SOLUTION:

DEVELOP A MIDWEST REGIONED HUB, AGRICULTURAL RESEARCH CENTER. TRANSFORM THE REGION INTO A UNIFYITY NETWORK, ALLOW THE REGION WORK AS A COMPETITIVE REGION AROUND THE WORLD.
National attraction for tourists
Leadership of healthy food in Midwest
Chicago brand
There needs to be a balance between the local neighborhood and the new built research center.
The neighborhood: "If it's nice, shiny and new, I don't see why they'd include us."

"They've never included us in any particular way before, so, you don't have enough people with the education to have the jobs to afford to buy the houses out here."
Remove the physical barrier between neighborhood and research center.

Provide the neighborhood with jobs and professional education, eliminating the social barrier between the two parts.

Create an area for the communication between local residents and the new arrivals.
Remove the physical barrier between neighborhood and research center
Both high speed rail and lake shore drive are moved underground. People can reach the highway on the -1 floor and the high speed rail station on -2 floor from the three islands in the middle of the strip.
Remove the physical barrier between neighborhood and research center
Routes connect neighborhood and research centers, creating a friendly environment on the ground floor.
Remove the physical barrier between neighborhood and research center
A continuous route from one end to another makes a tour of the strip possible.
Eliminate the social barrier by providing job opportunities and professional training.

High Speed Rail

- jobs
- convenient transportation infrastructure

- Neighborhood
- Researcher
Eliminate the social barrier by providing job opportunities and professional training.
Eliminate the social barrier by providing job opportunities and professional training. Programs are mixed so that people can have access to different programs in few minutes. At the same time, transportation including office, ticket hall and service mainly distribute around the station in the center.
Define an area for the communication between the neighborhood and researchers.
We use a light roof to create a half public space and unify the 1600m long space.
Define an area for the communication between the neighborhood and researchers.
Along the 1600m distance, there are different environments below the roof, such as greenlands, plazas and buildings. As a result, adjustable louvers are installed above the plazas.
Define an area for the communication between the neighborhood and researchers. These louvers have solar panels on them. The energy they create can supply the demands of buildings.

**SUPPLY**

10m² PV panels produce 1KWH

Solar glass system produce 1000KWH/h

**DEMAND**

Commercial buildings in Chicago use 261 KWH per year per square meter

Average area in each island: 3500m²

Sun hours in Chicago: 3.14 h per day

The demand: 737 KWH/h

Derate factor: 0.77

The output should be 1035KWH/h
Define an area for the communication between the neighborhood and researchers. The adjustable louvers create micro-climate for the plazas.
The pavilion is a small city. The 1600m long area composes an integral part of a city. To create the 'small city', the pavilion should have characters of city:

- Landmark, path and domain
- Mixed program
- Density variation
- Hierarchy
- Diverse materials
- Infrastructure
Path
Path near station 12m
Main commercial road 15m
Secondary commercial road 10m

Considering the low FAR,
Path from station to the end: 10m → 6m → 4m
Domain as node
Mixed program

Market (Food courts) 2700sqm*2
- Entrance 40sqm
- Local specialties 30sqm*50
- Storage 50sqm*4
- Freezing 50sqm*4
- Public space 660sqm
- Others 100sqm

Supermarket 600sqm*3
- Unloading bay 10sqm
- Storage 50sqm
- Bakery 30sqm
- Entrance 70sqm
- Sales area 330sqm
- Checkout area 30sqm
- Staff office 15sqm*2
- Others 50sqm

Hotel 800sqm*7
- Entrance 10sqm
- Dining area 200sqm
- Kitchen 100sqm
- Storage 50sqm
- Staff space 10sqm*5
- Counter 10sqm
- Luggage room 30sqm
- Room 25sqm*12
- Others 50sqm

Bar 100sqm*30
- Counter 10sqm
- Dining area 55sqm
- Kitchen 15sqm
- Staff space 10sqm
- Others 10sqm

Farm school 1000sqm*6
- Lecture room 100sqm
- Library 160sqm
- Classroom 50sqm*12
- Administration office 20sqm*4
- Others 60sqm

Food school 150sqm*10
- Kitchen-preparation 5sqm*2
- Kitchen-storage 10sqm*2
- Kitchen-washing 10sqm*2
- Kitchen-cooking 10sqm*2
- Kitchen-dining 10sqm*2
- Administration office 15sqm*2
- Others 15sqm*2

FAR 0.2
Mixed program

Barcelona is a city famous for its market. I take it as a reference for the study of program density.
Mixed program

- market
- supermarket
- restaurant and hotel
- bars
- farm school
- cook school
- office building for station staff
- technical room

- market 700m
- supermarket 400m
- restaurant and hotel 150m
- bars 30m
Diverse materials
Infrastructure - furniture

pavement in academic yard

pavement in entertainment plaza
Infrastructure - soil energy

suijer layer in Chicago on -250m (summer)
Infrastructure - soil energy

A uifer layer in Chicago on -250m (winter)
Infrastructure- discharge system