URBAN STRATEGY
SYMBIOTIC PILSEN

BETTER RELATIONSHIP BETWEEN ENVIRONMENT, RESIDENTS AND INDUSTRY
URBAN STRATEGY
SYMBIOTIC PILSEN

BETTER RELATIONSHIP BETWEEN ENVIRONMENT, RESIDENTS AND INDUSTRY
INTRO

1. ANALYSIS

2. NARRATIVE

3. STRATEGY

4. DESIGN
TABLE OF CONTENT
INTRO

1. ANALYSIS

2. VISION

3. DEVELOPMENT STRATEGY

4. END RESULT
EDUCATION
BRIDGING THE GAP

PILSEN ATLAS
INFRASTRUCTURAL | PUBLIC | PHYSICAL | PROGRAMMATIC
LOWER WEST-SIDE - PILSEN
PILSEN NEIGHBORHOOD

PILSEN IS LOCATED SOUTH-EAST OF CHICAGO’S CITY CENTER

PILSEN IS A LOW-INCOME NEIGHBORHOOD WITH AROUND 33,000 RESIDENTS, WHICH ARE MAINLY MEXICAN OR LATINO.

THE NEIGHBORHOOD IS DIVIDED IN TWO AREAS: A RESIDENTIAL NEIGHBORHOOD AND AN INDUSTRIAL CORRIDOR
ANALYSIS

• CHICAGO’S INDUSTRY
• CHICAGO’S RIVER AND WATER
• CHARACTERISTICS OF PILSEN
TRENDS & CHALLENGES

CHICAGO’S INDUSTRY
WHAT IS THE CURRENT STATE OF THE INDUSTRIAL CORRIDORS IN CHICAGO AND PILSEN?
Chicago’s 24 industrial corridors are scattered throughout the city. They are not only located on the outskirts of the city, but also near the city center, close to the Loop.

Pilsen’s industrial corridor is located along the Sanitary and shipment canal a little south-east of the city center.
An average of 14% of the land was vacant within the city’s industrial corridors, of which nearly all are brownfields: vacant obsolete contaminated plots of land.
Average vacancy in industrial corridors in 2011.
VACANCY IN PILSEN

22% OF LAND IS VACANT IN PILSEN’S INDUSTRIAL CORRIDOR.
IN TOTAL, AROUND 1,015,700M IS VACANT INDUSTRIAL.
MORE VACANT RESIDENTIAL IS LOCATED ON THE EAST.
71,800 jobs in manufacturing industry was lost during 2001-2004, and 5,400 jobs during 2009-2011.
The City of Chicago exemplifies the central city experience with manufacturing jobs. The chart below shows that manufacturing jobs in the city have declined from 367,000 in 1976 to under 100,000 today—a loss of approximately 10,000 per year. In contrast, the employment experience of Chicago's suburban areas has been much milder.

The recession of manufacturing industry had the greatest impact on Chicago's recession, especially in the central city.
DOMINANT INDUSTRIAL SECTORS IN PILSEN
by numbers of businesses
Although a lot of the heavy industry has moved to other countries or the suburbs, still many polluting industries are left within Chicago.
14% of air emissions in Illinois can be attributed to the industrial sector. Other big sectors are transport and electricity generation: these are also related to industry.
CHICAGO’S INDUSTRY IS FAR FROM BEING SUSTAINABLE

30% OF THE ENERGY IN ILLINOIS IS CONSUMED BY THE INDUSTRIAL SECTOR. THIS IS 1187,6 MILLION BTU
Only 2% of energy production is renewable in Chicago.

In Illinois state, 5% is renewable.

Only 5% of the energy Illinois produces is from renewables energy, if taken in account also bio-fuel. 13% is green energy. Most energy is produced in a non-sustainable way. (95-87%)
MAJOR MEDIUM-POLLUTING INDUSTRIES

WHOLESALER & DISTRIBUTION

CONSTRUCTION UTILITIES CONTRACTOR

SERVICE: FREIGHT, TRUCK & STORAGE
WHAT TYPE OF INDUSTRIES CAN REPLACE THESE HEAVY POLLUTING INDUSTRIES AND BOTH CREATE NEW ECONOMIC ACTIVITY?

CAN THE INDUSTRY ITSELF BECOME CLEANER?
TRENDS ON HOW INDUSTRY IS DEVELOPING

THE CONSUMER EXPERIENCE DEMAND OF CUSTOMER WILL DRIVE NEW PRODUCT INTRODUCTIONS.

MASS CUSTOMIZATION CUSTOMIZATION WILL BE GENERAL AND CONVENIENT.

REMOTE CONTROL MOBILITY TODAY MAKES IT POSSIBLE TO WORK FROM A MOBILE DEVICE.
SMART OBJECTS

SUSTAINABILITY IS EVERYWHERE
MORE EFFICIENT MANUFACTURING WILL DRIVE NEW LEVELS OF SUSTAINABILITY.

SMART DEVICES CAN COMMUNICATE DIRECTLY WITH USERS.

