

Infrastructure and Land Use Exchange: Mobility and Access

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JUNE 16, 2022





Today's Format!

Join chat and turn on your camera and speak following initial remarks—let's **have fun!**



ULI Curtis Infrastructure Initiative

Promotes locally driven infrastructure solutions that are equitable and resilient, and that enhance long-term community value.

- Brings together global networks of ULI members focused on infrastructure to enable strategic partnerships and local action.
 - ULI Spring/Fall Infrastructure Forum
 - District Council Infrastructure Grant Cohort
 - Infrastructure and Land Use Exchange
- Provides capacity building and technical assistance intended to result in shifts in policy practice, change in community/industry prioritization, change in design/planning, and/or new infrastructure investments.
- Conducts primary research, develops case studies, and curates resources with significant infrastructure focus to provide replicable, sustainable, and model solutions.

PRIORITIZING EFFECTIVE INFRASTRUCTURE-LED DEVELOPMENT

A ULI Infrastructure Framework



ULI Curtis Infrastructure Initiative

Promotes locally driven infrastructure solutions that are equitable and resilient, and that enhance long-term community value.

- We need **restorative infrastructure investment** that increases equity and sustainability.
- We need to invest in **public transportation and mobility**.
- We need infrastructure that helps us **combat the global threat of climate change**.
- We need to connect everyone to **affordable and high-quality internet**.
- We need supportive infrastructure investment that **increases housing affordability and attainability**.



Invest in Public Transit and Mobility

Prioritizing Effective Infrastructure-Led Development

- Infrastructure and **transportation are of great importance** for real estate and development issues.
- Public transportation provides the **regional framework** for compact, people-centric urban development. It should be multimodal and integrated with land use.
- Need **frequent and reliable service** that is flexible to adapt to changing commuter and usage patterns.
- Enables **public realm reallocation** without reducing total roadway capacity.
- Generates **tremendous real estate value** while reducing greenhouse gas emissions and pollution.



