9th Annual New Partners for Smart Growth Conference

TOD CORRIDORS IN CHICAGO:
A FRAMEWORK FOR SUSTAINABLE URBANISM

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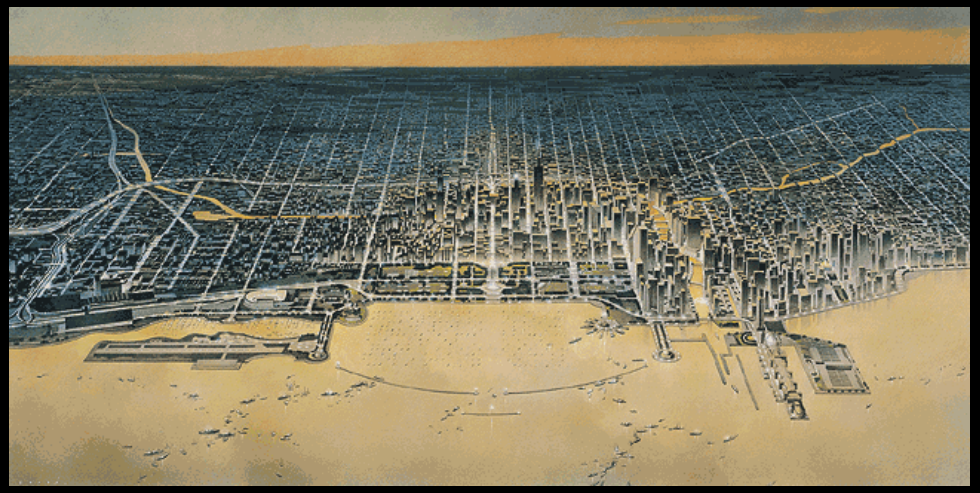


TOD CORRIDORS IN CHICAGO :
A FRAMEWORK FOR SUSTAINABLE URBANISM

1. The Origins of Transit-Oriented Development (5 min)

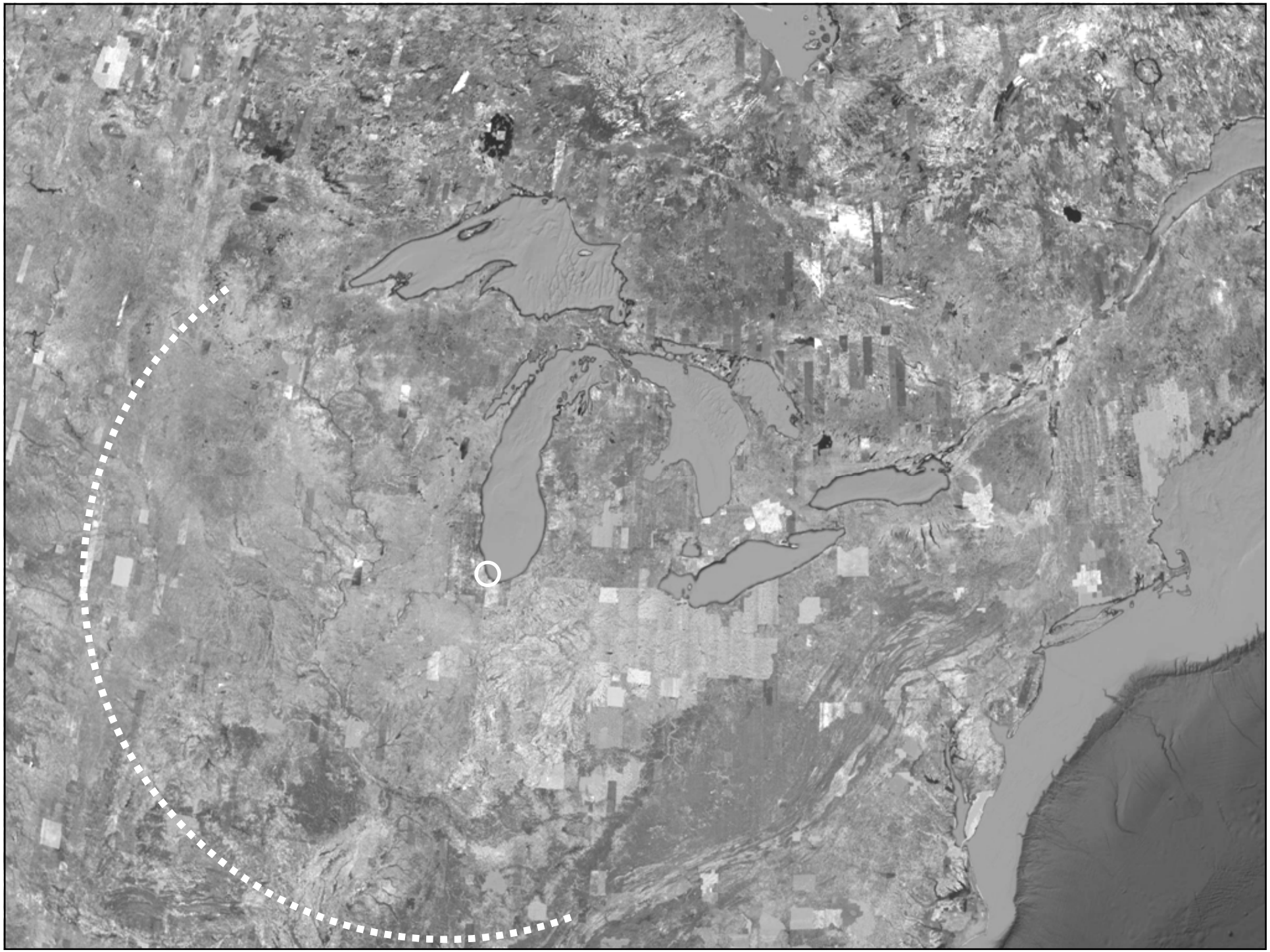
2. Emerging Corridors: The Urban Fringe (5 min)
   - Barrington

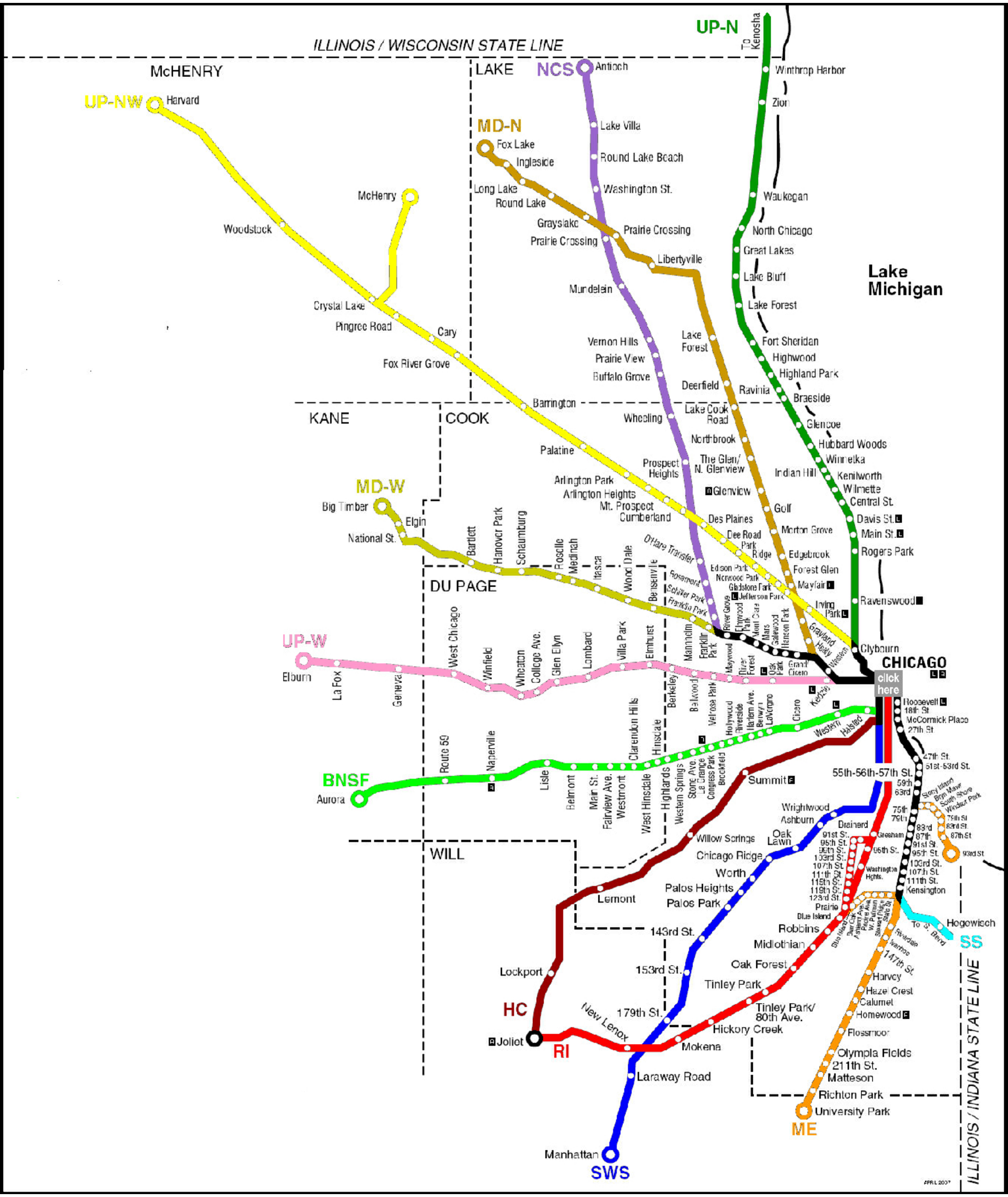
3. The Inner-Ring Corridor (15 min)
   - Maywood/Bellwood Park

4. The Urban Corridor (15 min)
   - Transit Cross-Section

5. The Future: Chicago's Loop as a TOD (5 min)

6. Questions and Discussion (15 min)





ILLINOIS / WISCONSIN STATE LINE
McHENRY
LAKE
KANE
COOK
DU PAGE
WILL
Lake Michigan
CHICAGO
ILLINOIS / INDIANA STATE LINE
UP-N
To Kenosha
Winthrop Harbor
Zion
Waukegan
North Chicago
Great Lakes
Lake Bluff
Lake Forest
Fort Sheridan
Highwood
Highland Park
Ravinia
Braeside
Glencoe
Hubbard Woods
Winnetka
Indian Hill
Kenilworth
Wilmette
Central St.
Davis St.
Main St.
Rogers Park
Ravenswood
Clybourn
NCS
Antioch
Lake Villa
Round Lake Beach
Washington St.
Prairie Crossing
Mundelein
Vernon Hills
Prairie View
Buffalo Grove
Wheeling
Prospect Heights
O'Hare Transfer
Rosemont
Schiller Park
Franklin Park
River Grove
MD-N
Fox Lake
Ingleside
Long Lake
Round Lake
Grayslake
Prairie Crossing
Libertyville
Lake Forest
Deerfield
Lake Cook Road
Northbrook
The Glen/ N. Glenview
Glenview
Golf
Morton Grove
Edgebrook
Forest Glen
Mayfair
Grayland
Healy
Western
UP-NW
Harvard
McHenry
Woodstock
Crystal Lake
Pingree Road
Cary
Fox River Grove
Barrington
Palatine
Arlington Park
Arlington Heights
Mt. Prospect
Cumberland
Des Plaines
Dee Road
Park Ridge
Edison Park
Norwood Park
Gladstone Park
Jefferson Park
Irving Park
MD-W
Big Timber
Elgin
National St.
Bartlett
Hanover Park
Schaumburg
Roselle
Medinah
Itasca
Wood Dale
Bensenville
Mannheim
Franklin Park
UP-W
Elburn
La Fox
Geneva
West Chicago
Winfield
Wheaton
College Ave.
Glen Ellyn
Lombard
Villa Park
Elmhurst
Berkeley
Bellwood
Melrose Park
Maywood
River Forest
Oak Park
Kedzie
BNSF
Aurora
Route 59
Naperville
Lisle
Belmont
Main St.
Fairview Ave.
Westmont
Clarendon Hills
West Hinsdale
Hinsdale
Highlands
Western Springs
Stone Ave.
La Grange
Congress Park
Brookfield
Hollywood
Riverside
Harlem Ave.
Berwyn
LaVergne
Cicero
Western
Halsted
click here
Roosevelt
18th St
McCormick Place
27th St
47th St.
51st-53rd St.
55th-56th-57th St.
59th
63rd
75th
79th
83rd
87th
91st St.
95th St.
103rd St.
107th St.
111th St.
Kensington
Hegewisch
SS
To So. Bend
HC
Summit
Willow Springs
Lemont
Lockport
Joliet
RI
New Lenox
Mokena
Hickory Creek
Tinley Park/ 80th Ave.
Tinley Park
Oak Forest
Midlothian
Robbins
Blue Island
Prairie
Washington Hghts.
Gresham
Brainerd
SWS
Wrightwood
Ashburn
Oak Lawn
Chicago Ridge
Worth
Palos Heights
Palos Park
143rd St.
153rd St.
179th St.
Laraway Road
Manhattan
ME
147th St.
Harvey
Hazel Crest
Calumet
Homewood
Flossmoor
Olympia Fields
211th St.
Matteson
Richton Park
University Park
93rd St
APRIL 2007

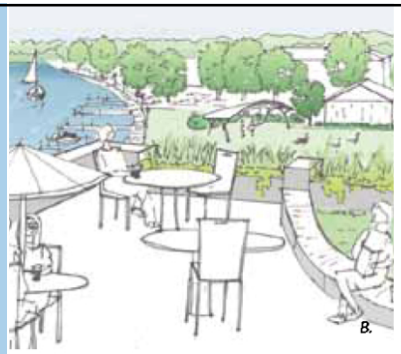
Preferred Regional Scenario

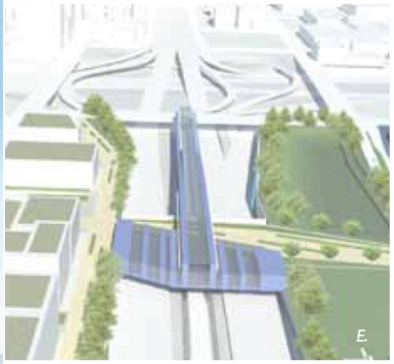
An interim product of the GO TO 2040 plan

Chicago Metropolitan Agency for Planning

GO TO 2040
imagine that...
www.GOTO2040.org

January 2010





Vision Theme: **Transportation**

The Regional Vision describes a future multi-modal transportation system that is *"safe, accessible, easy to navigate, affordable, and coordinated with nearby land use,"* reduces congestion and improves regional mobility, and supports *"reinvestment in our existing communities…leading to environmentally sensitive and fiscally efficient outcomes."*

Scenario Policy Direction

To maintain existing infrastructure of all types and gain operational efficiencies from it, make additional investments in transit and freight, use innovative and sustainable finance and system management ideas, link transportation investments with housing and land use, and encourage choices that result in livable, walkable, transit-supportive communities.

Vision Theme: **Governance**

The Regional Vision describes a region where *"governance systems [are] characterized by high degrees of intergovernmental coordination"* with links between physical planning and *"social systems like health care, public safety, education, and social services."*

Scenario Policy Direction

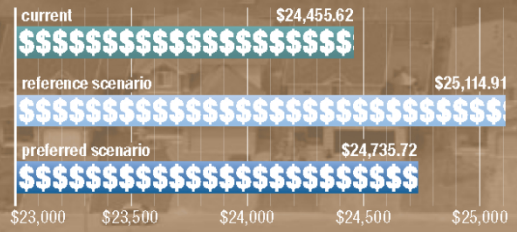
To increase data sharing, governmental transparency, and intergovernmental collaboration, and to remove artificial barriers across programs at the local, regional, state, and federal levels.

Housing and transportation (H+T) cost

Addressing housing and transportation cost together highlights the increased transportation costs that households face in lower-density, auto-dependent areas, even if housing costs in those areas are inexpensive. This can be calculated through the "H+T index," a measure developed by the Center for Neighborhood Technology (CNT). The preferred Regional Scenario is expected to reduce H+T costs due to its investments in transit infrastructure and increased development in areas with high transit access.

Housing and transportation

private housing and transportation expenditures per capita, 2007$



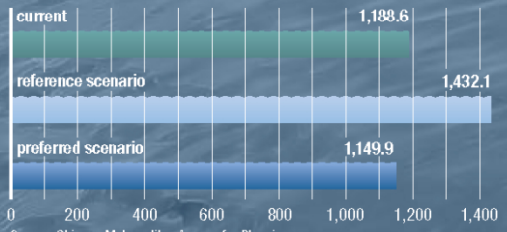
Source: Center for Neighborhood Technology

Water use

Water supply is an issue of growing importance for the region, particularly in those parts of the region reliant on groundwater, where increased pressure on water supplies is being felt. The preferred Regional Scenario is expected to *reduce water consumption* due to its denser development pattern, which allows water systems to operate more efficiently; it also includes water conservation measures that would reduce consumption.

Water use

in millions of gallons per day



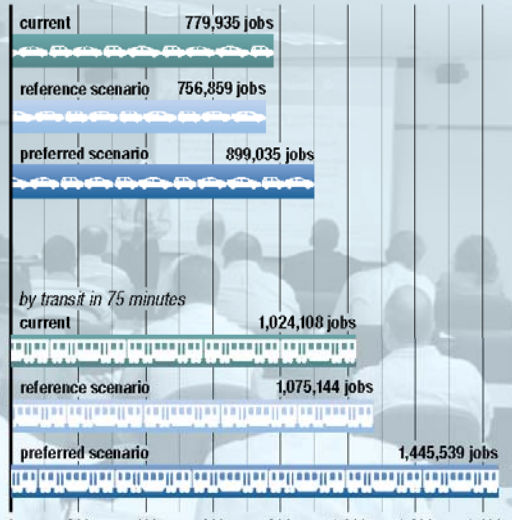
Source: Chicago Metropolitan Agency for Planning

Job access

Access to jobs is measured by the number of jobs that the "average" resident can travel to within a certain amount of time. Compared to a reference projection of current trends, the transportation system investments and improved jobs-housing balance of the preferred Regional Scenario are expected to *increase job access.*

Job accessibility

by auto in 45 minutes



by transit in 75 minutes

Source: Chicago Metropolitan Agency for Planning

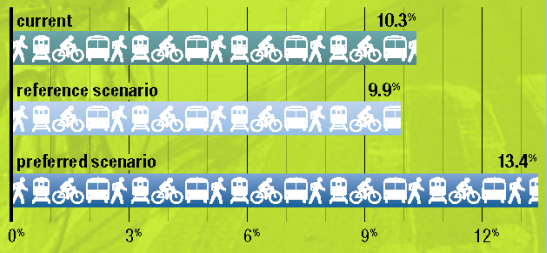
Photo credits:
Left image by CMAP staff, right image courtesy of iStockphoto.

Transit and nonmotorized transportation

Providing transportation options will increase the use of public transportation, walking, and biking. Allowing more use of these transportation modes can reduce congestion, improve the natural environment, and create more livable communities. The preferred Regional Scenario is expected to *increase the use of alternative transportation modes* through investment in transportation improvements and through denser, mixed-use development patterns.

Mode share

percentage of trips using transit, biking, or walking



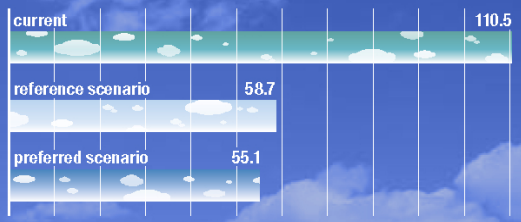
Source: Chicago Metropolitan Agency for Planning

Air quality

The region's air quality has been continually improving for several decades, due primarily to technological improvements and stricter federal regulations. The preferred Regional Scenario is expected to continue to *improve air quality* through increased use of transit and non-motorized transportation modes. The chart below shows daily emissions of volatile organic compounds (VOC), an ozone precursor; other pollutants show similar trends.