3D PRINTING
MAKING "ON DEMAND" PRODUCTS WILL BE POSSIBLE.
TECHNOLOGICAL INNOVATIONS IN INDUSTRY

TECHNOLOGICAL INNOVATIONS SUCH AS IN ROBOTICS,
REMOTE CONTROL, INTERNET OF THINGS AND 3D
PRINTING AND OTHER FABRICATION TECHNIQUES ALLOW
FOR SMALLER AND CLEANER INDUSTRIES WITH HIGHER
CUSTOMIZATION OF PRODUCTS.
ADVANCED DIGITAL MANUFACTURING
NEW VERSUS OLD INDUSTRY

OLD INDUSTRY

All departments of one company are placed in one location for easy management and communication.
New Industry

Department can be located remote from each other, partly in residential areas because they require less space and have less noise and air pollution.
Traditional Industry

All departments of one company are placed in one location for easy management and communication. By using remote control, every department can find the best location for them. Management can be located in CBD. Research and test and education could be close to residential area. Manufacture can be placed outside the city.

New Industry

New industry and spatial flexibility

Traditional industry takes a large area of land. Departments of new industry can be divided and located separately into residential districts. Also, for customers, it's easier to get to the company for customization.

Traditional industry makes employees travel a long way and time to work. New industry can be located in residential areas, making employees easier to get to the workplace.

In new industries, as all departments can be remote from each other, the area taken by every department is much less than traditional industries. Some departments have no air, noise, or chemical pollution to the surrounding, so they can be located in the residential area, making employees easier to go to the workplace. Meanwhile, the employees would be more likely to live near the departments.

The manufacture gets automated, so the management and maintenance need much fewer workers and engineers.
Traditional Industry

All Departments of one Company are placed in one location for easy management and communication. By using Remote Control, every Department can find the best location for them. Management can be located in CBD. Research and Test and Education could be close to Residential area. Manufacture can be placed outside the city.

New Industry

New Industry and Spatial Flexibility

Traditional industry takes large area of land. Departments of new industry can be divided and located separately into residential districts. Also, for customers, it’s also easier to get to the company for customization.

Traditional industry makes employees travel a long way and time to work. New industry can be located in a residential area and make employees easier to get to the workplace.

In New Industries, as all departments can be remote from each other, the area taken by every department is much less than traditional industry. Some of the departments have no air, noise, or chemical pollutions to the surrounding, so they can be located in the residential area, which makes employees easier to go to the workplace. Meanwhile, the employees would be more likely to live near the departments.

The manufacture gets automated, so the management and maintenance need much less workers and engineers.
Traditional Industry

All Departments of one Company are placed in one location for easy management and communication. By using remote control, every department can find the best location for them. Management can be located in the CBD. Research and test and education could be close to residential areas. Manufacture can be placed outside the city.

New Industry

New Industry and Spatial Flexibility

Traditional industry takes a large area of land. Departments of new industry can be divided and located separately into residential districts. Also, for customers, it's easier to get to the company for customization.

Traditional industry makes employees travel a long way and time to work. New Industry can be located in the residential area and make employees easier to get to the workplace.

In New Industries, as all departments can be remote from each other, the area taken by every department is much less than the traditional industry. Some of the departments have no air, noise, or chemical pollutants to the surrounding, so they can be located in the residential area, making employees easier to go to the workplace. Meanwhile, employees would be more likely to live near the departments.

The manufacture gets automated, so management and maintenance need much less workers and engineers.
Traditional Industry

All Departments of one Company are placed in one location for easy management and communication. By using Remote Control, every department can find the best location for them. Management can be located in the CBD. Research and Test and Education could be close to the residential area. Manufacture can be placed outside the city.

New Industry

New Industry and Spatial Flexibility

Traditional industry takes large area of land. Departments of new industry can be divided and located separately into residential districts. Also for customers, it’s also easier to get to the company for customization.

Traditional industry makes employees travel a long way and time to work. New industry can be located in the residential area, making employees easier to get to the workplace.

In New Industries, as all departments can be remotely located from each other, the area taken by every department is much less than the traditional industry. Some of the departments have no air, noise or chemical pollutants to the surrounding, so they can be located in the residential area, making employees easier to go to the workplace. Meanwhile, the employees would be more likely to live near the departments.

The manufacture gets automated, so the management and maintenance need much less workers and engineers.
INDUSTRIES IN THE CITY MUST BE **CLEAN**. IT MUST BE ABLE TO **RECYCLE** ITS WASTE ENERGY, AND BETTER YET, **REGENERATE ENERGY** FOR NEIGHBORINGS’ USE.
MIX-USE CORRIDORS

Industries must no longer be isolated in separate corridors. They must become mixed-use zones with diverse industries that integrate with the city context to prevent blighted and dead-end spaces inside the city. Particularly when automation is taking over labor workforce, these mixed-use areas must intertwine with public programs to keep the areas alive. They must be publicly accessible and house other activities/sectors.
SUB-CONCLUSION
CHALLENGES

• POLLUTING INDUSTRIES

• VACANCY & DECLINE IN INDUSTRY

• UNSUSTAINABLE INDUSTRY
OPPORTUNITIES

- Innovative and creative industries allow for new ways to place industry within the city
- Industries can become more sustainable
- Mix-use industrial areas can be created
TRENDS & CHALLENGES:

CHICAGO RIVER AND WATER
Pilsen is located along the Chicago River and the Sanitary Canal.

