P5 FINAL PRESENTATION

COMPLEX PROJECTS: CHICAGO LAKESIDE

26.06.2014
<table>
<thead>
<tr>
<th><strong>Country</strong></th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State</strong></td>
<td>Illinois</td>
</tr>
<tr>
<td><strong>Counties</strong></td>
<td>Cook, DuPage</td>
</tr>
<tr>
<td><strong>Area</strong></td>
<td>$606,1 \text{ km}^2$</td>
</tr>
<tr>
<td><strong>Population</strong></td>
<td>$2,714,856$</td>
</tr>
</tbody>
</table>

**City:** Chicago  
**Neighborhood:** South Chicago  
**Area:** $2,365 \text{ km}^2$  
**Population:** $84,037$  
**Density:** $4447.4 \text{ / km}^2$  
**Status:** Former steel mill
North Chicago Rolling Mill Company opened a sister mill at the mouth of the Calumet River on Chicago’s South Side—the famous South Works.

In 1889, most of the large Chicago-area mills—including North Chicago, South Works, Union, and Joliet—combined to form a huge new entity, the Illinois Steel Company.

In 1901, New York banker J.P. Morgan engineered the creation of U.S. Steel, the world’s largest business enterprise, and Illinois Steel became part of this giant entity.

Beginning in the 1970s, the facility began downsizing due to a shifting market for steel.

On 10 April 1992, the plant permanently shut down with fewer than 700 people employed at the time of its closing.
A 20 Year Vision for Chicago’s Southside Lakefront
NEIGHBOURHOOD TRANSFORMATION

...1974...

UNEMPLOYMENT
VACANCIES
SEGREGATION

...2014...
PROBLEMS OF THE NEIGHBOURHOOD

- **SOCIAL**
  - Weak Community
  - Low Education
  - Segregation
  - Crime / Violence
  - Bad Image

- **SPATIAL**
  - No Public Areas
  - Typological Homogenity
  - Vacant Plots / Houses
  - No Access to the Lake

- **ECONOMIC**
  - Food Desert
  - Low Income Households
  - Very Low Investment Interest
  - No Housing Market
  - Unemployment
  - No Housing Market
  - Mono-Functional Areas
  - Connectivity / Infrastructure

- Typological Homogenity
Vacant property impact on local community:
1.) declining property values and physical deterioration; 
2.) crime, social disorder, and population turnover; 
3.) local government fiscal stress and deterioration of services.

GANGS / STREET VIOLENCE

PUBLIC HEALTH CRISIS
NEIGHBOURHOOD REVITALIZATION STRATEGIES

- **UNEMPLOYMENT**
  - Professional education
  - Preference for local candidates
  - New working places in the neighborhood

- **SEGREGATION**
  - Revitalise neighborhood identity
  - Attract mixed-race residents

- **NO COMMUNITY**
  - Organisation of public events
  - After school education opportunities
  - Encourage creative development and group work

- **VACANT PROPERTIES**
  - Use vacant land for community events
  - Attract new residents
  - Redevelop city-owned properties

- **NO LOCAL BUSINESSES**
  - Provide free opportunities for professional development
  - Invest in small business startups

Vacant property impact on local community:
1. declining property values and physical deterioration;
2. crime, social disorder, and population turnover;
3. local government fiscal stress and deterioration of services.
unveiled on August 16, 2011 by Mayor Rahm Emanuel
Healthy Chicago outlines
16 health outcome targets,
12 priority areas, and
193 supporting strategies.
GOVERNMENT’S SUPPORT FOCUSES ON THESE 12 PRIORITY AREAS

1. Tobacco Use
2. Obesity Prevention
3. HIV Prevention
4. Adolescent Health
5. Cancer Disparities
6. Heart Disease
7. Access to Health Care
8. Healthy Mothers
9. Comm. Disease
10. Healthy Homes
11. Violence Prevention
12. Public Health

Source: Healthy Chicago Annual Report Feb14 2013
EXISTING FOUNDATION OF HEALTH SCIENCE RESOURCE

THERE ARE 4 TOP 100 MEDICAL SCHOOLS IN CHICAGO

EXISTING EDUCATION & RESEARCH INSTITUTES IN CHICAGO:
- University of Chicago
- Feinberg School of Medicine
- Rush Medical College
- University of Illinois College of Medicine
- Stericycle Inc.
- Cancer Treatment Centers of America

