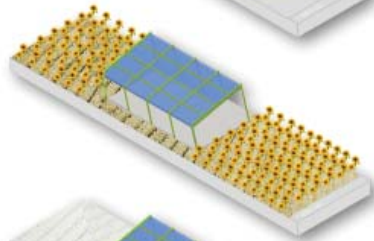Existing condition where native trees occupy most of the lot.

Minimal built intervention.

**Garden Lot**
Acts as an urban oasis within the built context.
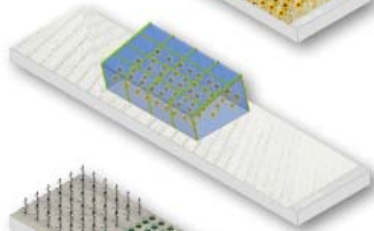
Water retention area, pond.

Manipulation of ground plane.

**Green House Lot**
Allocates space for harvesting during winter months, other seasons it functions as a workshop space.

Simple and inexpensive construction method, can be carried out by community.
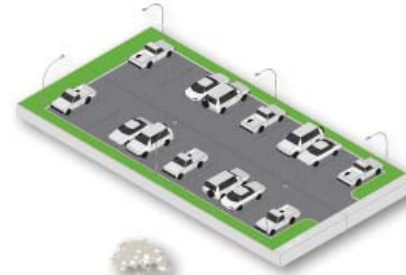
It can function as an energy generator lot.

**Urban Agriculture Lot**
±2,000 ft² = year supply of vegetables for average family of 4

1 vacant lot = ±2,900 ft2 of agriculture land

15 vacant lots = 1 acre

Figure 7.20 - Vacant lot possibilities.
(Source: Author)

**Parking Lot**
Taking advantage of contiguous vacant lots to provide enough parking for the block residents. Creating a connection to the sidewalk and the improved alley conditions.

12-15 parking spots per lot.

Use of pervious ground cover.

Solar powered lighting.

Native landscaping to create buffer zones.

**Playground Lot**
Creating safe areas for children to play.

Providing space for parents to wait for their children.

Use of different ground covers and textures.

Integrating existing nature.

**Sports Lot**
Integrating exercise and recreation spots for multiple users at once.

Opportunity for small service facility to be implemented.

Use depends on lot size and nearby context.

Similar uses can not occur within a 1/4 mile radius from each other.
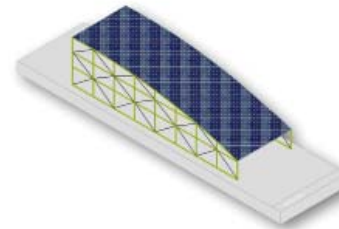
**Energy Generator Lot**
This vacant lot typology generates power to run needs and services in public areas. it can sell energy back to the grid and power nearby homes. It can double as a pavilion.

The average US home uses about 750 kwh per month, about 9,000 kwh of electricity each year.
Average home = 285 ft² of solar panels.

Simple and inexpensive construction method, can be carried out by community.

Space for storage and service area.

The slip works as a water and energy collector and distribution system. By using the energy generator lot and the garden lot, the slip can provide for public services, irrigation, nearby homes and sell it back to the grid. The slip also works as urban agriculture gardens that can be managed by the residents and they can sell it in nearby markets.



strings

water collection and distribution

energy collection and distribution

Figure 7.21 - Slip components.
(Source: Author)



