LIVING INFRASTRUCTURE NETWORK: CLEVELAND

NEIL REINDEL AND CLAIRE MARKWARDT

HISTORY
CLEVELAND FOUNDING
Cleveland Founded by Lake Erie in North Eastern Ohio.

RAILROADS CONSTRUCTED
Railroads were constructed bringing industrial development but breaking the connection to Lake Erie.

BURKE LAKEFRONT OPENS
Burke Lakefront Airport opened, privatizing much of downtown's lakefront, and remaining a point of debate to this day.

I-90 CONSTRUCTED
Interstate 90 was constructed and presently is heavily utilized.

PROPOSAL
TRAIN STATION BUILT
High Speed Rail station constructed which allows for new national and state connections. Amtrak and RTA stations are absorbed as well. Municipal lot surface parking is absorbed into an on site structure.

CSO REROUTED
Existing combined sewer overflow is rerouted to create a cleaner immediate shoreline for lakefront development.

LAKEFRONT DEVELOPMENT
A waterfront park is developed and built, allowing engaging interaction with Lake Erie.

EXTEND DOWNTOWN
Central business district connections are emphasized, allowing heavy use by professionals and the downtown convention center.

CONNECT TO E22nd CORRIDOR
Extend back to the East 22nd Street Corridor, emphasizing access for the Campus District and new high rise residential developments.

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**Building Program**

**Active Roof**
- Total: 1,000,000 sqft
- Located: All Levels

**Train Support/Commercial**
- Total: 145,500 sqft
- Located: 1-4

**Fitness**
- Total: 150,000 sqft
- Located: 1-3

**Mixed Use**
- Total: 639,500 sqft
- Located: All Levels

**Parking**
- Total: 356,000 sqft
- Located: 1-2

**Train Platforms**
- Total: 155,500 sqft
- Located: 1-2

**Total Indoor Development**
- 1,300,000 sqft

**Weave**

While designing, four very active program types were chosen and then analyzed to see how they could enhance each other. The demographics of the users of these programs were then considered to experiment with not only the program interaction, but the human aspect of those interactions. The subsequent design encourages these occurrences from both the program distribution and the desires of the demographics, allowing weaving of not only the visual, but the physical fabric of the experience.
TRANSIT DEVELOPMENT

As the reliance on cars is increasingly becoming realized as a problem due to fuel shortage, pollution, and overall discomfort of some spaces designed for them, alternative means are being encouraged. This project embraces these other modes.

TRAIN
- High speed rail development will allow Cleveland to become the national gateway for high-speed travel as seen in the map to the left. Currently the California system is being constructed and will be the first in the nation, with Washington D.C. quickly following suit. This project would encourage even more states to do so.
  - The 4 C's are the largest travel market in the Midwest (3.75 million)
  - Generate 30,000 new permanent jobs
  - Projected: 12th highest market in the U.S. (generating $12 million in ticket sales in the first year)

BUS
- A bus line runs through the project and connects to E 22nd ST corridor and the central business district, allowing easy transport to and from the site.

BIKE
- Designated bike lanes run through the site beside the bus line, allowing a healthy and free commute to location. The project also hosts a bike share which is one of many that run along E 22nd Street.
ENERGY
- **BLOOM BOXES**: Fuel cell generators provide the building with renewable power through the combination of natural air and bio-fuel made from the organic waste of surrounding restaurants as well as from the building's waste. The use of bio-fuel reduces the building's carbon footprint.
- **OFF-SHORE WIND TURBINES**: Owners of the building pledge to purchase energy from Lake Erie Energy Development Corporation in support of harvesting wind energy off the shores of Lake Erie.

WATER CATCHMENT AND TREATMENT
- **WATER CATCHMENT**: Storage locations are located throughout the project, allowing for the collection and treatment of stormwater, reducing the load on the CSO.
- **WATER TREATMENT**: The active roof is 1,000,000 sqft of pervious material, allowing for the catchment of stormwater and allowing for the treatment of the water to be reused throughout the building.

FACADE TREATMENTS
- **MICRO TURBINES**: Strategic placements on East, West, and North Facades to harvest lake wind.
- **ETFE FOIL COMPONENTS**: Lightweight transparent material that will protect from the wind while harvesting energy using wind belt technology.
- **AUTOMATED SHADING**: Controls optimal lighting to avoid wasting energy.
- **HIGH PERFORMANCE GLAZING**: Coupled with the vegetated roof system, the building is well insulated.
- **HANGING GREEN WALL SYSTEM**: Creates shade gardens and interior shading in summer, and becomes moments for potential solar gain in the winter.

BUILDING CONSTRUCTION
- **STRUCTURE**: Core concrete base offers light weight construction and thermal efficient building shell cooling and heating.
- **LOCAL MATERIALS**: Embracing the industrial strength of Cleveland, and utilizing over 80% local materials for cost savings.
- **rti (retail)**
- **hotels (hotels)**
- **office (office)**
- **residential (residential)**
- **commercial (commercial)**

SECTION VIEWING EAST EMPHASIZING SUSTAINABLE INTERVENTIONS