COMPLEX PROJECTS
South Works_Chicago Studio

P4 Presentation

Doris Harding
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MASTERPLAN

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OBSERVATIONS AND CONSIDERATIONS
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CONCEPT
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PROGRAM
CLOUD
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SOCIAL HARDSHIP
THE RELATIONAL CITY

1. Introduction
2. Fragmentation
3. Density
4. Program
5. Connections
6. Growth
7. Diversity
MASTERPLAN
South Works Development

THE RELATIONAL CITY

1. Introduction

2. Fragmentation

3. Density

4. Program

5. Connections

6. Growth

7. Diversity
The masterplan has been developed with a methodology that is site-specific. However, the system might be applicable in other situations with similar conditions:

**Shrinking**

*Abandoned post-industrial urban fringe*

*The necessity of a model that creates a new dynamic*
From the research three main considerations have helped us to develop a new urban approach:

**South-Chicago as a mono-identity neighborhood**

**The homogeneity of the city organized by the grid and urban blocks**

**The history of South-Works**
SOUTH CHICAGO: A MONO-IDENTITY
The only economic activity: Steel Works
SOUTH CHICAGO: A MONO-IDENTITY
The only economic activity: Steel Works
The neighborhood was home to the *South Works steel mill*, which employed **20,000 Chicagoans at its peak**.

The inhabitants of South Chicago have a very strong connection to South Works, since most of the working force lived in the neighborhood.
After 1992, when the industrial site of South Works closed, the whole area experienced an economical and social decline. *South Chicago was relying on a singular economic activity.* The current situation is characterized by:

**ABANDONMENT**
From the research three main considerations have helped us to develop a new urban approach:

- **South-Chicago as a mono-identity neighborhood**

- **The homogeneity of the city organized by the urban blocks**

- **The history of South-Works**
THE HOMOGENEITY OF THE CITY

Urban blocks

Lincoln Park

Irving Park

South Chicago
THE HOMOGENEITY OF THE CITY
Urban blocks as a frame within the grid
THE HOMOGENEITY OF THE CITY
Urban blocks as a frame within the grid

- The Urban block is a rigid frame
- The urban block doesn't contain nature
- It is the frame for the urban environment
- Voids are not designed inside the urban block
- Voids are the result of the failure of urbanity, they are manifested in abandonment or vacancy
- Establishing a rigid urban block means imposing a system of sure growth.
FRAMEWORK OF INTERVENTION
THE NEW URBAN FRAME, CONSTITUTES A DRAWING OF HETEROGENEOUS FRAGMENTS.

THE FRAGMENTS CAN CONTAIN NATURE OR BUILT ENVIRONMENT.

THE FRAMEWORK IS:

FLEXIBLE

BECAUSE IT CAN ADAPT TO GROWTH, BUT ALSO BE A FRAMEWORK FOR THE SHAPING OF THE OPEN-SPACES IN CASE THE CITY WILL NOT GROWTH.
FRAMEWORK
For the urban environment to expand

FLEXIBLE
BECAUSE IT CAN ADAPT TO GROWTH
FRAMEWORK
To give shape to the voids

FLEXIBLE
BUT ALSO BE A FRAMEWORK FOR THE SHAPING OF THE OPEN-SPACES IN CASE THE CITY WILL NOT GROW
THE RELATIONAL CITY

1. Introduction
2. Fragmentation
3. Density
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6. Growth
7. Diversity
FRAGMENTATION

is the strategy *to avoid* the formation of:

*TWO SEGREGATED AREAS*

IT DOESN'T IMPOSE A BIG INTERVENTION
SEGREGATION

The neighborhood

The neighborhood
FRAGMENTATION
GRADUAL GROWTH
FRAGMENTATION
GRADUAL GROWTH
FRAGMENTATION
GRADUAL GROWTH
FRAGMENTATION
as a strategy for
DIFFERENTIATION

