



NEHA SONI

KEYNOTE SPEAKER

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Cook County Department of
Transportation and Highways,
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Epstein



Urban Transformation: Thinking through a Transdisciplinary Lens

9AM IST
04.12.2024

Venue - Block C, Conference Room



Link for meeting



Overview

- Introduction
- What is Urban Transformation?
- What went Wrong?
- What is Transdisciplinary?
- An emerging field of Transportation Planning and Urban Design
- Case Studies
- Key Takeaways
- Open Discussion - Q&A



Neha Soni, AICP, LEED AP (ND, BD+C), CNU-A



Cook County Department of Transportation and Highways, Chicago, Illinois, USA
Senior Planner - Project Manager (Bureau of Strategic Planning and Policy)



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Senior Planner – Urban Designer (Department of Civil Engineering)



Springfield-Sangamon County Regional Planning Commission, Springfield, Illinois, USA
Associate Planner – Urban Designer (Metropolitan Planning Organization - Transportation Team)



GHD Global, Pty, Doha, Qatar
Architect (Concept Design Team - Marketing Section)



University College London – The Bartlett – Development Planning Unit, London, UK
Master of Science in Urban Development Planning (Commonwealth Scholar)



CEPT University, Ahmedabad, India
Master of Architecture in Urban Design (First Class)



Maharaja Sayajirao University, Baroda, India
Bachelor of Architecture (Distinction)

What is Urban Transformation?



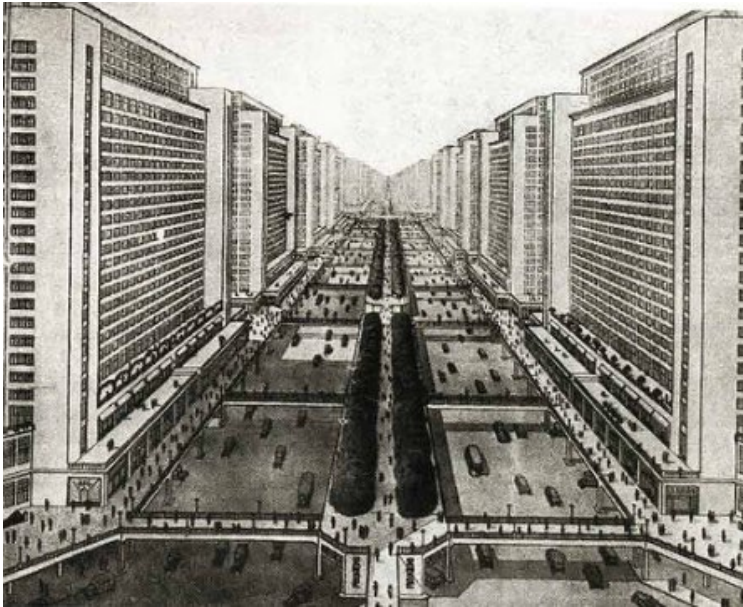
What did they transform from?



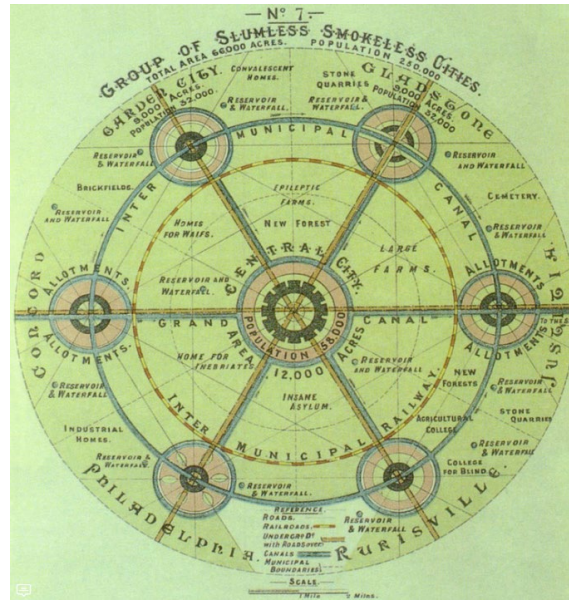
What went Wrong?



Radiant Garden City Beautiful



Radiant City – Le Corbusier



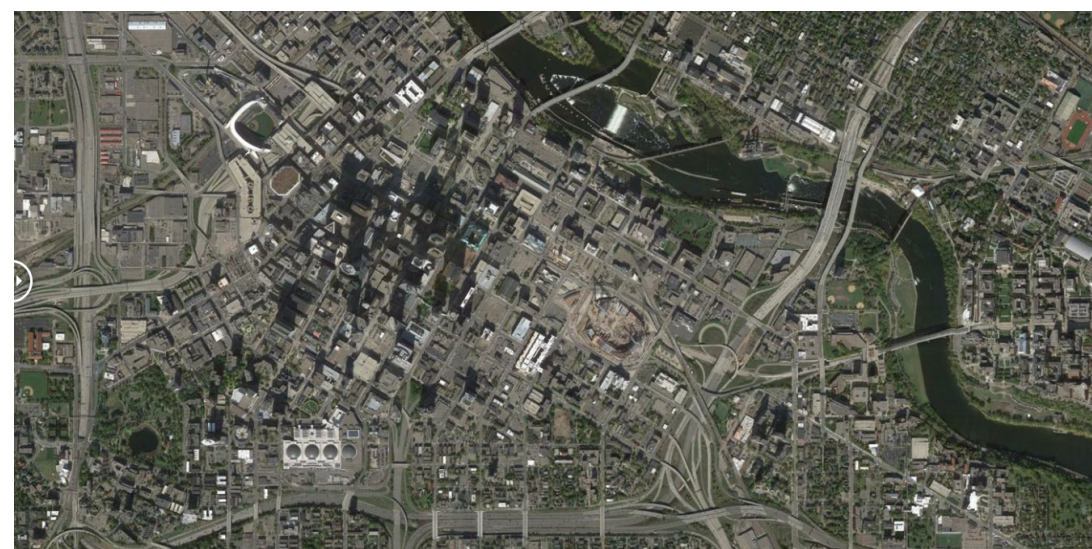
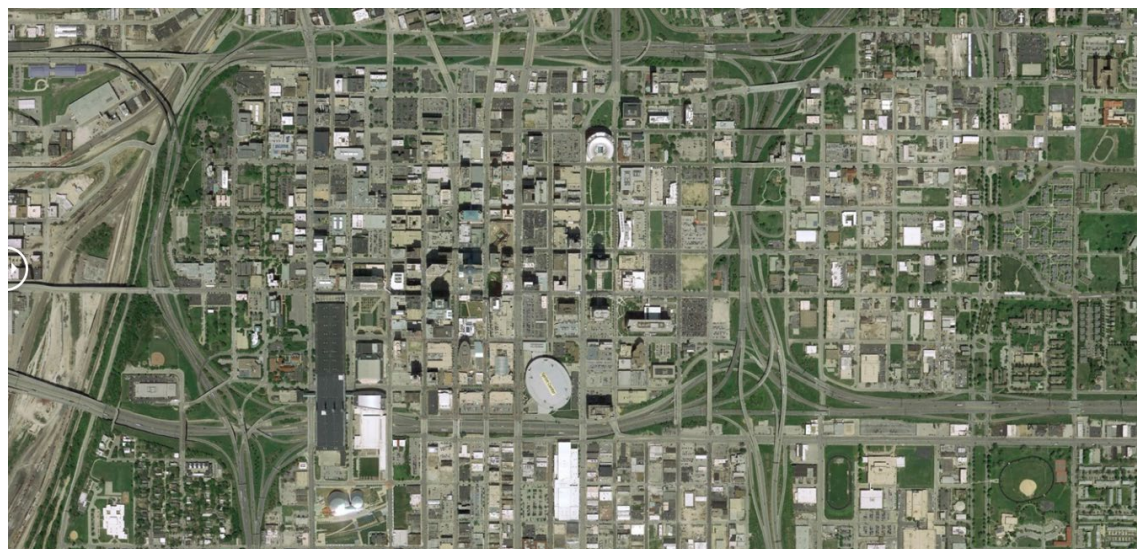
Garden City – Ebenezer Howard



City Beautiful – Daniel Burnham

What went Wrong?

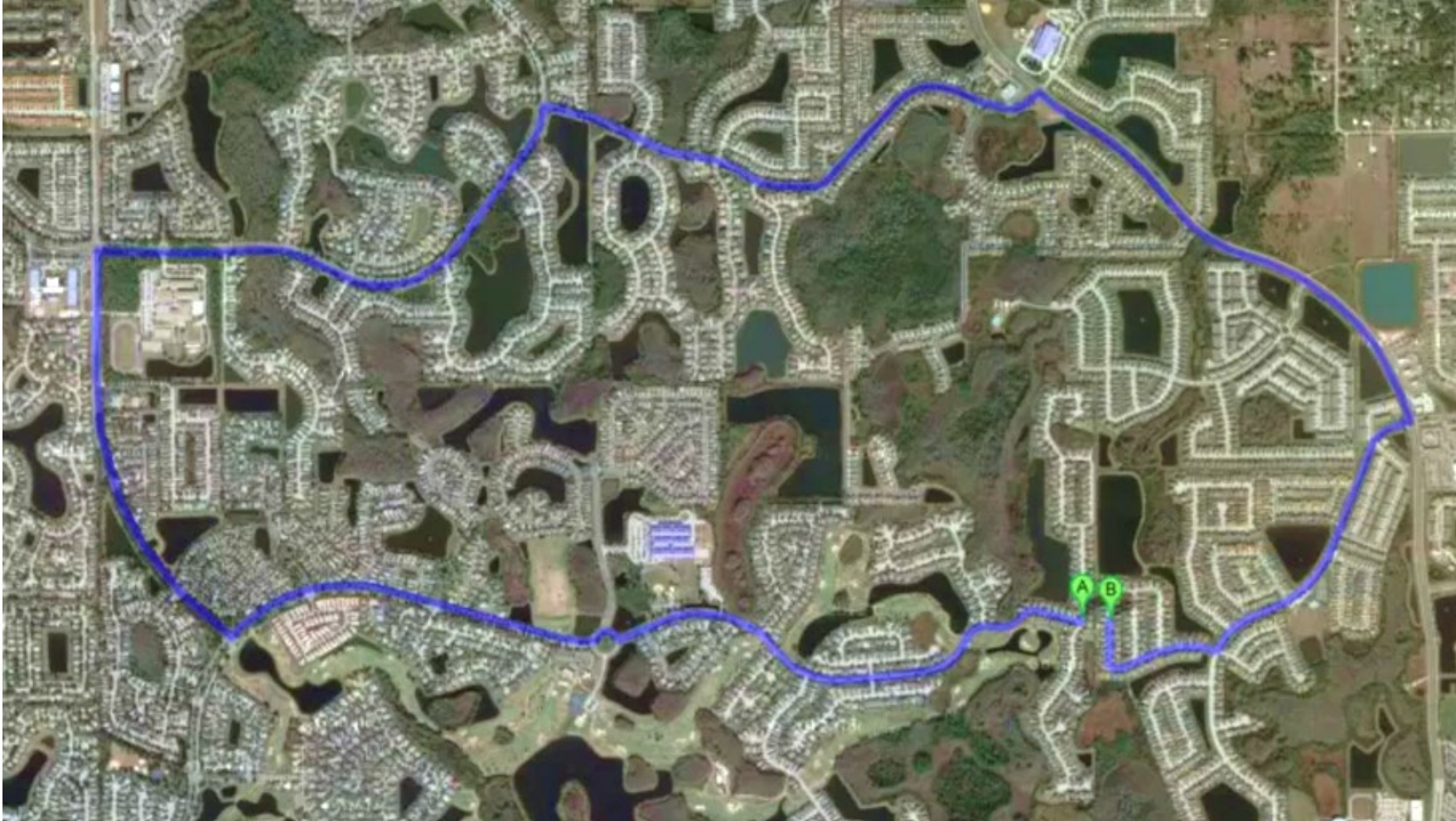
Source: University of Oklahoma



Kansas City, 1955 to 2014

Minneapolis, 1953 to 2014

What went Wrong?



“Behold: Two houses with adjoining backyards in suburban Orlando,” writes Angie Schmitt. “If you want to travel the streets from point A on Anna Catherine Drive to point B on Summer Rain Drive, which are only 50 feet apart, you’ll have to go a minimum of seven miles. The trip would take almost twenty minutes in a car, according to Google Maps.”

Source: Planetizen - Is this the Most Outrageous Example of Sprawl Madness in America?

What went Wrong?



Marina Towers over Chicago River

- One of the most iconic projects in the world.
- Nearly 15 stories above the ground are devoted to car parking. These floors have the prime views to the river and the street life.
- The design was guided by automobile-oriented thinking.
- Zoning reacted to the need for storing cars and established maximum parking requirements even in the dense urban context.
- It is extremely challenging to modify these floor plates now.

What went Wrong?



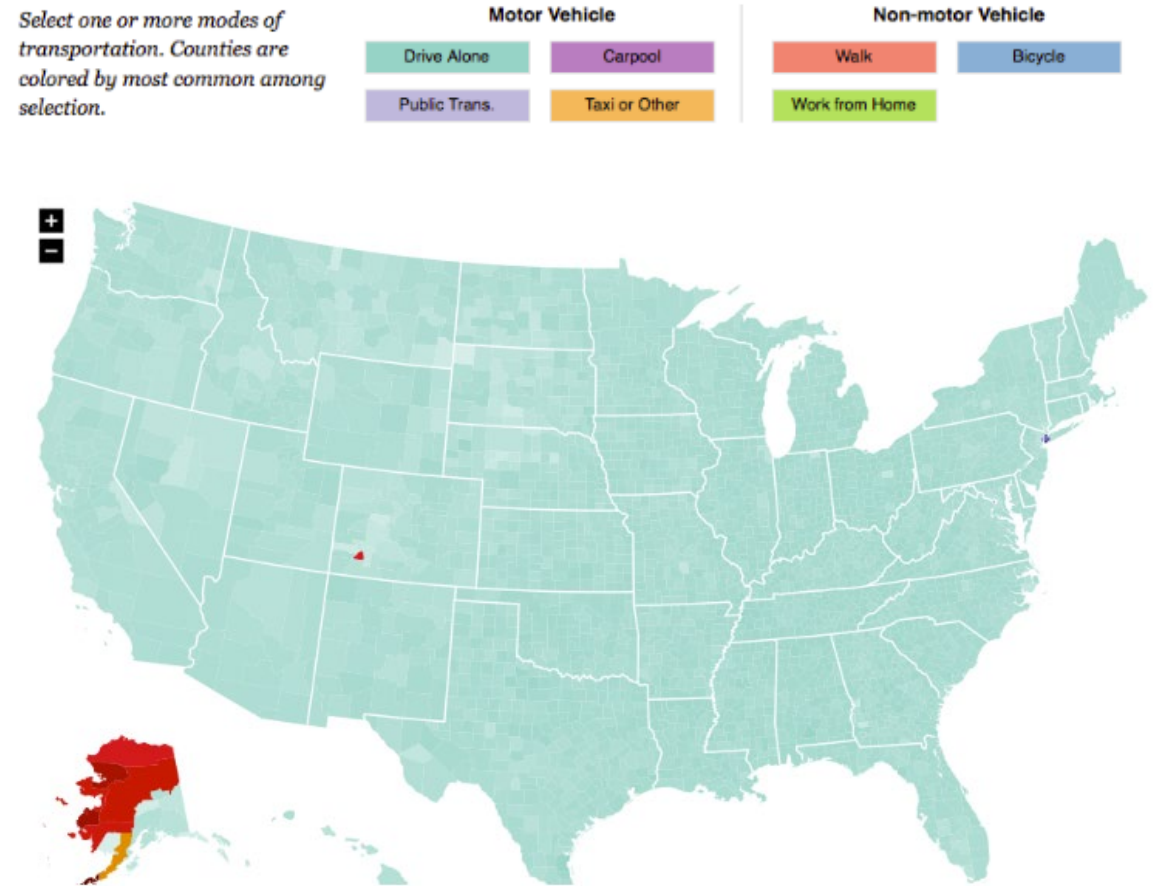
Increasing homelessness due to unaffordable housing – Tent Cities under freeways in the City of Chicago

What went Wrong?