Today's Speakers



Brandon A. Palanker
President, 3BL
Strategies



Harriet Tregoning
Director, NUMO

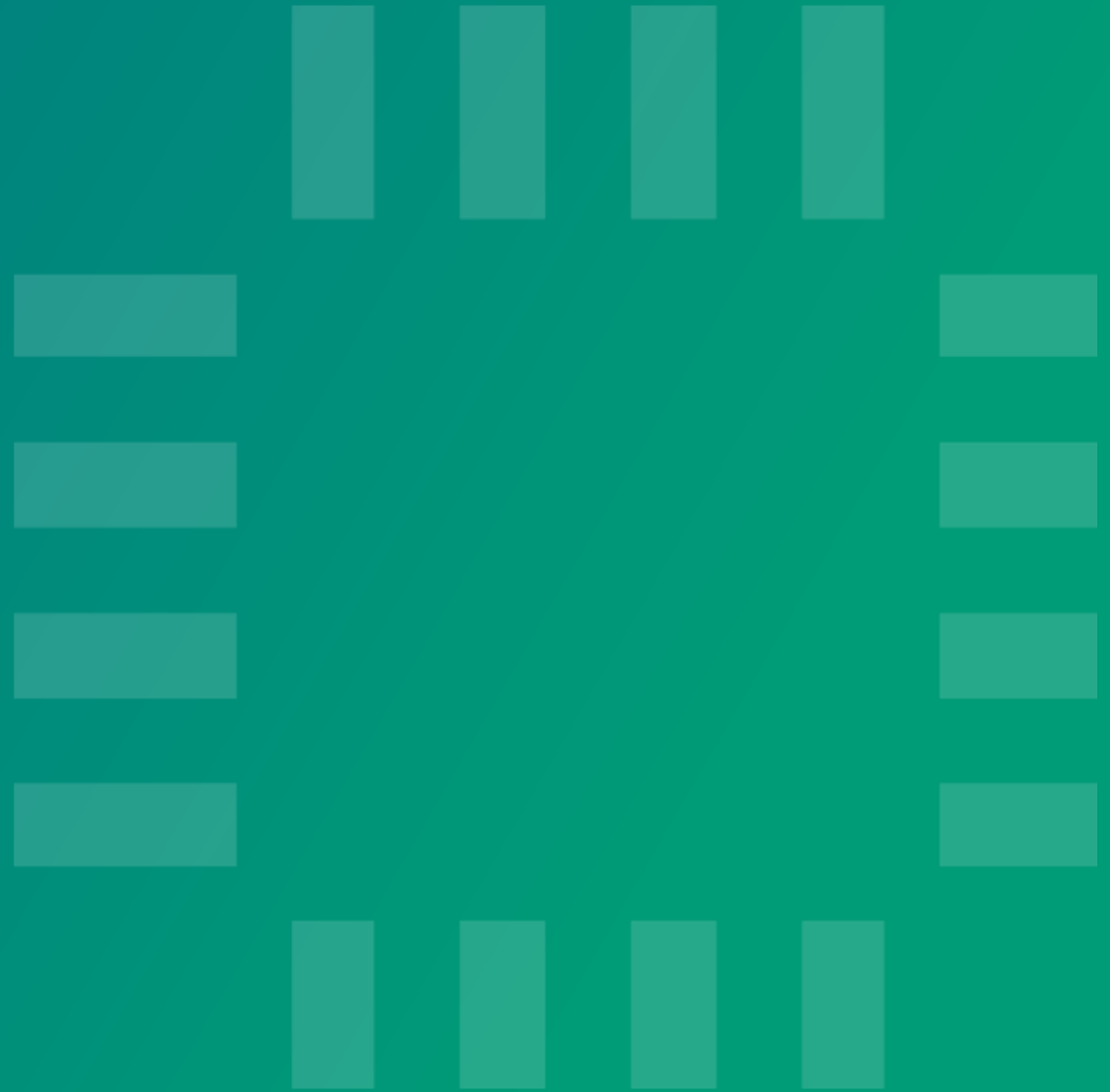


Yvonne Yeung
CEO, SDG Strategies

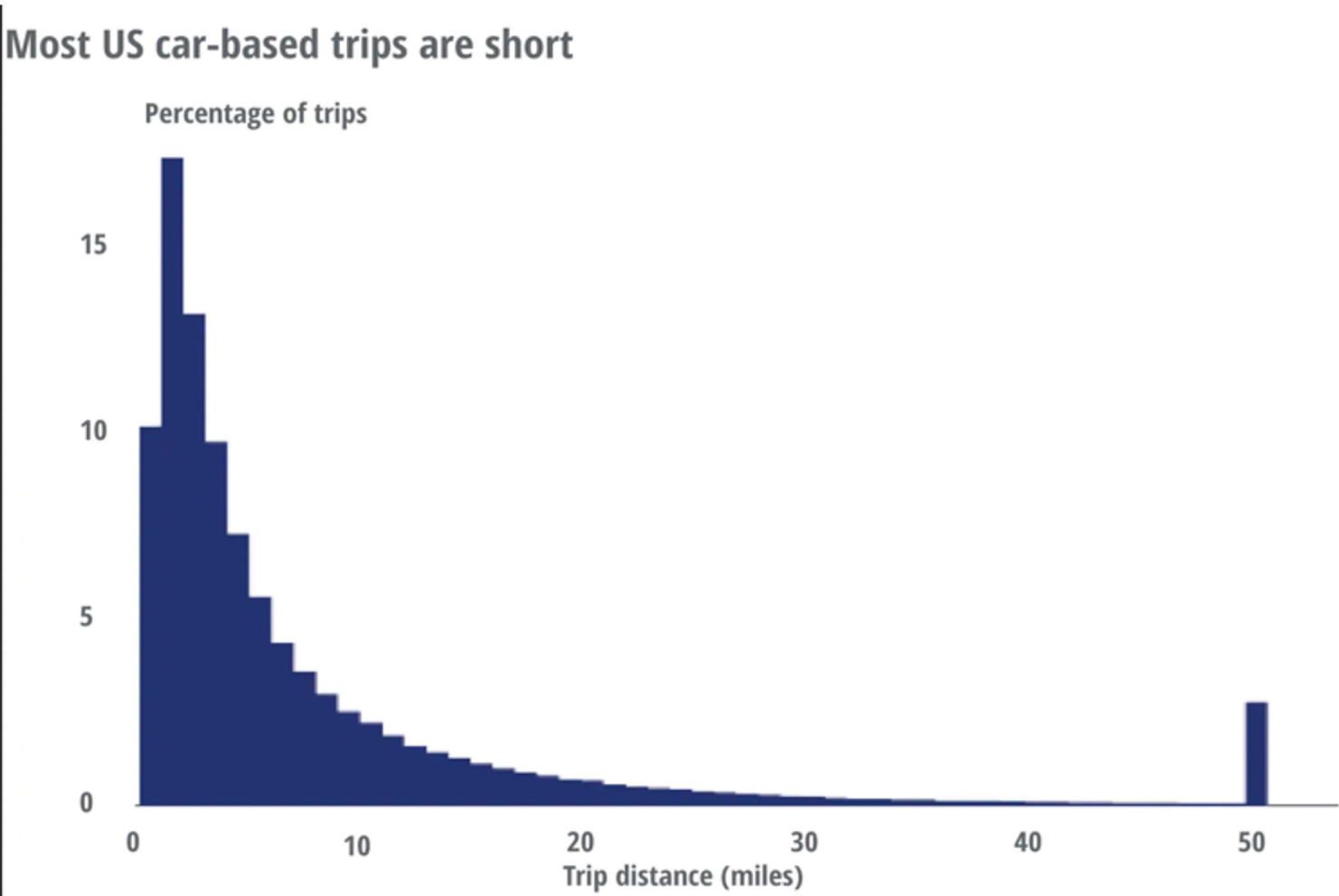
Mobility hubs: what they are and why they make sense

Harriet Tregoning
Director, NUMO

The big picture



Most Trips are Short



Source: Deloitte analysis based on 2017 National Household Transportation Survey.