8 OF LARGEST COMPANIES IN CHICAGO MSA ARE HEALTH-RELATED

MAJORIZATION RESEARCH

4 MEDICAL SCHOOLS, RANKED AMONG THE TOP 100

<table>
<thead>
<tr>
<th>Medical School Name</th>
<th>2012 Revenue ($ Millions)</th>
<th>Employees (Worldwide)</th>
<th>Employees (Chicago)</th>
<th>Product/Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Care Service Corp.</td>
<td>52,000</td>
<td>19,100</td>
<td>5,600</td>
<td>Health insurer</td>
</tr>
<tr>
<td>Abbott Laboratories</td>
<td>39,874</td>
<td>91,000</td>
<td>13,000</td>
<td>Pharmaceuticals, medical products</td>
</tr>
<tr>
<td>AbbVie Inc.</td>
<td>18,380</td>
<td>21,500</td>
<td>N/A</td>
<td>Pharmaceutical Preparation Manufacturing</td>
</tr>
<tr>
<td>Baxter International Inc.</td>
<td>14,190</td>
<td>51,000</td>
<td>1,500 (HQ)</td>
<td>Medical products and services</td>
</tr>
<tr>
<td>Cataractan Corp. (1)</td>
<td>9,940</td>
<td>3,301</td>
<td>550</td>
<td>Pharmacy-benefit manager</td>
</tr>
<tr>
<td>Hospira, Inc.</td>
<td>4,092</td>
<td>16,000</td>
<td>700 (HQ)</td>
<td>Pharmaceutical and medication-delivery equipment</td>
</tr>
<tr>
<td>Stericycle Inc.</td>
<td>1,913</td>
<td>13,073</td>
<td>15 (HQ)</td>
<td>Medical waste disposal services</td>
</tr>
<tr>
<td>Cancer Treatment Centers of America (3)</td>
<td>1,360</td>
<td>3,899</td>
<td>1,635</td>
<td>Inpatient and outpatient cancer treatment services</td>
</tr>
</tbody>
</table>

MAJOR HOSPITALS IN CHICAGO:
CONCEPT OF A "HEALTH CITY": A PLATFORM FOR COLLABORATION
STRUCTURE OF A "HEALTH CITY"
PRINCIPLES OF A "HEALTH CITY"

1. Cutting Edge Medical Technology
2. Advanced Patient Care Services
3. Ample Health Related Service Industry
4. Environmental Quality
5. Healthy Food
6. Awareness of the Importance of Health
7. Economic Opportunities
8. Recreation & Sports Space
9. Efficient and Environmentally Friendly Public Transportation
10. Qualitative, Sustainable, Affordable Building
11. Health Science
12. Healthy Life Style

Both
VISION OF A "HEALTH CITY"

- Healthy food
- Walking & biking instead of car
- Sport facility
- Park
- Clinic
- Health education
- Healthcare
- Health company
2 THE SITE
SITE CONDITIONS