alley connectors

vacant lots

edges

existing context

block structure
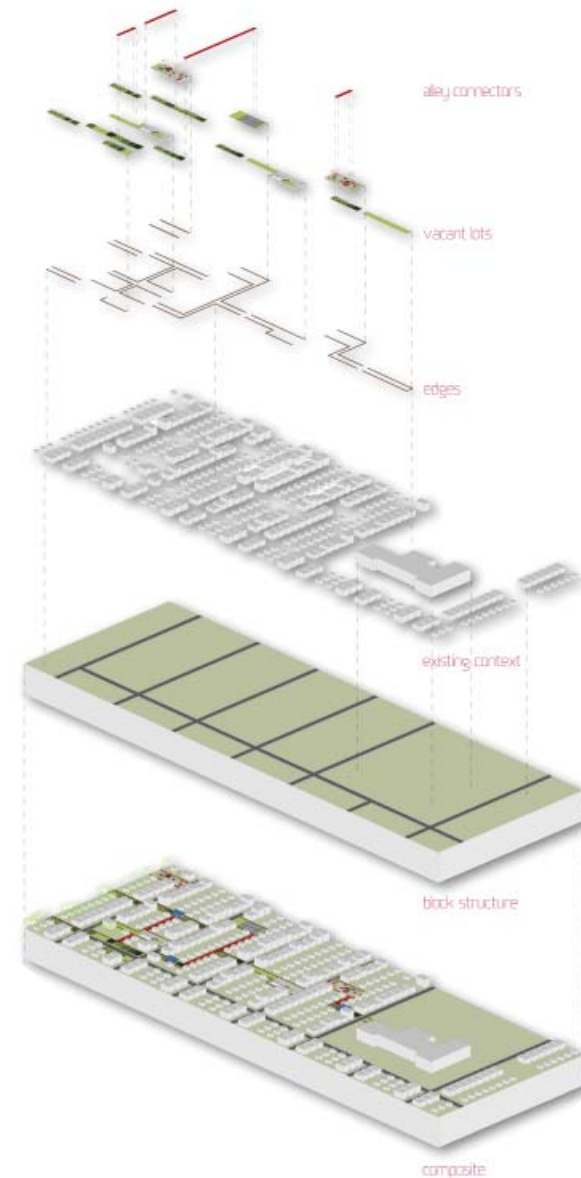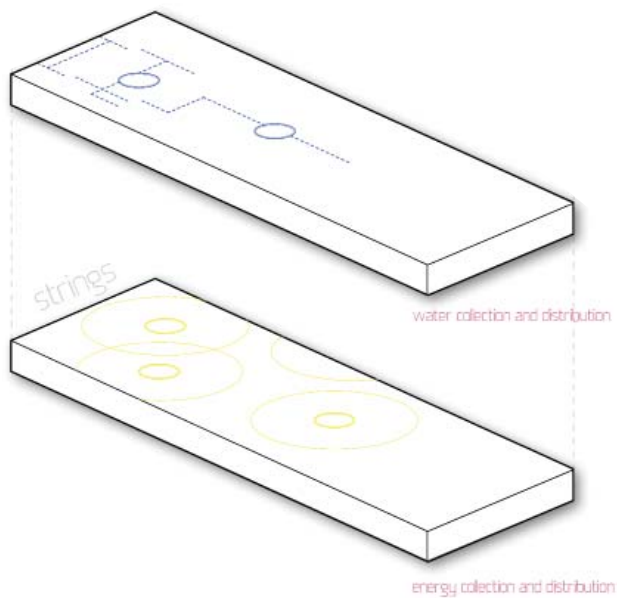
composite

Figure 7.22 - Alley condition (day time).
(Source: Author)

Figure 7.23 - Alley condition (night time).

Figure 7.24 - Proposed slip sections.
(Source: Author)

118

Figure 7.25 - Sports lot view.
(Source: Author)

Figure 7.26 - Green house lot view (spring).
(Source: Author)

Figure 7.27 - Green house lot view (winter).
(Source: Author)

Integration of systems within built components in order to harvest resources

Responds to neighborhood needs and gives identity

Alternative energy harvesting

Implemented at neighborhood level and connected to main network

Wind-solar-water-biofuels

Green technology industry

Neighborhood farms located at strategic points to serve a wider public

Rentable space

Economic revenue for the citizen and the city

Improvement of alleyways and vacant lots

Small scale programmatic installations that promote community within a neighborhood