Next generation TOD: Mobility hubs

New mobility options and technology set the stage for new types of transit-oriented development.

What if obsolete shopping centers like this re-imagined Walmart parking lot, become part of a network of centers of mobility, that help connect people to premium transit, especially when more than a short walk away?



Walmart launched [Walmart Reimagined](#)

Next generation TOD: Mobility hubs

What makes a mobility hub?

Two or more of the following:

- **Carshare:** Carshare can either be an open membership model or an amenity fleet exclusively for patrons of the building.
- **Pick up and drop off zones:** This area allows a variety of vehicles (ride-hailing, deliveries, micro-transit) to safely move out of travel lanes.
- **Shared Bikes**
- **Shared E-scooters**
- **Modular, flexible infrastructure:** The retractable pylons can be raised or lowered throughout the day depending on curbside demand.
- **Relative development density,** some community accessible services



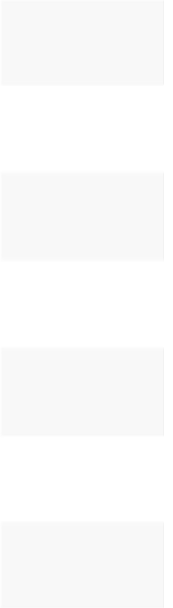
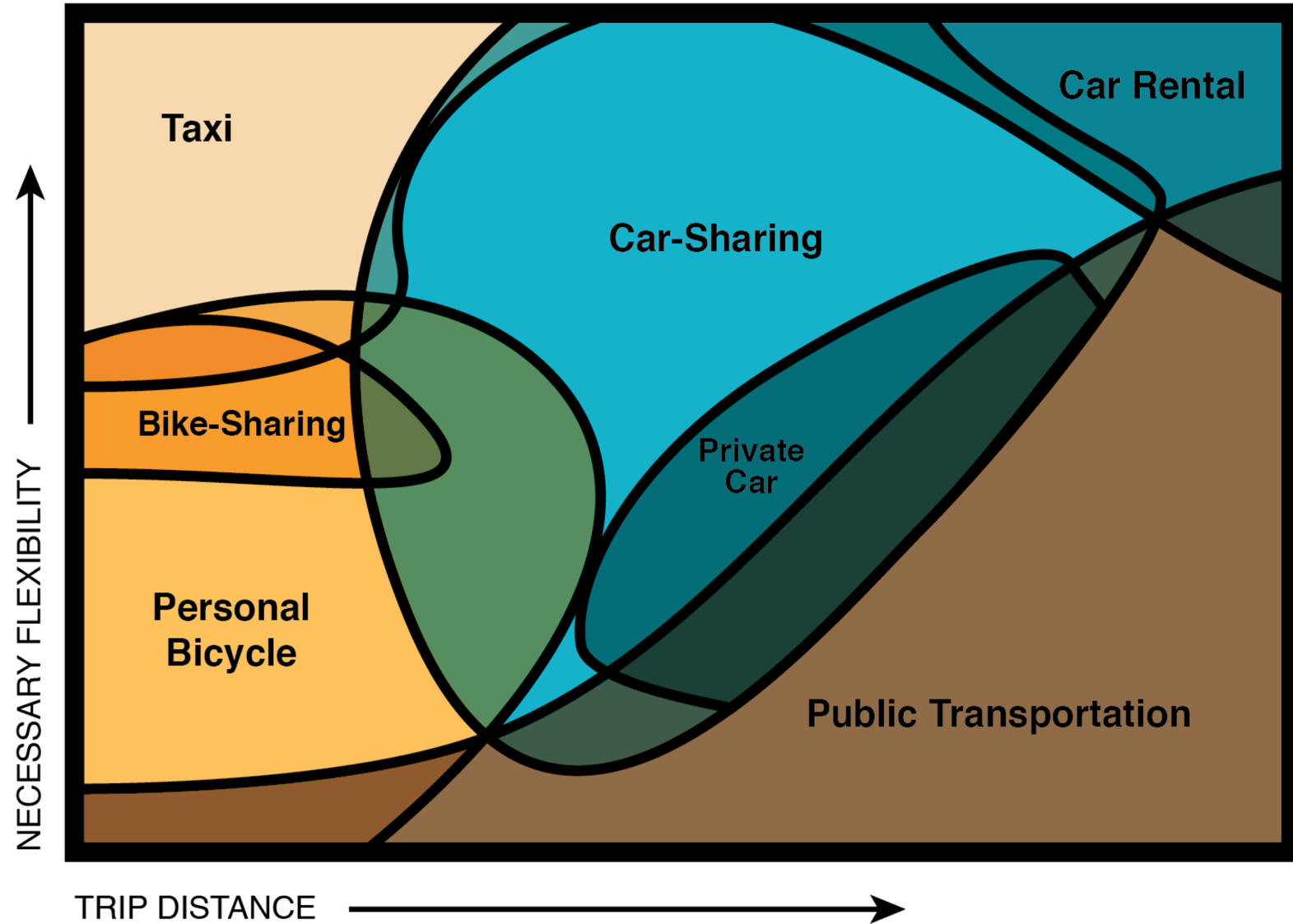
Illustration by Lisa Nisenson, WGI