- How to Mode Switch?
- Cars take up space.
- Less VMT = Less cars.



Source: Bureau of Transportation Statistics

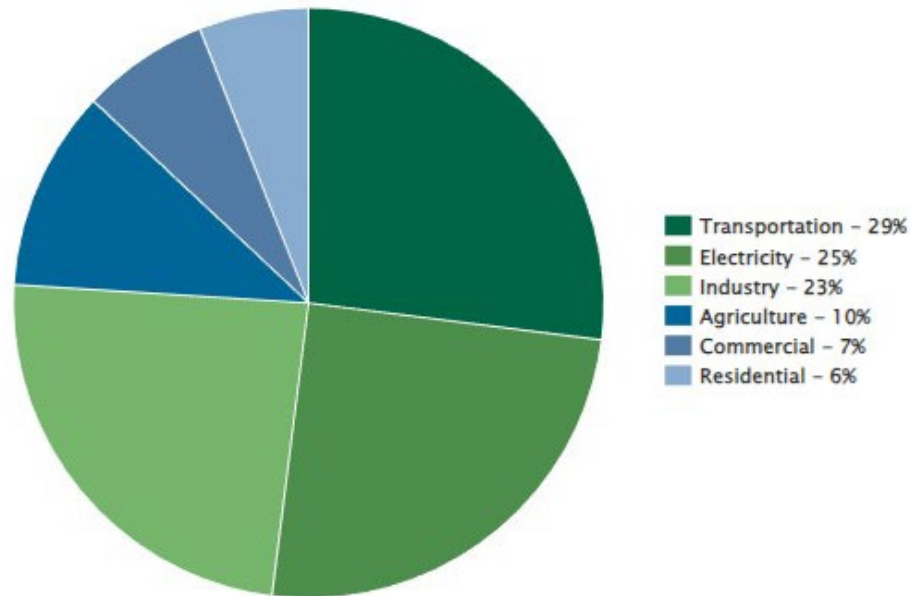


Source: Vox - How Americans commute, in one map

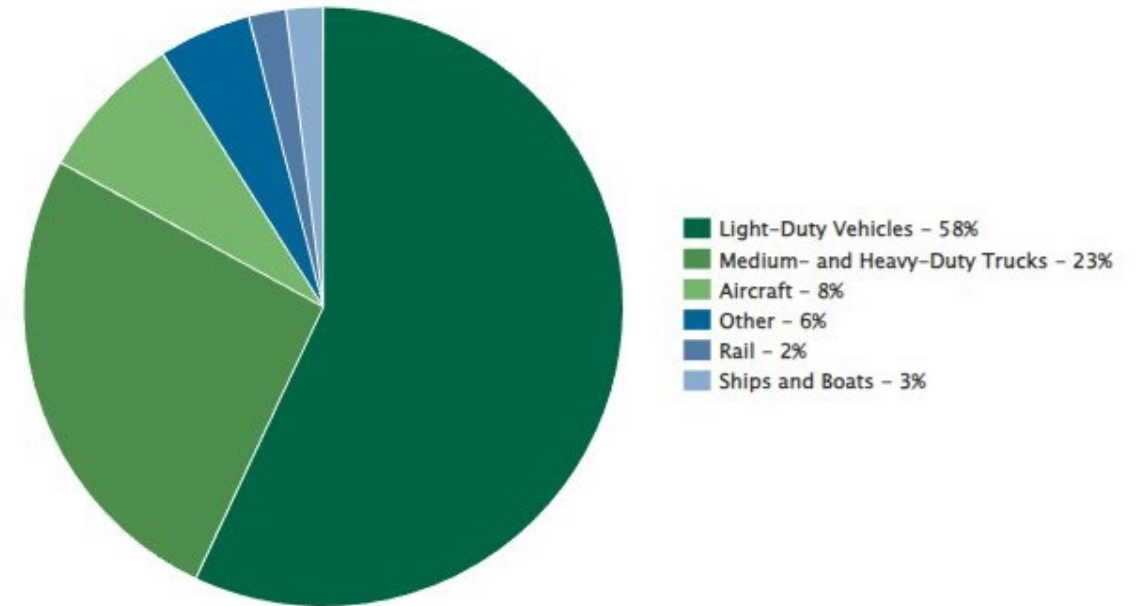
What went Wrong?

- In Chicago region, transportation is the only sector that continued to increase emissions while all others declined. Between 2010 and 2019, it increased by 2%, and almost entirely from cars, buses, and trucks.
- Total VMT increased by 4%
- Many trips are local within 3-5 miles of one-way travel distances.

2021 U.S. GHG Emissions by Sector

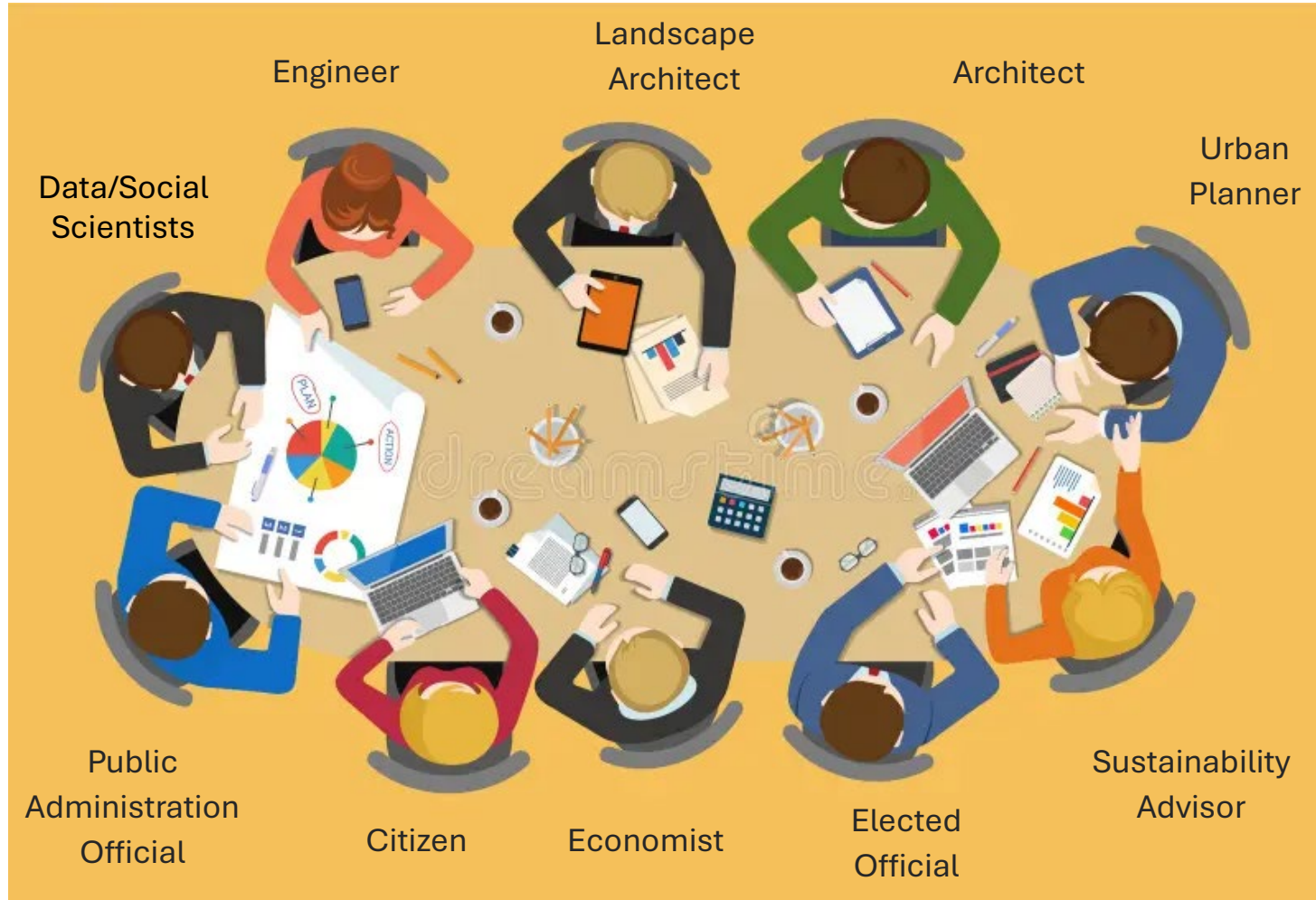


2021 U.S. Transportation Sector GHG Emissions by Source



Source: EPA Report, June 2023 - U.S. Transportation Sector Greenhouse Gas Emissions 1990 –2021

What is Transdisciplinary?



Transdisciplinary work involves collaborators from multiple disciplines in a co-equal partnership, in which they collectively define and develop new opportunities (conceptual understanding, theoretical models, etc.) that move beyond traditional disciplinary boundaries. Transdisciplinarity has been described as a practice that transgresses and transcends disciplinary boundaries and has the most potential to respond to new and emerging human problems and opportunities.

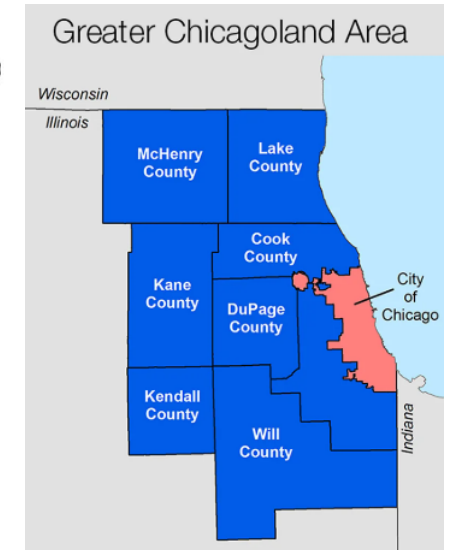
Source: Purdue University

Multidisciplinary Team - Collaborative Work

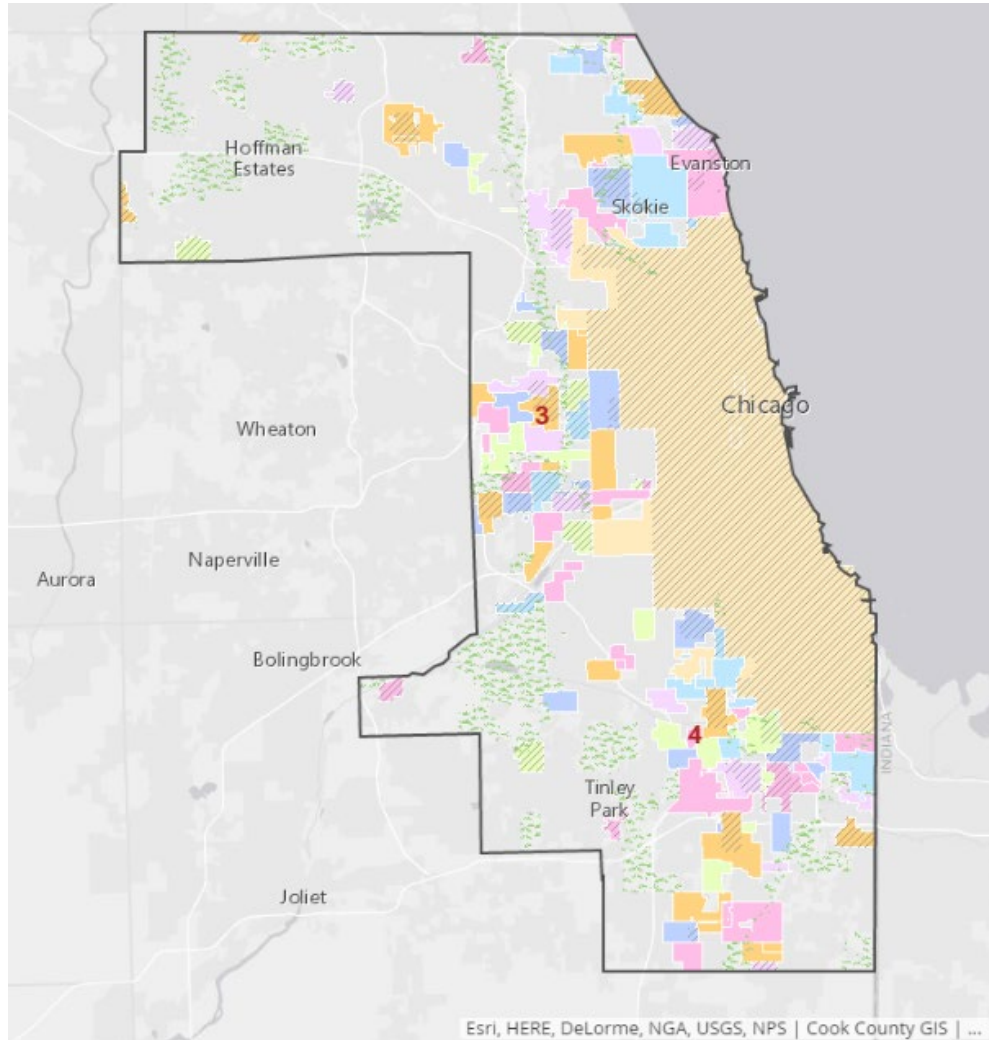
An emerging field of Transportation Planning and Urban Design



- Cook County is the second most populous county in the United States
- Surrounding six counties and Cook County make up the Regional Greater Chicagoland Area.



An emerging field of Transportation Planning and Urban Design



- Cook County contains 134 municipalities in its region.
- City of Chicago is the third most populous city in the United States.
- DoTH has jurisdictional authority over 568 center line miles of highways and 132 bridges.