Low cost interventions

Adding value to nearby homes

Re-introduction of native ecologies

Biodiversity

Improved pedestrian connectivity

Overcoming urban barries
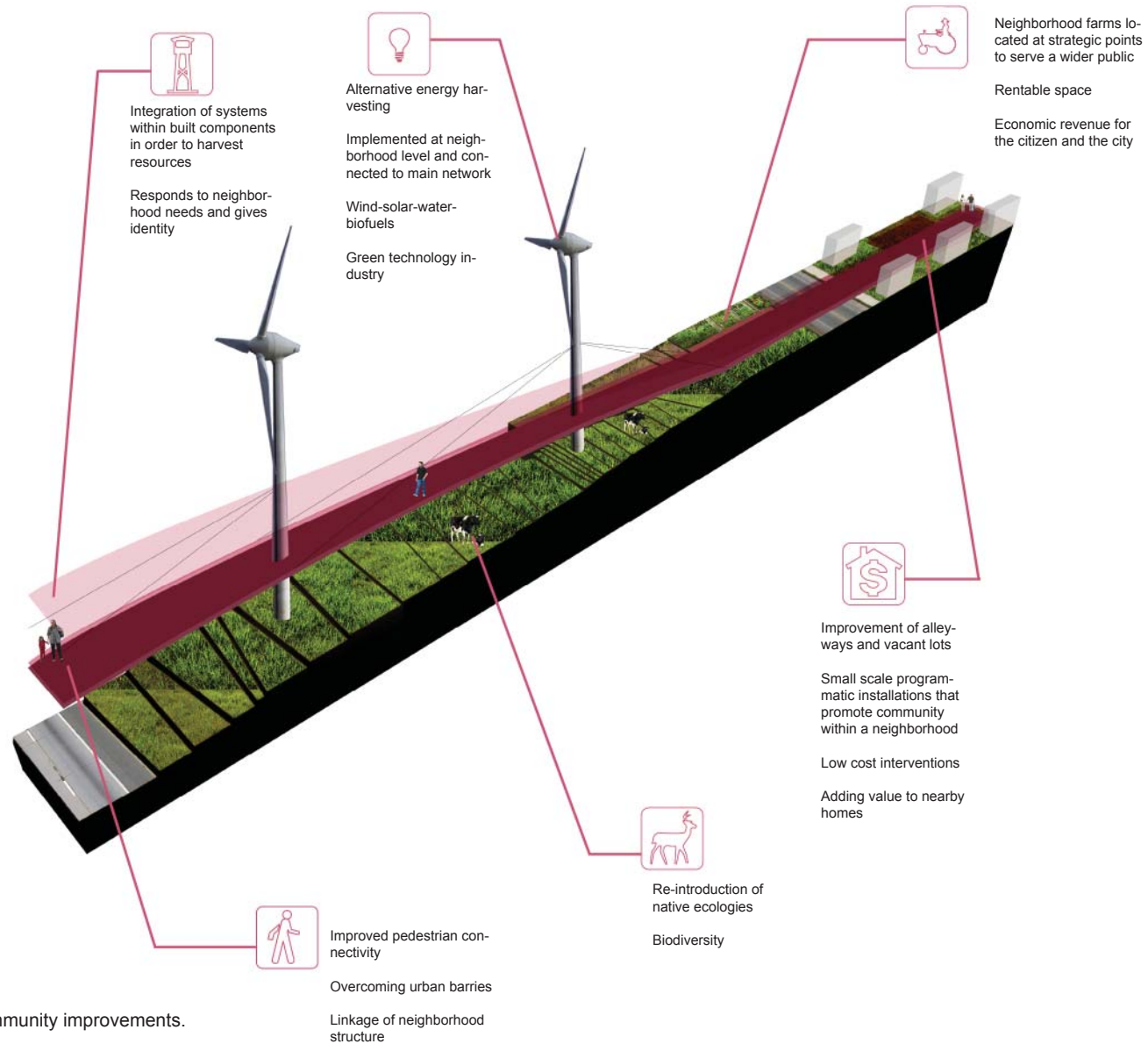
Linkage of neighborhood structure

Figure 7.28 - Slip Community improvements.
(Source: Author)

## Strings Strategy

Being the main ground plane intervention, the strings create diverse landscape zones that mitigate contamination, visual aesthetics, public space and productive landscapes. These are access routes, bike ways, walking path, fitness circuit, street tree planting, ecological corridors, running track, rail line, street crossings. They create connections between knots and neighborhood spaces.
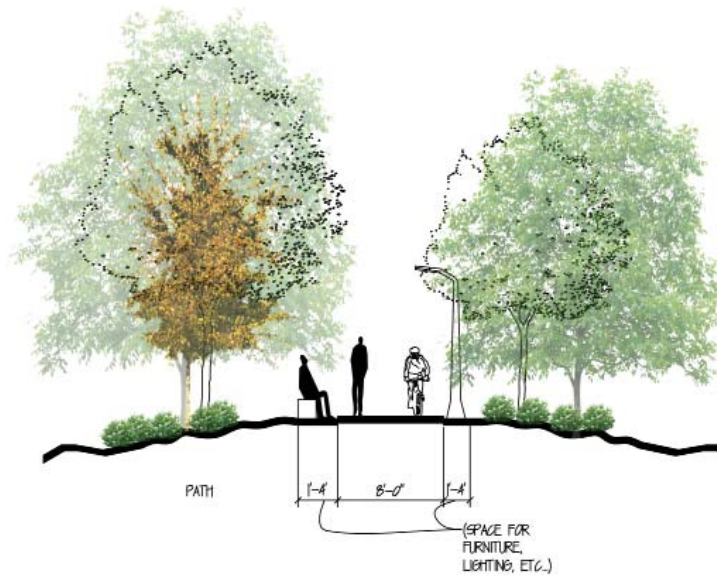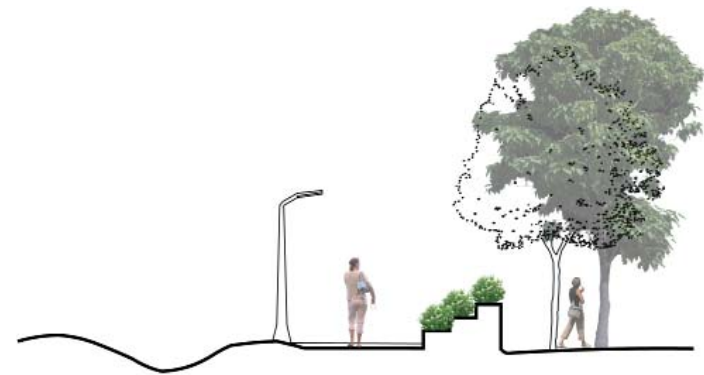