Considerations for a mobility hub network

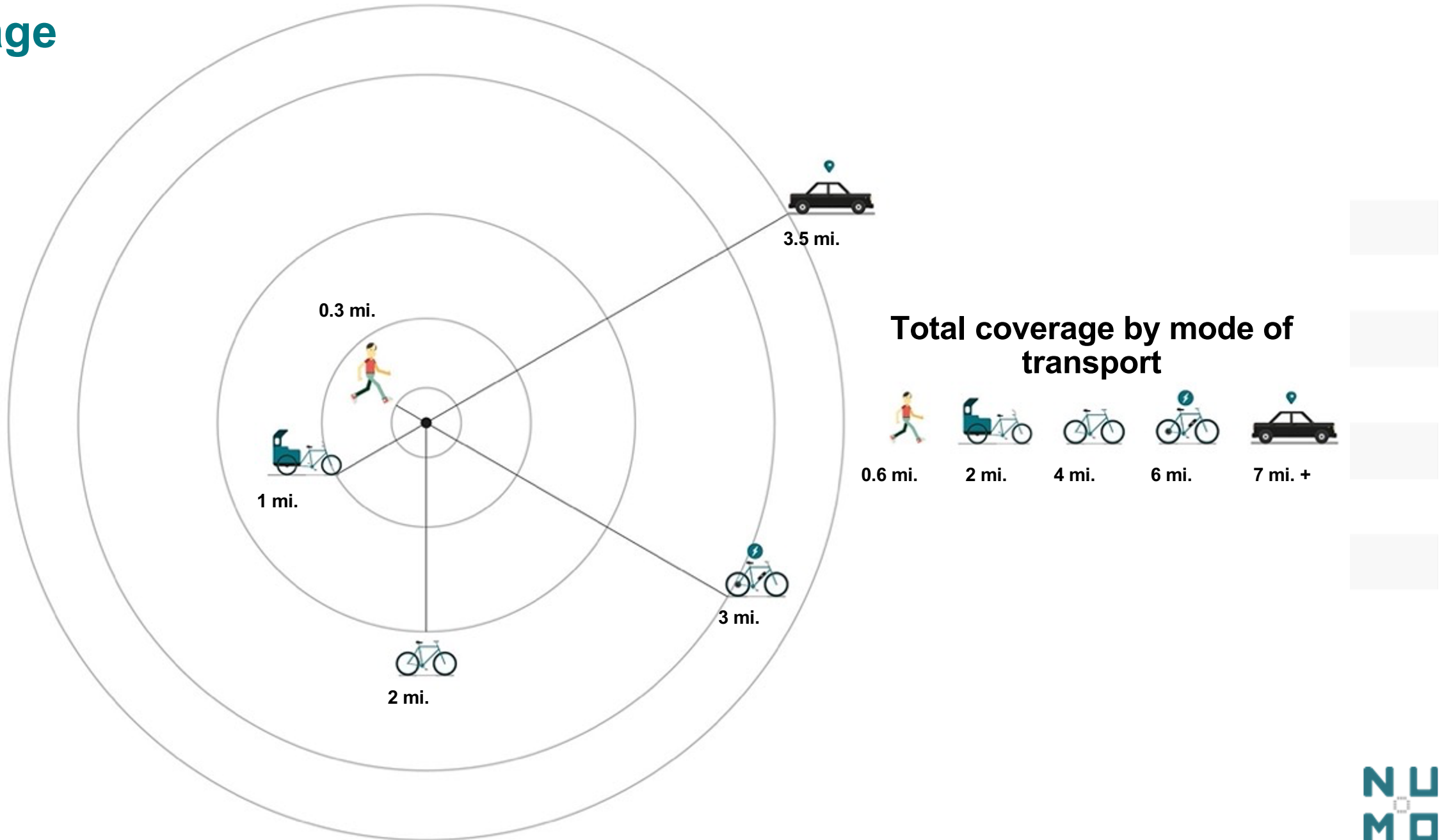
- Concentration (and intensity) of locations
- Relevant destinations
- Transportation services and variety
- Placemaking real estate development
- Things are happening and we can get there by different modes because they're close together