Office of the President

Bureau of Administration

Department of Transportation and Highways (DoTH)

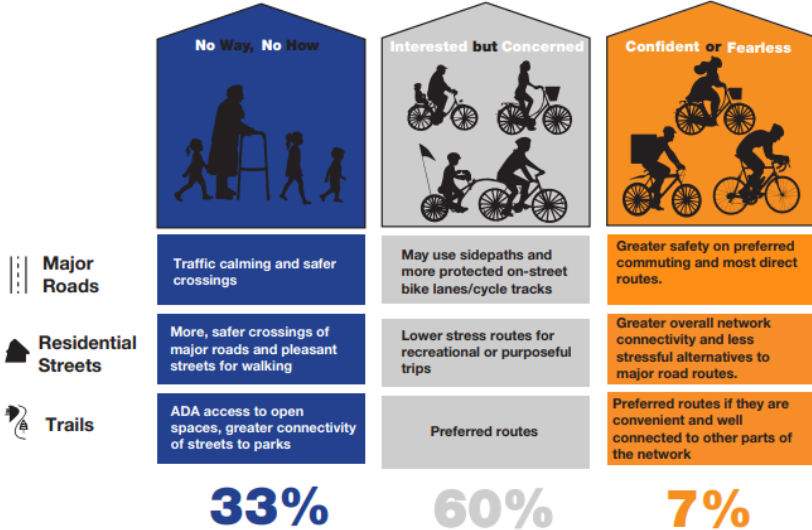
Bureau of Strategic Planning and Policy

Case Studies – Bike Plan

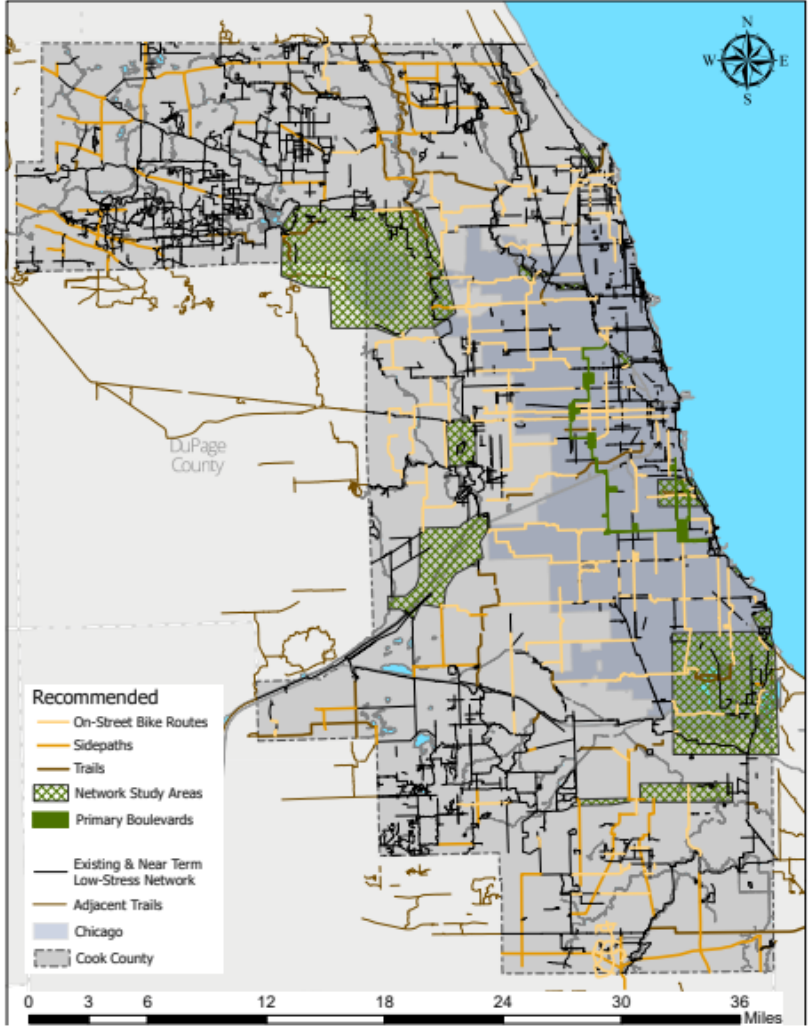
Bike Plan Guiding Principles

- Increasing everyday cycling by connecting existing bike infrastructure to major destinations
- Creating a core low-stress bike network to ensure riders feel comfortable
- Making bike lanes and paths more accessible to residents through equitable investments

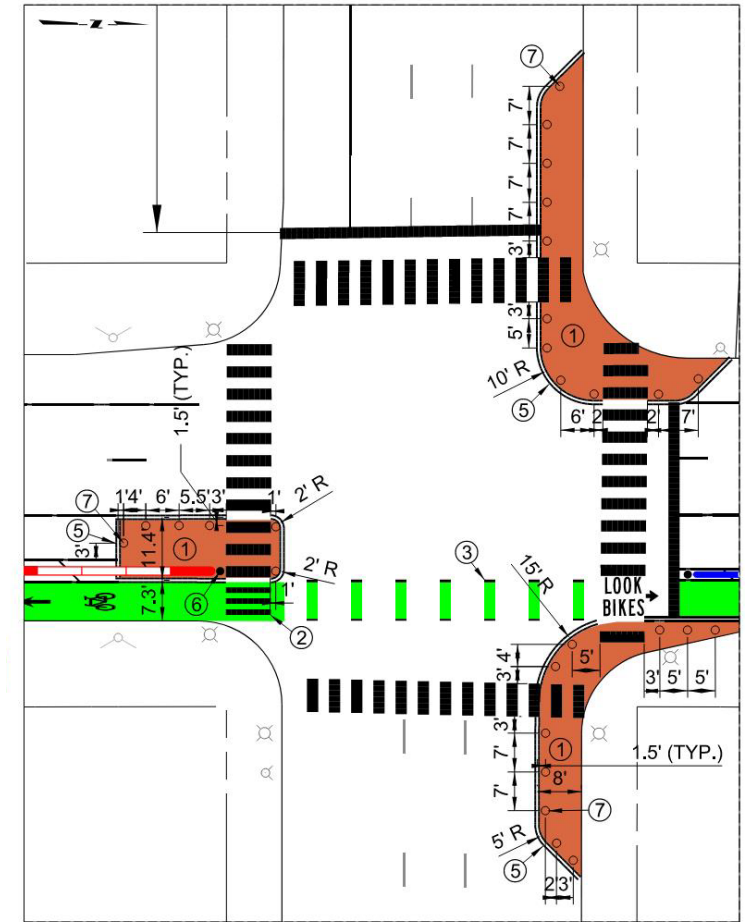
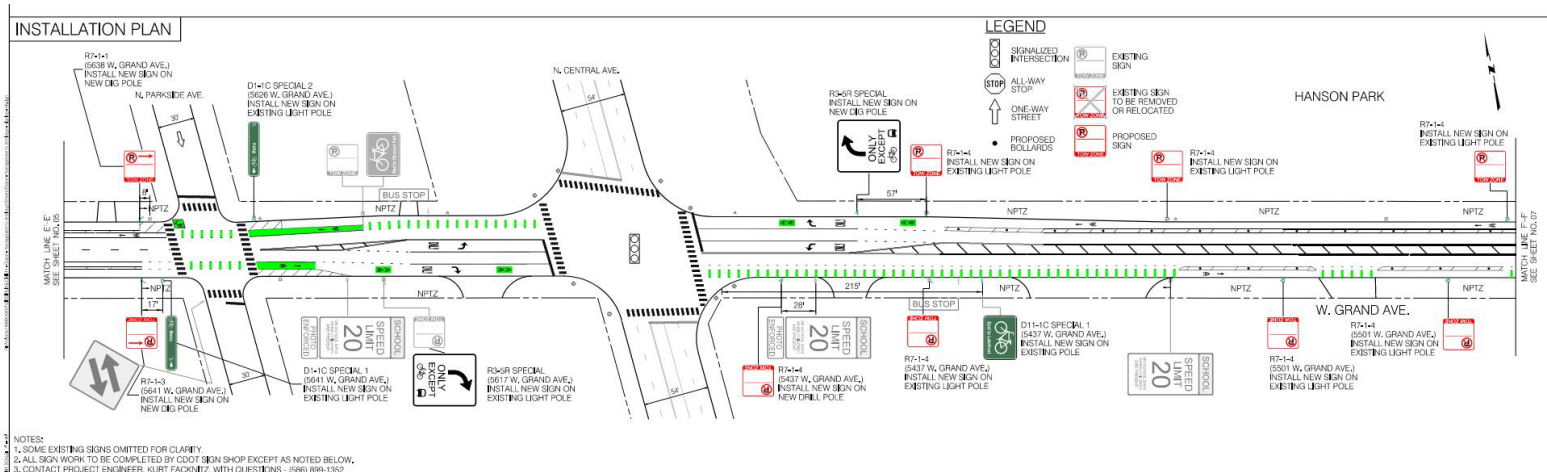
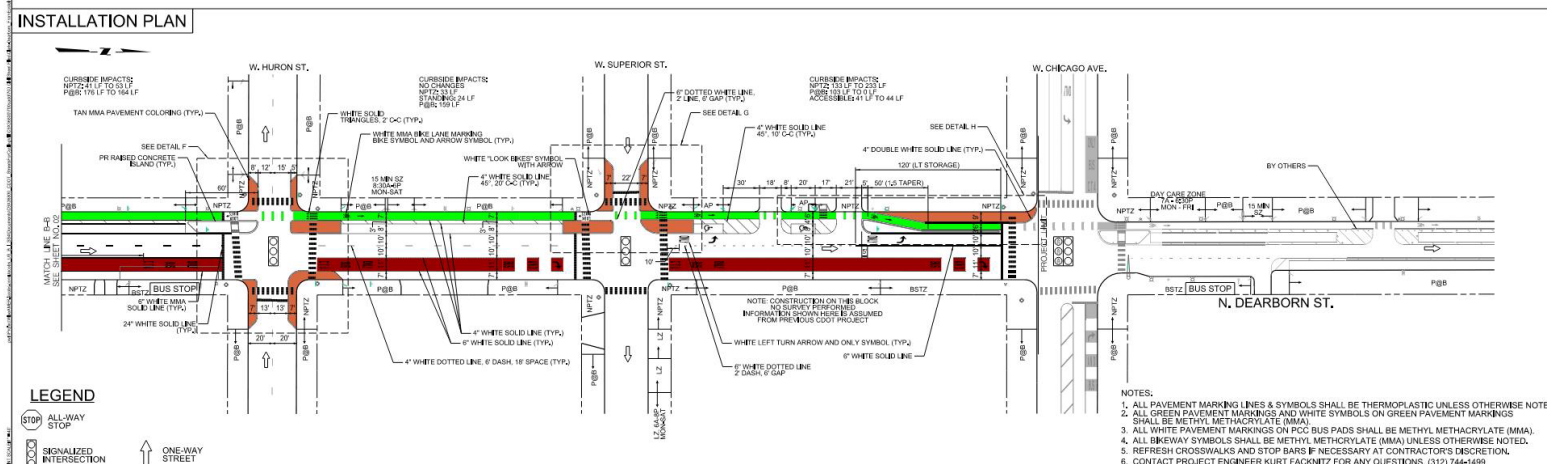
Table 1: Percentage of Adults by How They Bicycle (Geller, 2006).



Map 2: Recommended Low-Stress Network



Case Studies – CDOT Streets for Cycling



DESIGNED	TG					CITY OF CHICAGO	2021 BIKE LANE INSTALLATION	W. GRAND AVENUE N. NARRAGANSETT AVE. TO N. LARAMIE AVE.	SHEET NO. 06
DRAWN	RE								
CHECKED	TG					DEPARTMENT OF TRANSPORTATION	SIGNING PLAN	SCALE: 1" = 40'	DWG. 6 OF 9
DATE	09.02.2021	DATE		BY	DESCRIPTION	DIVISION OF PROJECT DEVELOPMENT			
REVISIONS						BICYCLE PROGRAM			

Case Studies – CDOT Streets for Cycling



Chicago's Approach to Bike Planning

The City's current bicycle accommodations include over 200 miles of on-street bikeways, 36 miles of trails, and more bike parking (over 12,000 racks) than any other city in the United States.



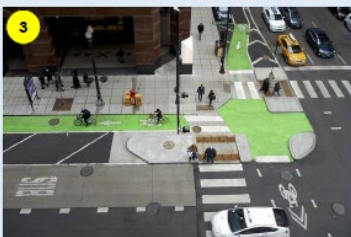





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Case Studies – Bike Plan

ACTIVE TRANSPORTATION

Intersection and Crossing

	
<p>Comment:</p>	<p>Comment:</p>
	
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ACTIVE TRANSPORTATION

Bike Lane, Sidewalk and Shared Lane/Path

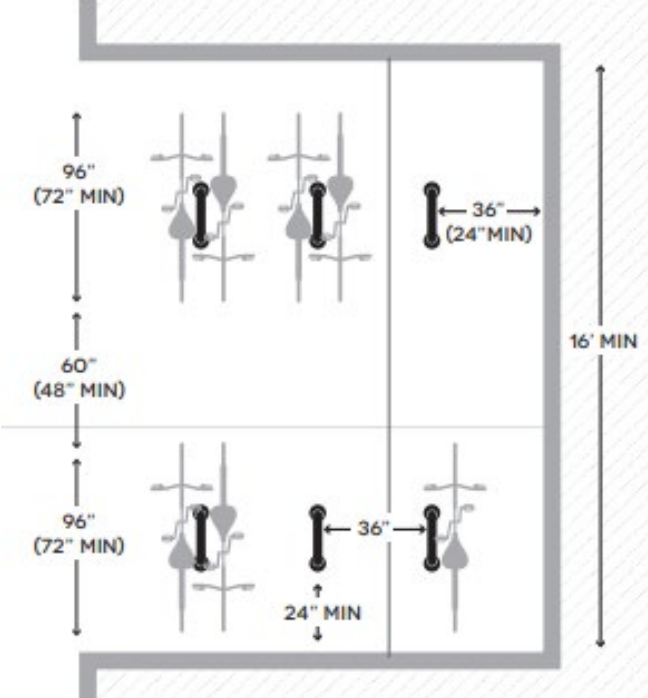
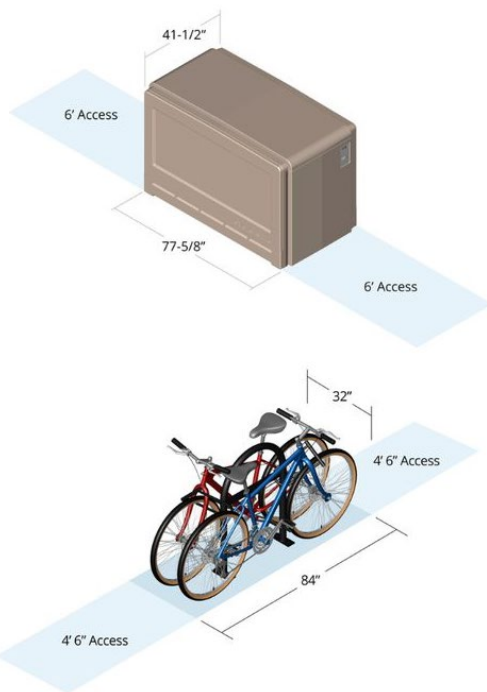
	