87th STREET METRA STATION

CHICAGO VELO CAMPUS

LAKE SHORE DRIVE EXTENSION

YACHT HARBOR / PUBLIC SPACE

OPE WALLS - INDUSTRIAL HERITAGE

LAKE SHORE PUBLIC PARK / LAKE MICHIGAN

SITE CONDITIONS
METRA STATION

DIRECTION: NORTH TO SOUTH

ADVANTAGE:
THE MOST CONVENIENT WAY OF PUBLIC CONNECTION FROM SOUTH CHICAGO TO DOWNTOWN

DISADVANTAGE:
LOW FREQUENCY
ABSENCE OF CONNECTION FROM EAST TO WEST

PROPOSAL:
CREATING THE EFFICIENT CONNECTION WITH THE SOUTHWORKS SITE
LAKESHORE DRIVE

DIRECTION: NORTH TO SOUTH

ADVANTAGE:
THE MOST CONVENIENT WAY OF PRIVATE CONNECTION FROM THE SOUTH CHICAGO TO DOWNTOWN

DISADVANTAGE:
SPATIAL SEPARATION BETWEEN THE NEIGHBOURHOOD AND THE SITE

PROPOSAL:
CREATING A VERTICAL PUBLIC CORRIDOR TO DISSOLVE THE SPATIAL SEPARATION
SOUTH CHICAGO VELO CAMPUS

THE EXISTING VELODROME WILL BE RECONSTRUCTED IN 2014

ADVANTAGE:
ATTRACTION OF PEOPLE

DISADVANTAGE:
SEPERATED AND OUT-OF-ORDER

PROPOSAL:
CREATING A PUBLIC CORRIDOR FROM THE STATION TO THE LAKESIDE PARK
ORE WALLS STRUCTURAL CONFIGURATION

INDUSTRIAL HERITAGE: ORE WALLS
AREA: 8,869 SQM
LOCATION: COMILLAS, CANTABRIA, SPAIN
ADAPTIVE REUSE REFERENCES

UNIVERSITA DEGLI STUDI ROMA 3 / STUDIO INSULA

area: 1,200 sqm (pavilion 6 & 7), 900 sqm (pavilion 2b)

location: rome, italy
• Lakeshore drive
• Green open space
• Extend bus route
• Diagonal to downtown
3 GENERAL SPATIAL STRATEGY

SOUTH CHICAGO NEIGHBOURHOOD
A separate guide and map for Mayo Clinic Downtown Campus and Rochester Methodist Hospital is available in the Patient Information brochure racks or online.

One mile to Saint Marys Hospital. A separate guide and map for Saint Marys Hospital is available in the Patient Information brochure rack or online.
Campus Area: 585,516.83 sqm
GFA: 821,628 sqm

Employee: 4000
Student: 5000
Allied health staff: 20000

R=400m
HEALTH SCIENCE CAMPUS

FUNCTIONAL RELATION: EDUCATION

- BUSINESS
- PUBLIC SERVICES
- PATIENT-CARE
- RESEARCH

Talent pool
HEALTH SCIENCE CAMPUS

FUNCTIONAL RELATION: BUSINESS

- BUSINESS
- PUBLIC SERVICES
- EDUCATION
- PATIENT-CARE
- RESEARCH

- Patient - Care
- Medicine & Equipment
- Marketing Promotion & Application Channels
- Internship/Job Opportunity
HEALTH SCIENCE CAMPUS

FUNCTIONAL RELATION: PUBLIC SERVICES

BUSINESS

PUBLIC SERVICES

daily services

daily services

daily services

daily services

PATIENT-CARE

RESEARCH

EDUCATION
HEALTH SCIENCE CAMPUS

PHASING: STEP 1

THE BASIC BUILDINGS FOR A MEDICAL SCHOOL CAMPUS
HEALTH SCIENCE CAMPUS

MIXED DEVELOPMENT OF BUSINESS & RESEARCH ZONE

PHASING: STEP 3
EXPANSION OF EDUCATION ZONE MIXED WITH HEALTH RELATED BUSINESS AND CONTINUE TO GROW INTO NEW COMMUNITIES ALONG THE N-S AXIS
HEALTH SCIENCE CAMPUS

ZONE 1 - LINEAR PARK
- Main connection

ZONE 2 - GARDENS
- Route through the buildings

ZONE 3 - COURTYARDS
RESIDENTIAL COMMUNITIES, FOCUSED ON HEALTHY LIVING

- HEALTHY LIVING ENVIRONMENT
- FUNCTIONAL SUPPORT
- GREEN SPACES AVAILABILITY
- EFFICIENT AND ENVIRONMENTALLY FRIENDLY PUBLIC TRANSPORTATION
- WALKABILITY
- RECREATION & SPORTS SPACES
- QUALITATIVE, SUSTAINABLE & AFFORDABLE HOUSING
HEALTHY LIFESTYLE COMMUNITIES