Air quality

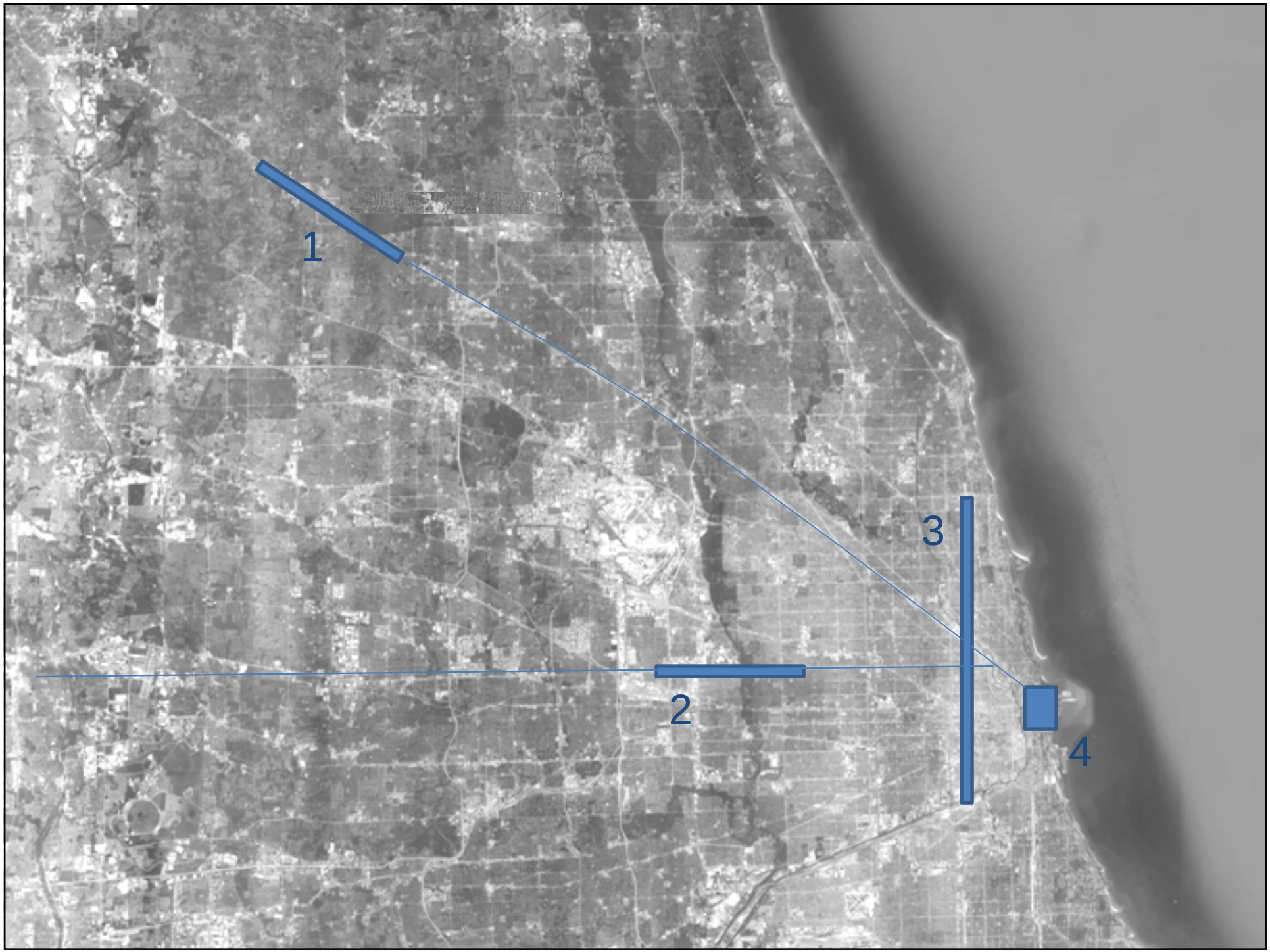
tons of daily summer VOC emissions



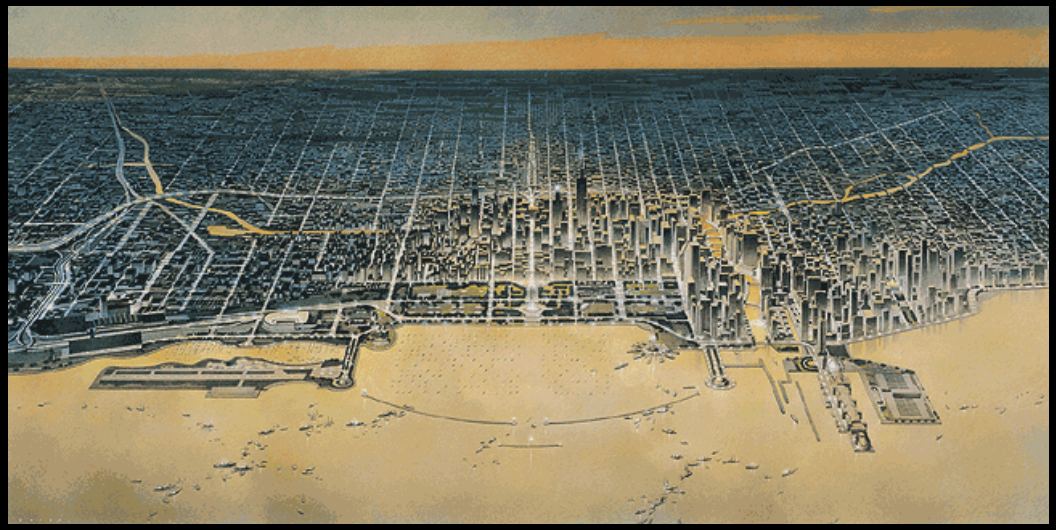
Source: Chicago Metropolitan Agency for Planning

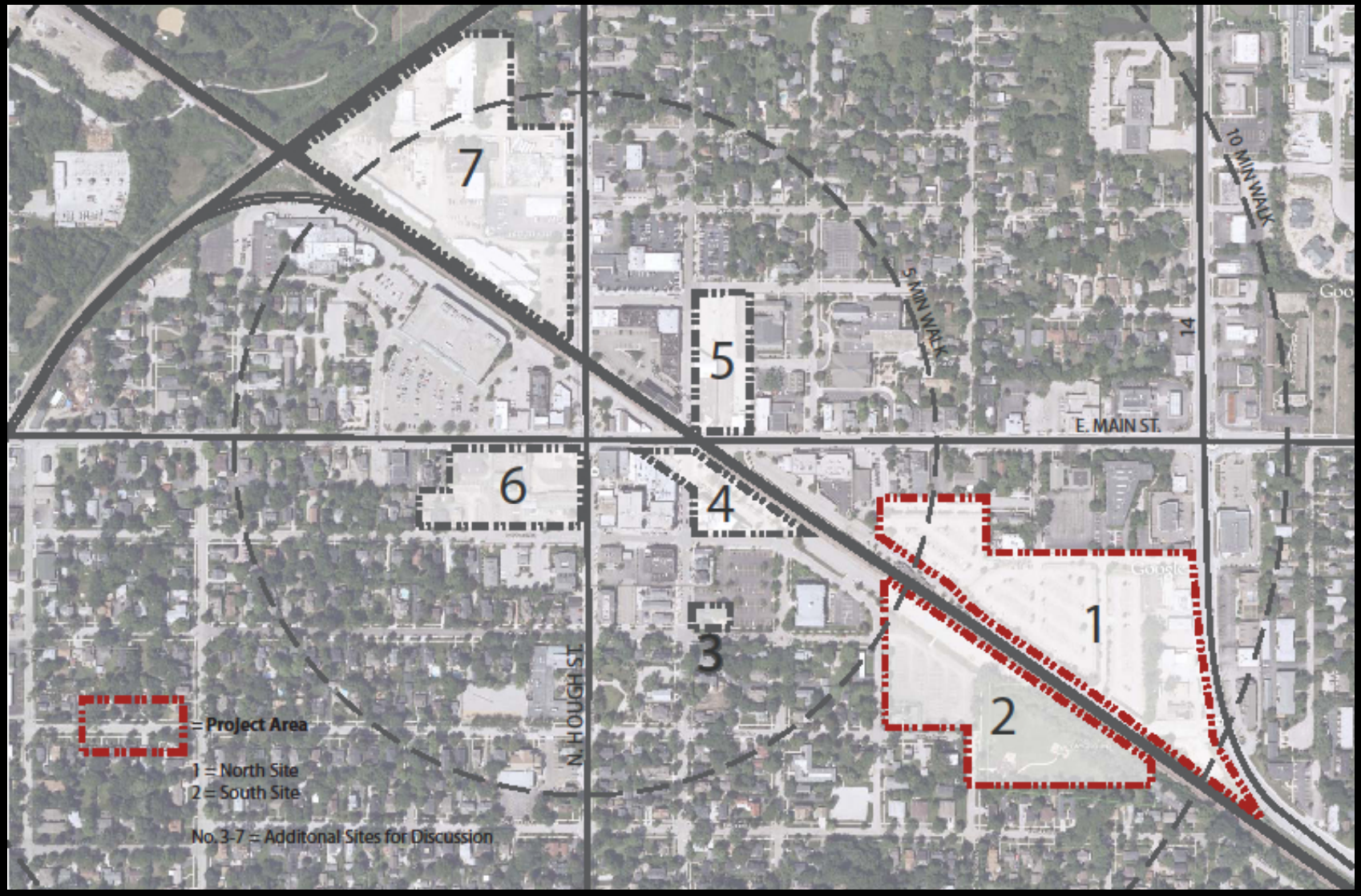
Attributes of TOD

1. Moderate to High-Capacity Transit within ¼ mile.
2. A Mix of Uses: Live + Work
3. Moderate to High-Density (10 du/ac min.)
4. Pedestrian Connectivity
5. High-Quality Urban Design
6. Reduced Auto Dependence


1
2
3
4

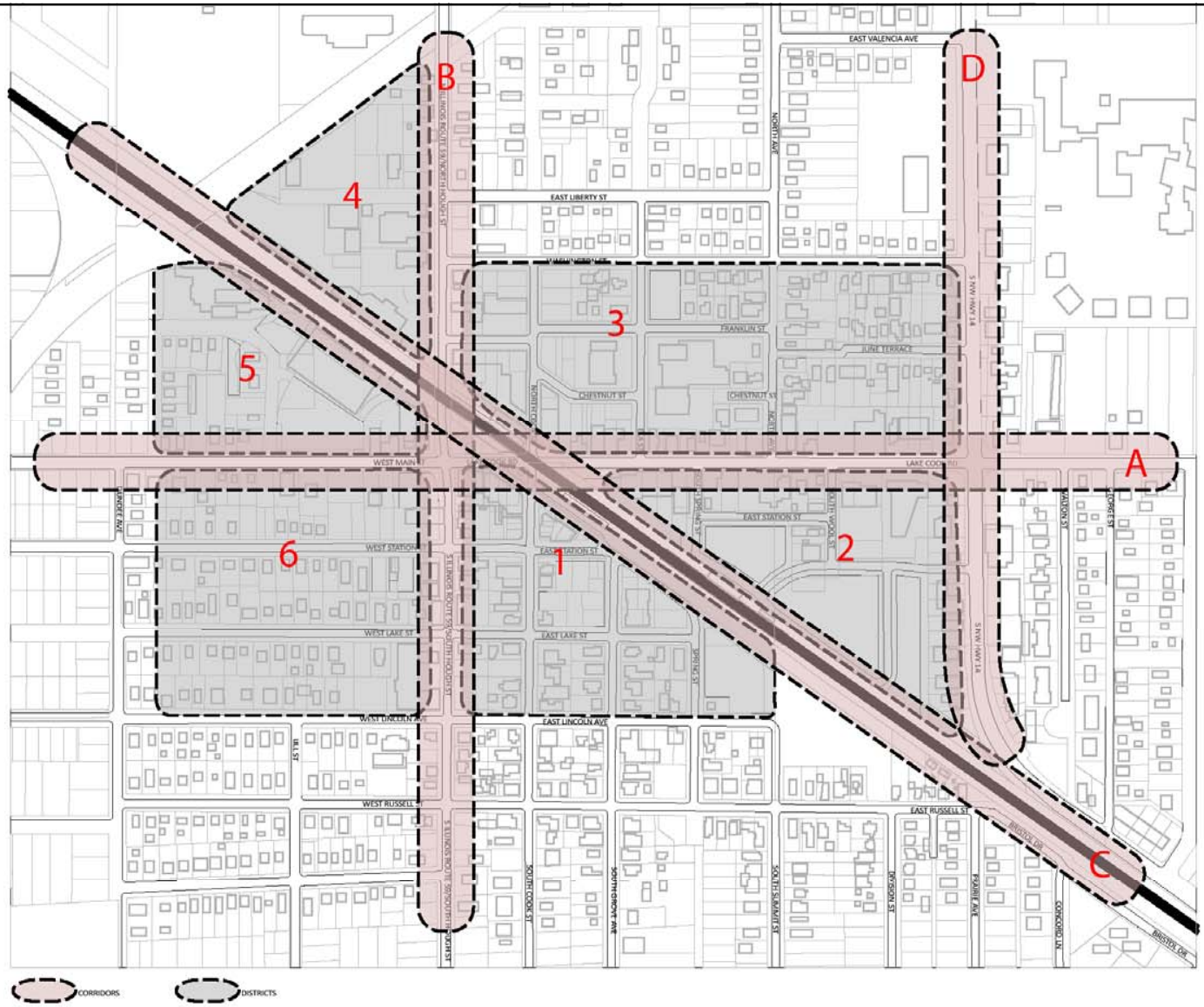
THE URBAN FRINGE




7
5
6
4
3
1
2
5-MIN WALK
10 MIN WALK
E. MAIN ST.
N. HOUGH ST.
= Project Area
1 = North Site
2 = South Site
No. 3-7 = Additonal Sites for Discussion