THE NEIGHBORHOOD

THE NEW ENVIRONMENT

LAKE MICHIGAN
THE PLOT IS A **TABULA RASA**

WHAT IS LEFT ARE THE SIGNS OF INDUSTRIAL ABANDONMENT

WHAT HAVE CREATED THESE SCARS?
THE SITE

Historical evolution
THE PROCESS

The fundamental steps

LANDSCAPE LAYER

BUILT ENVIRONMENT LAYER

INFRASTRUCTURE LAYER

FRAGMENTATION

SUPERIMPOSITION

LAYER CLASSIFICATION
THE PROCESS
The overall view of the formation of the layers
1. Introduction
2. Fragmentation
3. Density
4. Program
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SHRINKING IN SOUTH CHICAGO
THE EVOLUTION OVER TIME
ANALYSIS OF CHICAGO DENSITIES
SOUTH CHICAGO
ANALYSIS OF CHICAGO DENSITIES
IRVING PARK
ANALYSIS OF CHICAGO DENSITIES
BUILDING TYPOLOGY COMPARISON

SOUTH CHICAGO

Total Area: 6.37 kmq
Population 2010: 31,198
Population Density: 5.898/kmq
Population 2000-2010: -19.2%
Average Amount of Floor per building: 1.77
People/Kmq: 4.898

IRVING PARK

Total Area: 8.37 kmq
Population 2010: 53,359
Population Density: 6.375/kmq
Population 2000-2010: -9.0%
Average Amount of Floor per building: 1.83
People/Kmq: 6.375

LINCOLN PARK

Total Area: 8.26 kmq
Population 2010: 64,116
Population Density: 7.762/kmq
Population 2000-2010: -0.3%
Average Amount of Floor per building: 2.53
People/Kmq: 7.762
<table>
<thead>
<tr>
<th>LINCOLN PARK</th>
<th>IRVING PARK</th>
<th>SOUTH CHICAGO</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVERAGE FAR:</td>
<td>1,35</td>
<td>0,56</td>
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<tr>
<td></td>
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<td>0,58</td>
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We have set the goal FAR at 0,8
We want to create a neighborhood that can evolve into a vibrant urban area. We chose to use density FAR of 0.8, because we want to leave a percentage of voids that can evolve into future growth, and eventually arrive to a similar scenario of the one of Lincoln Park. The main quality of the Lincoln Park area is the diversity in density, but we didn't want to implement a density that is, in the first phase of the project at least, not too different from the current situation of the neighborhood. We feel the density in the area is the way it is for a (number of) reason(s) and needs time to adapt to the newly proposed system, but eventually if the ideal coherence between dwelling-services-production-public is achieved, also the density of the neighborhood will adapt the new system.
GENERATING DENSITY

FACTOR A: DENSITY ATTRACTORS
GENERATING DENSITY
FACTOR B: DIVERSITY
GENERATING DENSITY
FACTOR C: OVERALL DENSITY

TOTAL FAR
0.8
GENERATING DENSITY
HETEROGENEOUS ENSEMBLE
GENERATING DENSITY
HETEROGENEOUS ENSEMBLE
GENERATING DENSITY
OPPOSED TO THE HOMOGENEITY OF SOUTH CHICAGO
1. Introduction
2. Fragmentation
3. Density
4. Program
5. Connections
6. Growth
7. Diversity
The PROGRAM DISTRIBUTION is based on:

Connectivity

Densities

Scattered distribution
Program is based on connectivity: space syntax
BUILT VS UNBUILT
LAND-USE DISTRIBUTION between BUILDABLE SPACE AND UNBUILDABLE SPACE

PROGRAM
BAR
LAND-USE

45% Open-space

55% Buildable space
OTHER FUNCTIONS
The overall view of the functional distribution

PROGRAM DIVISION based FAR

CULTURAL INCUBATORS: 15% 55,000 sqm
- Library: 7000sqm
- Art Center: 4000 sqm
- Museum 1: 5000 sqm
- Music Hall: 5000 sqm
- Theatre: 4000 sqm
- Cinema: 3000 (2) = 6000 sqm
- Exhibition Pavilions: 3 (1000) = 3000 sqm
- Music-Dance Center: 2000 sqm
- Culture Center(s)= 15000 sqm