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Case Studies – Bike Plan

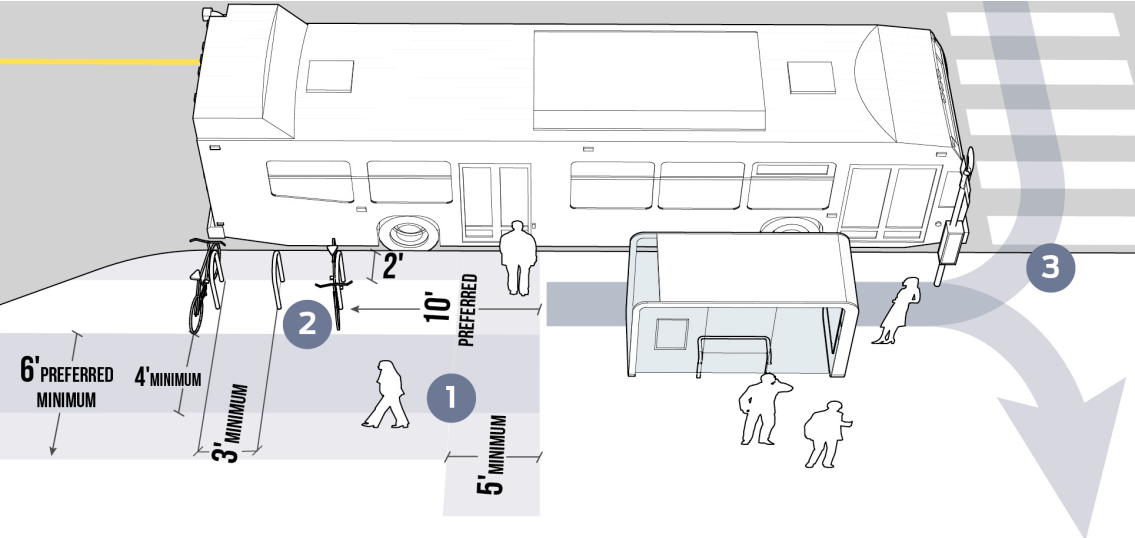
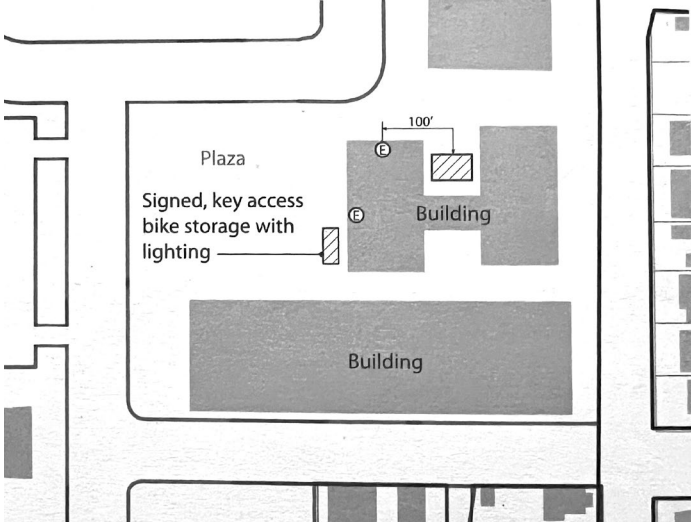
Bike Parking Requirements and Standards

- Bike parking should not block the pedestrian path of travel or inhibit universal accessibility
- Allow clearance for users to dismount, lock up, and easily circulate



LEED for Neighborhood Development

Bike racks must be clearly visible from a main entry, located within 100' of the door, served with night lighting.



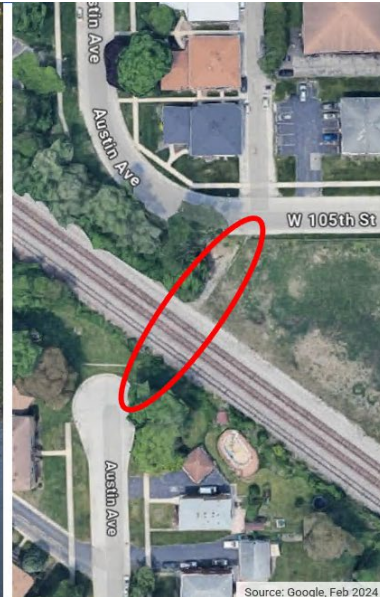
Case Studies – Safety Action Plan, Railroad



- After a mandate from Congress, FRA targets 10 highest rail fatality counties. Cook County ranks second for most rail trespasser fatalities.
- Casualties due to train-pedestrian/bicycle interactions partly due to unauthorized access to rail ROW, so-called trespassing.
- Rail Safety Group is working on Safety Action Plan

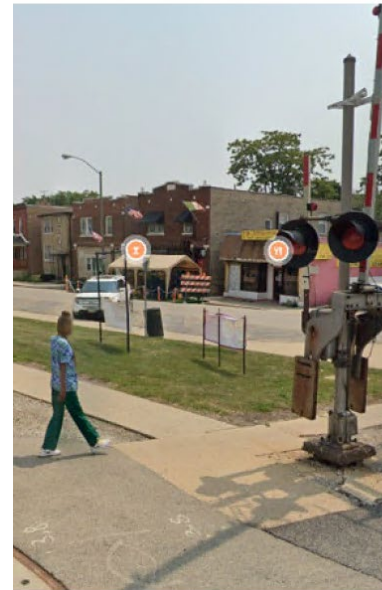


Location: Austin Ave & W 105th St, Chicago Ridge
Source: Google, Year unknown



Source: Google, Feb 2024

No Diversion:



Existing Diversion:



Case Studies – Jasper Street Strategic Plan, APA IL Award 2024

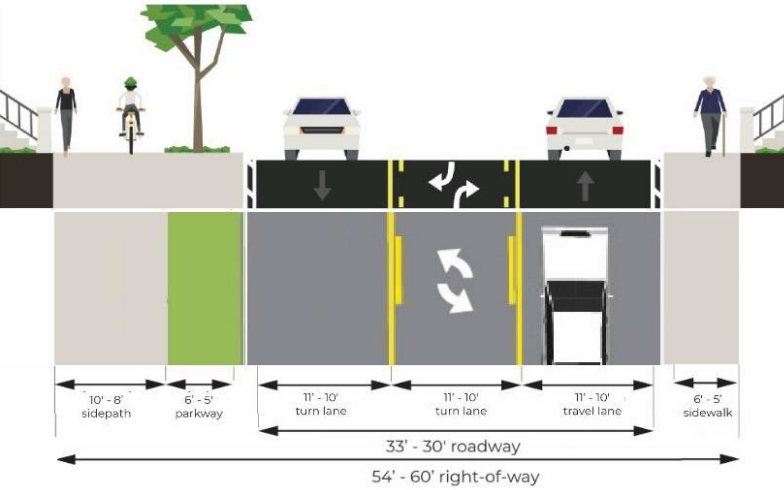


Figure 10: Preferred Option - 10' Sidepath on West Side, Relocate Curb & Gutter (\$2.93 Million)

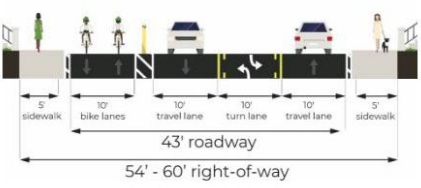


Figure 11: Alternative Solution Showing Two-Way Separated Bike Lane



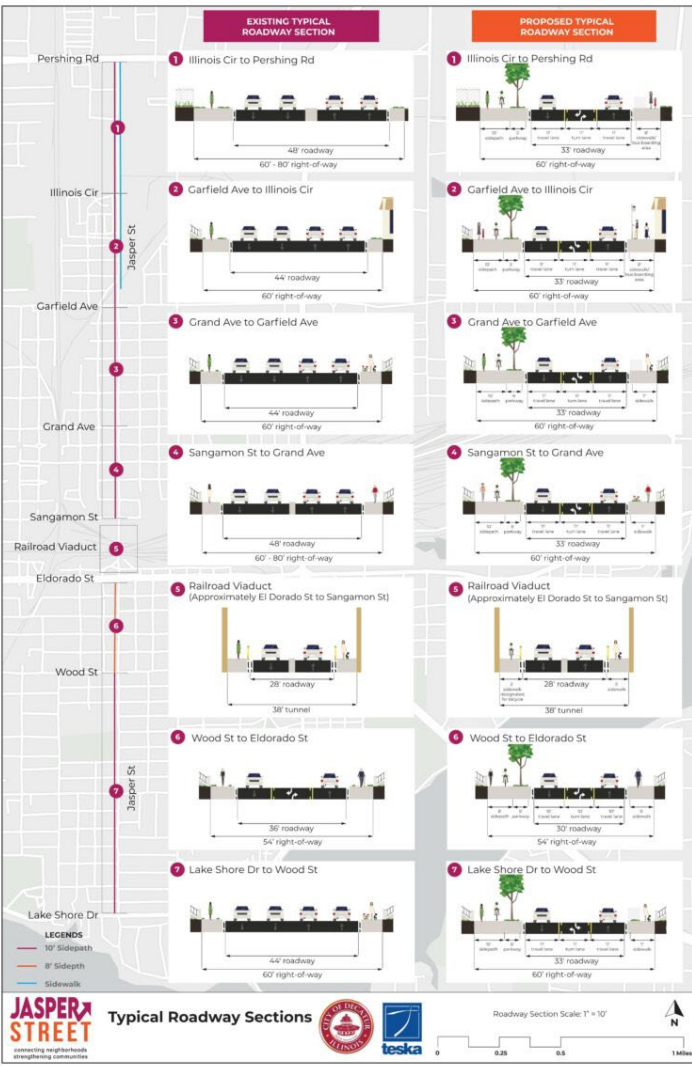
Figure 12: Example for Alternative Solution, Chicago Avenue, Evanston, Illinois



Figure 13: Example for Preferred Option, Lake Avenue, Glenview, Illinois

Cost estimates for the proposed improvements include roadway removal and resurfacing, curb and gutter removal and replacement, utility and light pole relocation, sidepath and sidewalk installation, and signal modernization.

Construction Subtotal	\$ 1,853,900
Contingency (30%)	\$ 556,200
Preliminary Engineering (Phase 1)	\$ 222,500
Detailed Engineering (Phase 2)	\$ 296,600
Total Project Cost (Design & Construction)	\$ 2,929,200



Great Street Great Neighborhood project envisioned to spur strategic socio-economic development through transportation improvement along the corridor.

Case Studies – Jasper Street Strategic Plan , APA IL Award 2024

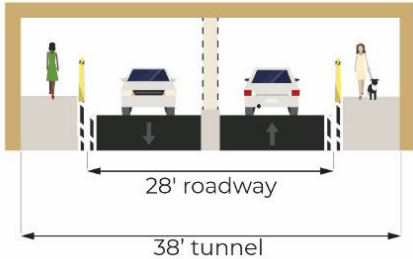


Figure 21: Existing Viaduct Section - Sangamon Street to Eldorado Street



Figure 22: Proposed Viaduct Section - No Change in Width

	Wayfinding & Directional Signs	Replace & Upgrade Fence	Lighting & Mural Art
Wayfinding & Directional Signs	\$ 10,000		
Fence Removal		\$ 26,000	
Temporary Barrier Fence		\$ 65,000	
New Barrier Fence in Viaduct		\$ 162,500	
LED Lighting for Fence		\$ 99,000	
Mural Art (not including concrete repair)			\$ 50,000
Lighting Removal			\$ 12,000
New LED Lighting			\$ 99,000
Construction Subtotal	\$ 10,000	\$ 352,500	\$ 161,000
Contingency (30%)	\$ 3,000	\$ 105,800	\$ 48,300
Preliminary Engineering (Phase 1)	\$ 1,200	\$ 42,300	\$ 19,300
Detailed Engineering (Phase 2)	\$ 1,600	\$ 56,400	\$ 25,800
Project Cost (Design & Construction)	\$ 15,800	\$ 557,000	\$ 254,400

Figure 23: Cost Estimates for Viaduct Improvement

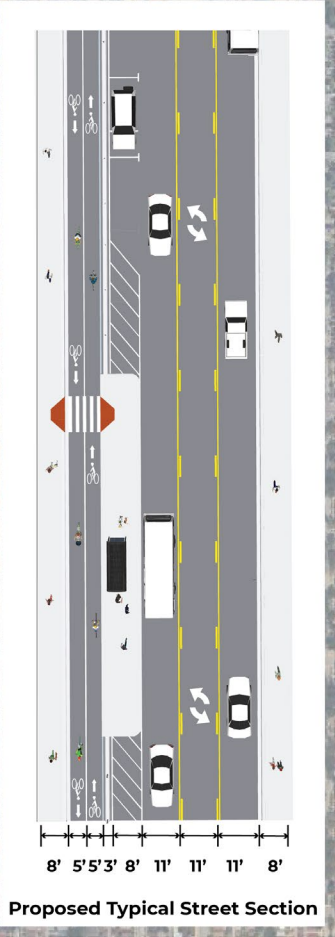
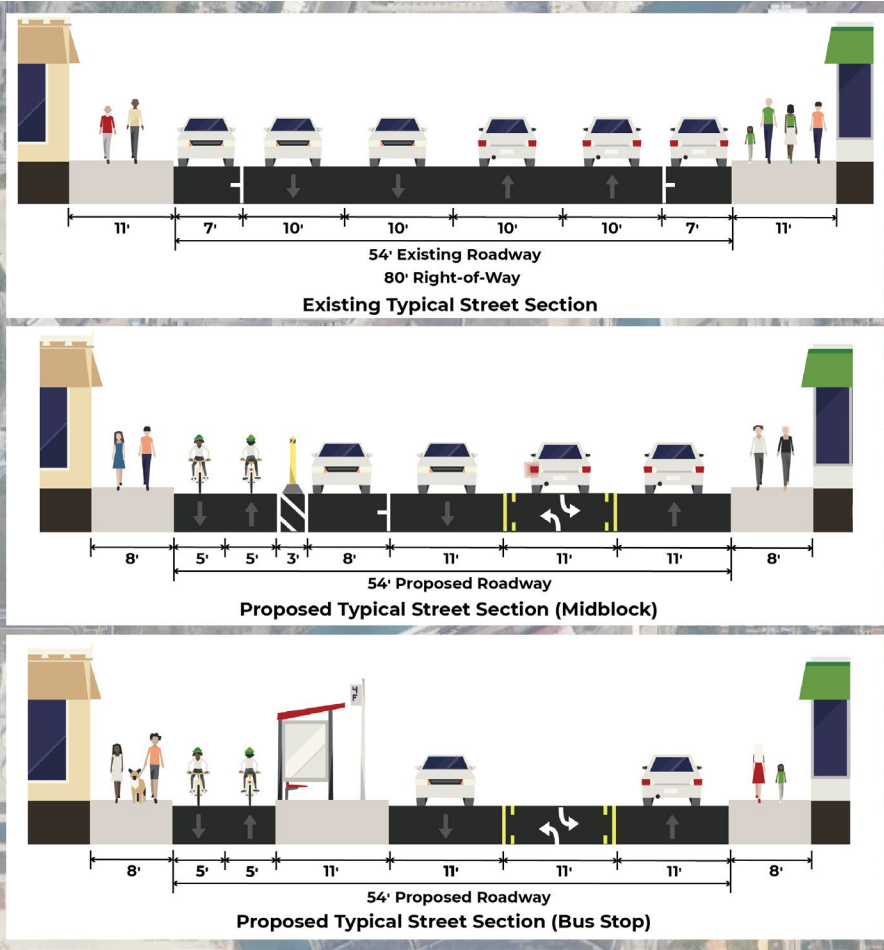
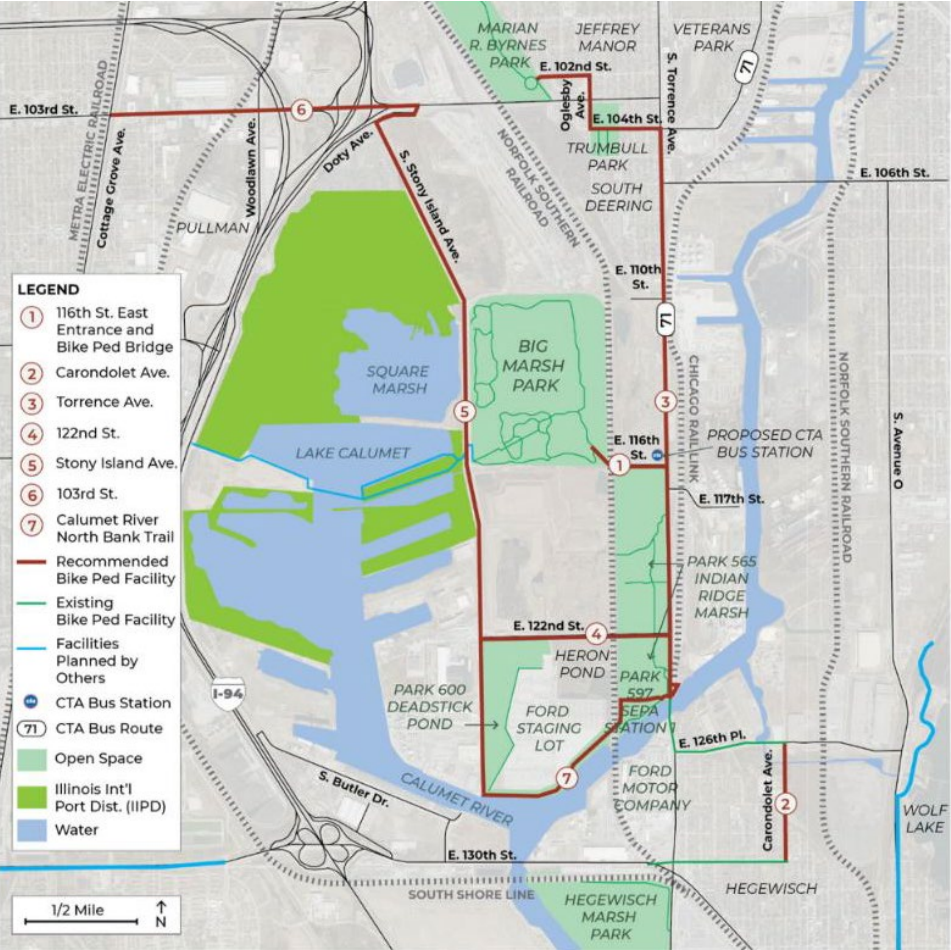