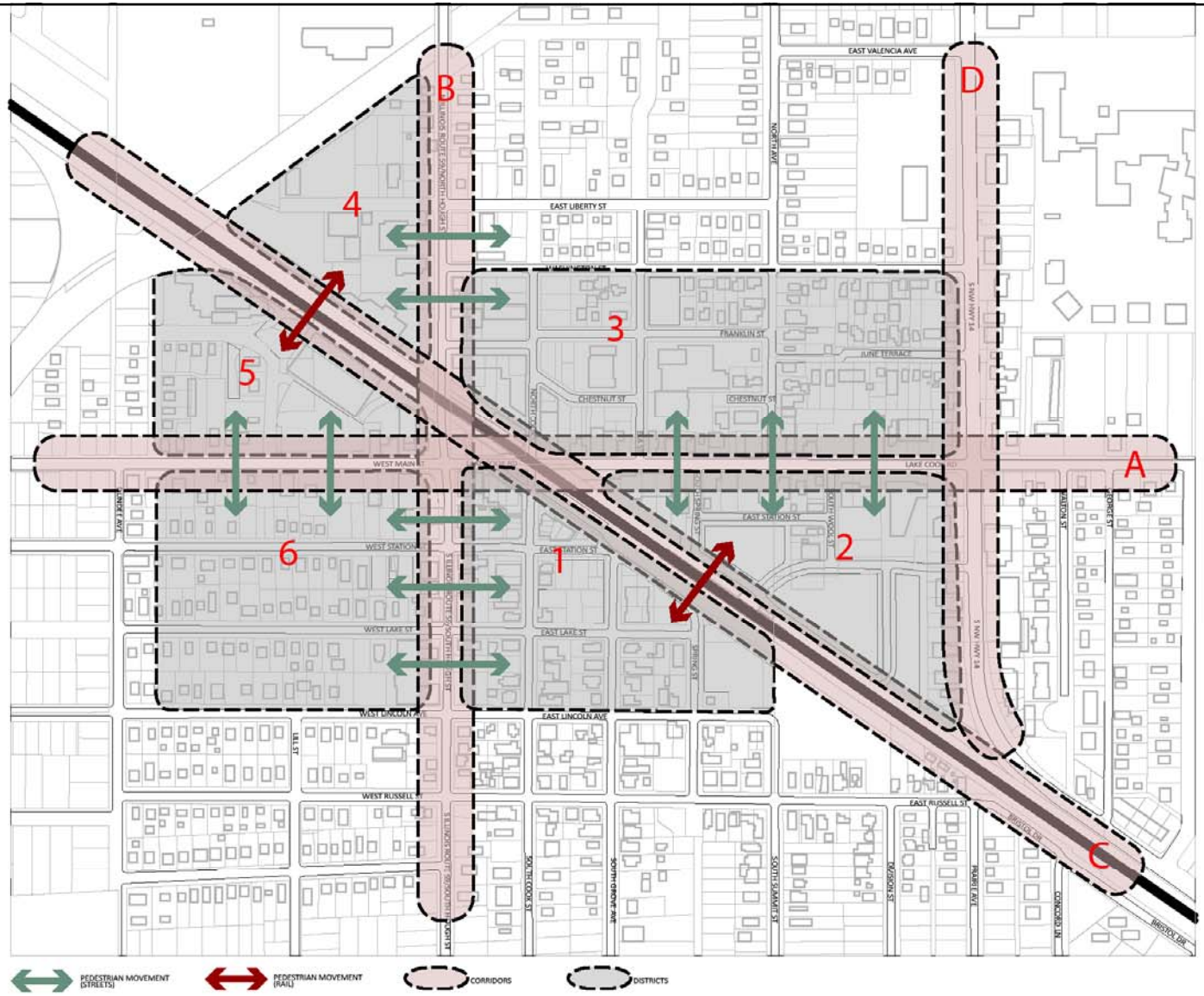


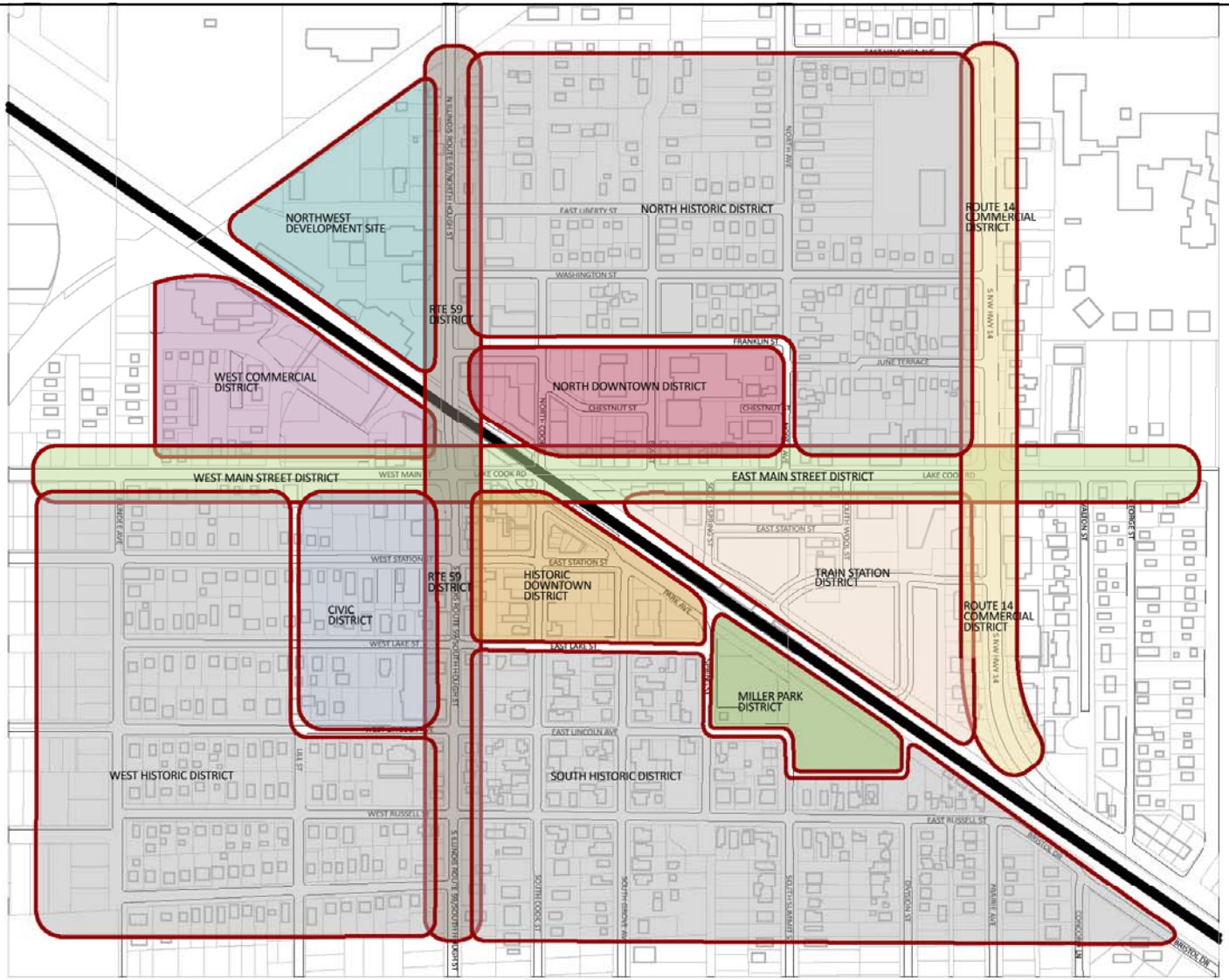
DISTRICT AND CORRIDOR STUDY

1 ACRE

0 200' 400' 600' 1000' 1320' 1/4" MILE



PEDESTRIAN CONNECTIONS



EXISTING LAND USE

1 ACRE

0 200' 400' 600' 1000' 1320' 1/4" MILE

KEY

PRIMARY ROADWAY

SECONDARY ROADWAY

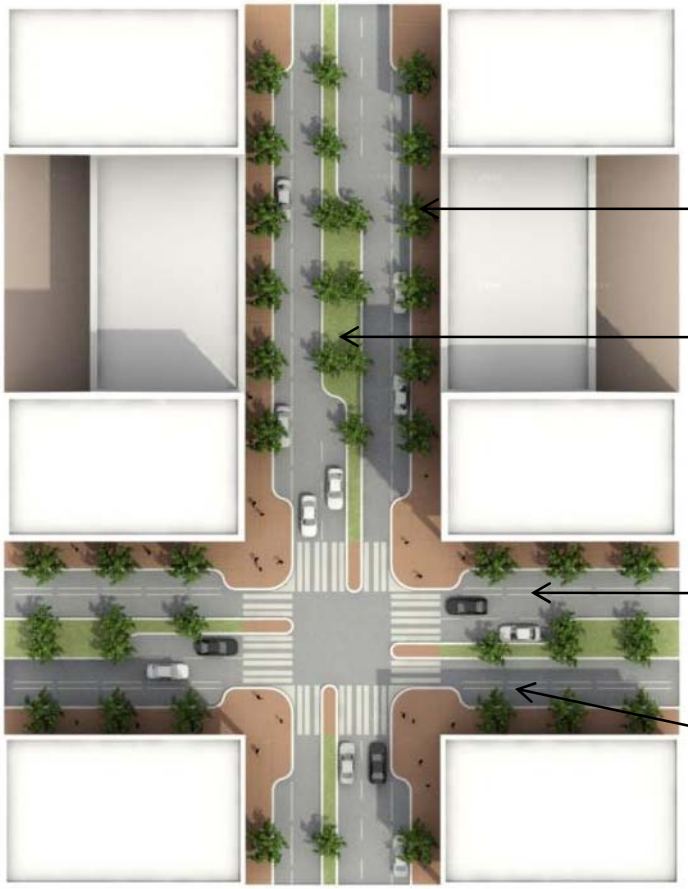
TERTIARY ROADWAY

1 ACRE

0 200' 400' 600' 1000' 1320' 1/4" MILE

ROAD FRAMEWORK: SCENARIO 1

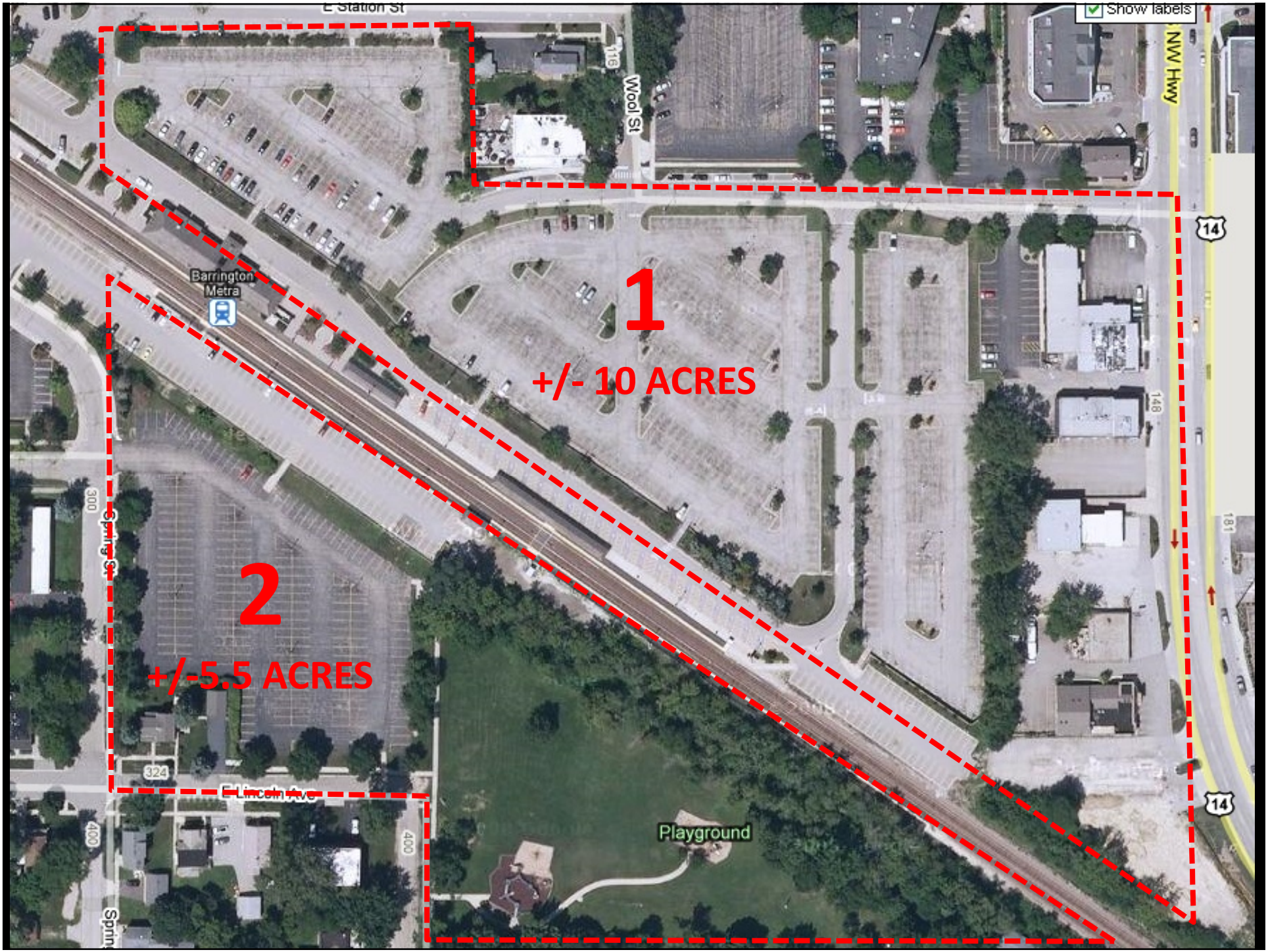
Typical Road: 80’ Right-of-Way



PROPOSED FIGURE GROUND

1 ACRE

0 200' 400' 600' 1000' 1320' 1/4" MILE

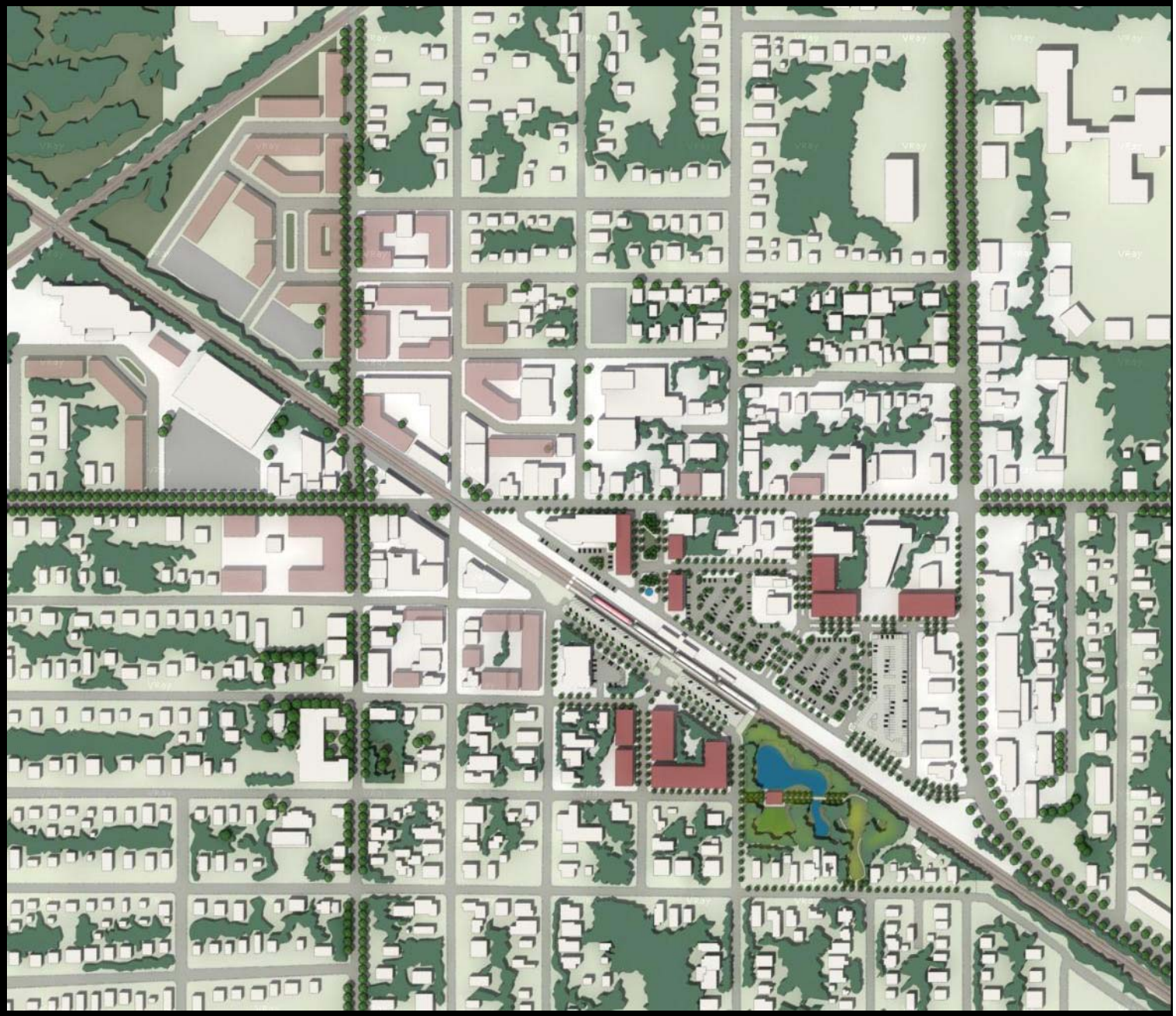

E Station St
Show labels
NW Hwy
Wool St
116
14
Barrington
Metra
1
+/- 10 ACRES
148
2
+/-5.5 ACRES
300
Spring St
324
E Lincoln Ave
400
Playground
181

SCENARIO 1 : PRESERVE

1. Create additional housing opportunities
2. Preserve and reconnect existing businesses
3. Make Miller Park more engaging to visitors
4. Clarify circulation and roadway structure

Scenario	Residential Development	Commercial Development	Open Space	Parking + Infrastructure
1 Preserve	• Market-driven (developer directed) residential	• Preserve historical buildings	• Program existing open space at Miller Park	• Redesign Main Street
	• Variety of building typology (20 units of market-rate townhomes, 20 units of market-rate rowhomes)	• Connect commercial development along Main Street	• Make existing park more engaging to visitors	• Clarify circulation
			• Link Miller Park with existing parks in area	• Increase visitor parking
			• Add a water feature to enhanc downtown	
	• Low-density housing: 4 acres x 10 d.u. = 40 units	• Business/Commercial Use=15,000sf: 40% restaurant, 40% sm. business, 20% other	• 3.5 acres (existing Miller Park)	• 4.0 acres (structured parking area)

Scenario 1 - Plan



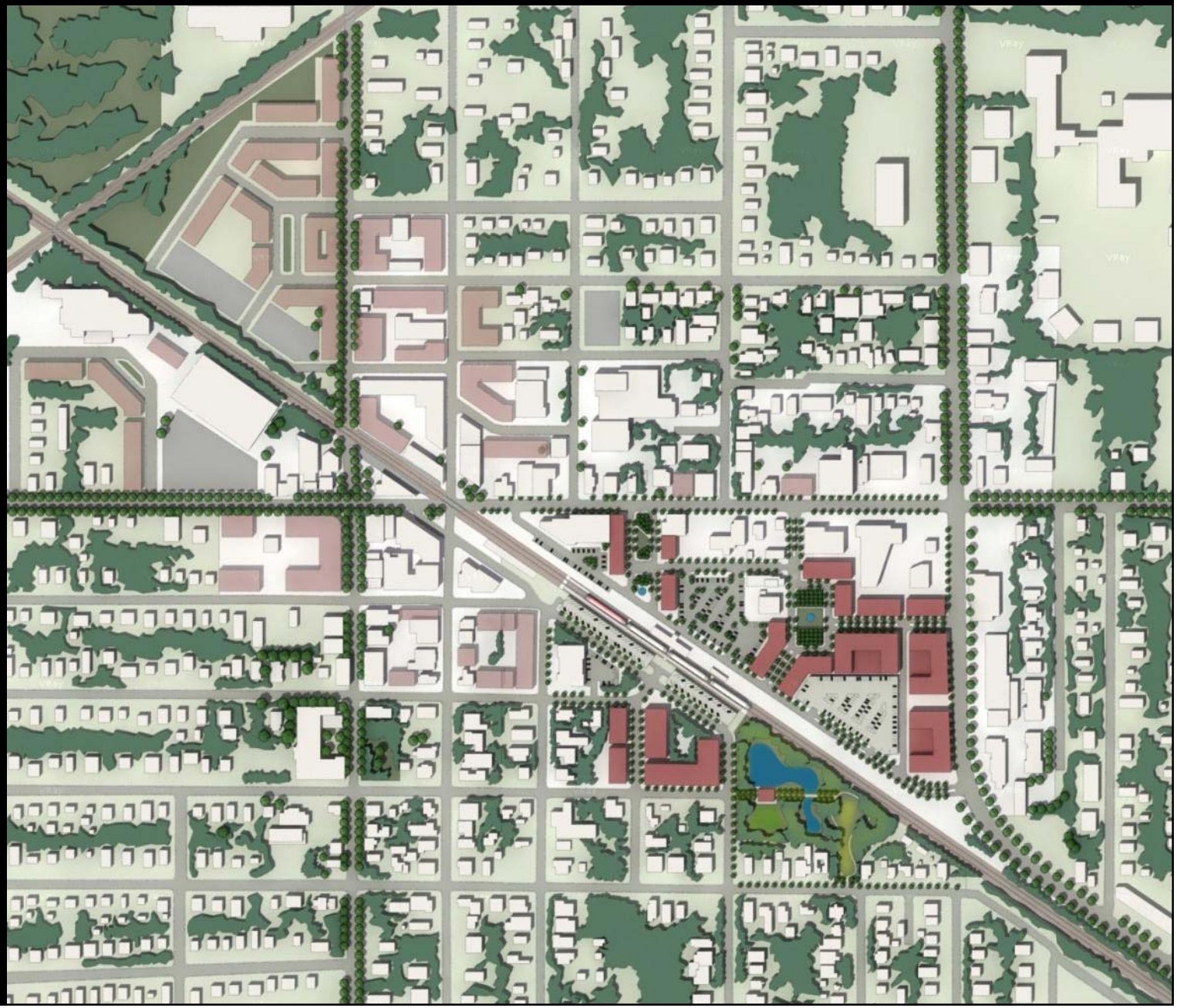
SCENARIO 2 : REINVEST

Unique Features

1. Increase residential density
2. Add commercial and residential square footage to Downtown
3. Increase recreational uses in Miller Park
4. Intensify reorganization of infrastructure

Scenario	Residential Development	Commercial Development	Open Space	Parking + Infrastructure
2 Reinvest	• Increase density through additional unit counts • Create additional building typologies (20 units market –rate, 20 units affordable townhomes, 20 units market-rate, 20 units affordable rowhomes) • Respond to changing community demographic *Ideal mix of housing types is 50%market, 50% affordable	• Add retail/commercial space • Retain historical character of existing buildings • Centralize commercial/retail development • Infill commercial/retail zoned land	• Address walkability of downtown • Increase recreaional uses • Resolve drainage issues at Miller Park through stormwater mitigation	• Structure parking at Metra • Increase parking for visitors • Create additional pedestrian crossings at tracks • Create bike lanes on Main Street • Signalize intersection at new south entrance to Metra parking • Increase connectivity between nodes
	• Mid/high-density housing: 4 acres x 20 d.u. = 80 units	• Business/Commercial Use=175,000sf: 30% restaurant, 30% sm. business, 40% other	• 3.5 acres (existing Miller Park)	• 4.0 acres, 2-level parking structure parking at Metra

Scenario 2 - Plan

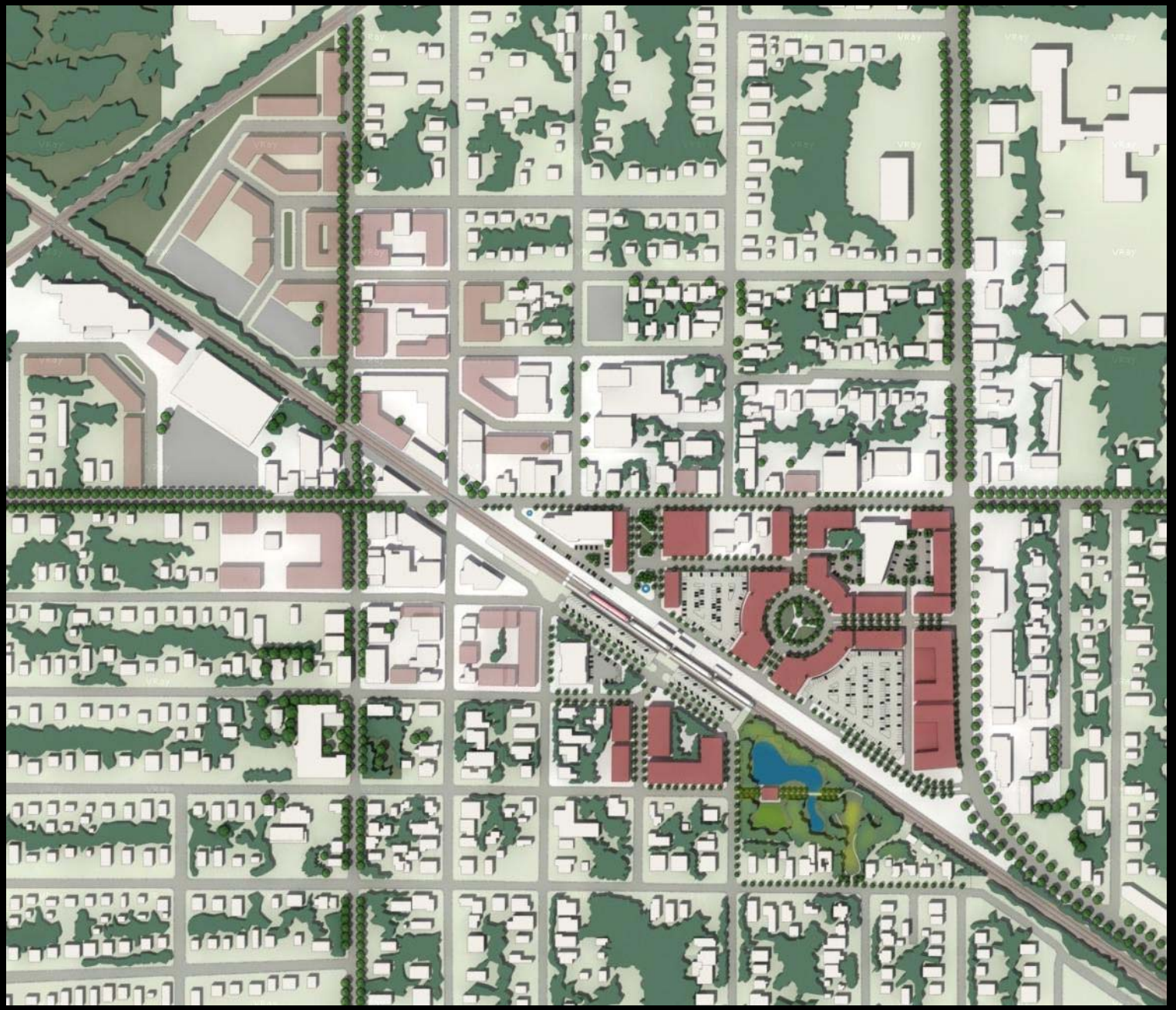


SCENARIO 3 : INNOVATE

1. Increase residential height and type
2. Focus commercial on entertainment
3. Create outdoor experience at Miller Park
4. Structure parking at Metra station

Scenario	Residential Development	Commercial Development	Open Space	Parking + Infrastructure
3 Innovate	• Increase height of residential to four stories at station • Introduce a variety of housing types (50 market/affordable townhomes, 50 market/affordable rowhomes, 20 single family homes) • Create live/work spaces • Increase density through additional unit counts *Ideal mix of housing types is 50% market, 50% affordable	• Increase retail SF - create opportunity for large footprint anchor businesses • Create an entertainment district • Site assembly into larger parcels • Create 'flex'-business spaces • Increase building height on Main Street • Infill existing commercially zoned areas	• Connect green space throughout community • Green roofs/sustainable components • Create children's play areas • Create outdoor programmed experience	• Structure parking at Metra • Construct pedestrian bridge over tracks • Create bike lanes on Main Street • 'Smart Parking' signage at garage • Combine car and train ROW • Decommission state hwys • Signalize intersection at new south entrance to Metra parking
	• Low-density housing: 6 acres x 20 d.u. = 120 units	• Business/Commercial Use=90,000sf: 25% restaurant, 25% sm. business, 25% other, 25% lg. footprint retail	• 3.5 acres (existing Miller Park)	• 3 acres, 2-level parking structure parking at Metra

Scenario 3 - Plan



Concept:

Provide an engaging pedestrian experience.

Concept:

Encourage activity throughout the day and evening hours with mixed-use buildings.

Concept:

Consider seasonal outdoor activities.

Concept:

Provide areas of activity for all ability levels and age groups.

Concept:

Encourage outdoor interactive activities and performance venues .

Concept:
Use innovative storm water management.

Concept:
Encourage alternative and public transportation options.