Pilsen is located near the city center along the point where the Chicago Rivers goes over into the Sanitary and Shipment Canal.
PUMPING STATION PREVENT THE RIVER AND ITS POLLUTANTS FROM FLOWING BACK INTO THE LAKE, WHICH IS CHICAGO’S MAIN DRINKING WATER RESERVE
Soil and waterways, like the sanitary canal are heavily polluted along the industrial corridors. Remediation is needed if these site’s want to be redeveloped for non-industrial uses.
WARNING

UNSAFE WATERS
YOU SHOULD NOT SWIM IN THESE WATERS
YOU SHOULD NOT EAT FISH FROM THESE WATERS
SEWAGE OVERFLOWS POLLUTE THE WATER

Sewage overflow

60% built-up land

Lack of permeable land

In 2011, measurements showed that the amount of hexavalent chromium in Chicago drinking water was 11 times more than the health standard.
During heavy rainfall the sewage system can’t process all the water and has to release storm and sewage-water into the sanitary canal and river.
LACK OF PUBLIC SPACE ALONG WATERFRONT AND INDUSTRIAL CORRIDOR

- **industrial corridor**
- **public space inside ic**
- **public space outside ic**
UNACCESSIBLE WATERFRONT
CHICAGO IS PLANNING FOR CLEANER WATERWAYS WITH MORE RECREATION

• REDUCE WATER CONSUMPTION
• ENHANCE STORM-WATER MANAGEMENT TO PREVENT SEWAGE OVERFLOW BY CREATING MORE PERMEABLE SOIL AND GREEN SPACE FOR WATER-RENTENTION
• TRANSFORM THE CHICAGO INTO SECOND WATERFRONT WITH RECREATIONAL FUNCTIONS
CHICAGO IS DEVELOPING AND EXPANDING ITS RIVER WALK
FOR NOW THERE ARE ONLY DEVELOPMENTS PLANNED FOR THE CITY CENTER, BUT PLANS ARE IN THE MAKING TO EXPAND FURTHER SOUTH-WARTS IN THE DIRECTION OF PILSEN
SUB-CONCLUSION
CHALLENGES

• Polluted soil and river water

• Sewage overflows and lack of permeable land

• Lack of public space along river
OPPORTUNITIES

- Extend the river-walk to Pilsen
- Clean the river for recreational use and better environment
- Prevent sewage overflows
CONDITIONS & CHALLENGES

PILSEN NEIGHBORHOOD
PILSEN IS CLOSE TO CITY CENTER
INFRASTRUCTURAL BARRIERS THAT ISOLATE PILSEN FROM SURROUNDING NEIGHBORHOODS
RAIL & HIGHWAYS
MORE RAIL & SANITARY CANAL
THE EASTERN PART OF PILSEN IS IN GENTRIFICATION, MANY OLD INDUSTRIAL BUILDINGS ARE TRANSFORMED INTO GALLERIES, ART LOFTS OR STUDIOS. LAST DECADE AN ART-DISTRICT HAS DEVELOPED WITHIN THE EASTERN PART OF PILSEN, ATTRACTION NEW PEOPLE TO THE NEIGHBORHOODS, AMONG MANY ARTISTS AND STUDENTS. STUDENTS SETTLE DOWN IN PILSEN ALSO BECAUSE OF ITS PROXIMITY TO UNIVERSITY VILLAGE AND THE LOOP.
INDUSTRIAL HERITAGE

WITHIN THE PILSEN INDUSTRIAL CORRIDOR THERE ARE MANY OLD VALUABLE INDUSTRIAL BUILDINGS, SINCE PILSEN HAS A LONG INDUSTRIAL HISTORY WHICH GOES BACK TO LATE 19TH CENTURY. MANY OF THOSE BUILDINGS ARE OFFICIAL INDUSTRIAL HERITAGE. SOME OF THOSE BUILDINGS ARE CURRENTLY VACANT, BUT MOST OF THEM ARE OCCUPIED BY NEW MOSTLY CREATIVE & ART RELATED BUSINESSES.
SUB-CONCLUSION
CHALLENGES

• POOR CONNECTIONS TO OTHER NEIGHBORHOODS

• PRESERVING INDUSTRIAL HERITAGE

• GENTRIFICATION AND ART-DISTRICT IN EAST-PILSEN
OPPORTUNITIES

• TRANSFORM INDUSTRIAL HERITAGE FOR THE CREATIVE INDUSTRY AND ARTISTS

• EXPAND THE ART-DISTRICT AND MANAGE GENTRIFICATION

• CONNECT TO OTHER NEIGHBORHOODS AND PUBLIC TRANSIT
4 THEMES - 4 CHALLENGES

1. EXISTING PILSEN
   - INDUSTRIAL HERITAGE
   - GENTRIFICATION & ART DISTRICT
   - INFRASTRUCTURAL BARRIERS

2. EXISTING INDUSTRY
   - VACANCY & DECLINE
   - LACK OF JOBS AND TAX REVENUES
   - LARGE POLLUTING INDUSTRIES
3. EXISTING ECOLOGY

- Remediation of polluted soil & river-water
- Energy spilling industries
- Sewage overflow & waste problems
- Old utility systems