Figure 7.29 - Proposed strings sections.
(Source: Author)
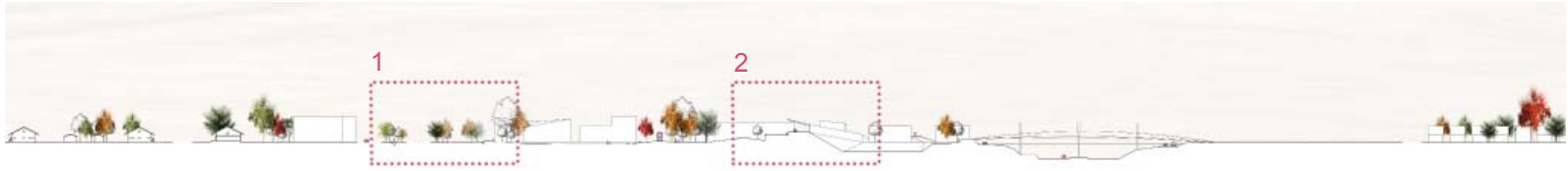
Figure 7.30 - Section thru strings.
(Source: Author)



Figure 7.31 - Strings section detail (1).
(Source: Author)

Figure 7.33 - Strings model.
(Source: Author)
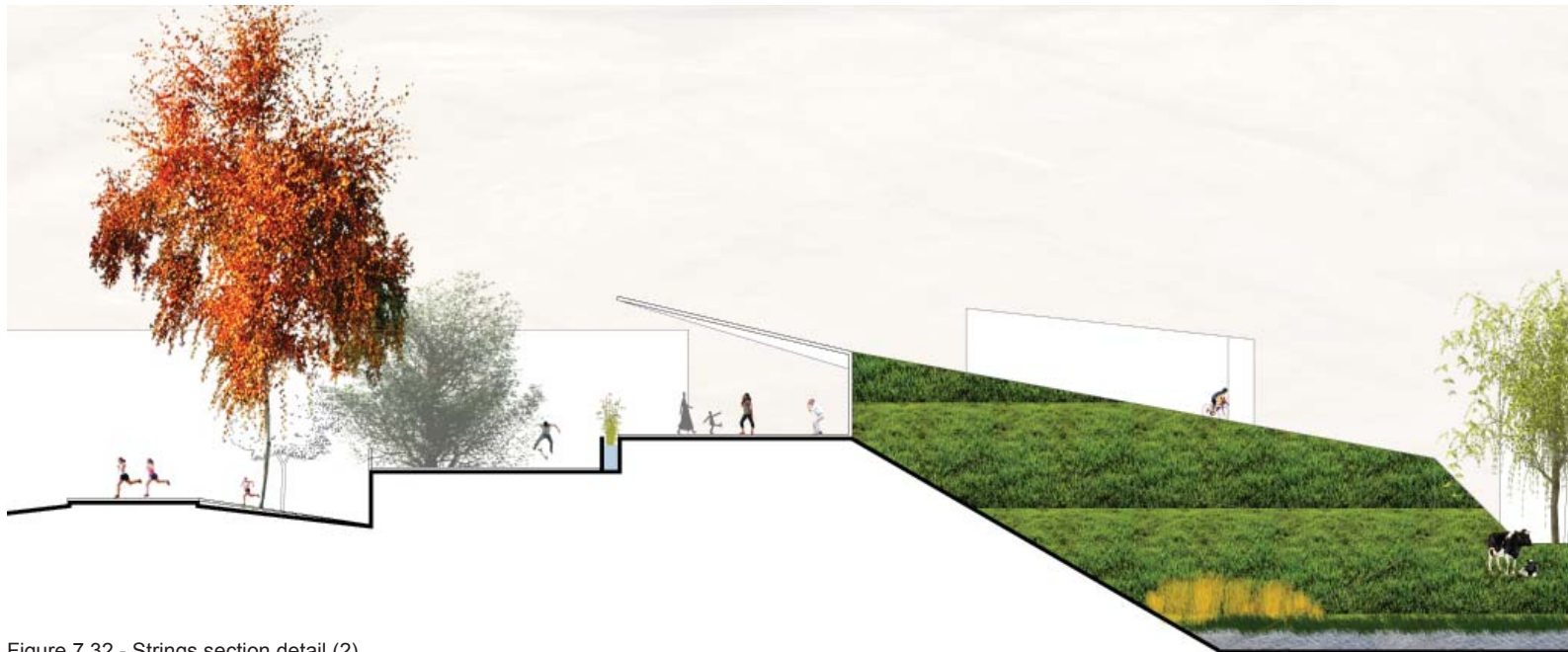