Figure 24: Art and Light Installation Examples



Figure 18: Proposed Roadway Grid

Case Studies – Big Marsh Park Neighborhood Connectivity Plan



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Case Studies – Lake Calumet Trail



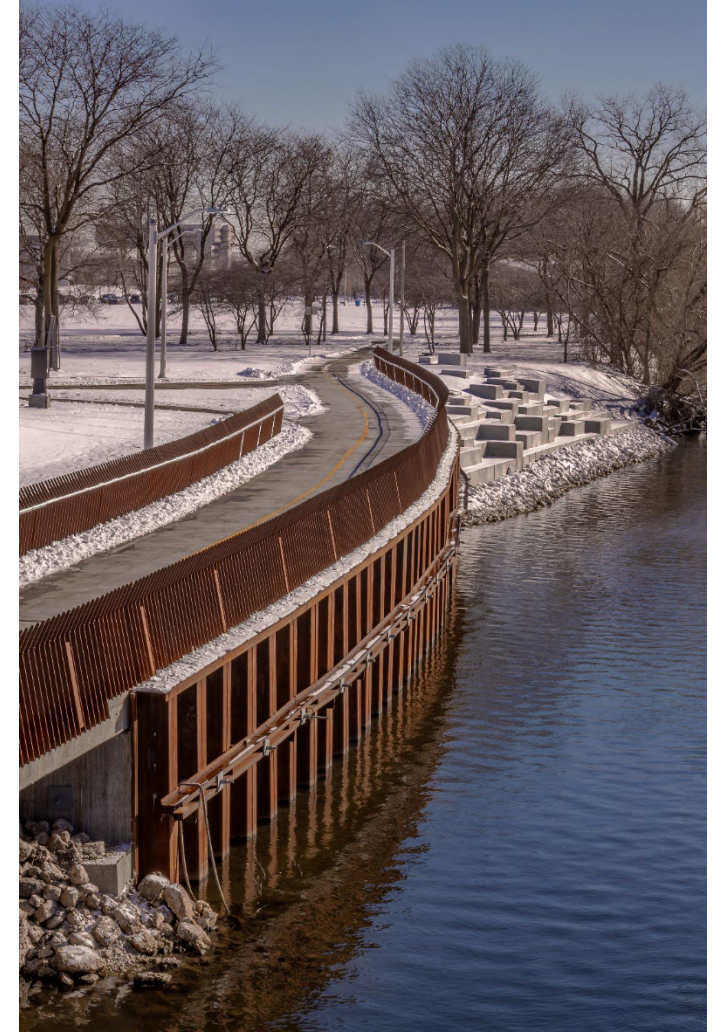
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Case Studies – Lake Calumet Trail



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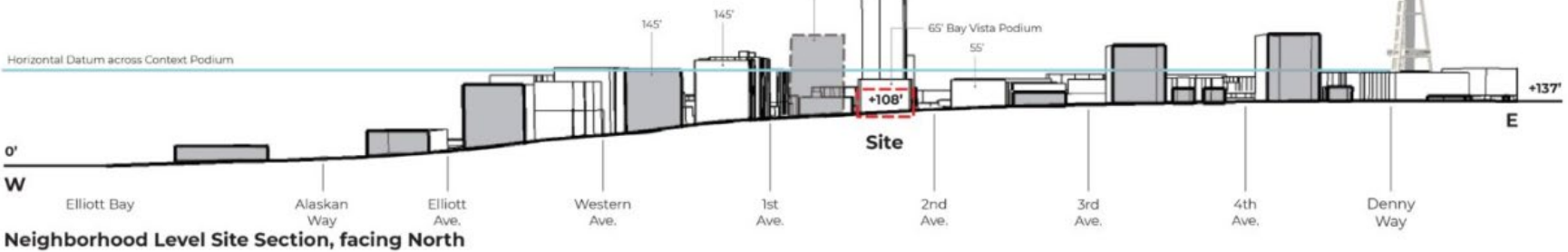
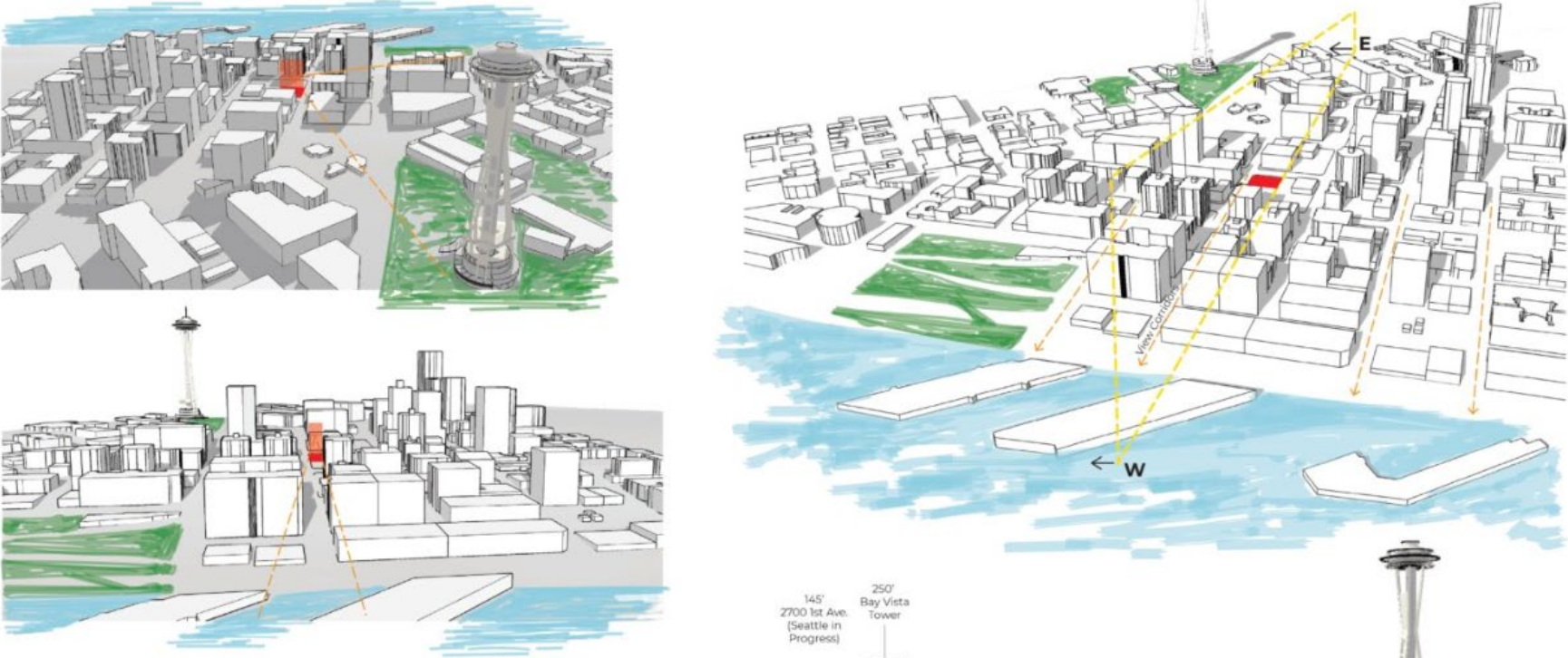
Case Studies – CDOT Riverview Bike and Pedestrian Bridge



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Case Studies – Urban Design Guidance for a Mixed-use Modular High-rise, Seattle WA

Topography and View Corridors



Neighborhood Level Site Section, facing North

Copyright and Courtesy of Epstein

Case Studies – Urban Design Guidance for a Mixed-use Modular High-rise, Seattle WA

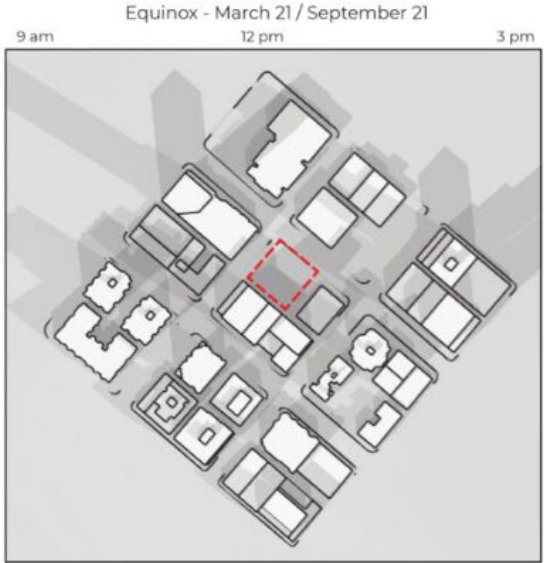
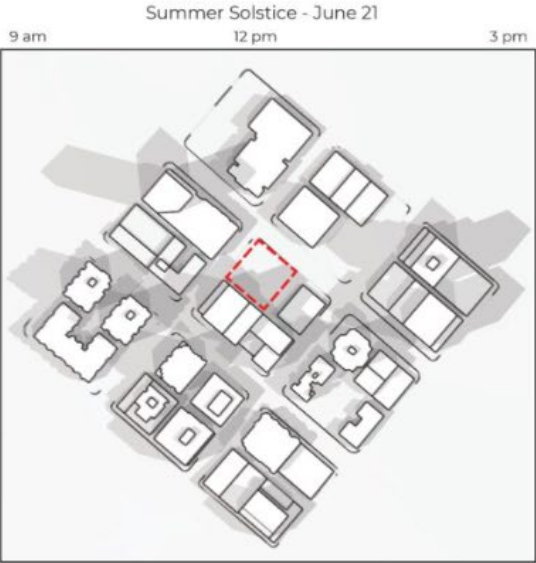
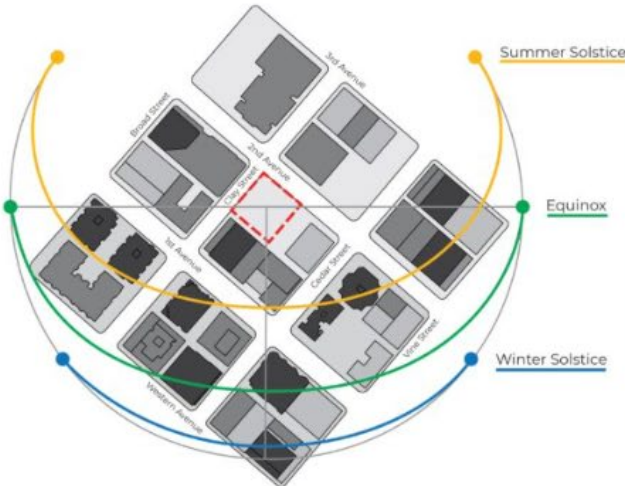
Sun Path and Shadow Analysis

Observations and Design Cues:

The pattern of urban form is predominantly infill development of various scales. The podium and tower typology is prevalent. This typology responds well to the sun path and the shadows throughout the year.

Breaks in building massing along the blocks are generally a result of surface parking, public courtyards, and public parks. This diverse pattern of scale and porosity is a positive part of neighborhood feel.

-  Project Site
-  Street Curb
-  0 - 3 Stories
-  4 - 8 Stories
-  8+ Stories

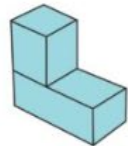


Case Studies – Urban Design Guidance for a Mixed-use Modular High-rise, Seattle WA

Building Typologies

Observations and Design Cues:

Recent development pattern of podium and tower typology of built form predominantly locates tower to the north of the block. The massing provides the best access to light and air at the scale of the podium and in the public realm due to the solar orientation of the street grid.



North Tower + Podium

Mixed-use Typology
Retail/Office + Residential

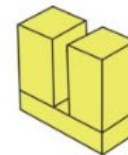
Best light and air accessibility



South Tower + Podium

Mixed-use Typology
Retail/Office + Residential

Tower receives most light and air



Dual Towers + Podium

Single-use Residential Typology

South tower receives most light and air



Low Block

Single-use Office/Retail/Residential
Typology

Lower light and air accessibility



Case Studies – Conversion projects in Architecture and Transportation, City of Chicago



Office-to-Residential Conversion Project

The Community Development Commission approved up to \$98 million in TIF support for the planned mixed-use conversion of 135 S. LaSalle St. in the Loop.

Led by Riverside Investment & Development, AmTrust RE and DL3 Realty, the \$241 million adaptive reuse project would repurpose more than 430,000 square feet of office space in the building as 386 mixed-income residential units. Plans also include 92,000 square feet of commercial space for neighborhood-oriented amenities such as a grocery store, health center and medical office.