4. EXISTING CONNECTIONS

- Poor connection to Loop & surrounding neighborhoods
- Poor access to waterfront
- Poor access public transit
CONCLUSION
PILSEN AND CHICAGO NEED A NEW VISION FOR WHAT THE 21ST CENTURY INDUSTRIAL CORRIDOR MUST LOOK LIKE, TO ATTRACT AND SUPPORT NEW TYPES OF INDUSTRY AND BECOME MORE SUSTAINABLE.
VISIONS FOR FUTURE PILSEN:

4 THEMES
1. EXISTING PILSEN

CHALLENGES

- INDUSTRIAL HERITAGE
- GENTRIFICATION & ART DISTRICT
- LITTLE CONNECTION BETWEEN INDUSTRIAL AND RESIDENTIAL ZONES

Segregation between industrial and residential area.
2. NEW INDUSTRY CHALLENGES
3. NEW ECOLOGY

CHALLENGES

River Pollution

PILSEN

Waster Recycling

Permeable Surface

3. NEW ECOLOGY

RIVER POLLUTION

WASTER RECYCLING

PERMEABLE SURFACE

CHICAGO

CO₂

RIVER POLLUTION

PILSEN INDUSTRIAL CORRIDOR

VACANT SPACES LIMIT THE POTENTIAL OF THE DEVELOPMENT OF PILSEN INDUSTRY.

CHALLENGES

RENEWABLE ENERGY

40%

12%

4 %
STRATEGY
4. NEW CONNECTIONS

CHALLENGES
STRATEGY

New Connections Challenges
• MAKING THE WATERFRONT PUBLICLY ACCESSIBLE
• WATERFRONT PARK FOR RECREATIONAL USES
• CLEANING THE RIVER WATER BY WETLANDS INCORPORATED IN THE PARK
• FOCUS ON WALK ABILITY AND PEDESTRIAN USE
• POSSIBILITIES FOR WATER-TAXI CONNECTION
• MAKE BICYCLE CONNECTIONS ACROSS THE WATER > CONNECTION TO ORANGE LINE AT FISK POWER PLANT
• PRESERVE INDUSTRIAL HERITAGE
• ALLOWING HIGHER DENSITIES AND MIX-USE DEVELOPMENT ALONG WATERFRONT

TRANSFORM WATERFRONT INTO A CONNECTING AND ATTRACTING ELEMENT
• BIKE-LANES AND PARK-ROUTES ALONG THE WATERFRONT AND ACROSS THE WATER TO CONNECT NEIGHBORHOODS AND PROVIDE A FAST AND SAFE BIKE-ROUTE TOWARDS THE LOOP.
• PARK NEEDS A CRITICAL MASS TO BECOME SUCCESSFUL
• CREATE ATTRACTING PROGRAMS ALONG THE WATERFRONT BECOME BOTH A DESTINATION AND A THROUGHPUT ROUTE TO MAKE SURE ENOUGH PEOPLE WILL ACTUALLY MAKE USE OF THE PARK,
RESPOND TO EXISTING STRATEGIES

• MIX-USE PROGRAM
• CREATIVE INDUSTRY
• INNOVATIVE AND CLEAN (MANUFACTURING) INDUSTRY
• SMALL AND MEDIUM SIZE ENTERPRISES

RESPOND TO EXISTING DEVELOPMENTS IN ART-DISTRICT

• PRESERVE HERITAGE AND TRANSFORM THEM TO ANCHOR-POINTS
• RESPOND TO EXISTING GRID

NEW INDUSTRY

• MIX-USE PROGRAM
• CREATIVE INDUSTRY
• INNOVATIVE AND CLEAN (MANUFACTURING) INDUSTRY
• SMALL AND MEDIUM SIZE ENTERPRISES
NEW ECOLOGY

• CLEANING THE WATERFRONT AND INDUSTRIAL CORRIDOR
• LOCAL SUSTAINABLE UTILITY SYSTEMS
• GREEN URBAN LANDSCAPE

NEW CONNECTIONS

• WATERFRONT AS CONNECTING ELEMENT TO LOOP AND OTHER NEIGHBORHOODS
• CLOSE CONNECTION BETWEEN NEW INDUSTRIAL AREA AND EXISTING PILSEN
• SUPPORT SUSTAINABLE WAYS OF TRANSPORT
RESPOND TO EXISTING

- PRESERVE HERITAGE AND TRANSFORM THEM TO ANCHOR-POINTS
- RESPOND TO EXISTING DEVELOPMENTS IN ART-DISTRICT
- RESPOND TO EXISTING GRID

NEW INDUSTRY

- MIX-USE PROGRAM
- CREATIVE INDUSTRY
- INNOVATIVE AND CLEAN (MANUFACTURING) INDUSTRY
- SMALL AND MEDIUM SIZE ENTERPRISES
• CLEANING THE WATERFRONT AND INDUSTRIAL CORRIDOR
• LOCAL SUSTAINABLE UTILITY SYSTEMS
• GREEN URBAN LANDSCAPE

• WATERFRONT AS CONNECTING ELEMENT TO LOOP AND OTHER NEIGHBORHOODS
• CLOSE CONNECTION BETWEEN NEW INDUSTRIAL AREA AND EXISTING PILSEN
• SUPPORT SUSTAINABLE WAYS OF TRANSPORT
CREATING A SYMBIOTIC RELATIONSHIP BETWEEN INDUSTRY, RESIDENTS AND THE ENVIRONMENT

Transform Pilsen’s industrial corridor into a livable place within the city.