COMMUNITY BUILDINGS: 30% 105,000 sqm
- Health Care: 12,000 sqm
- Small specific health center: 4000sqm
- Community Center: 4000 sqm
- Recreational center: 3000 sqm
- Nursery house (2) 100 sqm= 3000 sqm
- Churches 500 (5)= 2500sqm
- Religion meeting centers (3): (800)= 2400
- Sport Center (2) 700= 1400
- Other Facilities= 10000
- Vocational schools 4000 (3)= 12000sqm
- School (primary): 2000sqm (3) = 6000sqm
- Research Center: 5000sqm
- Music, Art and other schools: (6) 1000=
- Workshop spaces for food education: (4)(1000)=4000
- Fire Station: 3000 sqm
- Police Station: 3000sqm
- Rehabilitation Centers 3 (2000) 6000sqm
- Central Market: 5000 sqm

RETAIL: 20% 72,000 sqm

OFFICES: 15% 55,000 sqm

PRODUCTION: 20% 72,000 sqm
**LANDSCAPE**

*Overview of all the greenery*

**PROGRAM**

**BAR**

**LAND-USE**

45% Open-space

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**LANDSCAPE**

- Public park
- Forest
- Beach
- Leisure
- Urban agriculture
# LANDSCAPE

Overview of all the greenery

<table>
<thead>
<tr>
<th>PROGRAM</th>
<th>BAR</th>
<th>LAND-USE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>45% Open-space</td>
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</tbody>
</table>

- PUBLIC PARKS
- FORESTS
- BEACH LEISURE
- URBAN AGRICULTURE
PROGRAMMATIC DIVERSITY

PROGRAM BAR LAND-USE

LANDSCAPE
- Public park
- Forest
- Beach
- Leisure
- Urban agriculture

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CONNECTIVITY

*Fragment lines as infrastructure*
CONNECTIVITY

*Space syntax*
CONNECTIVITY

*All roads*
CONNECTIVITY

Bicycle roads
CONNECTIVITY

Paths
1. Introduction
2. Fragmentation
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The growth of the development is made in phases.

The starting phases of the development doesn’t correspond to urban growth, just to a growth of the quality of the area: it is a project of landscape, made to give a quality to this space.
The further growth of the urban development can stop at any time.

The fragmented nature of the project gives the opportunity to let the growth be spontaneous. The scattered image of the development will never seemed as an unfinished growth. We create a framework that will be designed in its totality, either with natural elements, or with built environment.
GROWTH
PHASE 1: FRAMEWORK OF PATHS
GROWTH
PHASE 1: BUILT AREA DEVELOPMENT
GROWTH
PHASE 2: BUILT AREA DEVELOPMENT
GROWTH
PHASE 3: BUILT AREA DEVELOPMENT
GROWTH
PHASE 4: BUILT AREA DEVELOPMENT
GROWTH
PHASE 5: BUILT AREA DEVELOPMENT
GROWTH
PHASE 6: BUILT AREA DEVELOPMENT
ARCHITECTURAL PROJECT
CONTENTS

ARCHITECTURAL PROJECT

RESEARCH
LOCATION
DESIGN

SITE
CONCEPT
GROWTH
PROGRAM
CLOUD
CLIMATE
RESEARCH
“WE SHOULD NOT TRY TO PREDICT WHAT WILL HAPPEN IN THE FUTURE, BUT TRY TO MAKE PROVISIONS FOR THE UNFORESEEN.”

...HABRAKEN, 1961
EXAMPLES OF CRITIQUES TOWARDS THE TECHNOLOGICAL EVOLUTION AFTER WWII, ITS CONSEQUENCES AND NEW UTOPIAS

SUPPORT & INFILL - John Habraken
NEW BABYLON - Constant Nieuwenhuijs
VILLE SPATIALE - Yona Friedman
HABRAKEN - MANIFESTO AGAINST MASS HOUSING

FLEXIBILITY WITHIN A FRAME: SUPPORT AND INFILL
RESEARCH PRECEDEENTS

FRIEDMAN - STRIVE FOR THE PEASANT SOCIETY, A **JUXTAPOSITION** OF THE CITY ATMOSPHERE

ELEVATED FRAMEWORK WITH ALL SORTS OF UNITS INSIDE

SELF PLANNING & SELF RELIANCE

THE “URBAN VILLAGE”: **VILLE SPATIALE**
NIEUWENHUIJS - FREED FROM **CONSTRAINTS OF WORK**, MAN ONLY PLAYS: "**HOMO LUDENS**" (PLAYING MAN)