135 S. LaSalle St. is the fifth Loop office-to-residential project proposed to receive City financial support this year, part of an initiative intended to address rising vacancy rates, generate affordable housing and create a more modern, sustainable mix of uses in the area.

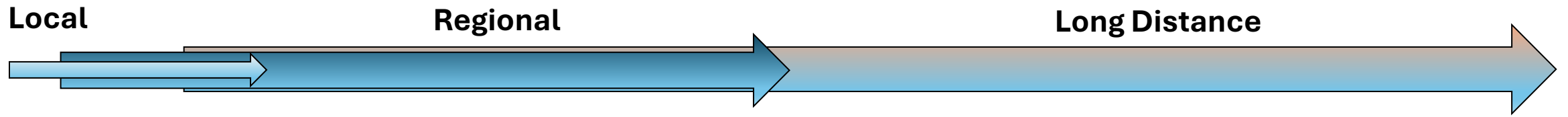
Source: Chicago Department of Planning and Development (DPD)

Case Studies – Conversion projects in Architecture and Transportation, City of Chicago



LaSalle Street Reimagined – The iconic view of the Chicago Board of Trade building

Key Takeaways – Hierarchy of Urban Form and Travel



- Each segment should have a different design standard
- Streets need to allow for concentration and dispersal

Source: City Life by Witold Rybczynski

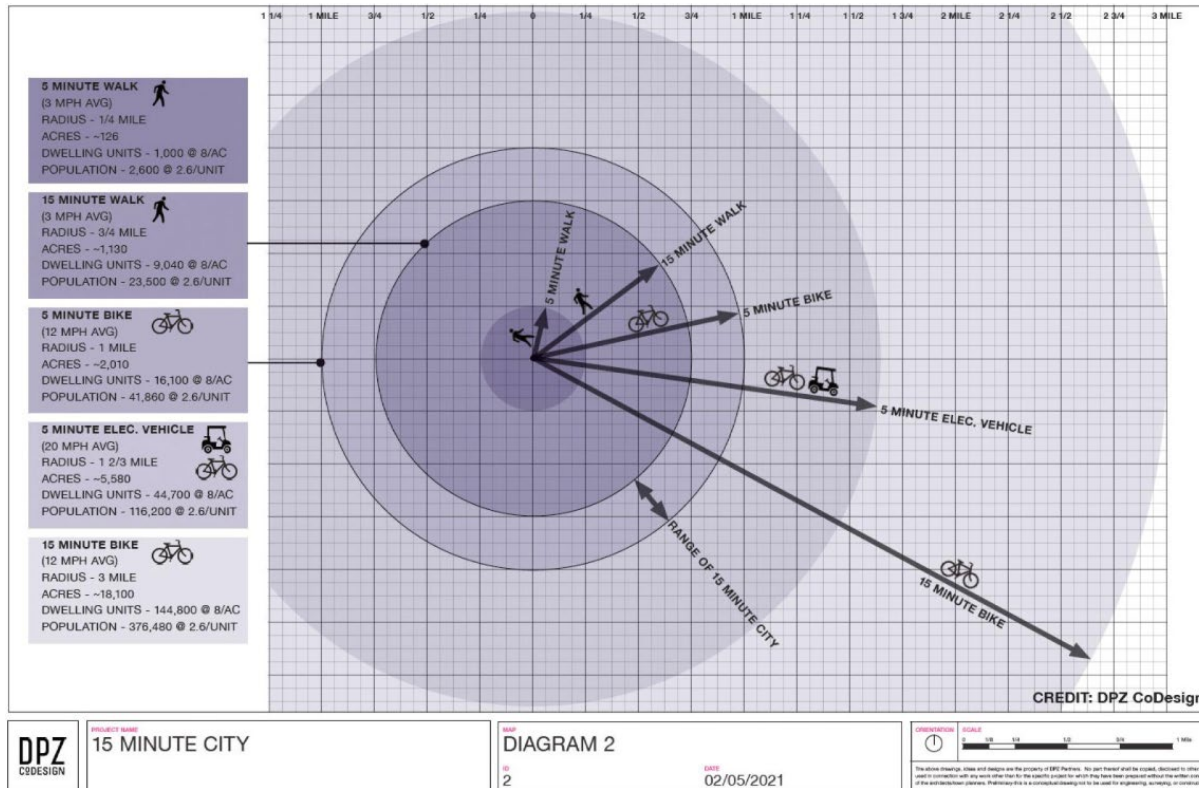


Source: Florida Department of Transportation (FDOT) Context Classification

Key Takeaways – How to understand Walkability?

Don't just Draw Walk Circles on a Map

Understand how a walking environment is created at a pedestrian level.



- The Useful Walk
- The Safe Walk
- The Comfortable Walk
- The Interesting Walk

Source: CNU - Defining the 15-minute City

Source: Walkable City by Jeff Speck

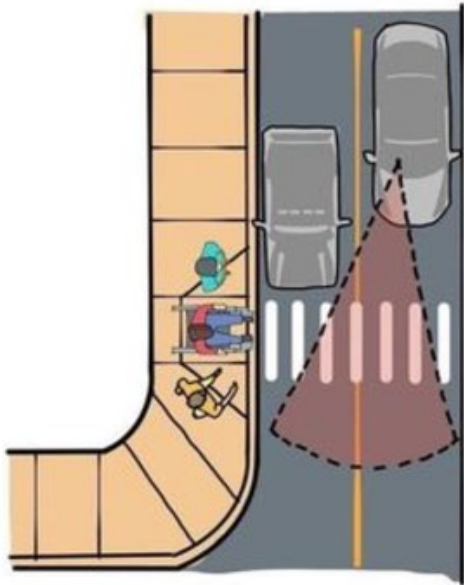
Key Takeaways – Think of Design Details

CURB EXTENSION

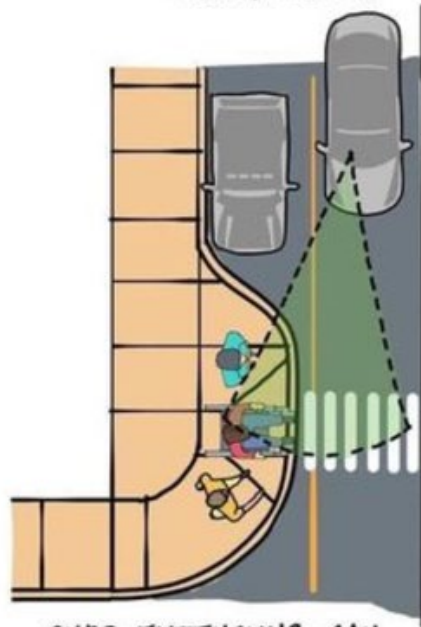
@075KETCHES

OBSTRUCTED
SIGHT LINES

IMPROVED
SIGHT LINES



PARKED CARS BLOCK
DRIVERS VIEW OF
PEDESTRIANS CROSSING



CURB EXTENSIONS CAN
ENHANCE VISIBILITY FOR
BOTH DRIVERS & PEDESTRIANS



Curb Extension: Enhancing Pedestrian Safety and Urban Design

A curb extension, often referred to as a “bulb-out” or “neckdown,” is a traffic calming measure designed to extend the sidewalk into the roadway, reducing the crossing distance for pedestrians. These extensions are typically placed at intersections or mid-block crossings and serve multiple purposes. By narrowing the roadway, curb extensions encourage drivers to slow down, improving safety for pedestrians. They also enhance visibility by allowing pedestrians to stand further out before crossing, making them more noticeable to oncoming traffic. Beyond functionality, curb extensions contribute to urban design by creating space for landscaping, seating, or bike racks, improving the aesthetic and usability of public spaces. This integration of safety and design makes curb extensions a valuable tool in creating walkable, pedestrian-friendly cities.

Source: MBS Architecture

Key Takeaways – Salvaging Projects



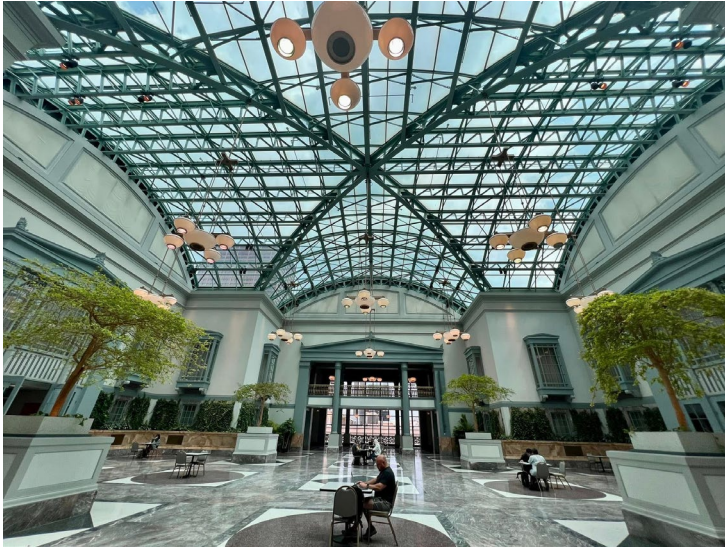
Chicago Riverfront – Public walkway and a mix of housing

One of the unsuitable ideas behind projects is the very notion that they are projects, abstracted out of the ordinary city and set apart.

To think of salvaging or improving projects, *as projects*, is to repeat this root mistake. The aim should be to get that project, that patch upon the city, rewoven back into the fabric – and in the process of doing so, strengthen the surrounding fabric too.

Source: Jane Jacobs – *The Death and Life of Great American Cities*.

Key Takeaways – Resilient Architecture



Harold Washington Library

- One of the largest public libraries in the world
- An elevated train station next to the building.
- A winter garden on the top floor with skylight and free to the public.
- Boldly Postmodern, it wants to tell a story.
- The library's completion marked the beginning of a transformation for the South Loop.

Key Takeaways – Renderings vs. Reality



Don't Greenwash Auto Infrastructure

This proposal for a protected intersection in Houston came with a lovely illustration depicting a few dozen pedestrians (and even some cyclists) making their way across six lanes of highway traffic. But if you check out the pictures of the intersection after it was completed, you'll notice...no one is walking there.

- Strong Towns

Source: Strong Towns - Houston's First Protected Intersection

Key Takeaways – Renderings vs. Reality

Don't Dress Up Bad Urban Design

But why didn't they design it to be a lively space?

Large-scale developments tend to underwhelm when they're finished. That's the relationship of scale to the question of how much attention to detail will pay off.



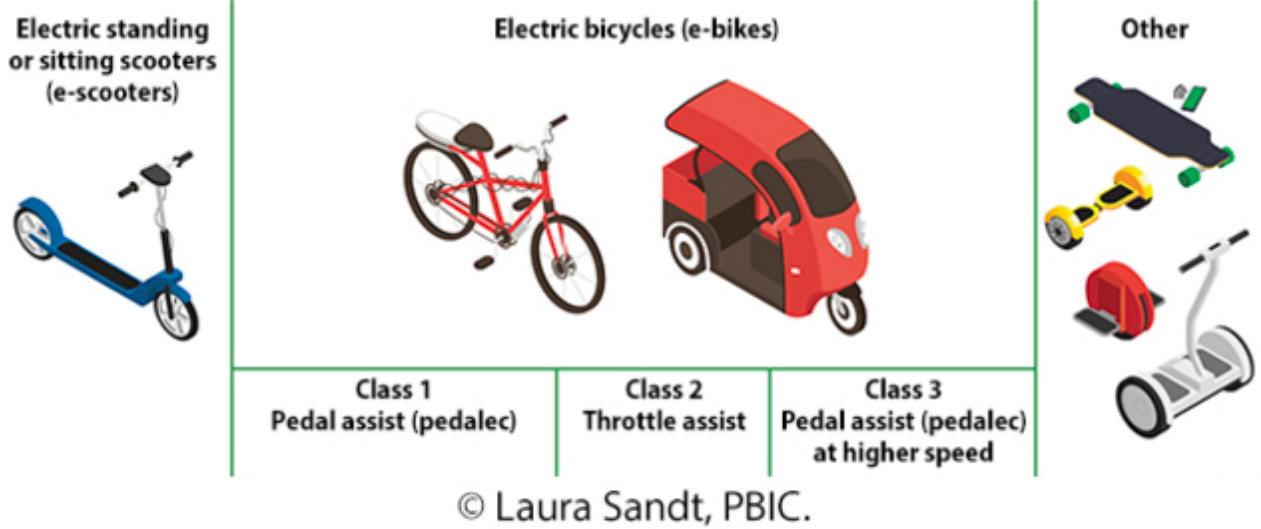
Source: Strong Towns - Pedestrian Corridor in a Florida Downtown Development

Key Takeaways – Resilient Technology

Transportation’s Next Disruptor – Micro-mobility

With increased growth in bikeshare and shared e-scooter systems, FHWA and USDOT are helping State DOTs and cities manage micromobility deployment, and they are monitoring trends and evaluating facilities and design needs.

Source: FHWA



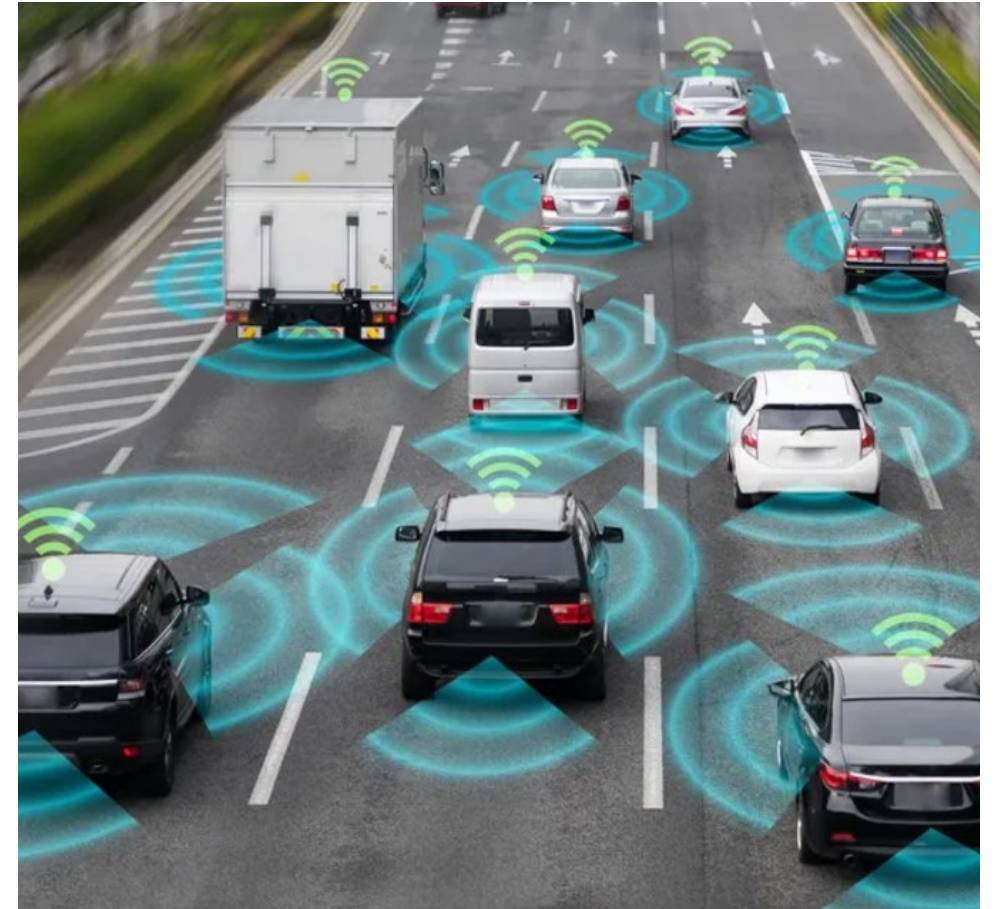
© Andrey_Popov / Shutterstock.com.