<table>
<thead>
<tr>
<th>Facility type</th>
<th>Provision 1 per x people</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stadium</td>
<td>City</td>
</tr>
<tr>
<td>Cathedral</td>
<td>City</td>
</tr>
<tr>
<td>City hall</td>
<td>City</td>
</tr>
<tr>
<td>Major Theatre</td>
<td>City</td>
</tr>
<tr>
<td>State museum</td>
<td>City</td>
</tr>
<tr>
<td>Airport</td>
<td>City</td>
</tr>
<tr>
<td>Transport hub</td>
<td>City</td>
</tr>
<tr>
<td>Sports center</td>
<td>25,000-40,000</td>
</tr>
<tr>
<td>District center</td>
<td>25,000-40,000</td>
</tr>
<tr>
<td>Library</td>
<td>12,000-30,000</td>
</tr>
<tr>
<td>Healthcare center</td>
<td>9,000-12,000</td>
</tr>
<tr>
<td>Art gallery</td>
<td>20,000-30,000</td>
</tr>
<tr>
<td>Recreation center</td>
<td>30,000-50,000</td>
</tr>
<tr>
<td>Senior citizens center</td>
<td>15,000-20,000</td>
</tr>
<tr>
<td>Community center</td>
<td>7,000-15,000</td>
</tr>
<tr>
<td>Post office</td>
<td>5,000-7,000</td>
</tr>
<tr>
<td>Youth center</td>
<td>7,000-15,000</td>
</tr>
<tr>
<td>Occasional care</td>
<td>7,000-12,000</td>
</tr>
<tr>
<td>Sports hall</td>
<td>4,000-7,000</td>
</tr>
<tr>
<td>Secondary school</td>
<td>4,000-7,000</td>
</tr>
<tr>
<td>Pub</td>
<td>5,000-7,000</td>
</tr>
<tr>
<td>Pre school</td>
<td>4,000-6,000</td>
</tr>
<tr>
<td>Vacation center</td>
<td>4,000-6,000</td>
</tr>
<tr>
<td>Early childhood center</td>
<td>4,000-6,000</td>
</tr>
<tr>
<td>Primary school</td>
<td>2,500-4,000</td>
</tr>
<tr>
<td>Doctor</td>
<td>2,500-3,000</td>
</tr>
<tr>
<td>Corner shop</td>
<td>2,000-5,000</td>
</tr>
<tr>
<td>Child day care center</td>
<td>2,000-4,000</td>
</tr>
</tbody>
</table>

Adapted from “Sustainable Settlement Guide”, University of West England
### HEALTHY LIFESTYLE COMMUNITIES

<table>
<thead>
<tr>
<th>Type of green</th>
<th>Size</th>
<th>Walkability radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pocket park</td>
<td>0.01-1 ha</td>
<td>200 m (4 min walk)</td>
</tr>
<tr>
<td>Neighborhood park</td>
<td>1 - 6 ha</td>
<td>400 m (6 min walk)</td>
</tr>
<tr>
<td>Community park</td>
<td>6 - 18 ha</td>
<td>800 m (12 min walk)</td>
</tr>
<tr>
<td>Large urban park</td>
<td>18 - 200 ha</td>
<td>1600 m (20 min walk)</td>
</tr>
<tr>
<td>City-wide park</td>
<td>&gt; 200 ha</td>
<td>3200 m (~30 min walk)</td>
</tr>
</tbody>
</table>

**Reference:** "The Green City Guidelines: Techniques for a healthy liveable city"; Michelle de Roo | landscape and urban designer

### GREEN AREA RATIO

**Netherlands standards:**

There is no national law in the Netherlands, containing compulsory quantatative norms on the amount of green area per inhabitant or dwelling. The guidelines for the Province of South Holland are usually taken as departure point.

Values that are generally used are:

- **13 m² per inhabitant + 4 m² of water = 17 m²**
- **or 35 m² per dwelling**
Radius-400m: based on walkability+ the ideal environment for one to spend an entire life

Circle area=500,000m²

Density=24000p/km²

Circle population: 12,000
<table>
<thead>
<tr>
<th>TYPE</th>
<th>PROVISION 1per x people</th>
<th>NUMBER per circle</th>
</tr>
</thead>
<tbody>
<tr>
<td>clinic</td>
<td>9000-12000</td>
<td>1</td>
</tr>
<tr>
<td>doctor</td>
<td>2500-3000</td>
<td>5</td>
</tr>
<tr>
<td>sports facility</td>
<td>4000-7000</td>
<td>2</td>
</tr>
<tr>
<td>health food shop</td>
<td>2000-5000</td>
<td>3</td>
</tr>
<tr>
<td>park</td>
<td>1-6ha per circle</td>
<td>1</td>
</tr>
</tbody>
</table>
4 DESIGN CONCEPT