Instead of an industrial area with vacant plots, contaminated soil, an unaccessible waterfront and pollutant industries we envision a new industrial corridor that becomes a real part of the city, with next to industry also residential, recreational, cultural and commercial functions along the waterfront. With cleaner and smaller industries which have a better relationship to their environment.
CREATING A SYMBIOTIC RELATIONSHIP BETWEEN INDUSTRY, RESIDENTS AND THE ENVIRONMENT

4 THEMES

RESPOND TO EXISTING

NEW INDUSTRY

NEW ECOLOGY

NEW CONNECTIONS

SYMBIOSIS
DEVELOPMENT STRATEGY
PHASING OF REMEDIATION AND DEVELOPMENT

Phase 1:
East part of Pilsen industrial corridor

Phase 2:
West part of Pilsen industrial corridor

Phases are possible to overlap depending on the real development process.
START FROM EAST-PILSEN

- Close to the Loop and University Village
- Lots of vacant land
- Art-District & Gentrification
- Lots of Industrial Heritage
- First part to connect with existing River-Park

START FROM VACANT PLOTS

- Start from vacant plots
- Expand developments in Art-District
- Gradually redevelop industrial corridors step-by-step
- Gradually replace or transform polluting industries
DEVELOPMENT IN VERTICAL STRIPS
PHASING IN VERTICAL STRIPS

- Respond to existing grid
- Respond to vertical orientation of plots within corridors
- Allow to gradually replace or transform polluting industries
- Allows to gradually redevelop and remediate the industrial corridors step-by-step
REMEDIATION OF THE SOIL IS NEEDED BEFORE REDEVELOPMENT CAN START

REMEDIATION OF BROWNFIELDS IS HIGHLY EXPANSIVE AND ENERGY CONSUMING, USUALLY IT TAKES A LARGE PART OF THE OVERALL COST IN REDEVELOPMENT PROJECTS, PREVIOUS LAND-OWNERS USUALLY HAVE TO CONTRIBUTE TO THE SOIL-REMEDIATION WHEN THEY LEAVE
The insensitivity of remediation depends on the future land-use.

However in many cases those previous landowners are not available to pay for those costs, meaning that future developers have to pay for the remediation. Often public-private collaboration is needed to fund the redevelopments in a way it remains profitable for the developer.

**Table 2.2** Sensitivity of different land-use types associated with the main migration pathways for contaminants

<table>
<thead>
<tr>
<th>Classes</th>
<th>Utilisation</th>
<th>Main migration pathway</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly sensitive</td>
<td>Playgrounds, school grounds</td>
<td>Soil – child (direct contact)</td>
</tr>
<tr>
<td></td>
<td>Gardens, cropland, pasture</td>
<td>Soil – useful plant – human</td>
</tr>
<tr>
<td></td>
<td>Water reserves</td>
<td>Soil – drinking-water – human</td>
</tr>
<tr>
<td>Sensitive</td>
<td>Sports fields</td>
<td>Soil – human (direct contact)</td>
</tr>
<tr>
<td></td>
<td>Residential areas</td>
<td>Soil – human (direct contact)</td>
</tr>
<tr>
<td></td>
<td>Outdoor swimming-pools</td>
<td>Soil – human (direct contact)</td>
</tr>
<tr>
<td>Low sensitive</td>
<td>Parks</td>
<td>Soil – human (direct contact)</td>
</tr>
<tr>
<td></td>
<td>Forest</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Industrial and commercial sites</td>
<td>–</td>
</tr>
<tr>
<td>Non-sensitive</td>
<td>Traffic areas, car parks</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Sealed areas</td>
<td>–</td>
</tr>
</tbody>
</table>
BIO-REMEDIATION

- Bio-remediation is a more sustainable way of remediation by excavation or landfill disposal, especially when renewable energy is used.
- Remediation by micro-organisms mechanically fed with warmth and air (oxygen) to speed-up the process.
- Remediation time: 3-6 months.
TWO WAYS OF REMEDIATION

PHYTO-REMEDIATION

- REMEDIATION BY MICRO-ORGANISMS LIVING IN THE ROOTS OF SPECIFIC PLANTS AND TREES (RHIZOSPHERE)
- DEPENDING ON CONTAMINATION 3-7 YEARS (MEDIUM) OR 15 YEARS (HEAVY)
Bio-remediation (with plants) can provide first green structure along waterfront.

Provide already access to waterfront and industrial heritage while remediating.

In-situ remediation with excavation is faster, so development can start faster.

Per district development phase two utility facilities can be built. Waste-to-energy plant > energy (potentially also building material) Living machine > water treatment

Utility systems can provide clean energy and water for the remediation process.

First utility infrastructure can be laid out.

Utility system can already start serving Pilsen neighborhood and industrial heritage.

Water treatment can start cleaning the river-water.

Demolishing and removing of existing (pollutant) industries over time.

Preserving industrial heritage

Vacant plots can house temporary function before soil remediation.

Bio-remediation (with plants) can provide first green structure along waterfront.

Utility systems can provide clean energy and water for the remediation process.

First utility infrastructure can be laid out.

Utility system can already start serving Pilsen neighborhood and industrial heritage.