Scenario 1: Program

Residential: 18 units
Commercial: 12,700sf
Office: 28,300sf
Flex: 28,300sf

Scenario 2: Program

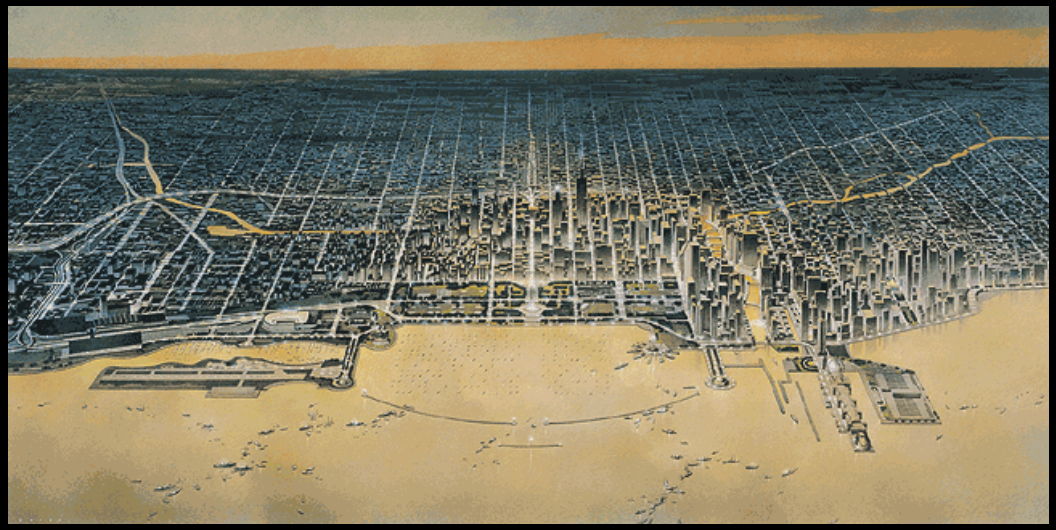
Residential: 66 units
Commercial: 102,960sf
Office: 68,600sf
Flex: 68,640sf

Scenario 3: Program

Residential: 76 units
Commercial: 130,725sf
Office: 87,150sf
Flex: 87,150sf

INNER-RING TOD'S

JOHN HOUSEAL



9th Annual

New Partners for Smart Growth Conference

Comprehensive Community Planning
To Achieve TOD Corridors

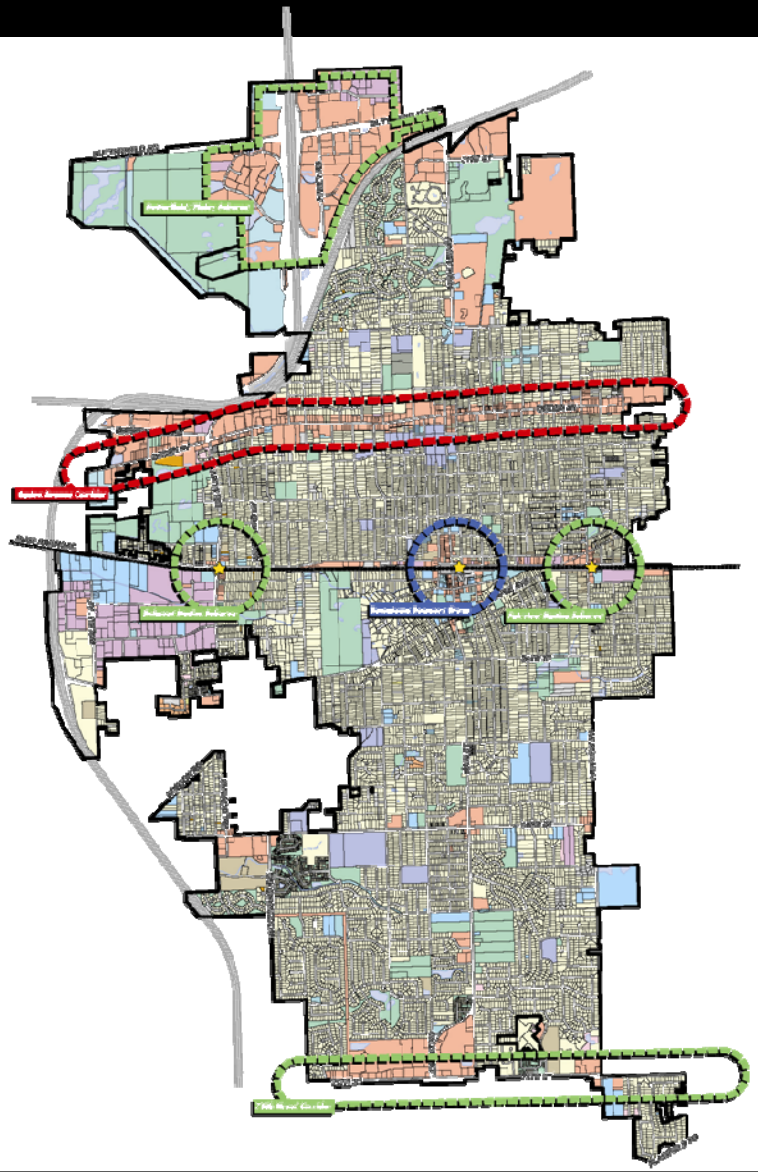
A Tale of Two Cities

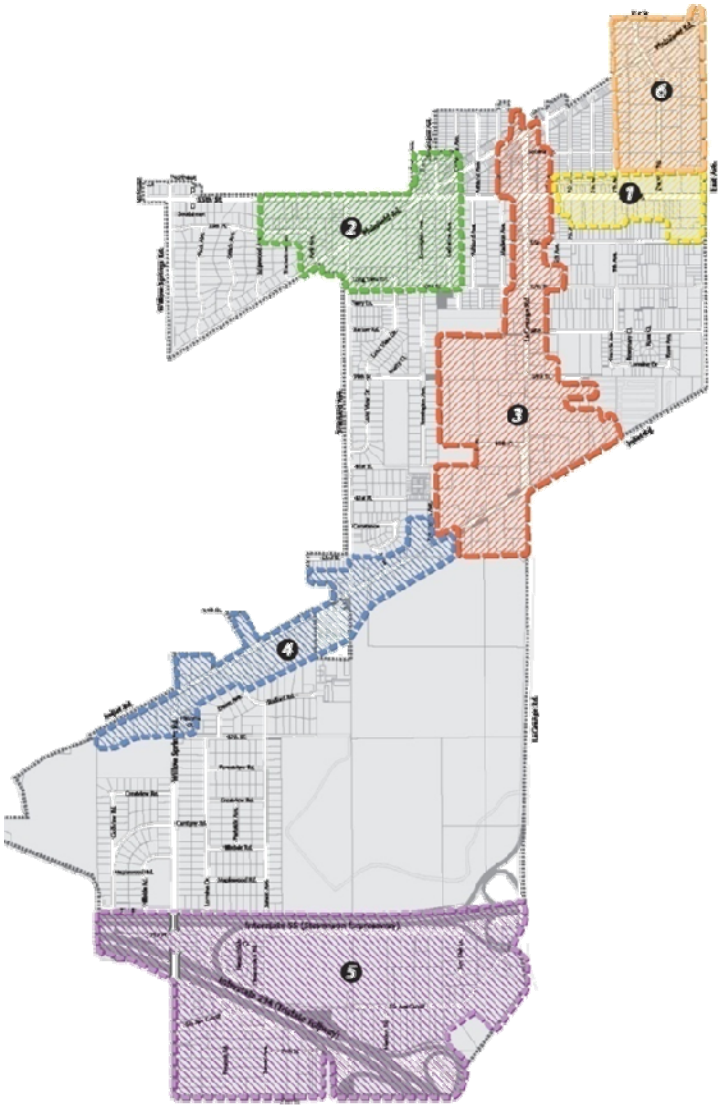
Presented by John Houseal, AICP
Houseal Lavigne Associates

TOD Framework

- Specific planning area
- Requires more detail
- Must fit within community context and community objectives

Comprehensive Plans with Subareas

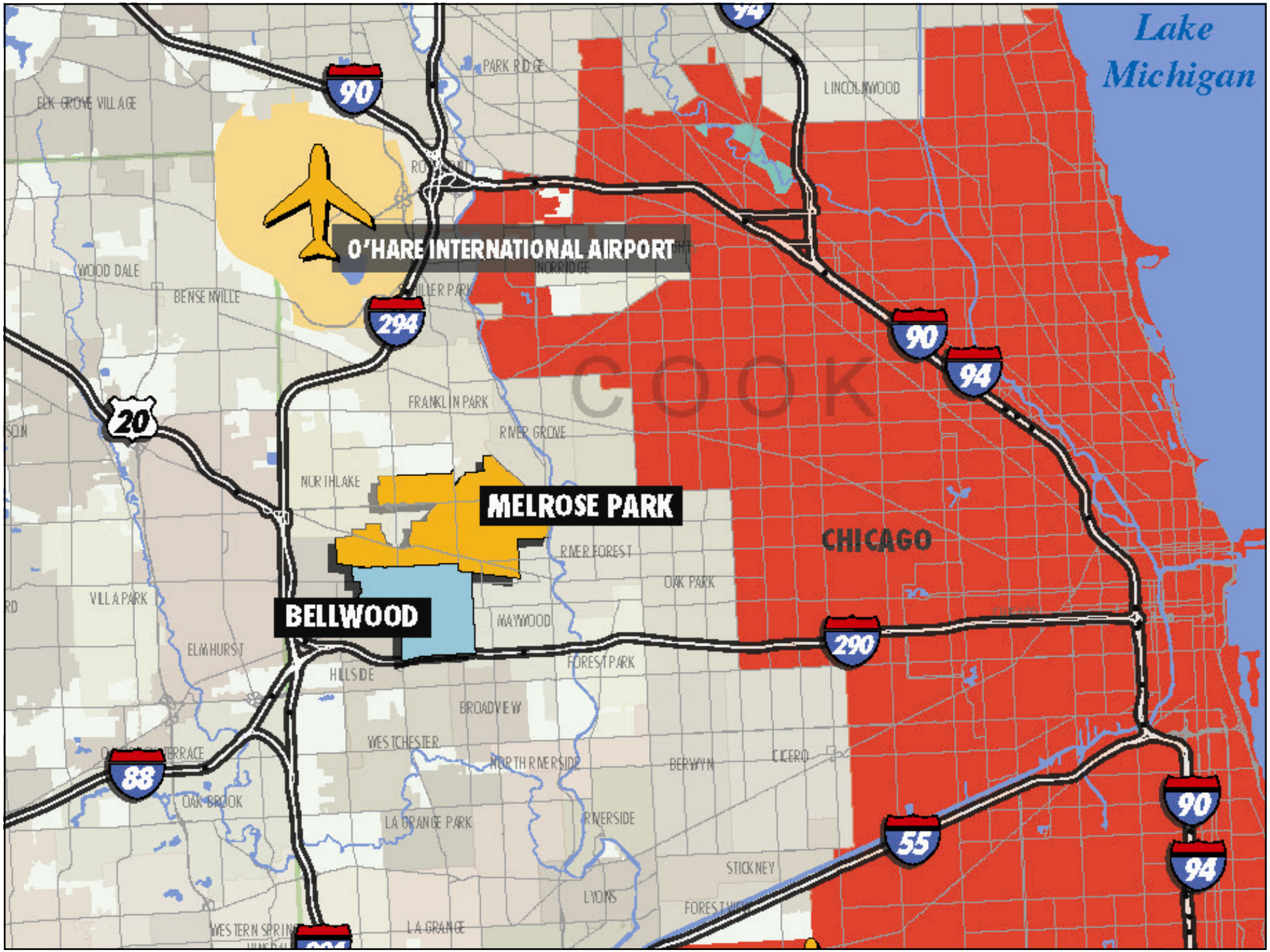




“A Tale of Two Cities”

Case Study of Melrose Park and Bellwood

- Adjacent communities
- Insufficient/under-performing Metra Stations
- Lack of improvement and/or redevelopment potential


Lake Michigan
O'HARE INTERNATIONAL AIRPORT
MELROSE PARK
BELLWOOD
CHICAGO
COOK
PARK RIDGE
ELK GROVE VILLAGE
LINCOLNWOOD
WOOD DALE
BENSENVILLE
FRANKLIN PARK
RIVER GROVE
NORTHLAKE
RIVER FOREST
OAK PARK
VILLA PARK
ELMHURST
MAYWOOD
FOREST PARK
HILLSIDE
BROADVIEW
WESTCHESTER
NORTH RIVERSIDE
BERWYN
CICERO
OAK BROOK
LA GRANGE PARK
RIVERSIDE
STICKNEY
LYONS
LA GRANGE
90
294
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94
290
88
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BENSENVILLE
SCHILLER PARK
CHICAGO
FRANKLIN PARK
RIVER GROVE
294
20
NORTHLAKE
MELROSE PARK
RIVER FOREST
OAK PARK
VILLA PARK
BELLWOOD
MAYWOOD
290
FOREST PARK
HILLSIDE
WESTCHESTER
OAKBROOK TERRACE
88
CICERO
OAK BROOK
LA GRANGE PARK
RIVERSIDE
Existing Station Location
Commercial Corridors

Establishing a Viable and Successful TOD

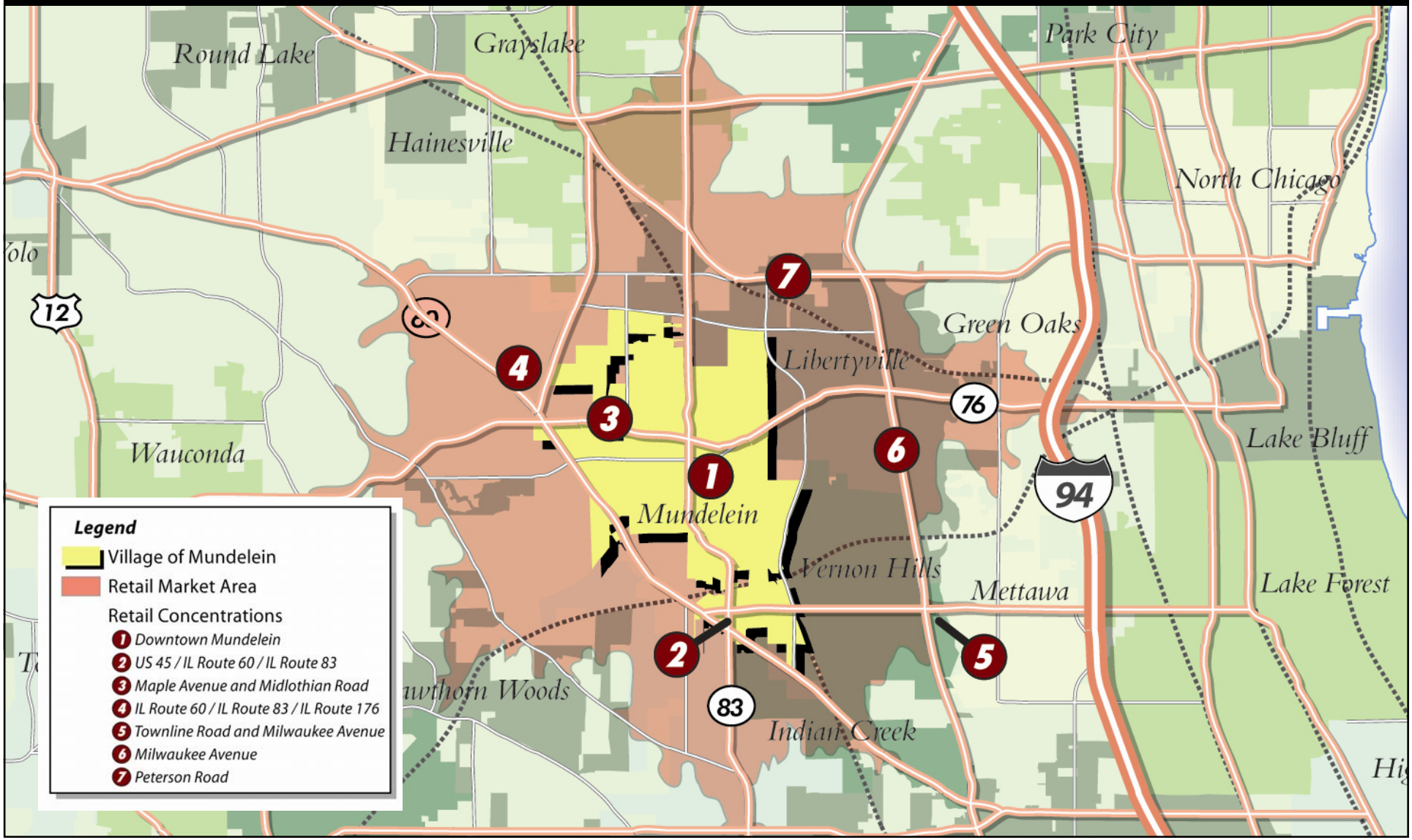
- Market Capacity
- Site Capacity
- Community Capacity

Market Capacity

The starting point for TOD and Corridor Land Use

Market Capacity

Competitors and Drive Times



Site Capacity

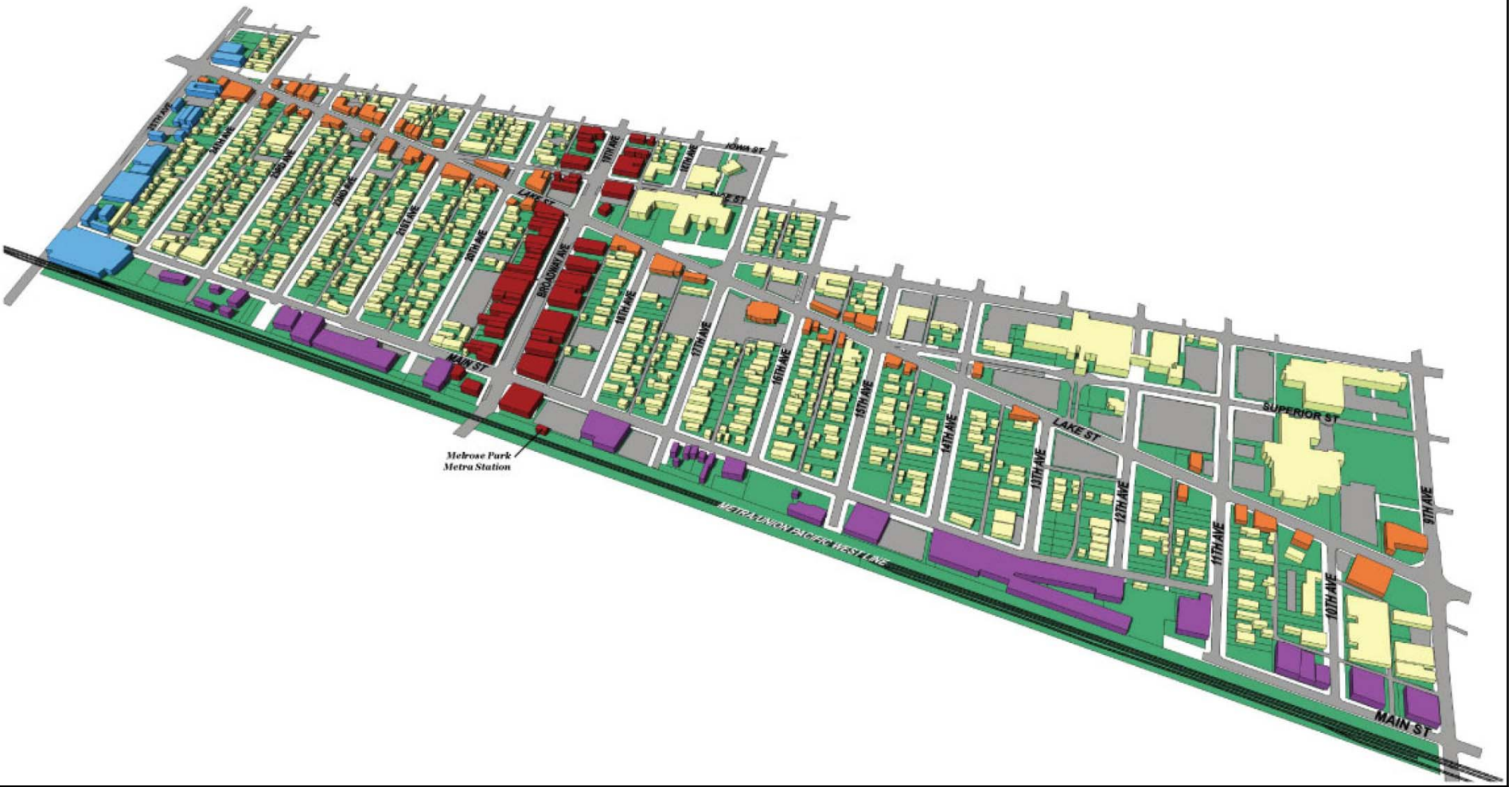
Physical analysis of specific sites and/or surrounding areas