Examples of powered micromobility devices and their classifications according to PBIC.

Some cities are exploring how to incentivize helmet use to improve the safety of micromobility transportation.

Key Takeaways – Resilient Technology

Transportation's Next Disruptor – Electric Vehicles and Autonomous Vehicles



Cars are Not the Only Autonomous Vehicles

Key Takeaways – Tackle the Cause, don't just Treat the Symptoms



The Road Safety Fallacy

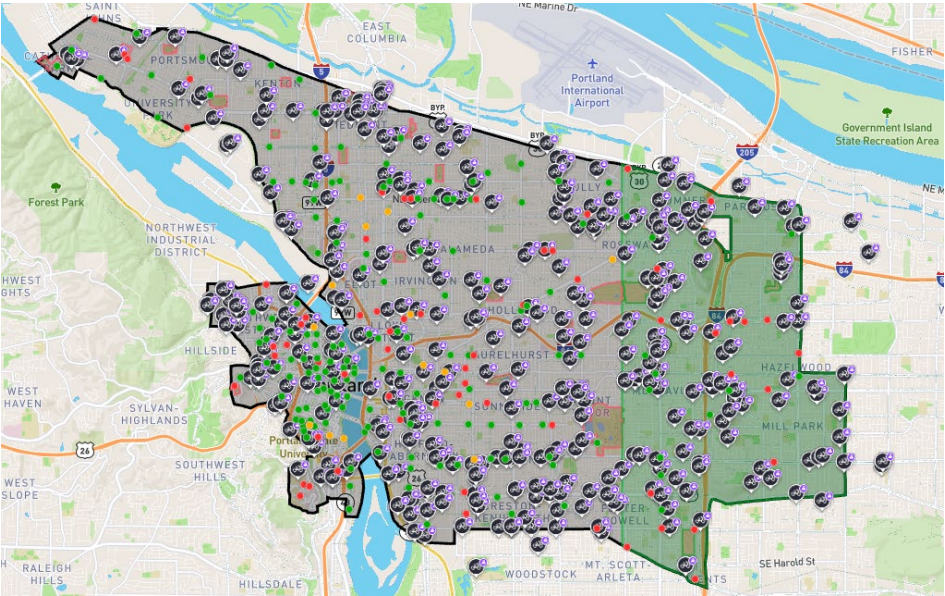
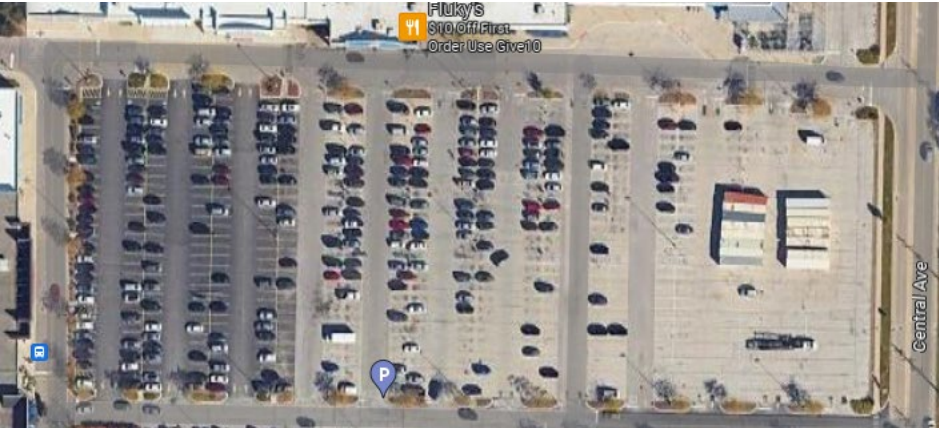
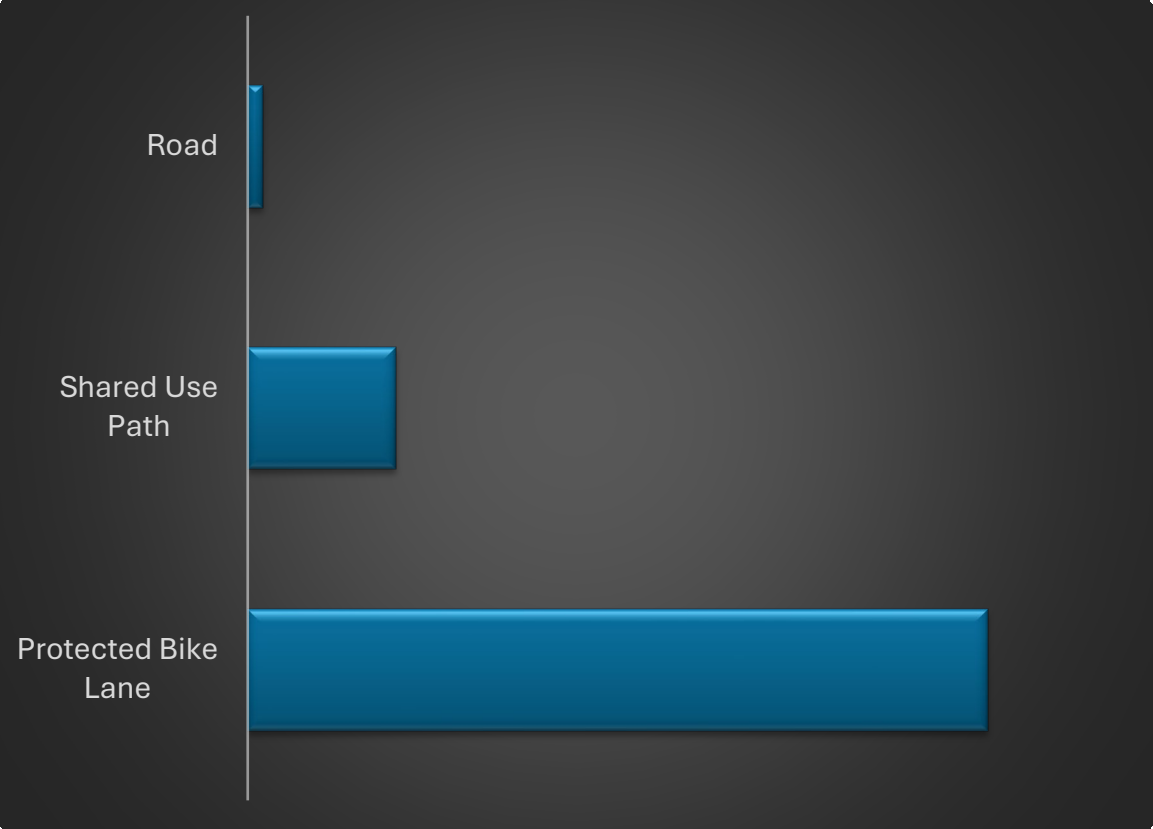
The recurring call for bicycle helmets is a classic example of the Airplane Fallacy. Well-intended, but they are treating symptoms instead of tackling the cause. And that creates more problems than it solves.

- Lab of Thought

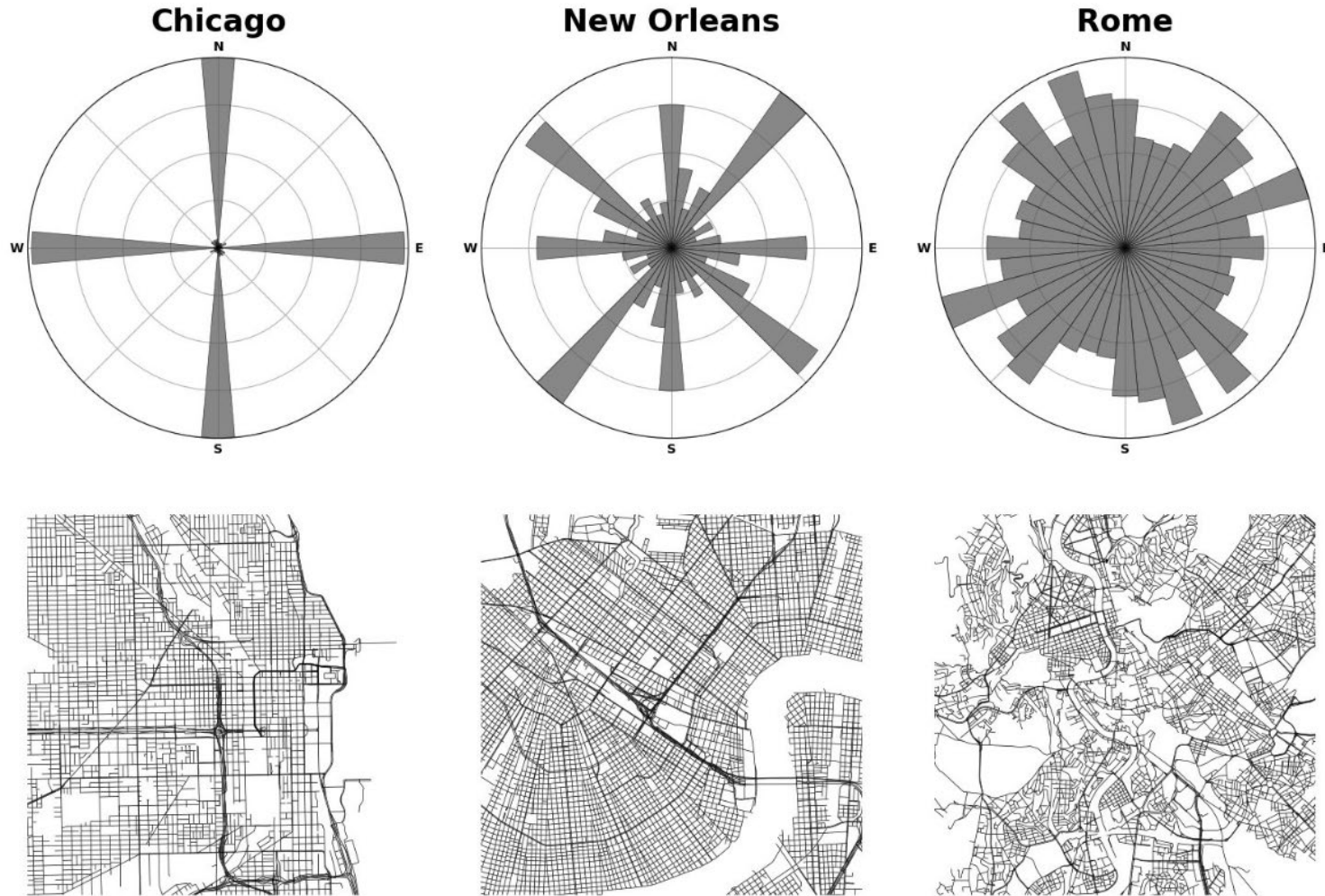
Source: Lab of Thought - The Error in Road Safety Thinking

Key Takeaways – Prioritizing Investment

Designing at the human scale will always be cheaper



Key Takeaways – Explore New Data Tools but use Caution



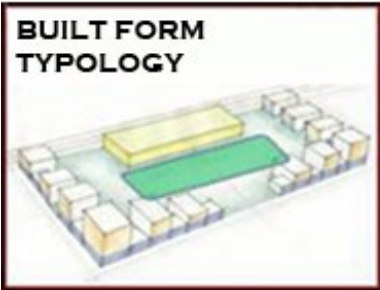
Modeling and Analyzing Urban Networks and Amenities with OSMnx.

OSMnx is a Python package to easily download, model, analyze, and visualize street networks and any other geospatial features from OpenStreetMap. You can download and model walking, driving, or biking networks with a single line of code then quickly analyze and visualize them. You can just as easily work with urban amenities/points of interest, building footprints, transit stops, elevation data, street orientations, speed/travel time, and routing.

