Complex Projects

Chicago Midway Airport

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RESEARCH AND ANALYSIS
EXISTING SITUATION

-Alien Element

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<th>MAJOR ELEMENT</th>
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<td>Landmark</td>
<td>District</td>
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![Map and Images]
CONCLUSIONS

THE AREA AROUND MIDWAY AIRPORT IS MAINLY RESIDENTIAL, IS NOT DENSELY POPULATED.

FAMILY HOUSEHOLDS ARE THE MAJORITY IN THE AREA (3 PEOPLE PER HOUSEHOLD ON AVERAGE).

THE COMMERCIAL USES ARE MOSTLY PLACED ACROSS THE BIG STREETS.

AROUND THE AIRPORT, THE MAIN USES ARE HOTELS AND FAST FOOD RESTAURANTS.

THERE IS NOT AN ACTUAL CONNECTION BETWEEN THE AIRPORT AND THE SURROUNDING AREA.
OPPORTUNITIES (Urban analysis)

Mixing of uses in the area

Rearrangement of public uses (retail, leisure, etc)

Strengthen the area’s character

Introduce a cultural component

Take advantage of the opportunities the airport can provide

Transportation system improvement
RESEARCH QUESTIONS

- How to change the **mono-functional character** establishing a strong **identity** for the area?

And how the airport can contribute towards that direction?
PROBLEM STATEMENT

Connectivity

- Big Cities with adequate connections
- Small Towns with bad connections
BUSINESS PLAN

1st Stage (6-12 Years)

Start-up
BUSINESS PLAN

2ND STAGE (10-20 YEARS)
EXPANSION
BUSINESS PLAN

3D STAGE (20-40 YEARS)
TAKE OVER
URBAN STRATEGY

- 1st Stage- Micro-Airport
- 2nd Stage- Micro-Airport
- 3d Stage- Micro-Airport
Schematic Approach

Cicero Av. - Proposal

Micro-Airport

Multi-Terminal

Hotel Park

Mix-use district

- residential

Commercial district

Office+ Conference District

Landscape

Residential (Existing Use)

MASTERPLAN
THE AIRPORT
PROBLEM STATEMENT

- Connection nightmare

Car ➞ Parking ➞ Drop off (Departures)

Bridge 1

Train ➞ Station ➞ Bridge 1 ➞ Bridge 2 ➞ Parking ➞ Corridor

Bus ➞ Station ➞ Bridge 1 ➞ Bridge 2 ➞ Parking ➞ Corridor

Departure area (Check in) ➞ Security ➞ Duty Free ➞ Concourse A ➞ Concourse B ➞ Concourse C
PROBLEM STATEMENT

Reaching the airport...
PROBLEM STATEMENT
Reaching the airport...
-How to reorganize the airport in an efficient way, connected at the same time with the neighborhood?
PUBLIC SPACE
MIDWAY AIRPORT
PUBLIC SPACE
RESEARCH QUESTIONS

- How to design a building, which is a landmark or the area and manages to “connect” two different uses?

- How to create an interesting public space where orientation is facilitated and different experiences are possible throughout the building?
Upgrade passengers and visitors experience

Contribute to the area
How to combine the cultural component in an airport terminal?
MIDWAY AIRPORT-MULTY-TERMINAL

Addition of Cultural Component

A turn from retail to leisure will be the main characteristic of the 21st Century Terminal,
Brian Edwards

- Relaxing Area
- Conference Space
- Exhibition space
- Kids’ space
- Meeting Place
- Library and reading space
- Auditoriums
EXPERIENCE
“...Concourse B is very big and cozy. I slept in a chair and the time flew by...”

“...Fly into Midway. It is a convenient airport that has the accommodations of O’Hare but not the size and confusion....”

“...The bad thing about Midway is that the shops and restaurants are past the security checkpoint and only ticketed passengers can get to it...”

THE TERMINAL AT MIDWAY IS A VERY TYPICAL MODERN AIRPORT TERMINAL
MIDWAY AIRPORT

AIRPORTS: FORM AND MATERIALIZATION
MIDWAY AIRPORT

CULTURAL CENTER: FORM AND MATERIALIZATION
MIDWAY AIRPORT

CULTURAL CENTER: FORM AND MATERIALIZATION
Aviophobia, a fear of flying, affects 6.5 percent of the population.
RESEARCH QUESTIONS

- How to fight airport stress with architectural design?
AIRPORT: HOW TO FIGHT FLIGHT STRESS

- Distraction: Keep your mind occupied
- Relaxing activities that require mental process
- Familiarity of space
- Easy orientation
- Accessibility (max integration)
- Warm Materials
- Get physical
- View
- Multiple experiences
- Green
- Human scale
- Easy orientation
- Multiple experiences
MIDWAY AIRPORT-MULTY-TERMINAL

Concepts

1.