TRAVEL, ADVENTURE AND CREATIVITY: **NEW BABYLON**
RESEARCH
PRECEDENTS

ALTERATION
LOW TECH
SMALL UNITS
PERMANENT VS. FLEXIBLE FRAME
OPEN PUBLIC SPACE ON GROUND FLOOR
FREEDOM
RESEARCH
SUMMARIZING URBAN PLAN

LACK OF DIVERSITY - SOCIALLY, MORPHOLOGICALLY

UNKNOWN FUTURE - ECONOMICALLY

FLEXIBILITY

GRADUAL GROWTH
RESEARCH QUESTION

INVESTIGATE IF IT IS POSSIBLE TO CREATE A BUILDING THAT ACTUALLY GROWS, INFLUENCED BY UNFORSEEN SHIFTS AND CHANGES ECONOMICALLY AND SOCIALLY.
DESIGN
SITE
FIRST PHASE DEVELOPMENT WITHIN LANDSCAPE

CHALLENGE:

MASTERPLAN CATALYST - ICONIC
vs
AVOID FORCEFULNESS - ENABLE FUTURE SCENARIOS FOR GROWTH
CONCEPT
FUTURE FLEXIBILITY

URBAN BLOCK SYSTEM - RIGID PATTERN FOR HORIZONTAL GROWTH

3D FRAMEWORK FOR UNCONSTRAINED GROWTH

LIMITLESS SPATIAL OPPORTUNITIES
CONCEPT
CULTURAL ASSIGNMENT

CULTURAL STARTING POINT FOR NEIGHBORHOOD

CULTURE

“THE SUM OF WAYS OF LIVING BUILT UP BY A GROUP OF HUMAN BEINGS AND TRANSMITTED FROM ONE GENERATION TO ANOTHER”

COLLECTIVE & SHARING
CONCEPT
CULTURAL ASSIGNMENT

PUBLIC DOMAIN AS A PLACE FOR SOCIAL ENGAGEMENT
CONCEPT
PUBLIC SQUARE

CULTURAL STARTING POINT FOR NEIGHBORHOOD
PUBLIC AND OPEN GROUND FLOOR SPACE
LARGE SPANS:

MAXIMUM SPACE
INCREASE FLEXIBILITY
SPATIAL QUALITY OF PUBLIC DOMAIN
MINIMIZE STRUCTURAL FOOTPRINT

PORTAL STRUCTURE
CONCEPT
STRUCTURAL FRAMEWORK

REGULAR GRID

IRREGULAR SHAPE SITE - INEFFECTIVE & BREAKS WITH URBAN PLANS DYNAMIC QUALITIES
CONCEPT
STRUCTURAL FRAMEWORK

VORONOI

NATURE’S TOOL FOR DIVISIONS AND STRUCTURAL SOUNDNESS
VORONOI

EXPLANATION

1. put some point as you wish
2. make line by connecting the point to another point near them
3. divide the line you previously made equally and create perpendicular line on it.
4. extend the perpendicular line until they intersect with another line.
5. clear the unappropriate line and there the result of your voronoi diagram.
CONCEPT
STRUCTURAL FRAMEWORK

VORONOI

IMPLEMENTATION: GRASSHOPPER SCRIPT

PARAMETERS:

SITE OUTLINE
MAXIMUM SPAN OF 30 METERS
APPROXIMATE NUMBER OF POINTS (COLUMNS)
CONCEPT
STRUCTURAL FRAMEWORK

VORONOI
COLUMN LOCATIONS
VORONOI

CELL FORMATION
CONCEPT
STRUCTURAL FRAMEWORK

VORONOI

ROOF'S STRUCTURE

PORTAL - LINEAR
VORONOI - RADIAL
PORTAL + VORONOI = PARASOL
CONCEPT
STRUCTURAL FRAMEWORK

EXPRESSIVE & DYNAMIC STRUCTURE
= FRAMEWORK FOR DIVERSITY

ICON FOR THE WHOLE AREA - SENSE OF IDENTITY
ACCOMMODATE FLEXIBILITY WITHIN THE FRAMEWORK

SUSPENDED PROGRAM

NO FLOORS
NO EXTRA FOUNDATIONS
NO SPATIAL AND MORPHOLOGICAL RESTRICTIONS
GROWTH
GRADUAL THROUGH PHASES

IN RESPECT TO THE GRADUAL DEVELOPMENT OF THE URBAN PLAN
GROWTH
PHASE 0: GROWTH +

ALL PHASES HAVE THE POTENTIAL TO BE THE FINAL DEVELOPMENT
GROWTH
PHASE 1

ICONIC GESTURE FOR WHOLE AREA IN ALL PHASES
PHASE 2 GROWTH

ADAPTS TO DENSITY OF CONTEXT
GROWTH
SECOND FLOOR
PROGRAM

BREAK WITH HOMOGENEITY

INTRODUCE HETEROGENEOUS PROGRAM
PROGRAM

MULTIFUNCTIONAL CULTURAL STARTING POINT FOR NEIGHBORHOOD

GROUND FLOOR:

PLACES TO GATHER, MEET AND SHARE

“CLOUD”:

CLUSTERS OF UNITS WITH OPPORTUNITIES FOR FLEXIBILITY

LIVE, WORK, PLAY
GROUND FLOOR

PUBLIC SQUARE:

WEEKLY MARKET
PUBLIC SQUARE:

PODIUMS FOR PERFORMING ARTS

MUSIC, DANCE, THEATER, CINEMA
PUBLIC SQUARE:

SEASONAL PUBLIC EVENTS
FESTIVALS, FAIRS, CONFERENCES, EXHIBITIONS
PROGRAM
GROUND FLOOR

SUPPORTIVE (INDOOR) PROGRAM

INFOBOX & COFFEE SHOP

BIKE & SKATE SHOP

STORAGE (MARKET/EVENTS)
SUPPORTIVE (INDOOR) PROGRAM

INFOBOX & COFFEE SHOP

BIKE & SKATE SHOP

STORAGE (MARKET/EVENTS)
CLOUD
CLOUD PROGRAM

OPPORTUNITIES OF GROWING FRAMEWORK

BUILDING EXPLODED INTO SMALL INDIVIDUAL UNITS - FLEXIBILITY

HOSTEL
ROOMS
BATHHOUSE
COMMON ROOM

ARTS & CRAFTS
EXPOSITION GALLERY
ATELIERS (CREATING)

CREATIVE EVENT SUPPORT
COMMON ROOM
MEETING ROOMS
OFFICE STUDIOS

DWELLING STUDIOS (IN RESIDENCE)
SPREAD ACROSS ALL PHASES, TO BIND THEM TOGETHER, LEAVING ALL BUILDING PARTS INHABITABLE DURING ALL TIMES OF THE DAY

PUBLIC VIEW DECK
ONE CONTINUOUS PATH PER PHASE
CLOUD
PHASE 2
CLOUD
UNIT CATALOGUE

3 x 3

3 x 4

3 x 5

3 x 6

3 x 7

4 x 4

4 x 5

4 x 6

4 x 7

5 x 5

5 x 6

5 x 7
CLOUD
UNIT CATALOGUE 1:20

Hostel Room/Work studio
3 x 3m

Housing studio
4 x 5m

Bathhouse
4 x 7m

Common room
5 x 7m
Hostel Room/Work studio
3 x 3m
Housing studio
4 x 5m
Common room
5 x 7 m
CLOUD
PATHS 1:20
CLIMATE
CONSIDERATIONS

C2C: “BUILDINGS LIKE TREES AND CITIES LIKE FORESTS”

LARGE ARCHITECTURAL GESTURE VS SMALL UNITS

GROWTH SCHEME: UNKNOWN FUTURE:
PREVENT LARGE STARTING INVESTMENTS: INDIVIDUAL SYSTEM
CLIMATE SYSTEMS

Hostel Room/Work studio
3 x 3m

FAN COIL

INDIVIDUAL ELECTRICAL HEATING/COOLING
INTEGRATED AIR-TO-AIR HEAT EXCHANGER
CLIMATE SYSTEMS

ROOF

INTEGRATED PHOTOVOLTAIC CELLS

NATURAL LIGHT

WATER COLLECTION (AND PURIFICATION)
CLIMATE
INTEGRAL SYSTEMS DIAGRAM
PLACEMENT OF ROOF COINCIDES WITH THE LOCATION OF UNITS
PLACEMENT OF ROOF COINCIDES WITH THE LOCATION OF UNITS