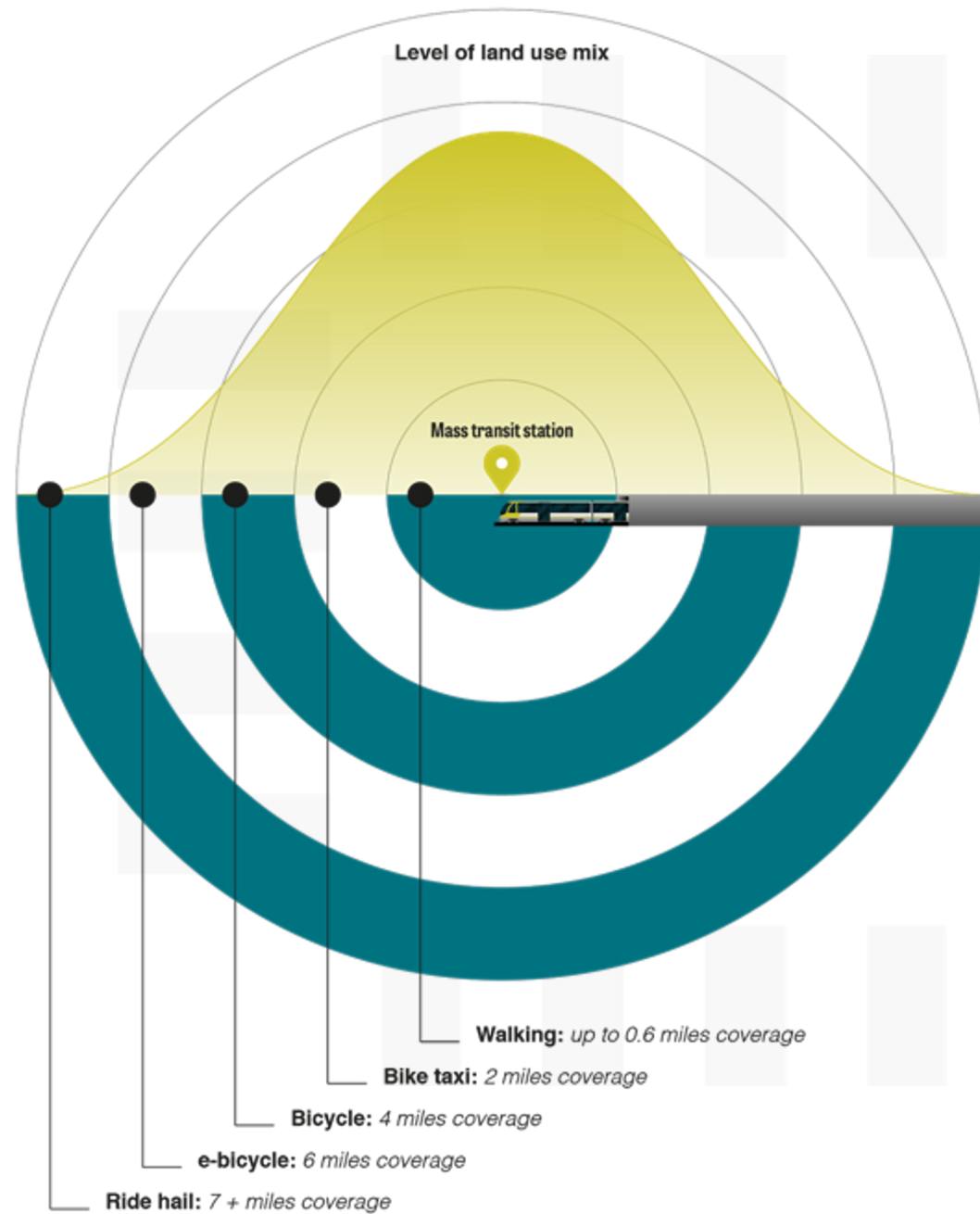
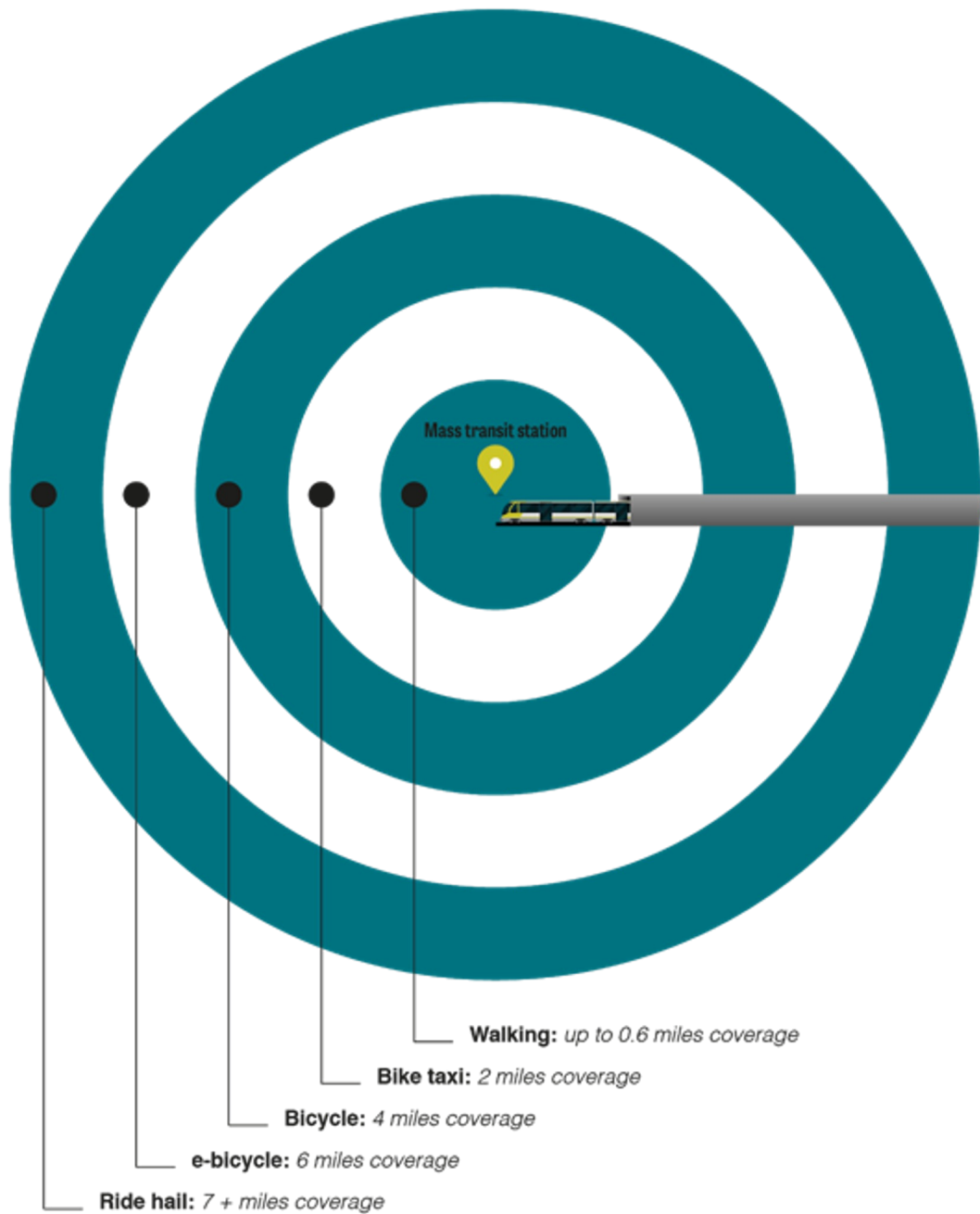