Figure 7.32 - Strings section detail (2).
(Source: Author)

Recycled and Re-
newable materials-
for ground cover

Local materials

Managed forests

Event spaces for social
interaction

Variety of enclosure degrees

On - above - below ground
level

Bioremediation of contami-
nated soils due to previ-
ous use

Phytoremediation

Floodable landscapes

Wetlands

Seasonal crops and
harvest

Self-sustained green space

Native plants

Renewable energy re-
sources

Recreational
programming

Preservation and re-
forestation of native
Beech Maple trees

Permeability of
ground cover to
allow for water
infiltration

Figure 7.34 - Strings Community improvements.
(Source: Author)

Figure 7.35 - Strings view.
(Source: Author)

## Knot Strategy

Knots are community catalysts where the existing sense of community is reinforced, providing jobs, self improvement opportunities and place. The concept is to weave all components of the urban fabric together, giving unique, unexpected and dynamic qualities to everyday urban life. The buildings respond to this condition by opening to the public spaces and by being self-sufficient (Fig. 7.34-37). Figure 7.03 on page 98, shows where this knot area is located on the over all master plan.
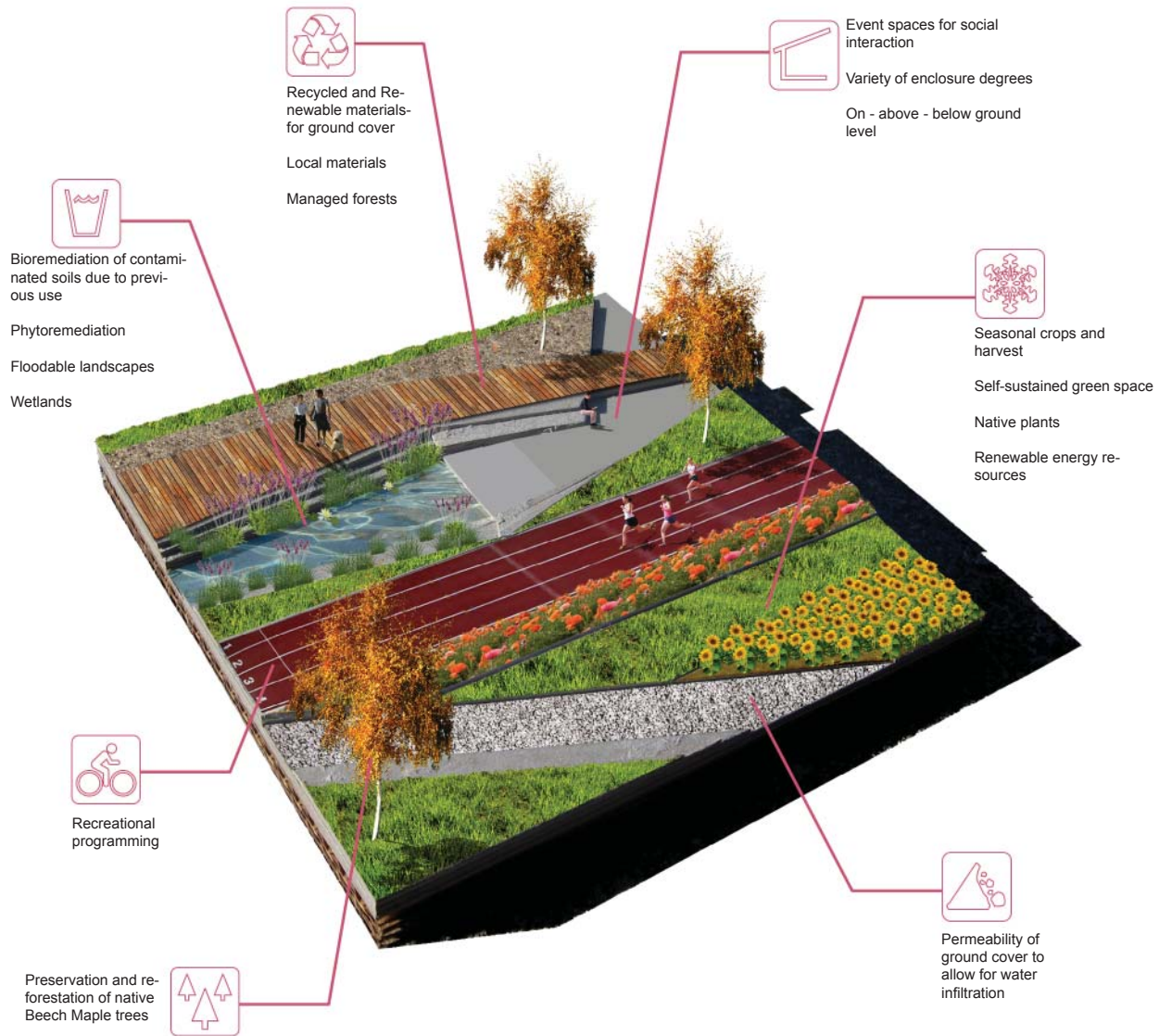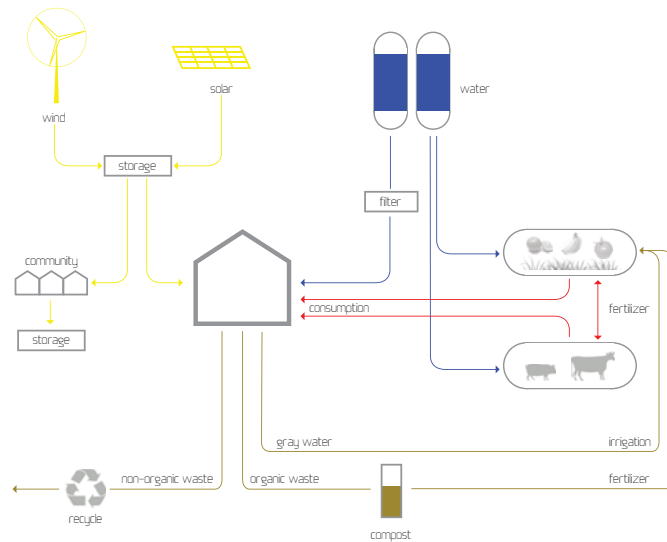