Melrose Park Metra Station

Existing Land Use

Melrose Park Metra Station

Issues



Melrose Park Station Area

Melrose Park Station Area

Melrose Park Station Area

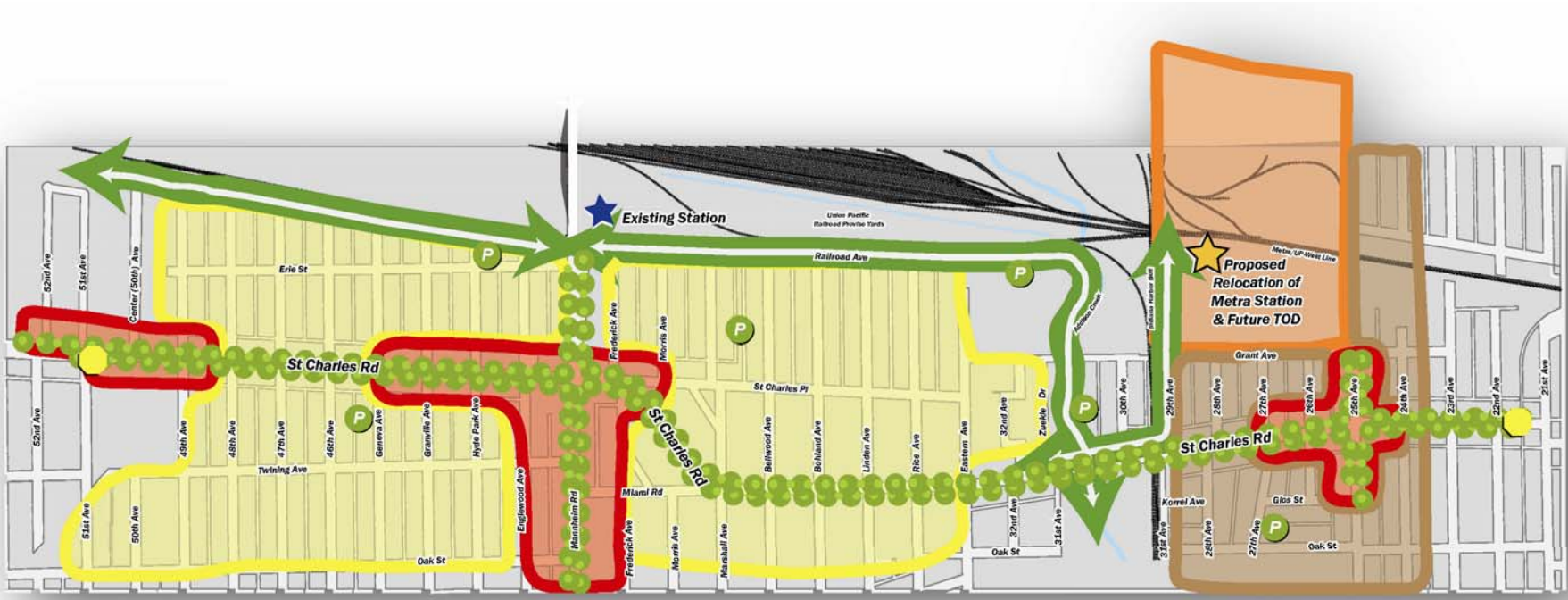
Melrose Park Station Area

Bellwood Metra Station

Existing Land Use

Bellwood Metra Station

Issues



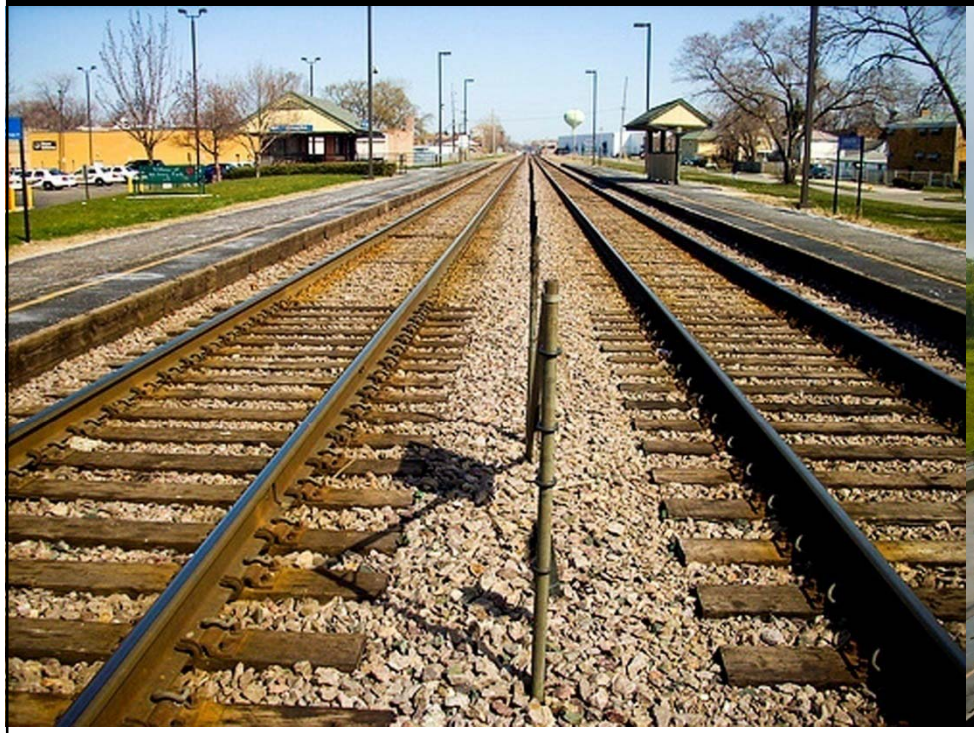
Bellwood Station Area

Bellwood Station Area

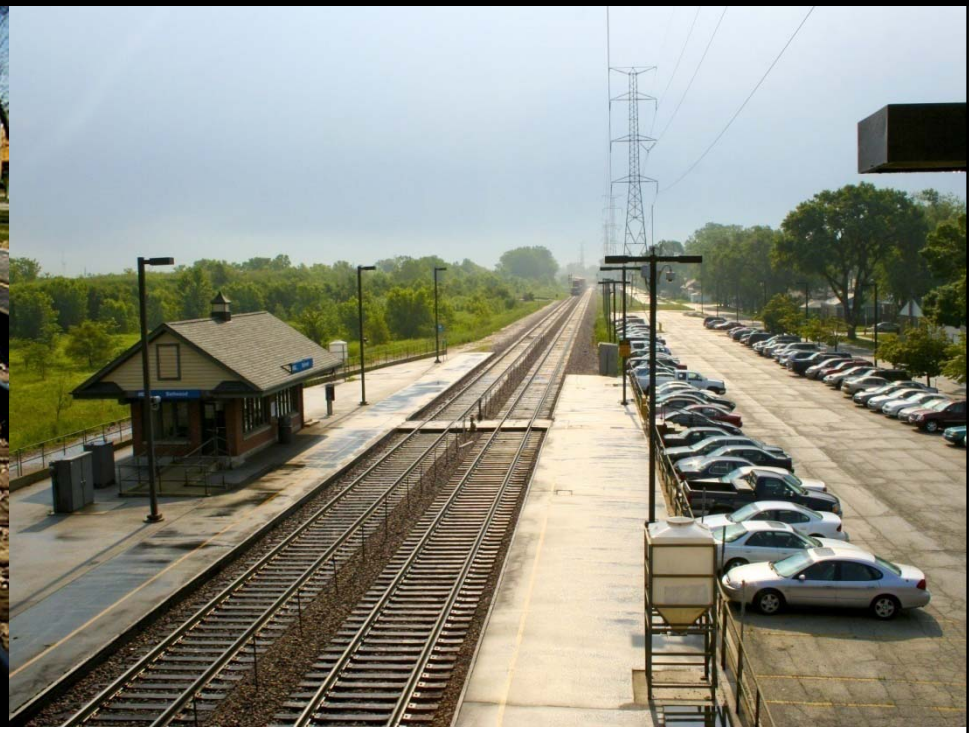
Bellwood Station Area

Bellwood Station Area

Melrose Park Metra Station



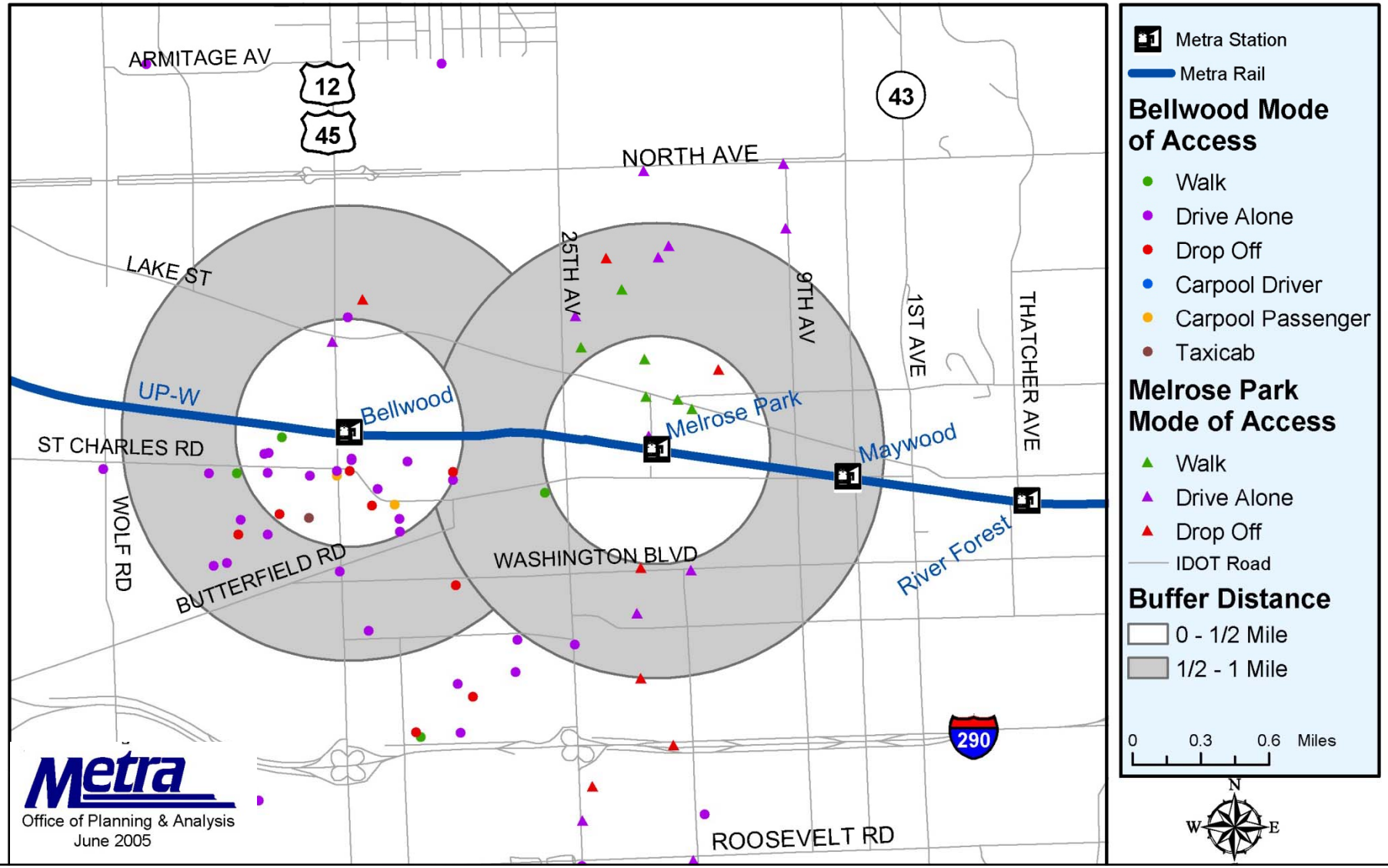
Bellwood Metra Station



Community Capacity

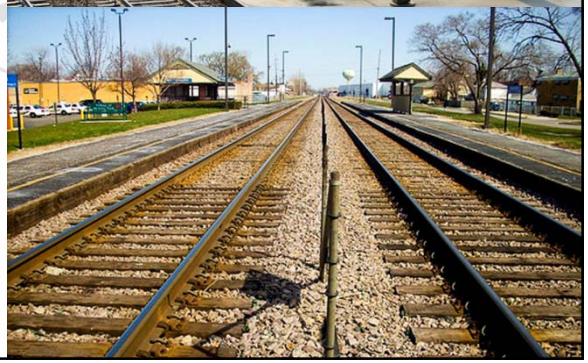
Desirability of TOD

Metra Analysis



The Planning Challenge

- The Problem
- The Solution
- The Partners



“The Problem”

Community desire for TOD,

but an overall lack of site capacity

The Planning Challenge

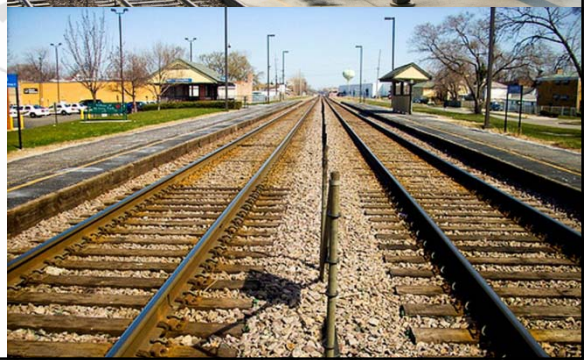
- ✓ Market Capacity
- Site Capacity
- ✓ Community Capacity

“The Solution”

Work cooperatively with both communities to create a new TOD serving both communities and the region as a whole

“The Partners”

- Both communities
- Property owners
- Union Pacific Railroad
- Illinois Department of Transportation (IDOT)
- Metra
- Developers
- Federal government/funding

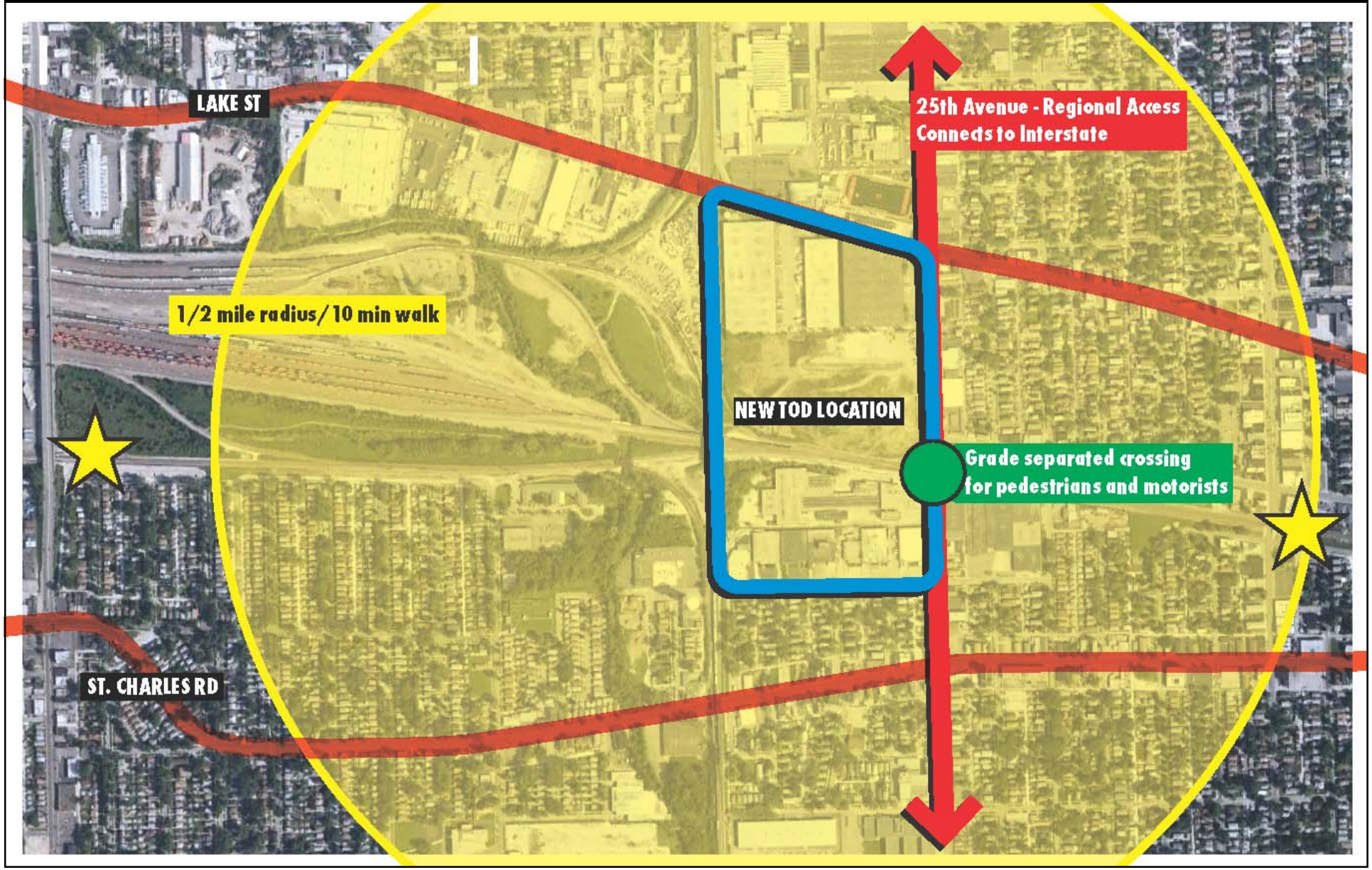


The Strategy

The key was to find a site that could accommodate community desires and market reality

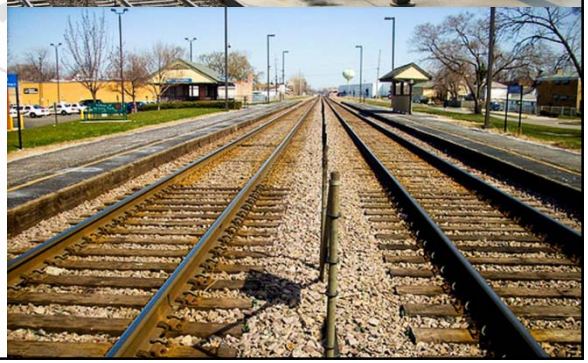

BENSENVILLE
SCHILLER PARK
FRANKLIN PARK
RIVER GROVE
294
20
NORTHLAKE
MELROSE PARK
RIVER FOREST
OAK PARK
VILLA PARK
BELLWOOD
MAYWOOD
290
FOREST PARK
HILLSIDE
BROADVIEW
WESTCHESTER
OAKBROOK TERRACE
88
NORTH RIVERSIDE
BERWYN
CICERO
OAK BROOK
LA GRANGE PARK
RIVERSIDE


LAKE ST
NEW TOD LOCATION
BELLWOOD
MELROSE PARK
ST. CHARLES RD
Existing Station Location
New TOD Location
Corridors


LAKE ST
25th Avenue - Regional Access
Connects to Interstate
1/2 mile radius/ 10 min walk
NEW TOD LOCATION
Grade separated crossing
for pedestrians and motorists
ST. CHARLES RD

Initiating Implementation

- Land assembly
- Railroad coordination
- IDOT planning & design
- Developer recruitment



TOD Concept

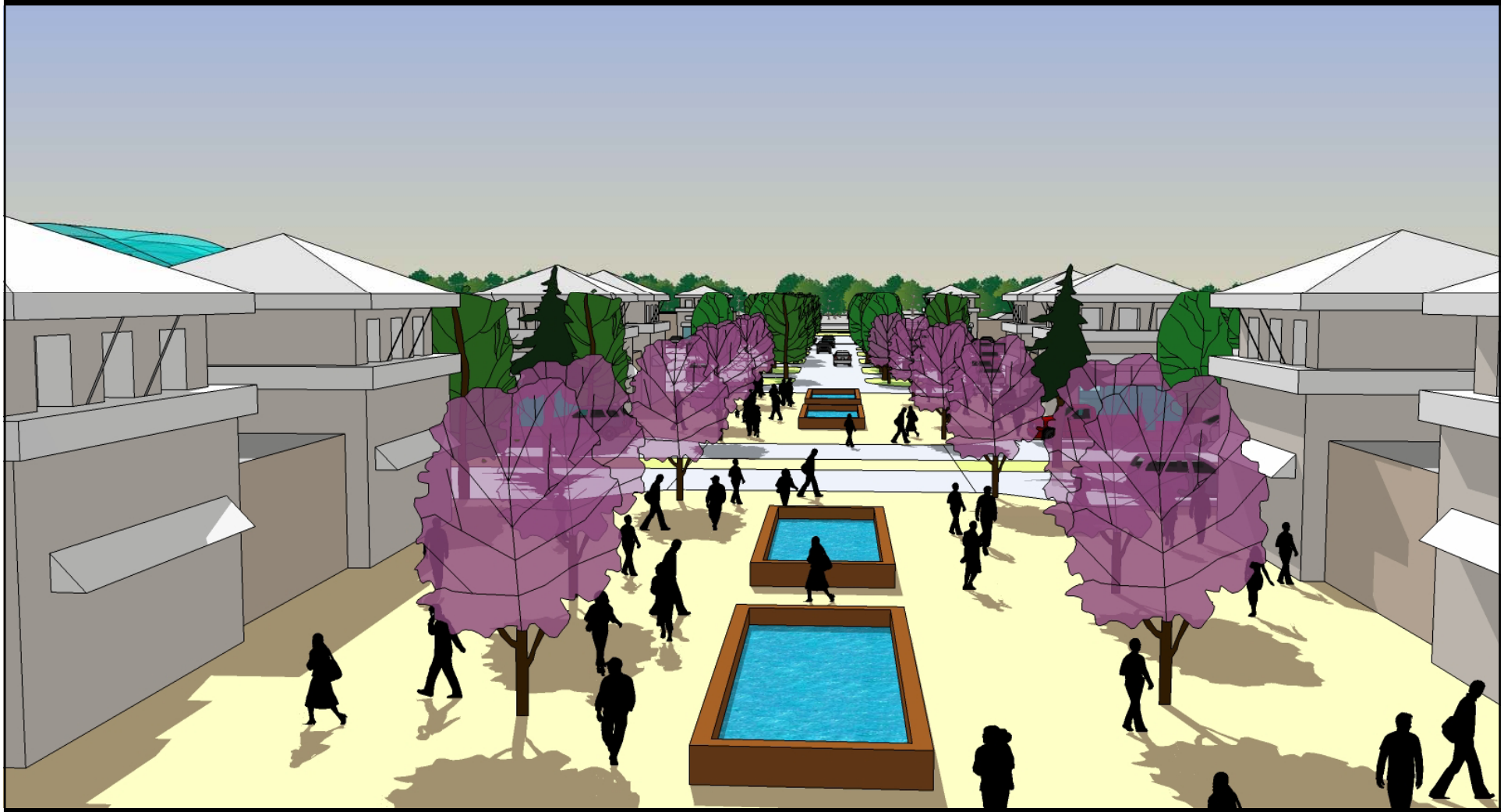
- +/- 300,000 sq. ft. of commercial
- 97,300 sq. ft. Movie Theater
- 380 residential units north of the railroad tracks
- 507 residential units south of the railroad tracks
- 20,000 sq. ft. medical center
- 20,000 sq. ft. office building
- 1000+ commuter parking spaces