Flexibility and trip distance

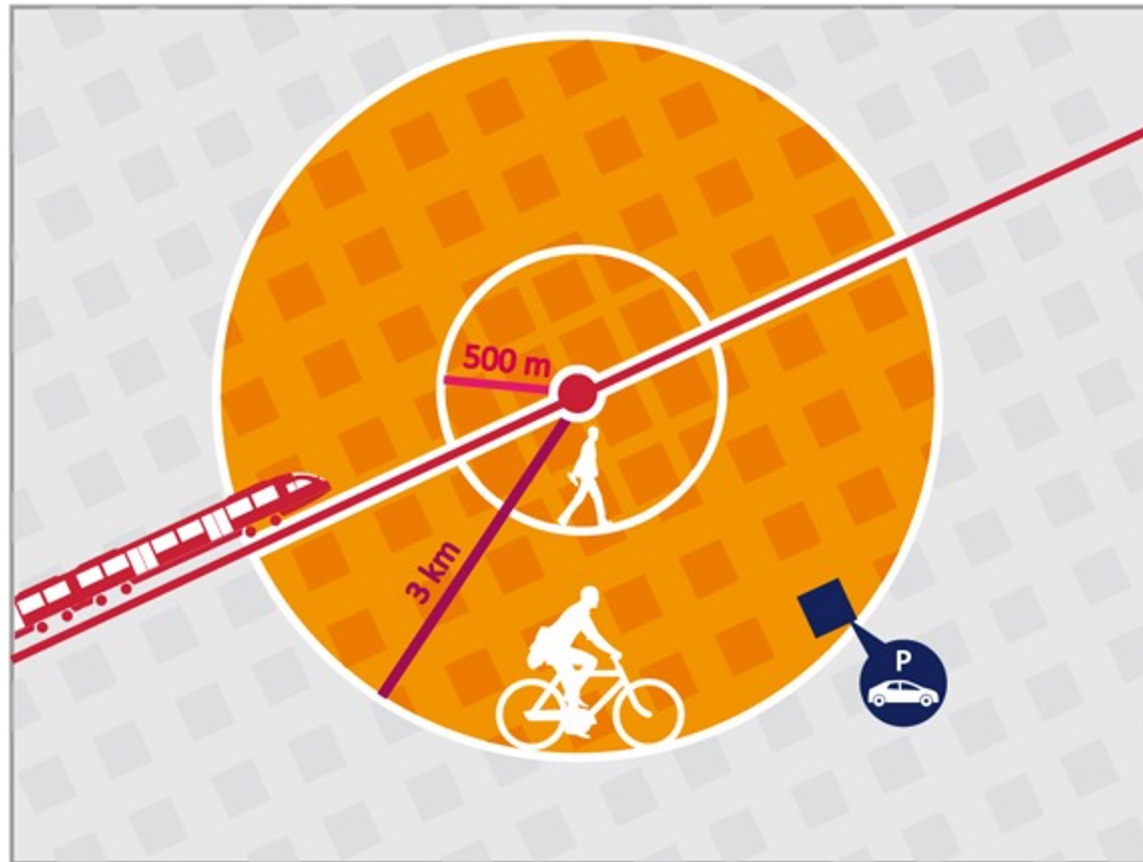






Coverage



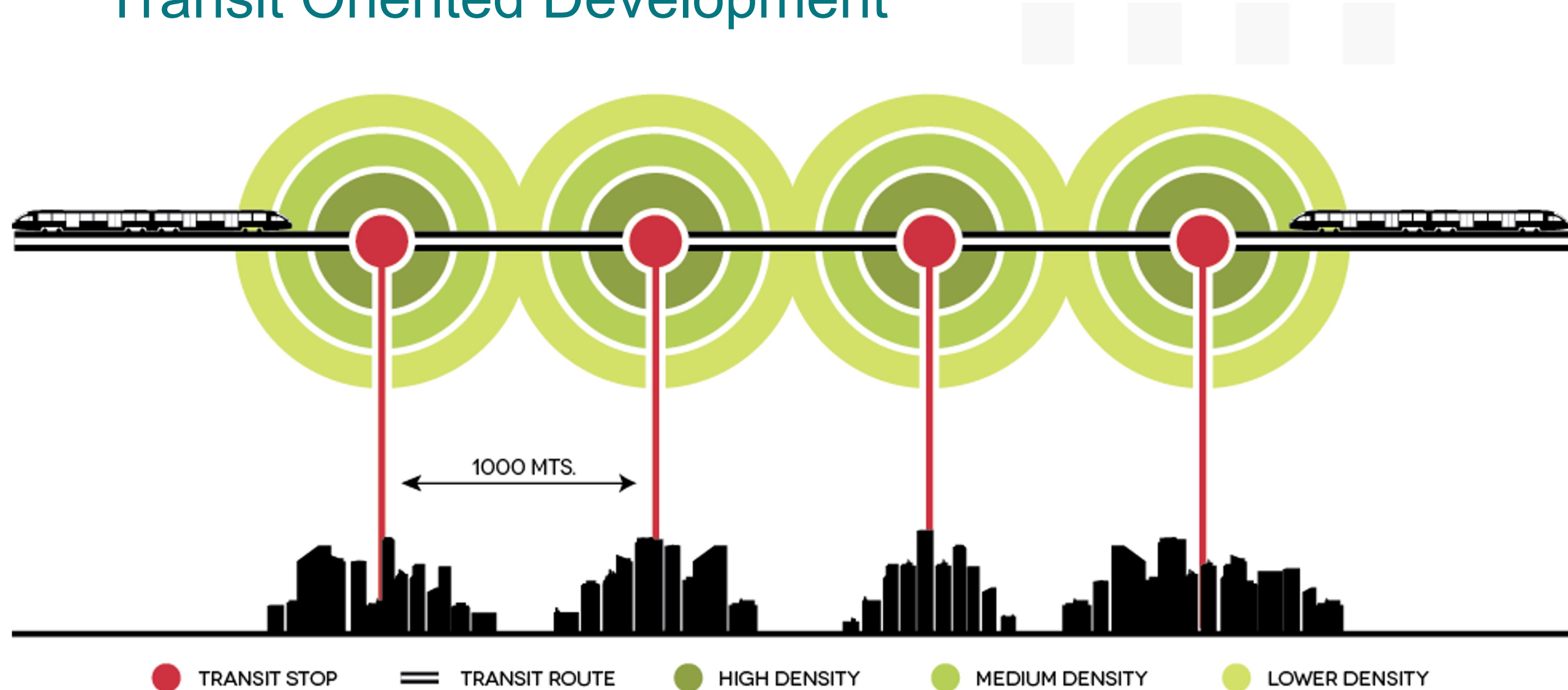


Integrating into urban elements and policies



-  Parking lot