Figure 7.36 - Building sustainability diagram.
(Source: Author)



Figure 7.37 - Knot detail plan.
(Source: Author)

Figure 7.38 - Knot final model.
(Source: Author)

Figure 7.39 - Building sustainability (summer).
(Source: Author)
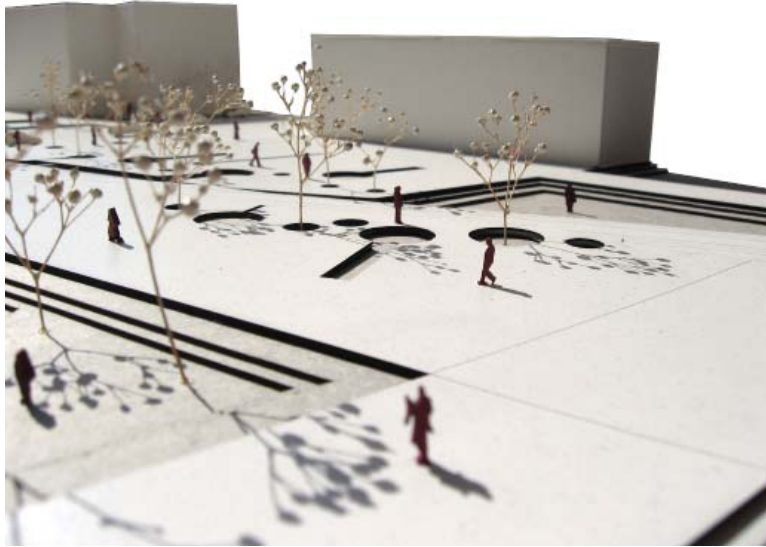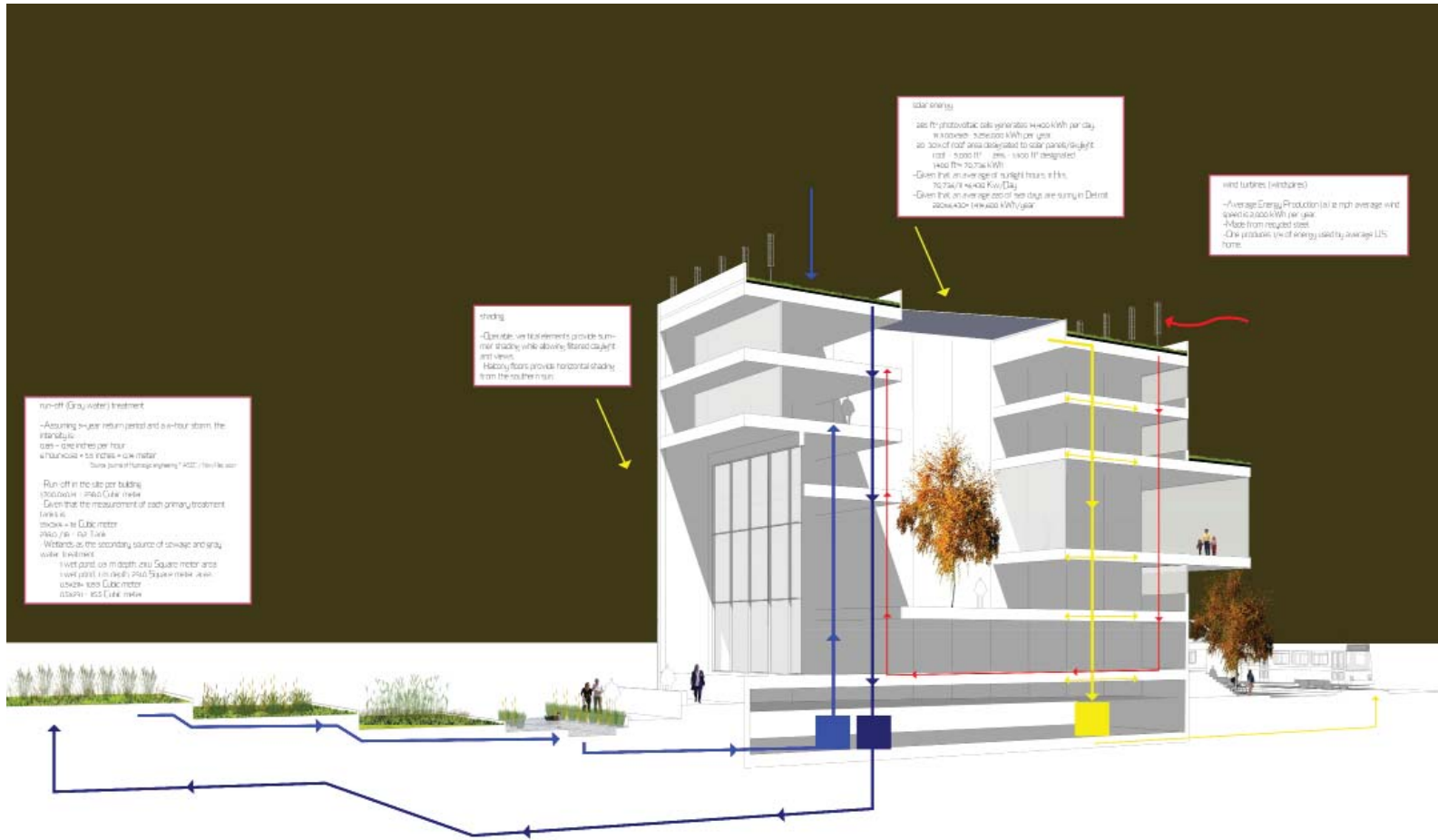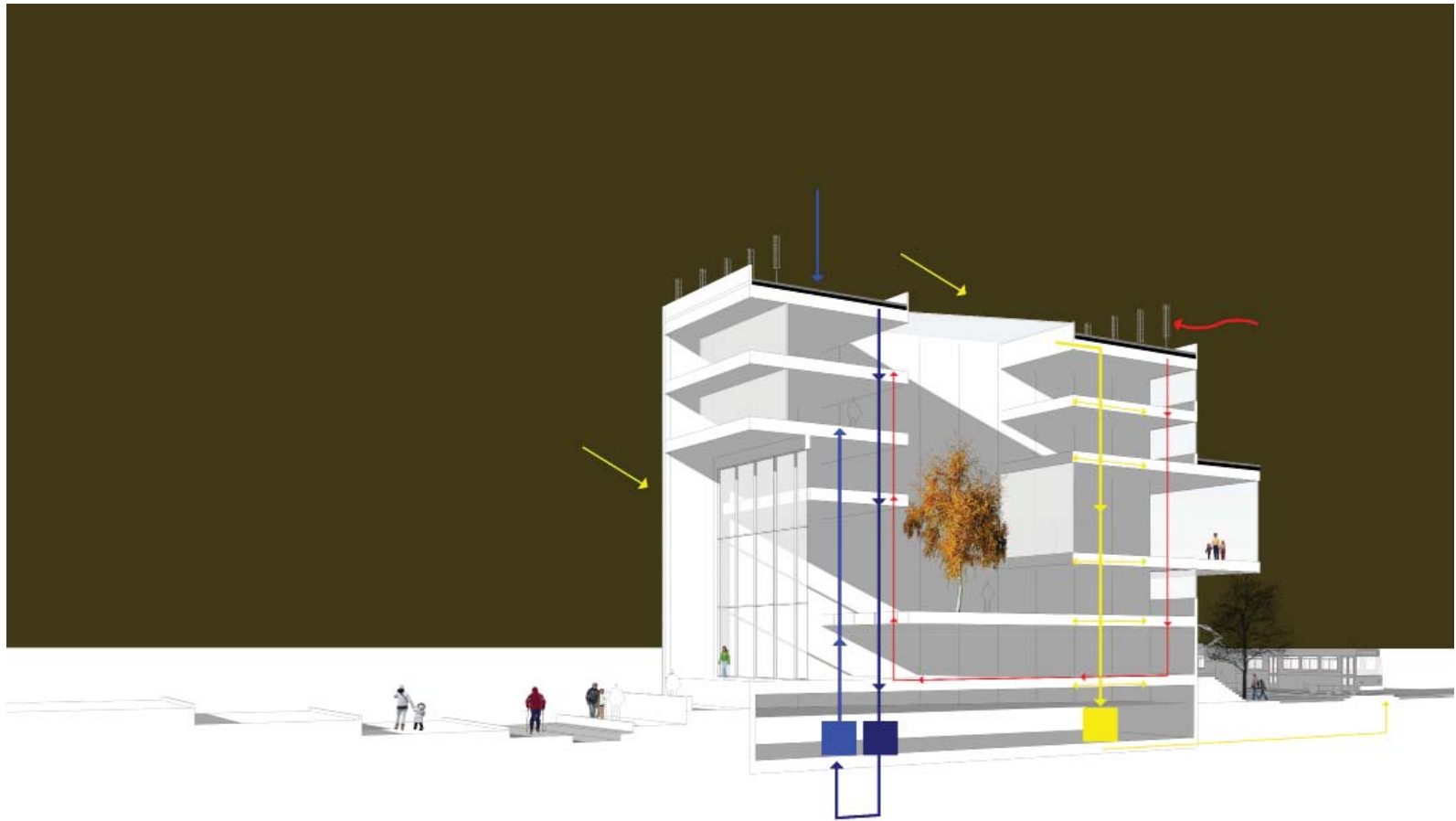
Figure 7.40 - Building sustainability (winter).
(Source: Author)