Water treatment can start cleaning the river-water.
ON STRATEGY PER DISTRICT

- Extending grid
- Define building blocks
- First Roads can made
- Utility connections (infra) can be developed further

- Start construction of building blocks and (cycling) bridge
- Supported by energy and water from utilities
- Bio-remediation continuous
- Maybe also building material (geopolymer concrete) from waste plant. >> (Gasplasma plant > Plasmarok cement)

- Green infrastructure is improved into parks and cycling lanes after bio-remediation.
- Cleaning of river water and waste-water continuous.
- Waterfront parks becomes connection to other neighborhoods and the city center.
- Waterfront Becomes destination for leisure and recreation
- Utility systems become fully operational and remain in new urban fabric
- Pedestrian/Cycling bridge across Cermak Road
- Remediation start on vacant plots + temporary uses
- Bio-remediation (micro-organisms) start on vacant plots
- Phyto-remediation (with plants) starts at future park areas
- Utility facility is placed along waterfront
  > deliver first energy and heat for remediation process and Pilsen neighborhood
- Demolishment starts of polluting industrial buildings

- Further demolishing of existing buildings
Start with construction first remediated plots

Utility system also delivers electricity and heat for construction

Final remediation on remaining plots

Each plot is developed differently creating a programmatic mix within each strip
UTILITY SYSTEMS AND GREEN INFRASTRUCTURE
UTILITY SYSTEMS AND GREEN INFRASTRUCTURE

ADDING GREEN LANES FOR WATER RETENTION AND WATER PRE-TREATMENT

LIVING MACHINE
LOCAL WASTE-WATER TREATMENT

WASTE-TO-ENERGY PLANT
WASTE RECOVERY
ELECTRICITY AND HEAT

WETLAND PARK ALONG WATERFRONT TO CLEAN RIVER WATER
WE HAVE A SEQUENCE OF FUNCTIONS FROM MANUFACTURING TO REMEDIATION AND THEY WILL END AT THE WATERFRONT.
There are sub-divided functions under the preliminary category. We then will discuss the symbiotic relationship or best combination among the sub-functions.
The program-mix RATIO can differ in each strip.
Mix-use pattern
Each function zone is closely connected to both similar and different function-zones creating a vibrant and diverse urban landscape, with interactions between different functions, people and atmospheres.

The pattern of different function zone in each strip create clusters at certain point where ecological, residential, industrial and commercial function come together.

DEVELOPMENT RULES CREATE A DIVERSITY OF MULTI-FUNCTIONAL CLUSTERS
DIFFERENT ATMOSPHERES
For each sub-divided function there is corresponding building typology.
TYPOLOGIES IN RELATION TO DIFFERENT FUNCTIONS

- **Service Commercial**
  - Shopping street scale and atmosphere

- **Service Education**
  - Building blocks surrounding collective open space

- **Service Public**
  - Big volume next to open square

- **Working Manufacturing**
  - Factory building with parking or open-air storage

- **Working Creative Industry**
  - Volumes in group with communication space in between

- **Play Sports**
  - Gymnasium for indoor sports

- **Play Playground**
  - Playground for children and leisure

- **Play Public Square/Garden**
  - Open space with low buildings for gathering and rest

- **Residential Type 1**
  - Perimeter block

- **Residential Type 2**
  - Single volumes

- **Mixed Commercial & Residential**
  - Shopping mall or market with residential volume on top

- **Mixed Residential & Working**
  - Working space surrounded by residential slabs

- **Mixed Residential & Working**
  - Office type volume on top of Commercial
Redefine the function of industrial heritage.
LAND USE DESIGN STEPS

Remediating soil, cleaning the water & extending the pedestrian road along the abandoned rail.
LAND USE DESIGN STEPS

Pinpoint the polluting industrial buildings in grey along Cermak road.
LAND USE DESIGN STEPS

Empty the polluting industrial buildings in grey.
LAND USE DESIGN STEPS

Function adjustment along the Cermak road.
SECTION, DENSITY
STREET IMPRESSION

Existing Residential Area
Floor number 1 - 3
Building density: 29%

New Development
Floor number 3 - 8
Building density: 33%

New Development
Floor number 3
Building density: 40%
Existing Manufacturing:
- Floor number 1 - 2
- Building density: 42%

Existing Residential Area:
- Floor number 1 - 4
- Building density: 39 - 42%
DEVELOPMENT STRATEGY PER BUILDING BLOCK
DEVELOPMENT RULES - FLEXIBILITY

• DEVELOPER SHOULD BE RESPONSIBLE TO THE REMEDIATION OF THE EARTH, BUT GET PREFERENTIAL POLICIES
• DEVELOPERS SHOULD MAKE THE GROUND FLOOR OF BUILDINGS AN OPEN MIXED SPACE FOR DIFFERENT FUNCTIONS.
• DEVELOPER SHOULD KEEP AN OPEN AREA FOR PUBLIC USE, LIKE PARKS, PLAYGROUNDS OR SQUARES

- FOR RESIDENTIAL AREA, A CORRIDOR SPACE ACROSS THE STRIP SHOULD BE MAKE SURE.

- FOR MANUFACTURING AREA, AN AREA FOR PARKING SHOULD BE INCLUDED BESIDES PRIVATE PARKING/STORAGE, AND A INNER ROAD CROSS THE SCRIPT SHOULD BE ATTACHED.