TOD Master Plan

North Component

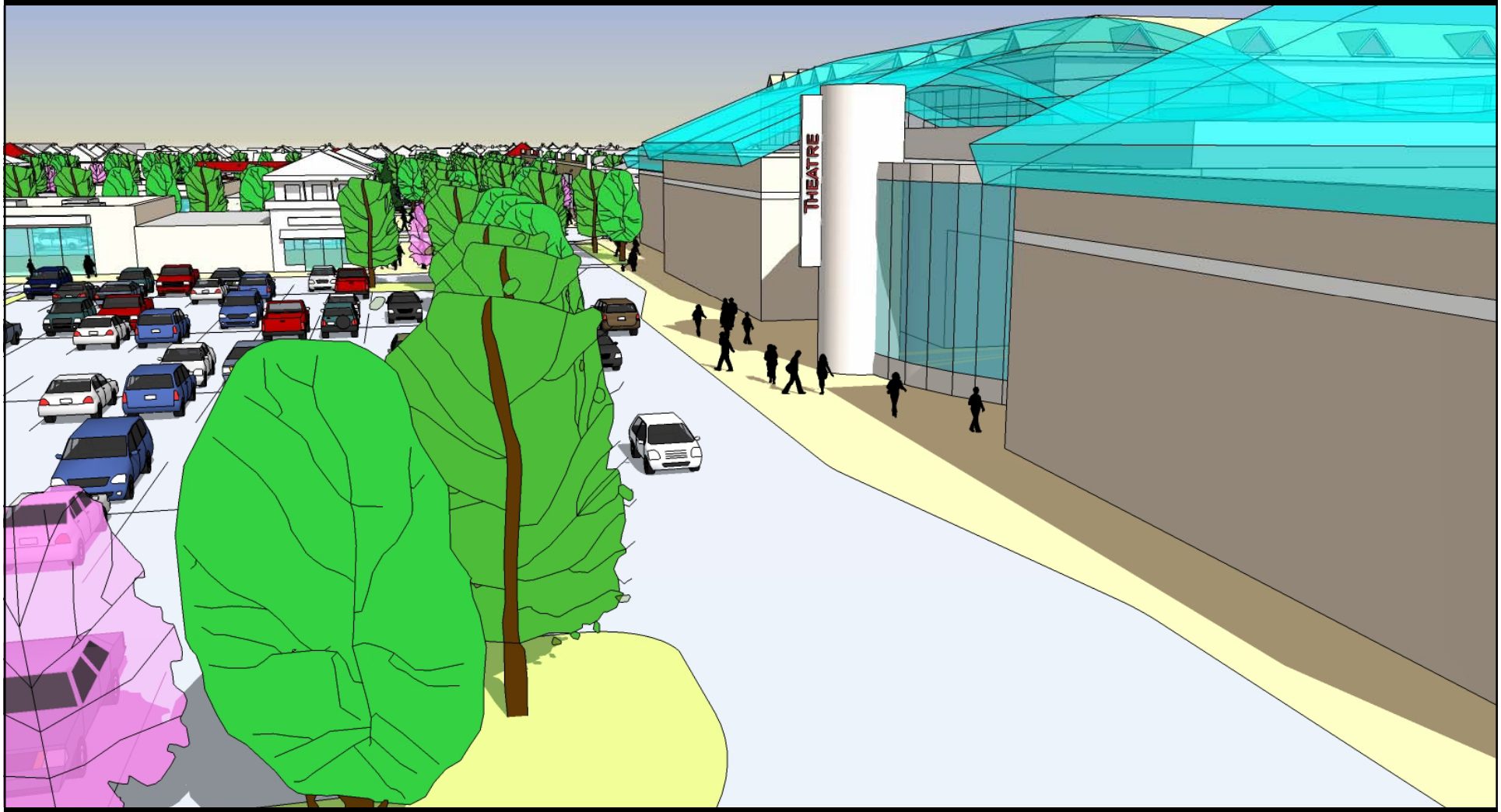
Commercial Areas fronting Lake Street

Commercial Areas fronting Lake Street



Movie Theater and Northern Residential

Movie Theater



Northern Residential

South Component

South Residential

Villages of Bellwood & Melrose Park
Transit Oriented Development Concept

9th Annual

New Partners for Smart Growth Conference

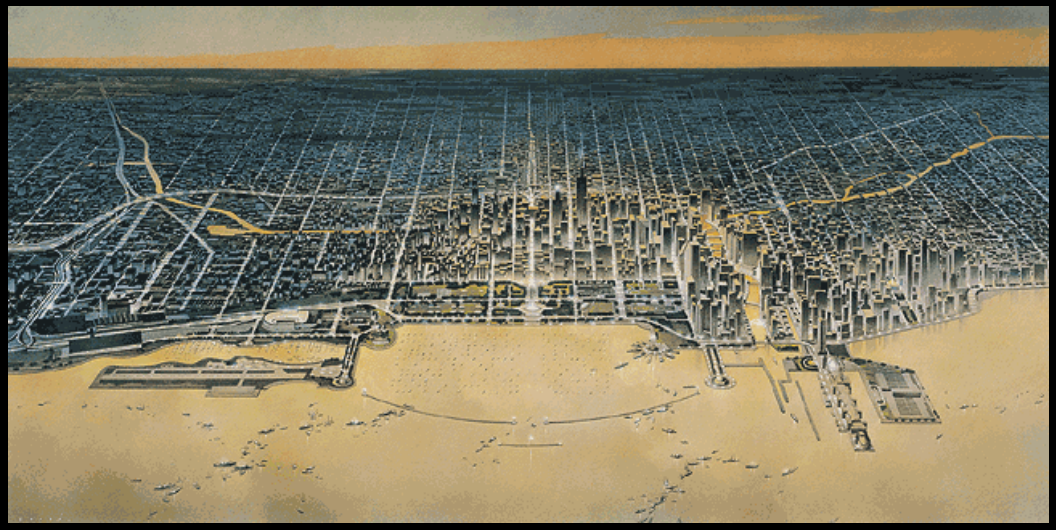
Comprehensive Community Planning
To Achieve TOD Corridors

A Tale of Two Cities

Presented by John Houseal, AICP
Houseal Lavigne Associates

Urban
Transit Oriented Corridors

TODD FAGEN



9th Annual Smart Growth Conference

"TAKE A RIDE ON DAMEN"

One of Chicago's Transit Oriented Corridors

Todd Fagen, Vice President/General Manager
Sam Schwartz Engineering

Setting

"Take a Ride on Damen"

Bus

Walk

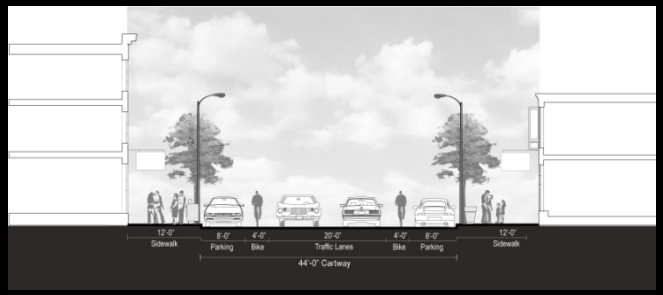
Bike

Train

"Take a Ride on Damen"

Chicago Department of Transportation

Complete Streets Policy



"The safety and convenience of all users of the transportation system including pedestrians, bicyclists, transit users, freight, and motor vehicle drivers shall be accommodated and balanced in all types of transportation and development projects and through all phases of a project so that even the most vulnerable – children, elderly, and persons with disabilities – can travel safely within the public right of way."

"Take a Ride on Damen"

Rail/Bus

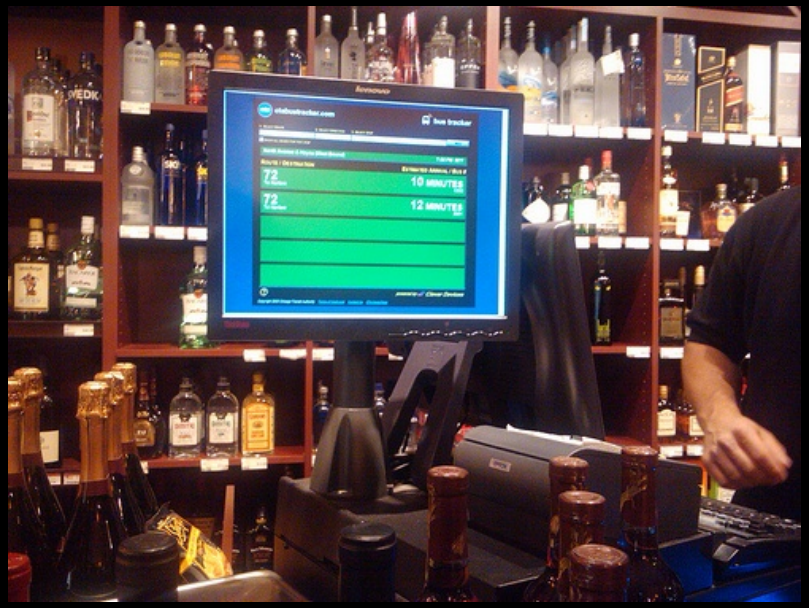
Interchangeable Fare Cards

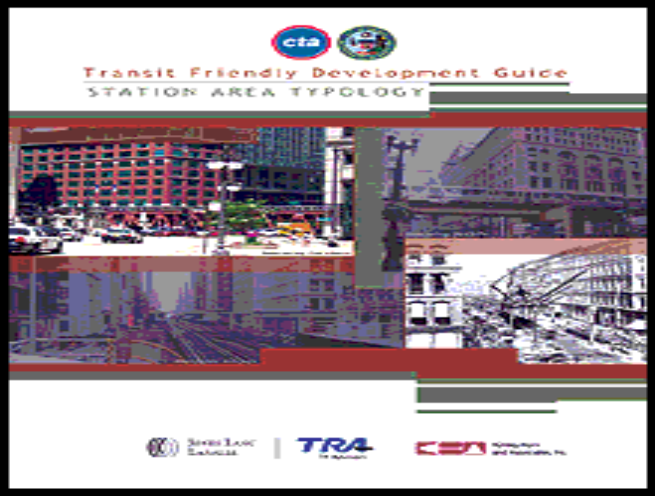
Bus Tracker

Express Bus

Bikes on Bus

Interagency Coordination

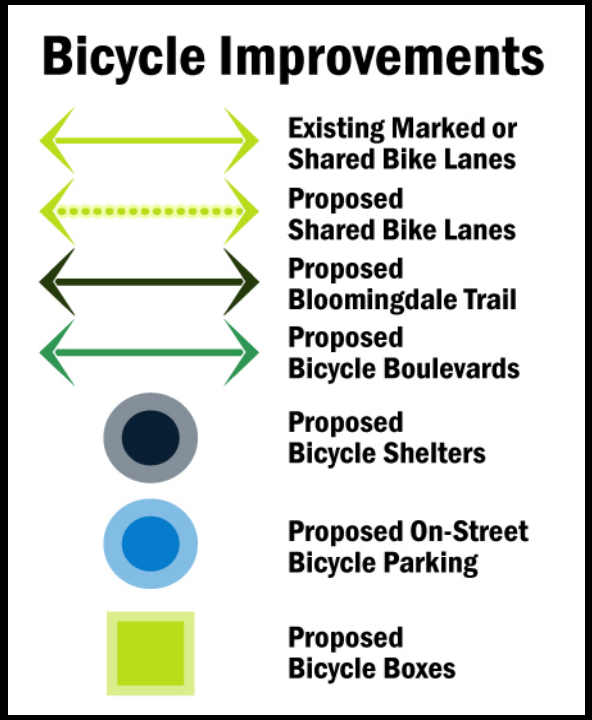


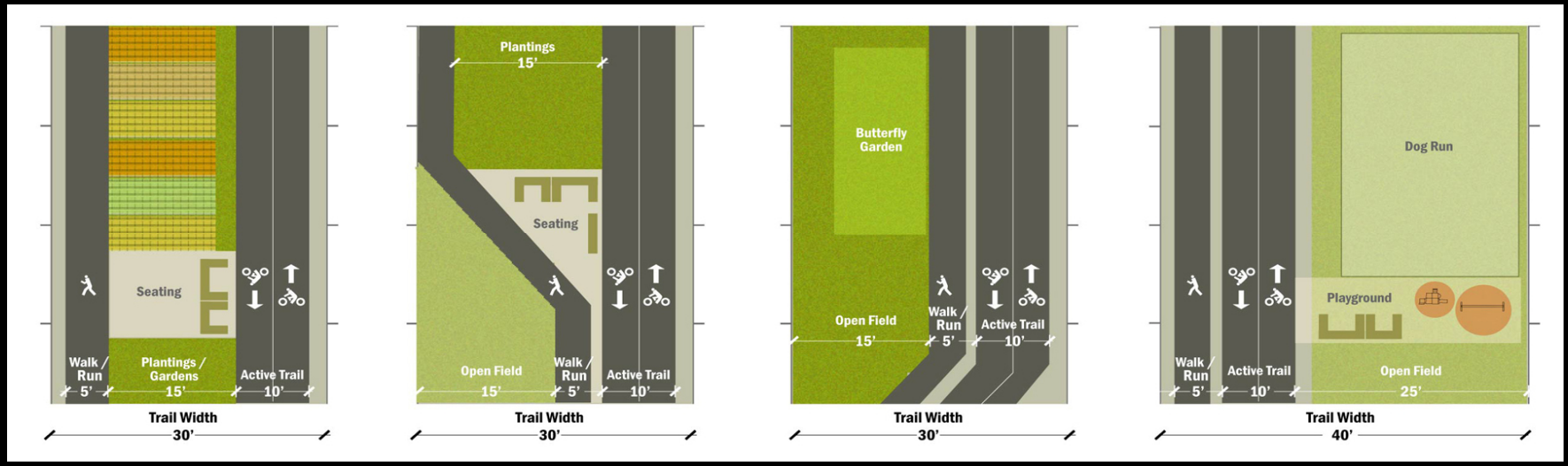


"Take a Ride on Damen"

Neighborhood Master Planning

Connect to Recreation and Travel

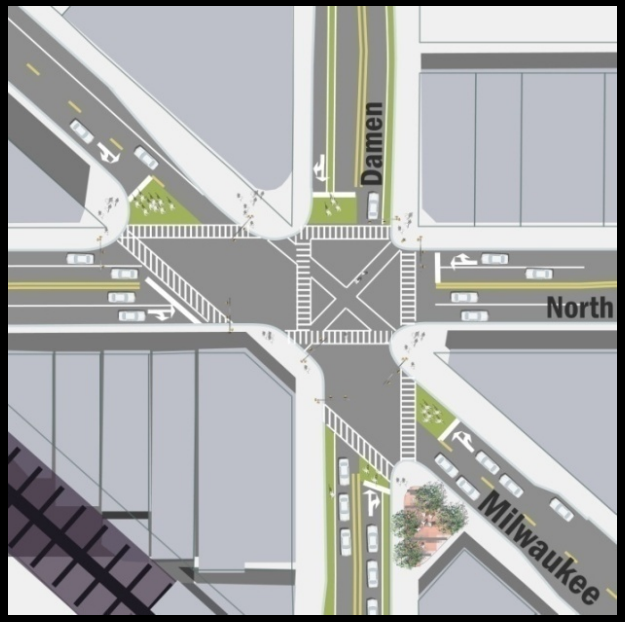


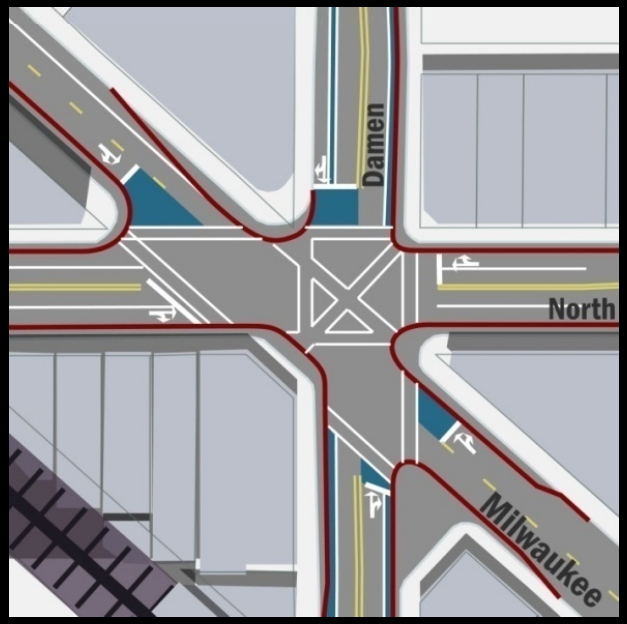


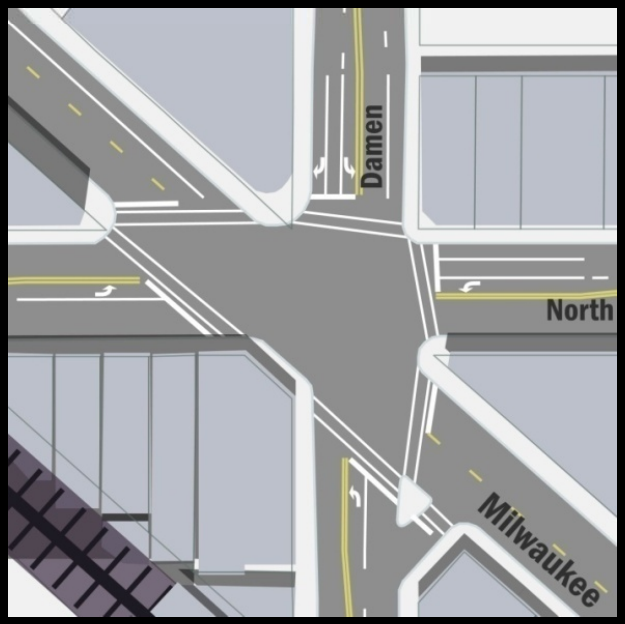
"Take a Ride on Damen"

Neighborhood Master Planning

Intersection Transforms







"Take a Ride on Damen"

Neighborhood Master Planning

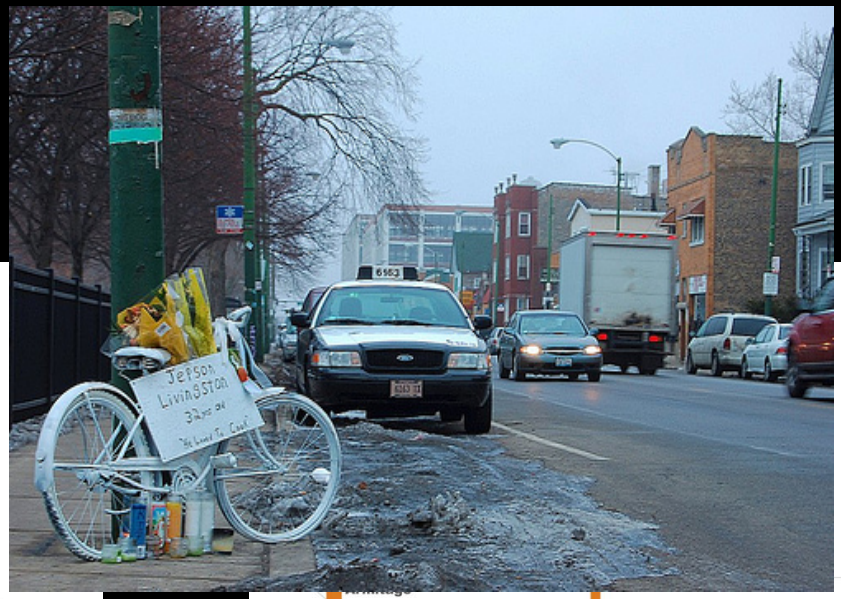
Today

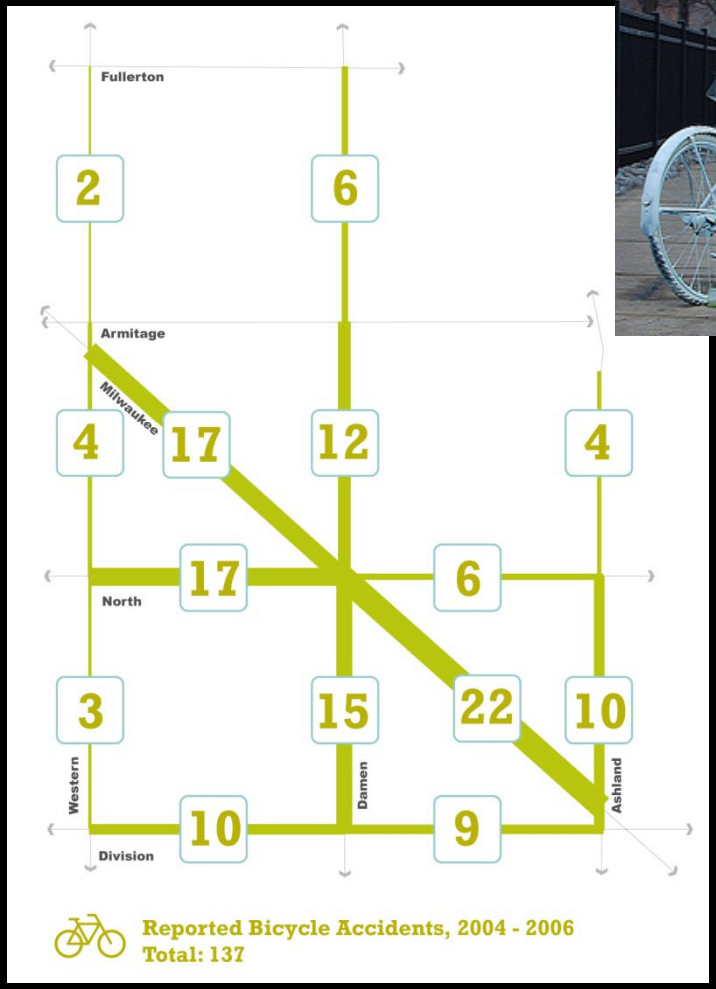
Tomorrow

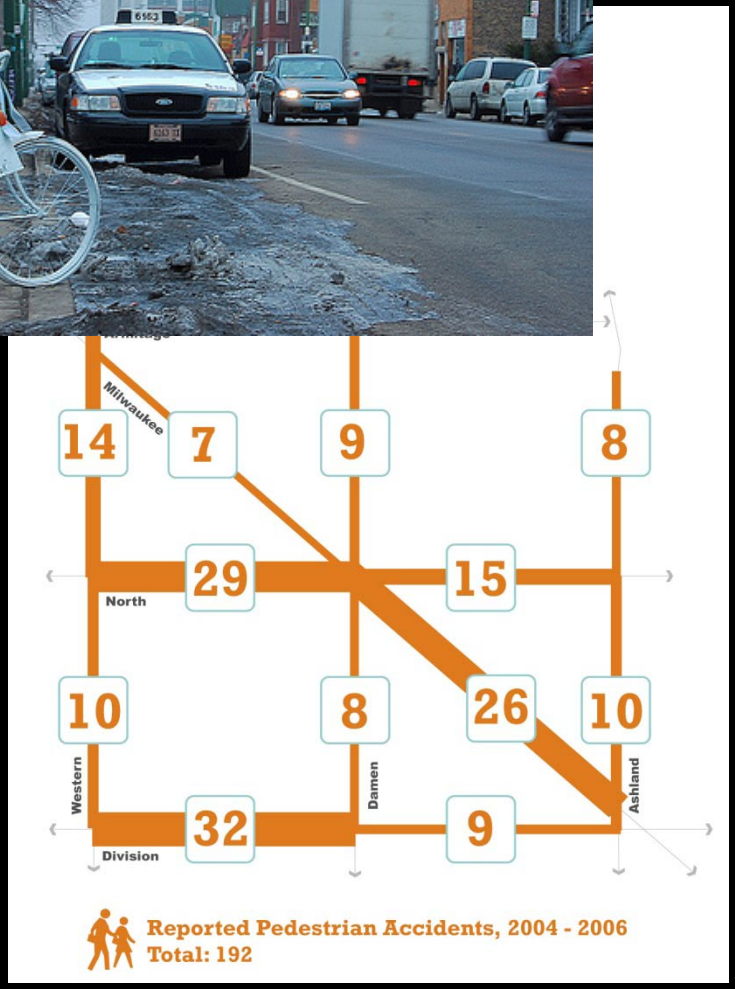
"Take a Ride on Damen"