Figure 7.41 - Perspective view 1.
(Source: Author)

Figure 7.42 - Perspective view 2.
(Source: Author)

Figure 7.43 - Perspective view 3.
(Source: Author)

Figure 7.44 - Perspective view 4.
(Source: Author)

Figure 8.01 - Hope.
(Source: Author)

"As life evolves, our cities and our architecture need to evolve with it. Our cities are not polluted or congested because they have to be. They are what they are because that is how we made them. So when something does not fit anymore, we architects have the ability - and responsibility - to make sure that our cities do not force us to adapt to outdated leftovers from the past, but actually fit to the way we want to live." [37]

The initial goal of this thesis was to create an integrated network approach to recondition an area of a city that has been fragmented as a result of recent changes in economic and social factors. This approach led to the creation of guidelines and strategies that could be applied to any city in the world. As the project evolved, this goal shifted to create an overall infrastructure network to manage Detroit's population shrinkage. During the schematic phase the project, the main goal went through a series of critiques and was redirected towards a landscape urbanism strategy that focuses on neighborhood and the city as a whole.

This thesis is not a final design solution, but it is one of the many theoretical possibilities that the city of Detroit has available

37 - Ingels, Bjarke. *Yes Is More: An Archicomic on Architectural Evolution*. Evergreen , 2009.

to re-structure itself. The one goal Detroit must aim for is to plan for progress and changes over time, evolving as needed.

The main challenge of the thesis was the scale of the project and dealing with issues at both the neighborhood level and at the city level. The fact that the author was not able to visit the site and fully engaged with its community is one of the drawbacks for the research.

This thesis proposes a series of strategies to challenges faced by many cities world wide. As a response to the existing conditions in Detroit, this thesis makes use of the existing infrastructure, develops a productive landscape through the use of vacant lots, post-industrial land, and contaminated soils, and develops a shrinkage strategy. By focusing on the natural component of the urban fabric, this thesis recognizes the potential of areas that outlived their original vitality and gives hope to a resilient community by providing new jobs, new living conditions and a positive point of view to a tough reality. The next step is to present this to Detroit, maybe they will listen.

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