- FOR CREATIVE INDUSTRY, A PUBLIC SQUARE WITH A CERTAIN AMOUNT OF RETAIL/CAFE/RESTAURANT SHOULD BE DEVELOPED, AND ALSO A ROAD CROSS THE SCRIP SHOULD BE ATTACHED(ETHER FOR WALKING OR CARS, OR BOTH)

- FOR MIXED MANUFACTURING-RESIDENTIAL, ALSO PUBLIC PARKING/CORRIDOR ATTACHED WITH ROAD.
ROUTING, CONNECTIONS AND PUBLIC SPACE
REMEDIATION STRATEGY

EXPLANATION WHY AND HOW TO REMEDIATE SOIL AND WASTER IN INDUSTRIAL CORRIDOR

IN ORDER TO CREATE A MIX-USE ENVIRONMENT REMEDIATION IS NEEDED

HIGH COST OF REMEDIATION

PUBLIC-PRIVATE COLLABORATION:
UTILITY AND REMEDIATION CORPORATION > FUNDING, DESIGN AND MANAGING

UTILITY SYSTEMS ARE PART OF REMEDIATION FROM START
DEVELOPMENT STRATEGY PER STRIP

LOCAL SHAREHOLDERS

Municipality

Industries
Businesses

Utility Corporation
Public-private neighborhood-scale

Funding
Design & Development
Maintenance & Repair
Managing (Smart-Grid) (demand-supply)

Residents

Revenues flow back to local community and shareholders

Remediation ?!
OLD AND ENERGY-INEFFICIENT CENTRALIZED UTILITY SYSTEMS
NETWORK OF SUSTAINABLE DECENTRALIZED LOCAL UTILITY SYSTEMS

- RENEWABLE ENERGY GENERATION WITH SOLAR PANELS
- LOCAL WASTE (WATER)-TREATMENT
- LOCAL WASTE-TO ENERGY SYSTEMS
- HEAT AND COLD STORAGE
- RE-USE OF WASTE-HEAT
- COOLING WITH RIVER-WATER
UTILITY SYSTEMS AND GREEN INFRASTRUCTURE
SELF-SUFFICIENCY IN NEIGHBORHOOD
LOCAL ENERGY, WATER AND WASTE-TREATMENT

1. **Waste-water treatment**
   - Living machine + wetlands
   - Neighborhood households

2. **Industry**
   - Temporary use of vacant lots
   - (Landfill) Waste
   - E-waste
   - Smart-grid control center & Energy Storage

3. **Recycling & Urban Mining**
   - Organic waste sewage sludge
   - Bio-Fermentation
   - Gasplasma plant
   - Recycling & Urban Mining

4. **Bio-gas**
   - Fertilizer:
     - Nitrogen
     - Phosphates
   - Syngas:
     - Heat
     - Energy
     - Hydrogen fuel
   - Re-use:
     - Plastic
     - Paper
     - Glass
     - Etc.
   - Rare metals:
     - Gold
     - Platinum
     - Copper
     - Silver
   - Plasma-rock
     - Building material
     - Concrete

5. **Heat or bio-gas**

6. **Water-re-use**
   - Cleaner Canal water
   - Drinking water
   - Treated water
   - UV
   - Organic waste sewage sludge
   - (Landfill) Waste
   - E-waste
   - Smart-grid control center & Energy Storage

7. **Cleaner Canal water**
   - UV
   - Drinking water
   - Treated water
   - Water-re-use

8. **Self-sufficiency in neighborhood**
   - Local energy, water and waste-treatment
TABLE OF CONTENT
INTRO 1
ANALYSIS 2
NARRATIVE 3
STRATEGY 4
DESIGN 5
FABRICATION COMMUNE

Jingran Lin
4301323
Tutor: Olindo Caso, Mick van Gemert
24 / 06 / 2015
THE NEXT VERSION OF MAKING:
What does the new industrial revolution will bring us?

MASS CUSTOMIZATION
Social media and crowdsourcing
Online Interactive Product Configurators
3D Scanning and Modeling
Recommendation Engines
Controlling manufacturing costs
Enterprise and Production Software
Flexible Production Systems

THE TIME OF INDEPENDENT DESIGNING AND MAKING IS COMING

3D PRINTING and digital controlled manufacturing
3D printing becomes industrial strength
3D printing starts saving lives
Customization becomes the norm
Product innovation is faster
New companies develop innovative business models built on 3D printing
3D print shops open at the mall
Heated debates on who owns the rights emerge
New products with magical properties will tantalize us
New machines grace the factory floor
“Look what I made!”
NEW LIFE STYLE
NEW CONCEPT OF CONSUMING
ENCOURAGING CREATION

Sharing Ideas  Providing Tools
Education & Research  Serve Local
Sharing Resources  Cross-filed Cooperation
A PLACE FOR DESIGNERS AND ARTISIS TO MAKE THEIR PROTOTYPE OF DESIGN

A PLATFORM FOR DESIGNERS TO SHOW THEIR WORK

A PLACE CAN DESIGN AND MAKE YOUR OWN PRODUCT ON YOUR DEMAND

A PLACE WHERE PEOPLE CAN ENJOY CREATION
A fab lab is generally equipped with an array of flexible computer controlled tools that cover several different length scales and various materials, with the aim to "MAKE ALMOST ANYTHING".[3] This includes TECHNOLOGY-ENABLED PRODUCTS GENERALLY PERCEIVED AS LIMITED TO MASS PRODUCTION.