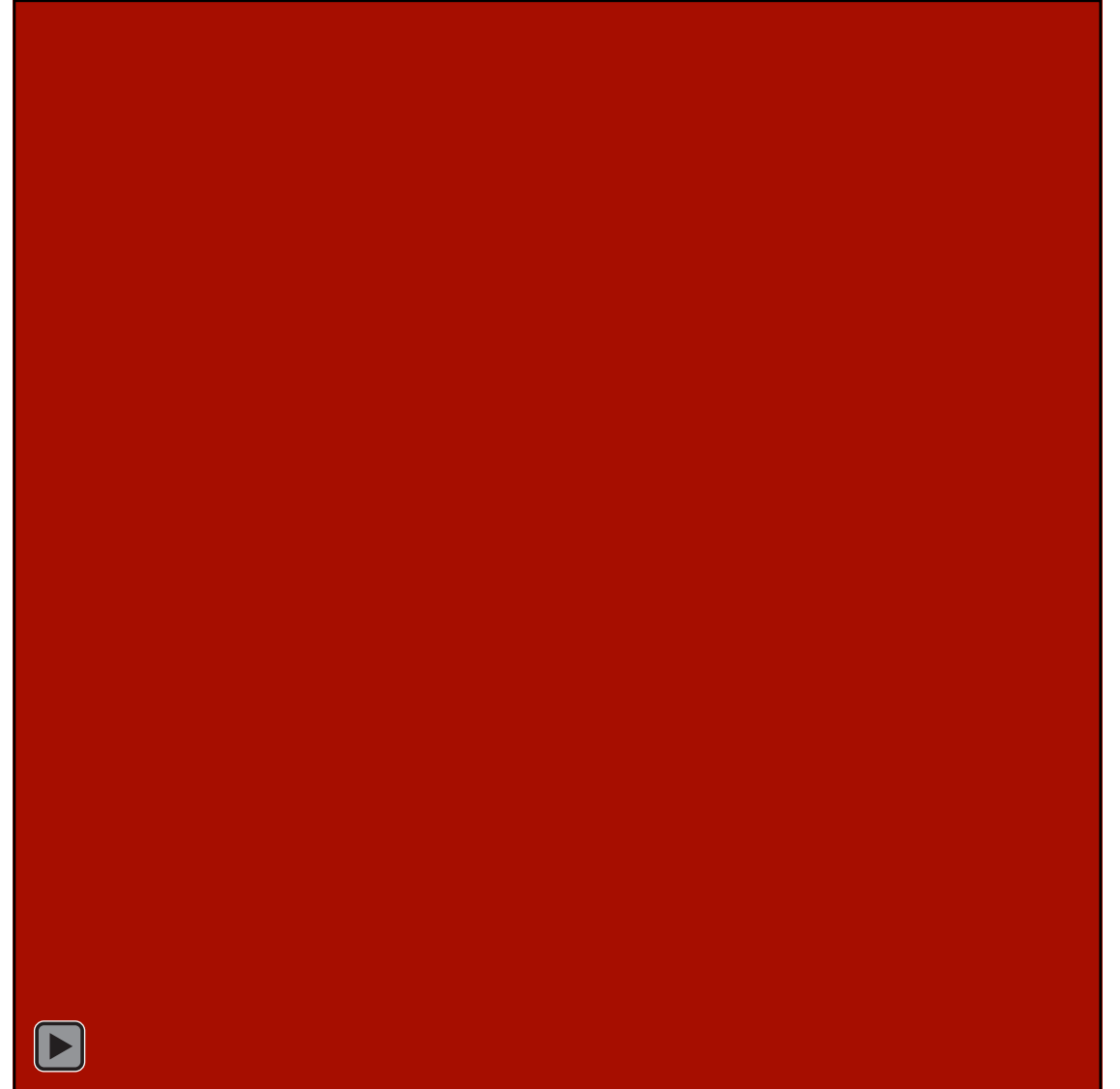
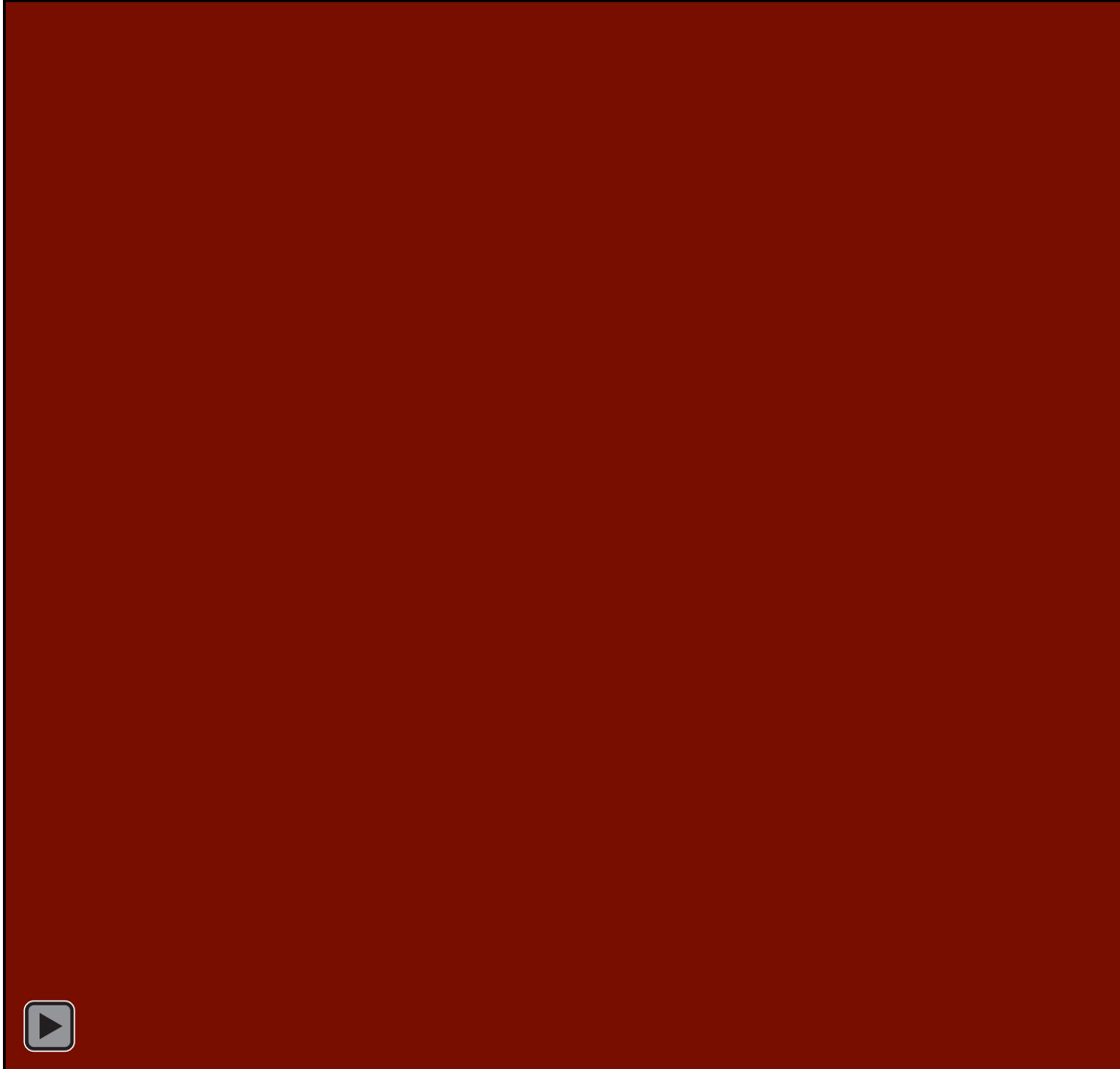
- Geoff Boeing

Source: OSMnx Python package – Geoff Boeing

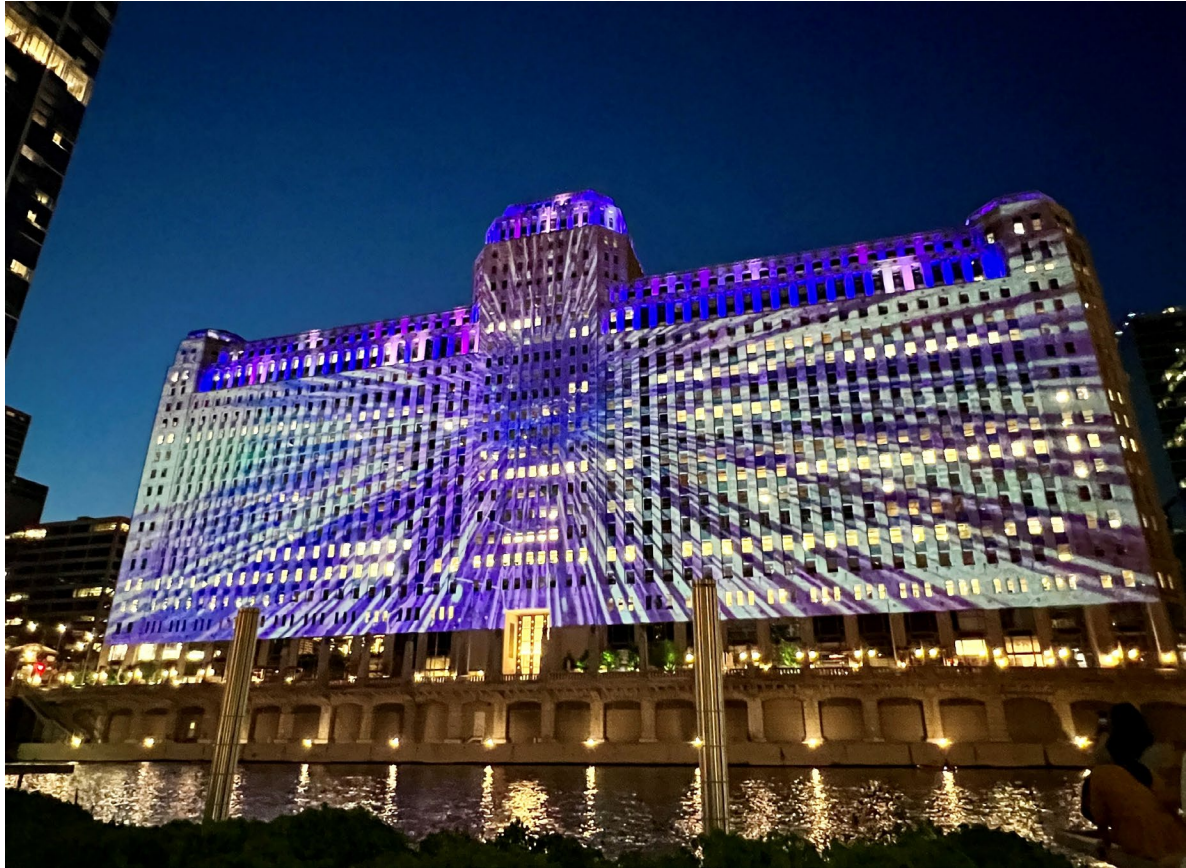
Key Takeaways – 3D is Key



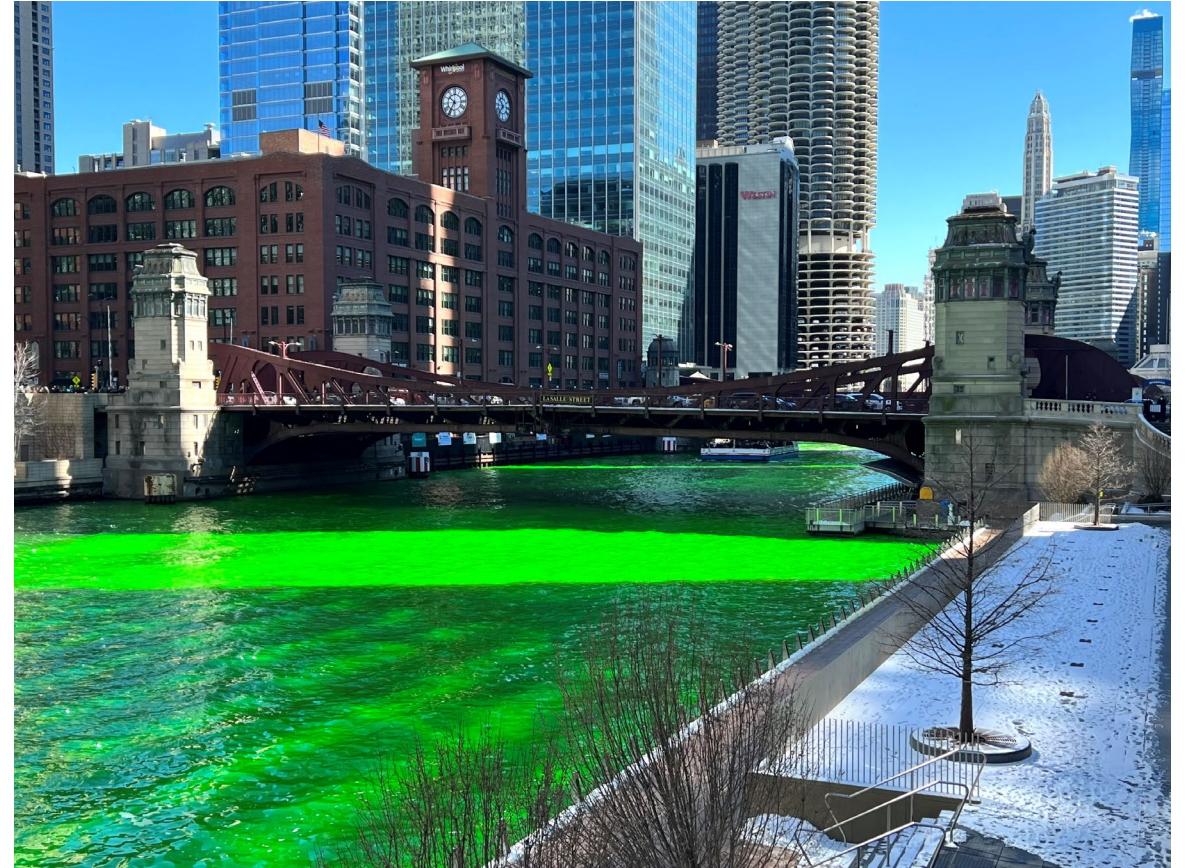
Key Takeaways – Sketch! Sketch! Sketch!



Key Takeaways – Don't Forget to add Fun! Pleasant Surprises! Get Weird!



Art on the Mart, a large digital show



Green dyeing of Chicago river for St. Patrick's day

Key Takeaways – Don't Forget to add Fun! Pleasant Surprises! Get Weird!



The Bean, Millennium Park



Chicago Riverfront at night

Key Takeaways – Don't Forget to add Fun! Pleasant Surprises! Get Weird!

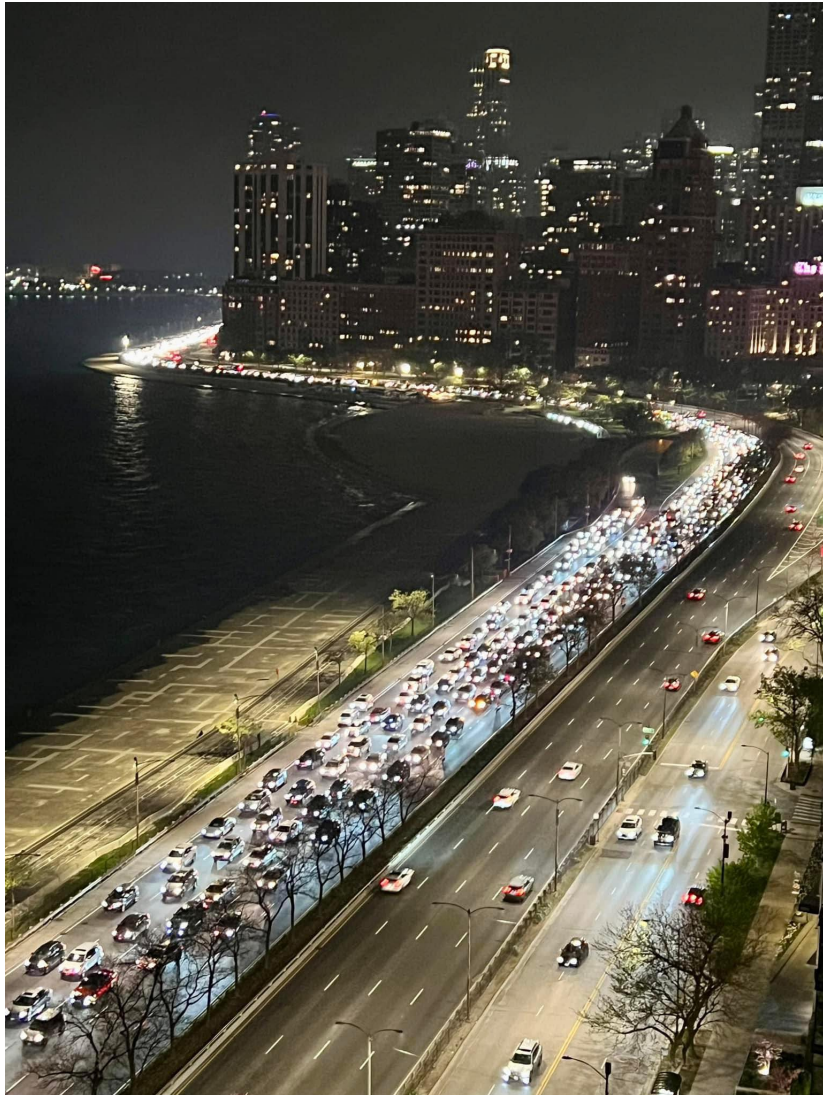


LaSalle Street – Photo Opp Urbanscape



Public outdoor ice rink during winters

Key Takeaways – Remember... Anything is Possible!



Lake Shore Drive on a typical day



Bike the Drive annual event

Thank you!
Open Discussion – Q&A