Safety Issues

- Bike and Pedestrian Accidents
- Crosswalk Enforcement







"Take a Ride on Damen"

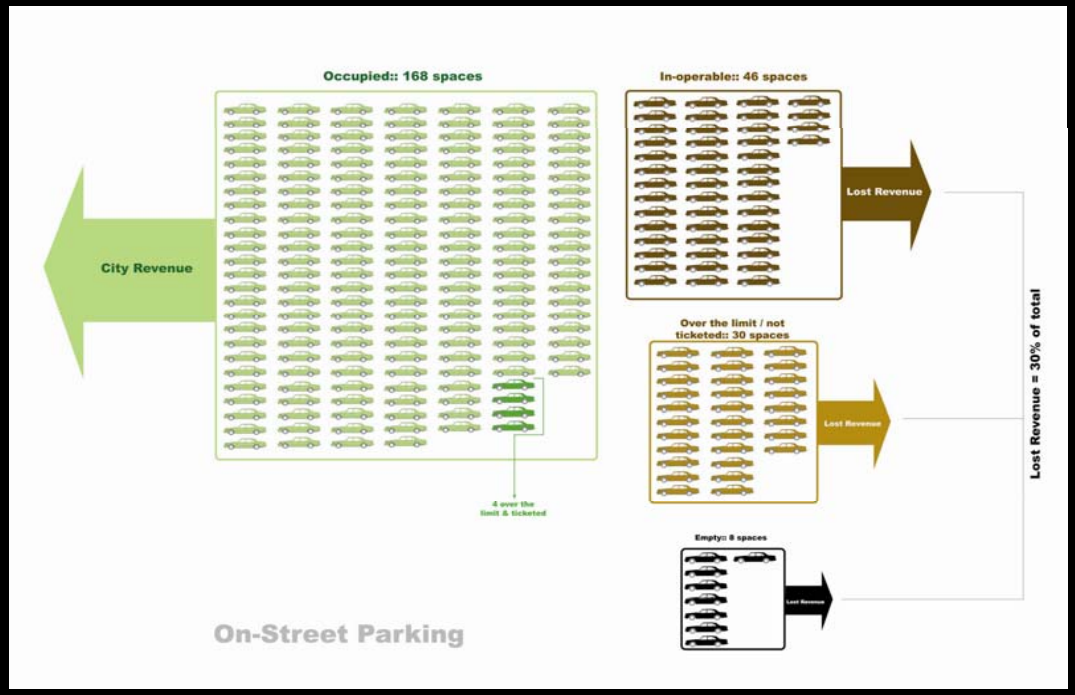
Enforcement Team

Chicago Department of Transportation

Chicago Police Department

"Take a Ride on Damen"

Parking Issues



"Take a Ride on Damen"

Loading Zones

"Take a Ride on Damen"

9th Annual Smart Growth Conference

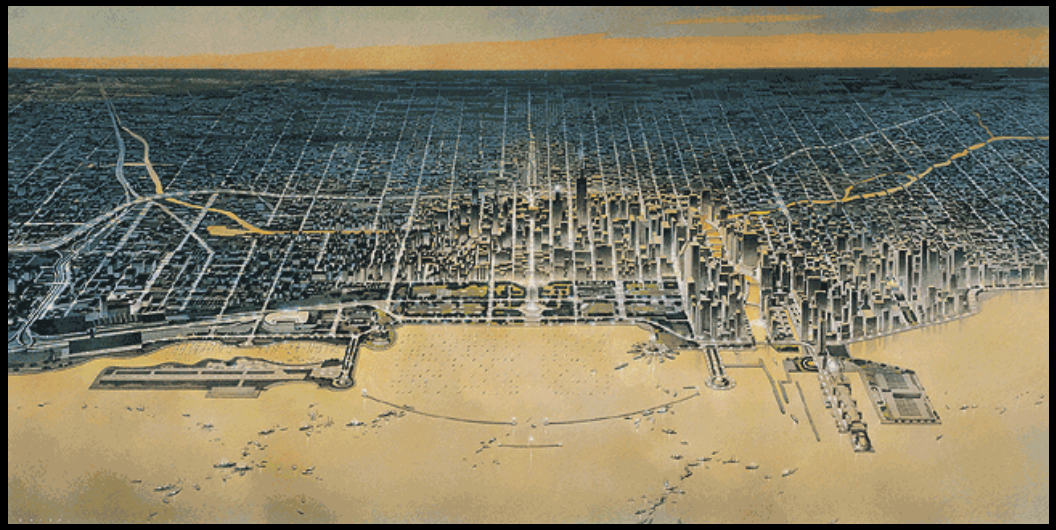
"TAKE A RIDE ON DAMEN"

One of Chicago's Transit Oriented Corridors

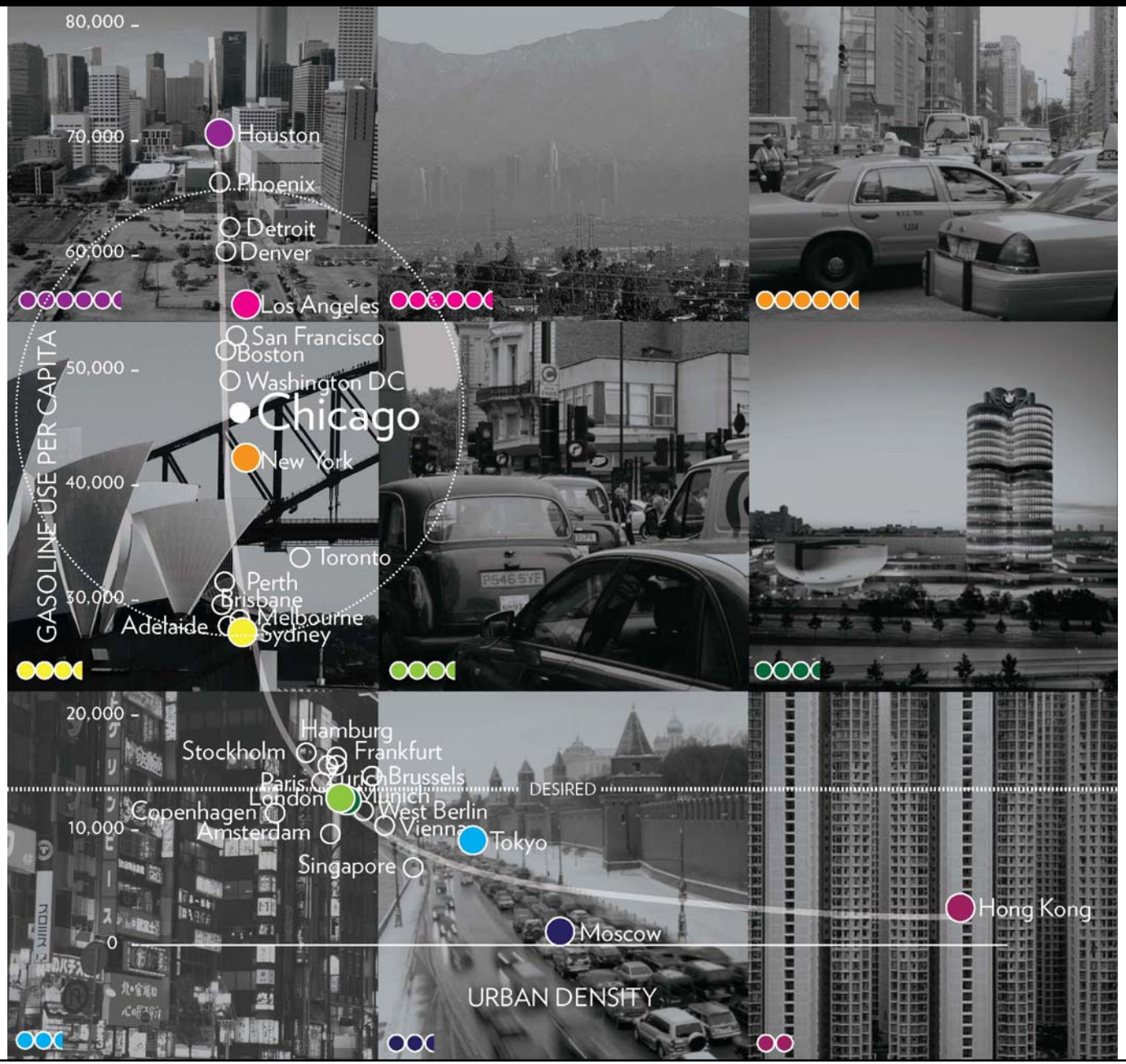
Todd Fagen, Vice President/General Manager
Sam Schwartz Engineering

THE ULTIMATE TOD: CHICAGO'S LOOP

PETER KINDEL



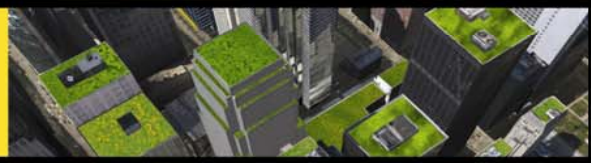
URBAN DENSITY/GASOLINE CONSUMPTION



100% CARBON EMISSIONS

79% BUILDINGS

66% URBAN MATRIX



62% TRANSIT + MOBILITY

58% WATER

57% WASTE

55% COMMUNITY ENGAGEMENT

0% ENERGY

0% CARBON EMMISIONS

ENERGY MODEL
Carbon Consumption

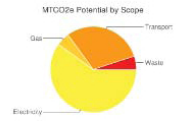
3D Building Visibility

CO_2 / ft^2

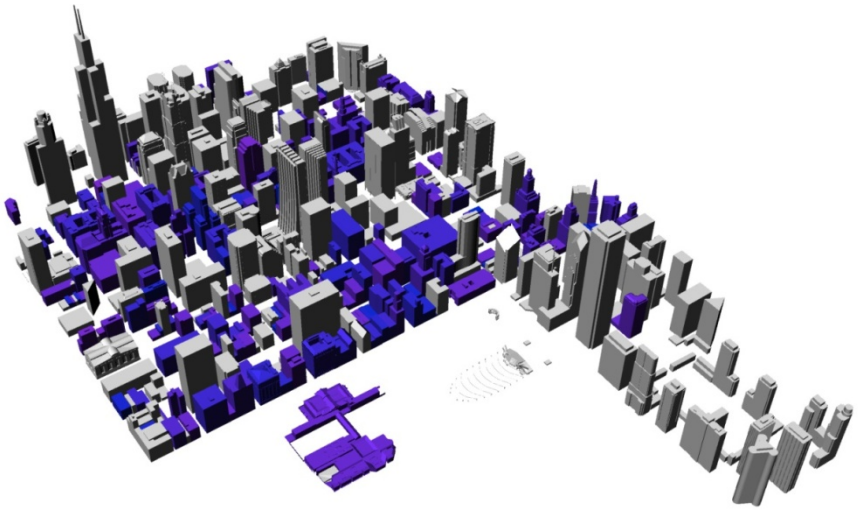
- 9
9 - 18
18 - 26
26 +

Building 123
123 W. Wacker Dr.
Gross Area (sf): **1,300,000**

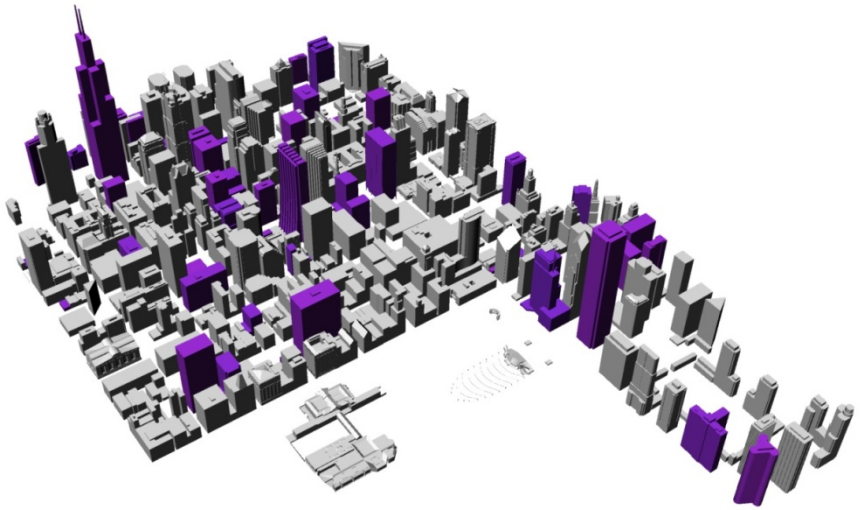
Residential		
Electricity:	**35,189**	**MTCO2e**
Natural Gas:	**6,179**	**MTCO2e**
Purchased Chilled Water:	**cccc**	**MTCO2e**
Water:	**wwww**	**MTCO2e**
Waste:	**rrrr**	**MTCO2e**
Transportation:	**tttt**	**MTCO2e**