- INDIVIDUAL DESIGN OBJECTIVE
- SPATIAL CONCEPT
- ROUTING CONCEPT
- STRUCTURAL CONCEPT
- CLIMATE CONCEPT
- OVERVIEW
INDIVIDUAL DESIGN OBJECTIVE

CONFERENCE CENTRE - THE FUNCTIONAL LINK

- CONFERENCE HALL
- LECTURE ROOMS
- MEETING ROOMS
- EXHIBITION HALL
- RECEPTION HALL

- RESTAURANT
- CAFES
- RETAIL
- PUBLIC AREAS
- EXHIBITION AREAS

MEDICAL SCHOOL + HEALTH RELATED BUSINESS + RESEARCH LABS + COMMUNITY
A street is a mirror of the city, projecting the main events, traditions and activities. Street is a connector between different functions and an important public space for socializing, entertainment, commerce and civic expression as well.
PASSAGES ALONG THE WALLS
CONNECTIONS TO THE SITE

SPATIAL CONCEPT
In order to separate the flows of people, the public route passing through the building is elevated above the ground level, while the conference facilities are connected by the network of passages on the ground floor.
THE ORE WALLS ARE INTEGRATED INTO THE BUILDING IN DIFFERENT WAYS:

- DIRECTING ELEMENT IN THE CAMPUS
- AN INTEGRAL PART OF THE INTERIOR
- A BASE OF THE STRUCTURAL SYSTEM OF THE ENVELOPE

Pitched silhouette of the roof structure, refers to the typologies of industrial buildings, connecting the building to the site (former steel plant) and the ore walls.
STRUCTURAL CONCEPT

LA STAZIONE AV MEDIOPADANA REGGIO EMILIA, SANTIAGO CALATRAVA

REFERENCES
STRUCTURAL CONCEPT

Steel frames
are positioned with a step of 2 meters

Tension cables
are bracing the frames into single structural system

Cable net facade structure
the glass is supported by the prestressed steel cables
External Glass Envelope

Roof Construction

Public “Street”

Functional volumes

The Ore Walls
- Low E glass (insulated glass transforming solar radiation into heat energy)

- Light-redirecting glass (transparent cellular structure integrated in the glass diffuse light and prevent glare)

- Solar-control glass (thermooptic / electrooptic)

- Glass with integrated PV cells

- Laminated glass (Solar control reflective layer)

- Glass with integrated louvres
5 FUNCTIONAL PROGRAMME
BUILDING AS A GATEWAY TO THE CAMPUS
FUNCTIONAL SECTION OF THE CAMPUS

- business
- harbour
- conference centre
- route through buildings
- garden
- linear park
- research
CONFERENCE CENTRE

REFERENCE 1: HARPA CONCERT AND CONFERENCE

ARCHITECTS: HENNING LARSEN ARCHITECTS & BATTERIID ARCHITECTS
LOCATIONS: REYKJAVIK, ICELAND
PROJECT YEAR: 2011
PROJECT AREA: 28,000 sqm
CONFERENCE CENTRE

ARCHITECT: MN ARCHITECTS + DA/MCM
OPENED APR 2009
LOCATION: VANCOUVER, CANADA
PROJECT SIZE: 1.2 MILLION SQUARE FEET

REFERENCE 2: VANCOUVER CONVENTION CENTRE

PROJECT PROGRAM
- 223,000 SQUARE FEET OF EXHIBITION HALL
- 60,000 SQUARE FEET OF MEETING ROOMS
- 55,000 SQUARE FEET OF BALLROOM
- 90,000 SQUARE FEET OF RETAIL SPACE
- 400,000 SQUARE FEET OF WALKWAYS, BIKEWAYS, PUBLIC OPEN SPACE AND PLAZAS
6 MATERIALIZATION
INTERIOR SURFACES

REFERENCES

Archaeological Library in Berlin

Clyfford Still Museum by Allied Works Architecture

Clyfford Still Museum by Allied Works Architecture

Archaeological Library in Berlin
REFERENCE:

Time Warner Center by Skidmore, Owings and Merrill

Stazione AV Mediopadans by Santiago Calatrava

KAIT kanagawa institute of technology by Junia Ishigami
FACADES

West Facade
Scale 1:50

East Facade
Scale 1:50
7 CONCLUSION