While fab labs have yet to compete with mass production and its associated economies of scale in fabricating widely distributed products, they have already shown the potential to EMPOWER INDIVIDUALS TO CREATE SMART DEVICES FOR THEMSELVES. These devices can be TAILORED TO LOCAL OR PERSONAL NEEDS IN WAYS THAT ARE NOT PRACTICAL OR ECONOMICAL USING MASS PRODUCTION.

For businesses
Flablab Amsterdam is a fully equipped digital fabrication workshop that gives you the opportunity to develop your ideas and create prototypes for new products.

For communities
If you are a community group or an organisation that needs a space to meet and to develop new ideas, build teams or make something incredible, the Fablab is here for you. No matter if you are into arts, crafts, sports or science, everybody is welcome!

For school
If you're a school or an educational organisation that needs a space to develop new ideas, get advice on how to enhance technical skills and to build prototypes, the Fablab is the right place for you.

For individuals
If you are an entrepreneur or an inventor and want to create products and solve problems or someone with a fantastic idea and you want to realize it quickly, cheaply and easily, then the Fablab is the right place for you. You can reserve a machine at an modest hourly price.
Activities, People and Space Correlation Analysis
Operation mode

MATTER

Material → Stuffs → Workshop → Designers

Clients

Product

Waste → Recycled in Material Lab

START-UP

STUDIO

COMSUMER

DEISNER

WORKSHOP

COMMUNITIES

STAFF

COLLECTIVE SPACE

THE PUBLIC

- making things
- consuming

- independent
- hired

- market
- release conference
- lecture
- exhibition
- etc.

- joining activities
- consuming

A serve B

A → B

A serve B
RELATION WITH THE MASTER PLAN

- Locate in a point near most the demands for **Short Transportation**
- Provide Digital Fabrication for the **Creative Industry**
- Provide fabrication for the **Art Studios and Galleries**
- Provide Customization for the **Public**
PLOT SURROUNDING CONDITION

- West side attach a long green belt
- North side faces manufacturing buildings
- South and east side faces commercial area and creative industrial buildings

The plot has two faces for the Public and the Fabrication
**Spacial outline**

**A.**
Inner courtyard
courtyards encircled by building volumes, defined as private, also watched by surrounding.
not friendly to visitors, but fully controlled by the building.

**B.**
Dispersive volumes
free for the public to enter and stay, but lost most control by the building,
hard for transcription between volumes.

**Demand of space**
Flexible open space for both users and the public
Courtyard should be controlled by the building
Area for the public to use freely
Open the volume to welcome the public

**C.**
Semi-open courtyard
courtyard could be open and closed depends in usage.
easy for users in the building to utilize, better controlled.
emotionally open to the public.

**D.**
Centralized volume
no courtyard
compact combination of program
less friendly to the public but easier for management
activities all inside the building

**Result**
B + C
C. Ground floor applying type C. with semi-open yards

B. +

Ground floor applying type C. with semi-open yards

Roof applying type B. with platform surrounded by volumes
Spacial outline

ground floor
Enter from the middle collective space

roof platform
Enter from outside of the building connecting the landscape
CASE STUDY

Museum of Ocean and Surf

Steven Holl Architects + Solange Fabiao (2011)
CASE STUDY

Museum of Ocean and Surf
Steven Holl Architects + Solange Fabiao (2011)
CASE STUDY for workshop & studio space

Buda Art Centre
Architects: 51N4E
Location: Kortrijk, Belgium
Landscape + Building

Bring a Hill into the urban environment as Landscape and slope to the building

Building volumes combined with program

Building combined with landscape
Space catalogue

Workshop
Middle to large space for big machine and accommodating products.
Also should concern the noise and easy access to outside and workplace.

Studio
Small to middle size space for individual and groupworks. Similar to office space. Should be more quiet and private.
Rent to start-up and design teams.

Auditorium / classrooms
For public lecture and presentation.
For public & communities to use, also education.

Service: Commercial / storage
Commercial space includes restaurant, cafe & bar for working people and the public, also the third workplace. Could also work as shops with products made by people and provides design service. Kitchen and restrooms.
Storage can be close to workshops and studios.

Collective space
Large size space. Provide platform for public activities and exhibition. Easy access to other rooms and direct open to main entrance.

Meeting space
Space for people to meet and communicate, also cooperation between designers and clients. Could both in public corridor and private rooms.

Maintenance / management
Equipments, repairing and storage. Office space for staffs.
Program of the building

- workshop
- studio
- commercial
- collective
- auditorium
- classroom
- meeting
- management
- green space
- buildings
Program with surrounding environment

- industrial buildings
- commercial & service buildings
- creative industry & office
- residential building

- fabrication demand
- consumption demand
1. studio
2. workshop
3. commercial
4. collective space
5. auditorium
6. classroom
7. meeting
8. service

master plan 1:500
+ 4.0m section
section 1:500
&
flew diagram

Section A 1:500

Section B 1:500
THANK YOU!

Jingran Lin
4301323
Tutor: Olindo Caso, Mick van Gemert
24 / 06 / 2015