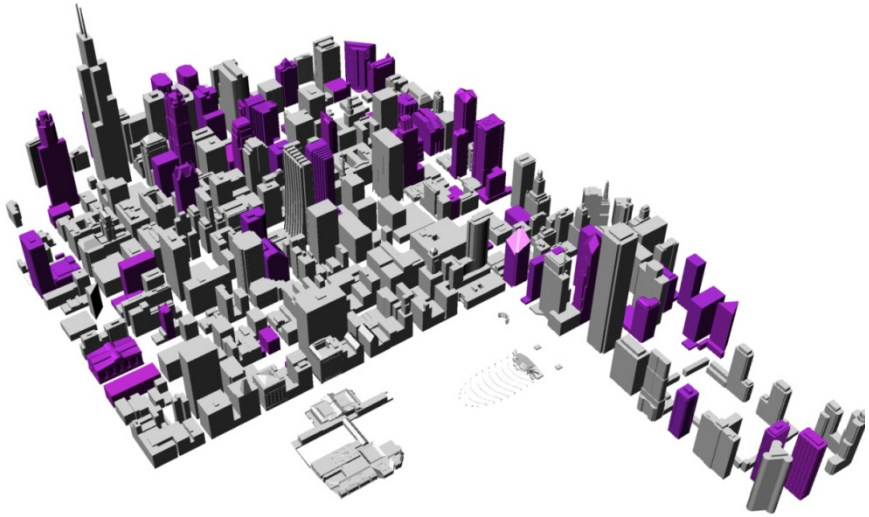


HERITAGE 1880-1945

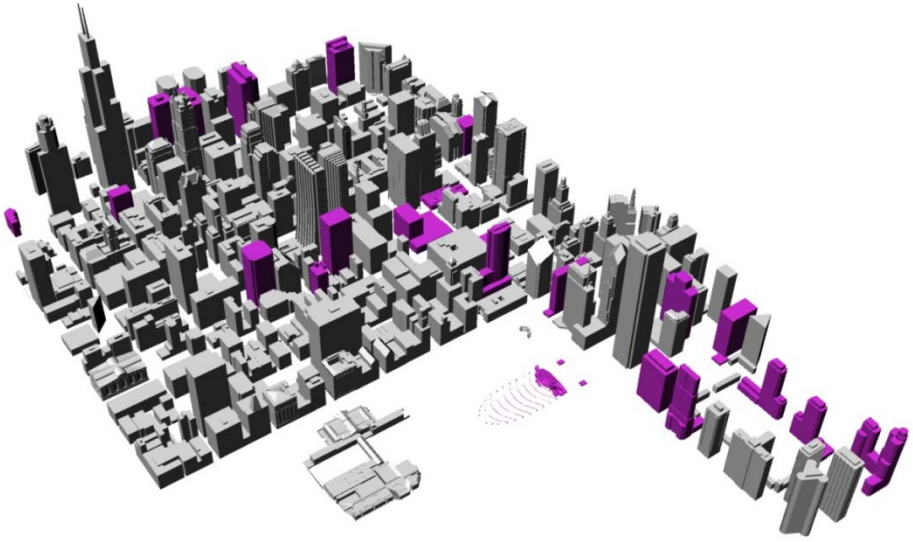


MID-CENTURY 1945-1975





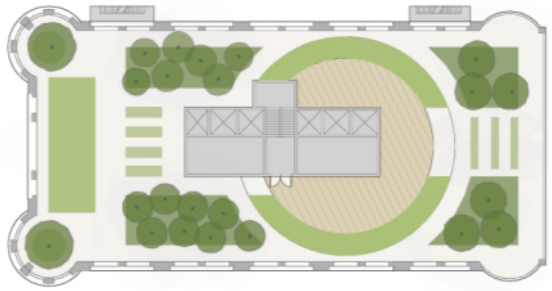
POST ENERGY CRISIS 1975-2000



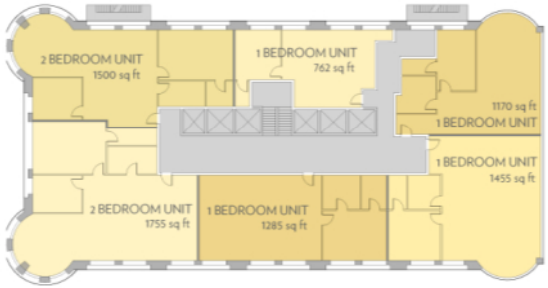
ENERGY CONSCIOUS 2000-

POTENTIAL RE-USE

- Narrow Floor Plates
- Class “C”
- Operable Windows
- High Vacancy

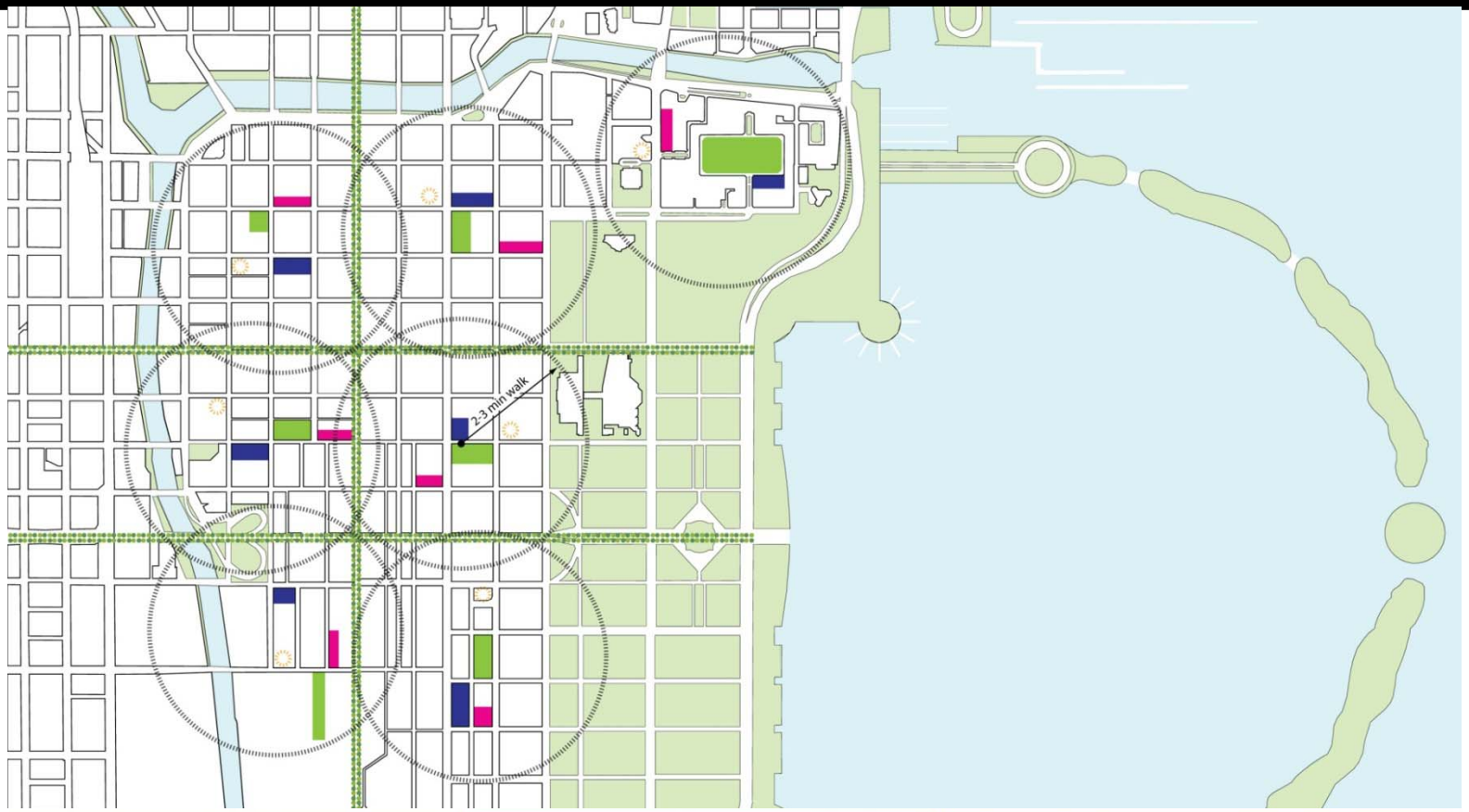


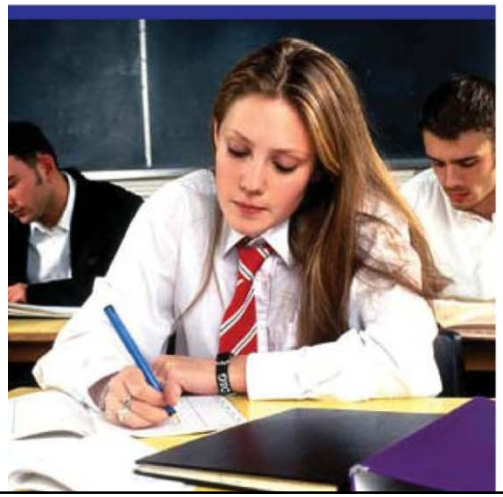
ROOF TERRACE

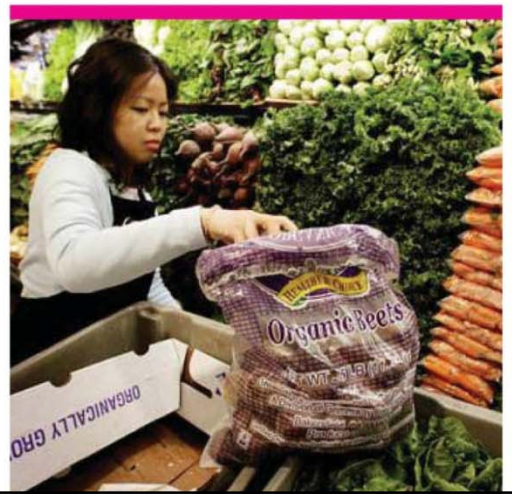


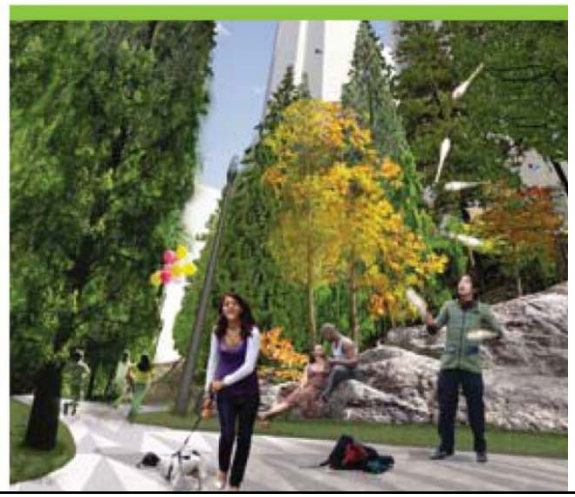
TYPICAL RESIDENTIAL FLOOR PLAN

CITY WITHIN A CITY

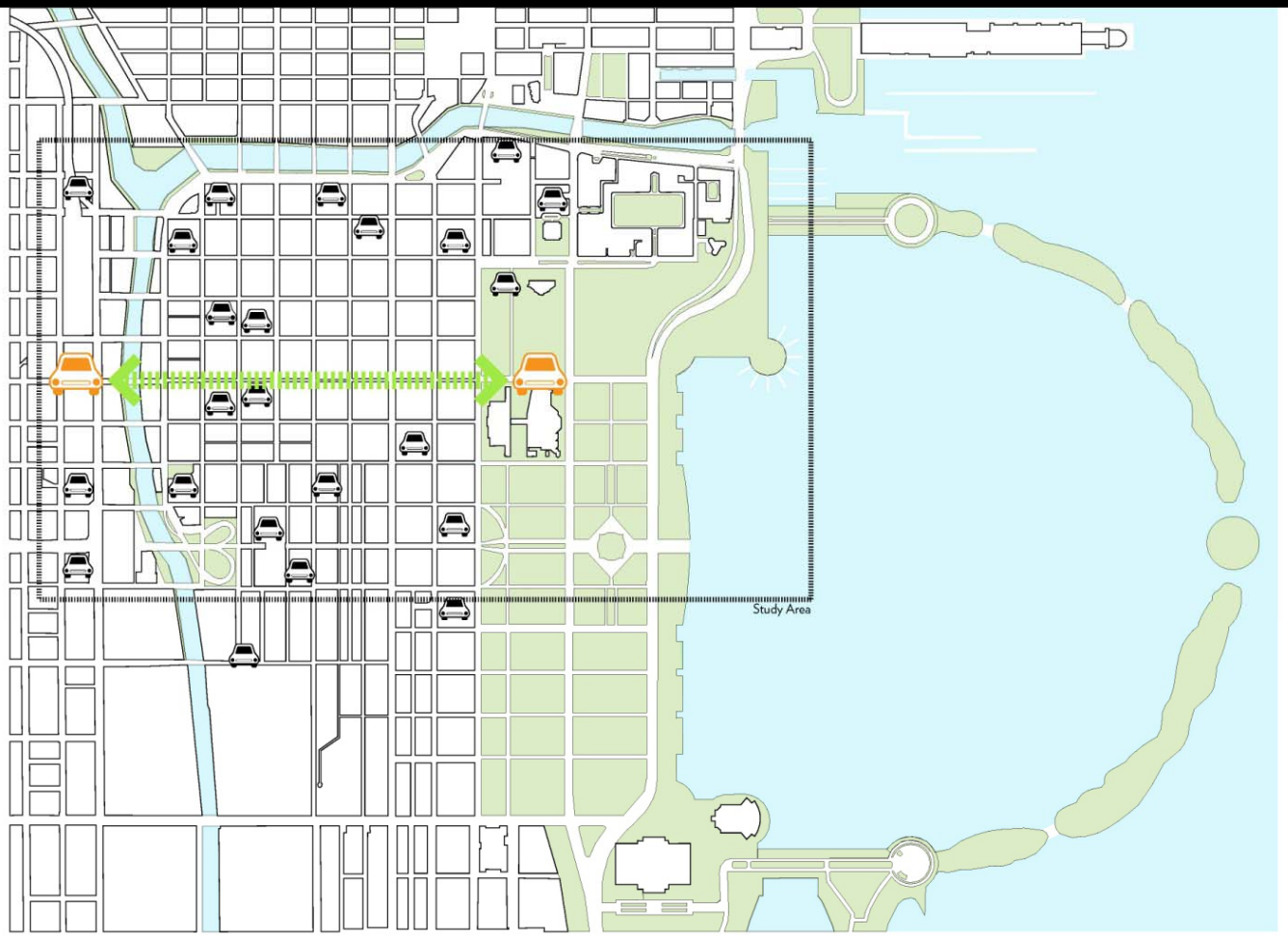








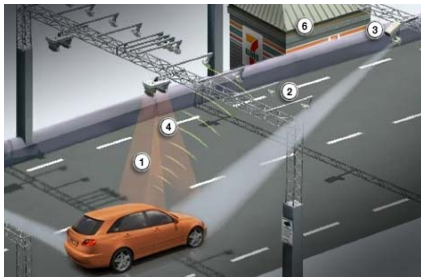
CAR SHARING + SMART TRANSIT



Existing Car-Sharing Location (I-Go, Zip Car)

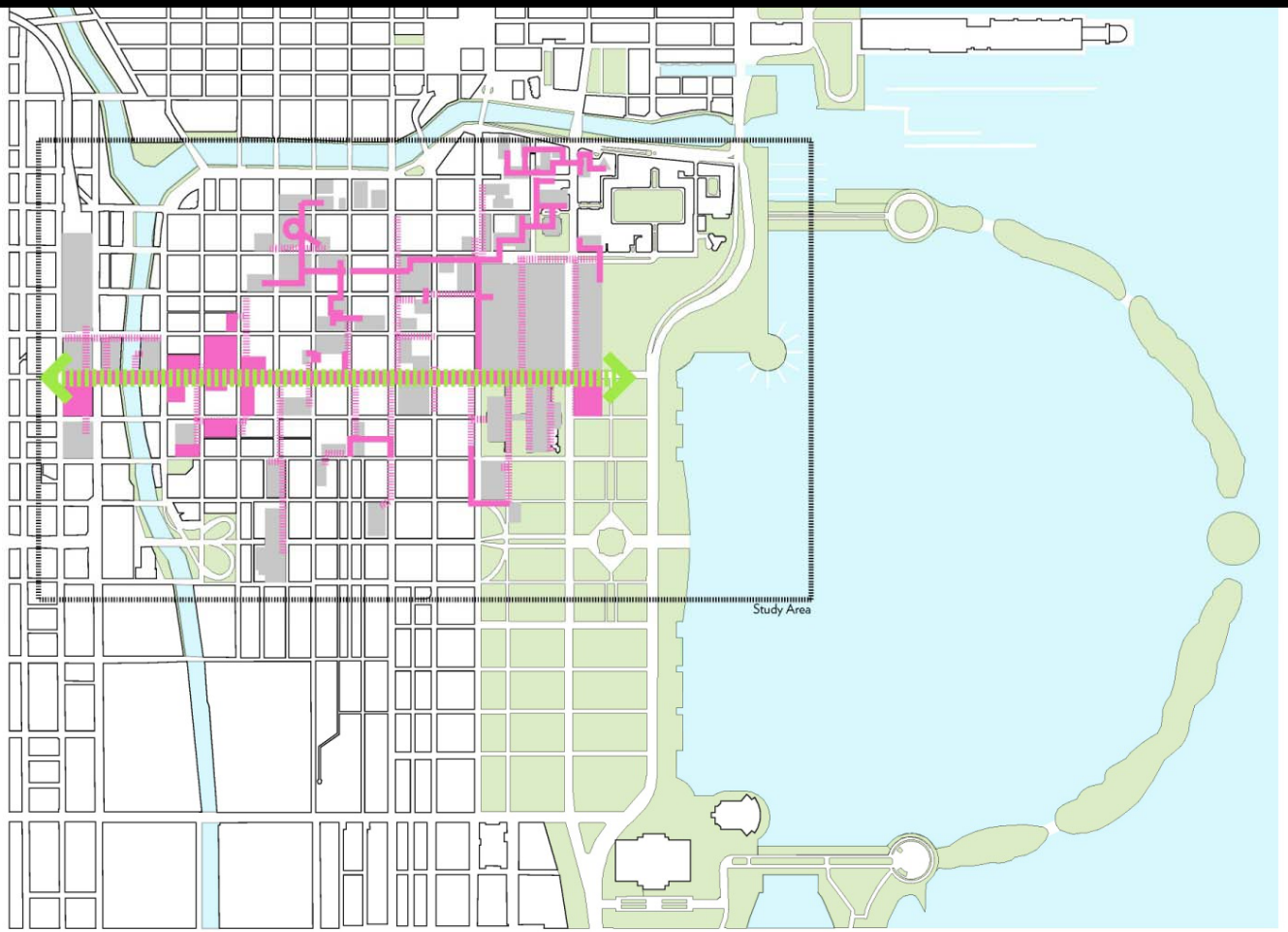
Proposed Communter One Way Car Share Location

Monroe St Underground
Transmodal Corridor

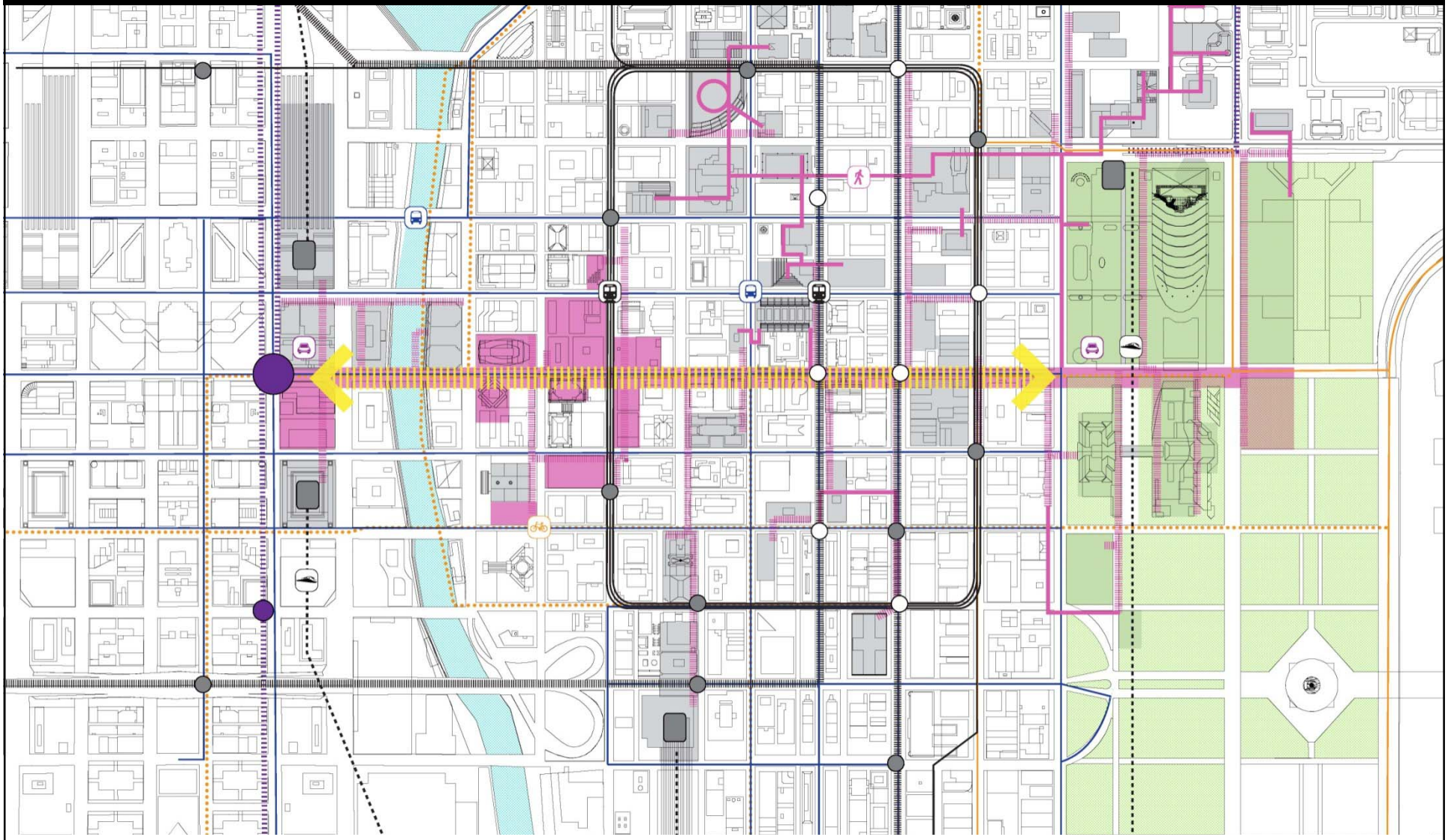


DALEY ENVIRONMENTAL SCHOOL

UNDERGROUND PEDWAY



MOBILITY NETWORK



CTA Line (Above Ground)
CTA Line (Underground)
CTA Bus Line
RTA Line

Existing Station
New Stop
Existing CTA Stop
Improved CTA Stop

Existing Amenity Below Grade
Proposed Amenity Below Grade
Existing Underground Link
Proposed Underground Link

Existing Bicycle Path
Proposed Bicycle Path

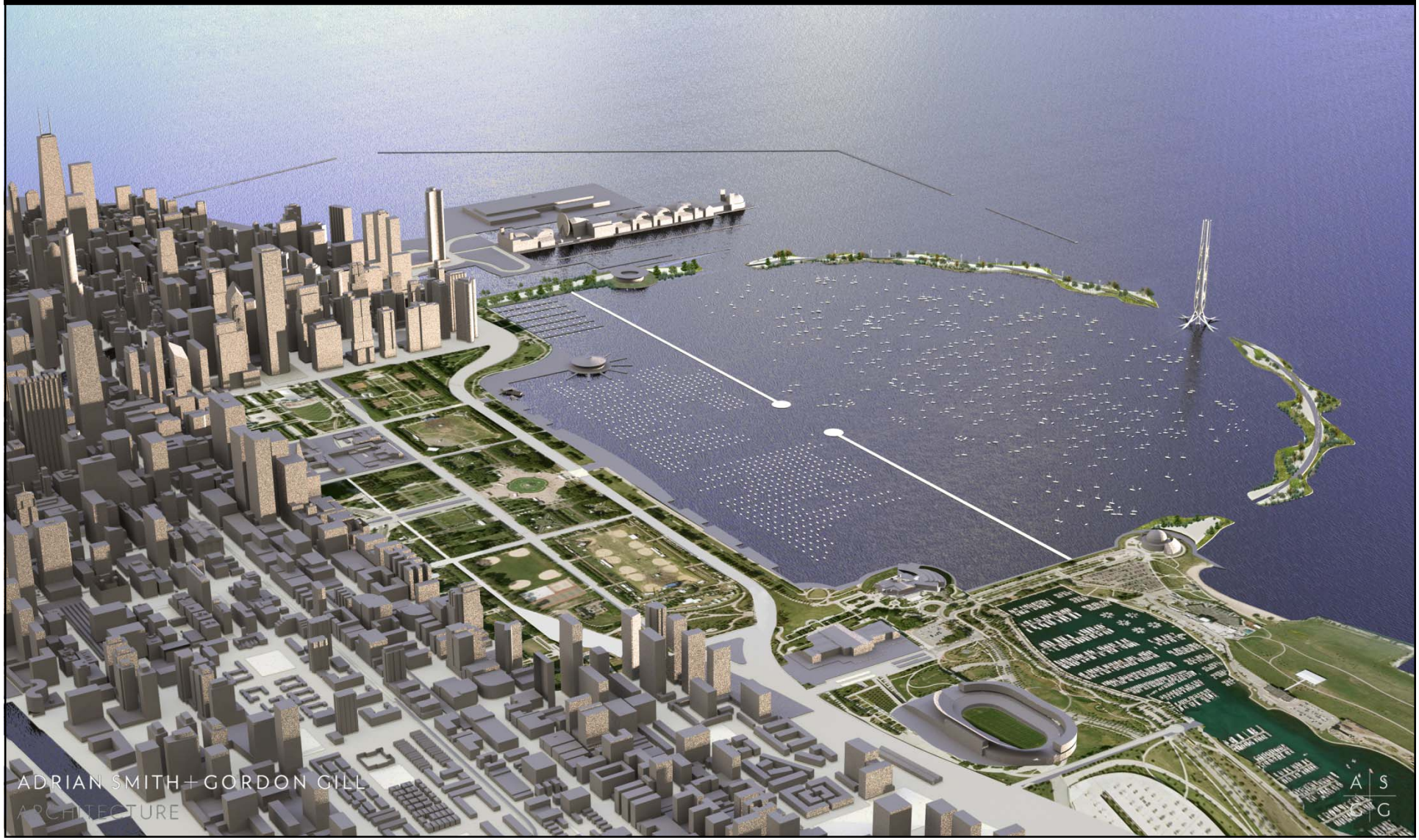
INTER-MODAL GREEN AXIS

INTER-MODAL GREEN AXIS

PEDESTRIAN AND BICYCLE AMENITIES

ECO BRIDGE

- Wind Turbine Farm
- Wave Action Turbine
- Soft Edge Breakwater
- Habitat Creation
- Local Slag Waste
- Marine Habitat
- Park Land
- Learning Center
- Great Lakes Museum
- Observatory



THANK YOU

PETER J KINDEL AIA ASLA

DIRECTOR OF URBAN DESIGN
ADRIAN SMITH + GORDON GILL
ARCHITECTURE LLP

JOHN HOUSEAL APA

PRINCIPAL & FOUNDER
HOUSEAL LAVIGNE ASSOCIATES

TODD FAGEN

VICE PRESIDENT &
CHICAGO DIRECTOR
SAM SCHWARTZ ENGINEERING