2.

3.

4.

5.

6.

7.

8.
CONCEPT DEVELOPMENT

Organization
CONCEPT DEVELOPMENT

Organization
CONCEPT DEVELOPMENT

Organization
CONCEPT DEVELOPMENT

Organization
CONCEPT DEVELOPMENT

Organization
CONCEPT DEVELOPMENT

Urban scene
CONCEPT DEVELOPMENT

Urban scene
CONCEPT DEVELOPMENT

1st level
Airport main level

- Airport Private
- Airport Public
- Train Station
- Corridor

Airport

Neighborhood
CONCEPT DEVELOPMENT

Check in-Configurations

Security Control
CONCEPT DEVELOPMENT

Check in-Configurations

Chosen configuration

Security Control
CONCEPT DEVELOPMENT
Check in-Configurations
CONCEPT DEVELOPMENT

Baggage reclaim-Configurations
CONCEPT DEVELOPMENT

Baggage reclaim-Configurations

Chosen configuration
CONCEPT DEVELOPMENT

Baggage reclaim-Configurations
CONCEPT DEVELOPMENT

Groundfloor level

Airport parking
CONCEPT DEVELOPMENT

1st level
Airport main level
CONCEPT DEVELOPMENT

Intermediate level
Baggage handling
CONCEPT DEVELOPMENT

1st level
Airport main level
CONCEPT DEVELOPMENT

2nd level
Recreation and education
CONCEPT DEVELOPMENT

2nd level
Recreation and Education
CONCEPT DEVELOPMENT

2nd level
Recreation and Education

Restaurant and Library
3d level
Recreation and education
CONCEPT DEVELOPMENT

3dlevel
Recreation and Education

Restaurant and Library
SECTIONS

Cross section

Long Section
SECTIONS

Cross section
1/200
SECTIONS
FACADE DESIGN

North Facade

South Facade
CLIMATE AND SUSTAINABILITY STRATEGY
CLIMATE AND SUSTAINABILITY STRATEGY

1. Renewable Energy

2. Minimum heat losses—"PROTECTION"

3. Minimum dependence on fossil fuels,

4. Minimize carbon footprint
1. Renewable Energy - Natural resources

A. Solar Energy

B. Geothermal Energy

C. Rain Water Purification
2. Minimum heat losses—"PROTECTION"
3. Minimum dependence on fossil fuels

A. Solar Energy - Geothermal Energy

B. Minimise Heat Losses

C. Heat Recovery Ventilation - Displacement Ventilation
4. Minimize carbon footprint

Use of wood to the extent it is efficient
CLIMATE SYSTEM

SUMMER

WINTER
CONSTRUCTION

Reference publication:
Tall Wood, Michael Green

Fire protection

1-Encapsulation approach

2-Charring approach
CONSTRUCTION

Reference publication:
Tall Wood, Michael Green
CONSTRUCTION

Structure

level 01

level 02

level 03

roof
CONSTRUCTION

Structure

Level 01
CONSTRUCTION

Structure

Level 02
CONSTRUCTION

Structure

Level 03
CONSTRUCTION

Stucture
CONSTRUCTION

Structure
CONSTRUCTION

Roof construction
Reference project: Rotterdam Centraal
CONSTRUCTION

Roof drainage
CONSTRUCTION

heat recovery unit

heat pump
CONSTRUCTION

Load bearing partition wall

- Steel column
- Wooden cover

- Wooden floor
- Floor heating
- Concrete layer
- Insulation
- 3 layer CLT panel

- Steel beam
- 2 layers of gypsum board
- Sound insulation
- 3 layer CLT panel
- 3 layer CLT panel
- Sacrificial fire protection timber panel
CONSTRUCTION

Facade and roof connection

- spandrel panel
- waterproofing
- insulation
- aluminum louvers
- water pipe
- laminated timber beam
- glass roof panel with PV panels
THANK YOU!