-  Mass transit
-  Mass transit station
-  Urban area

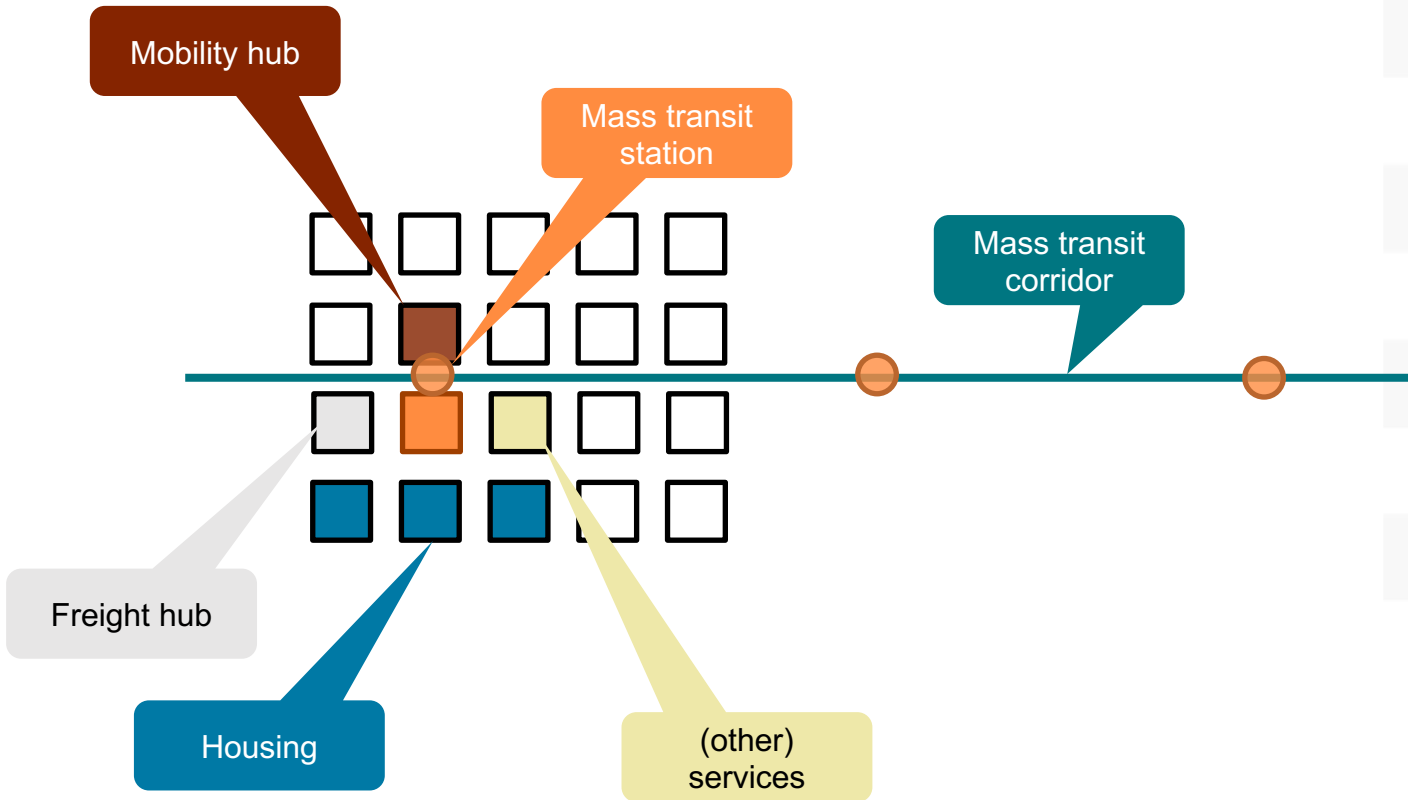
Transit Oriented Development



● TRANSIT STOP ≡ TRANSIT ROUTE ● HIGH DENSITY ● MEDIUM DENSITY ● LOWER DENSITY

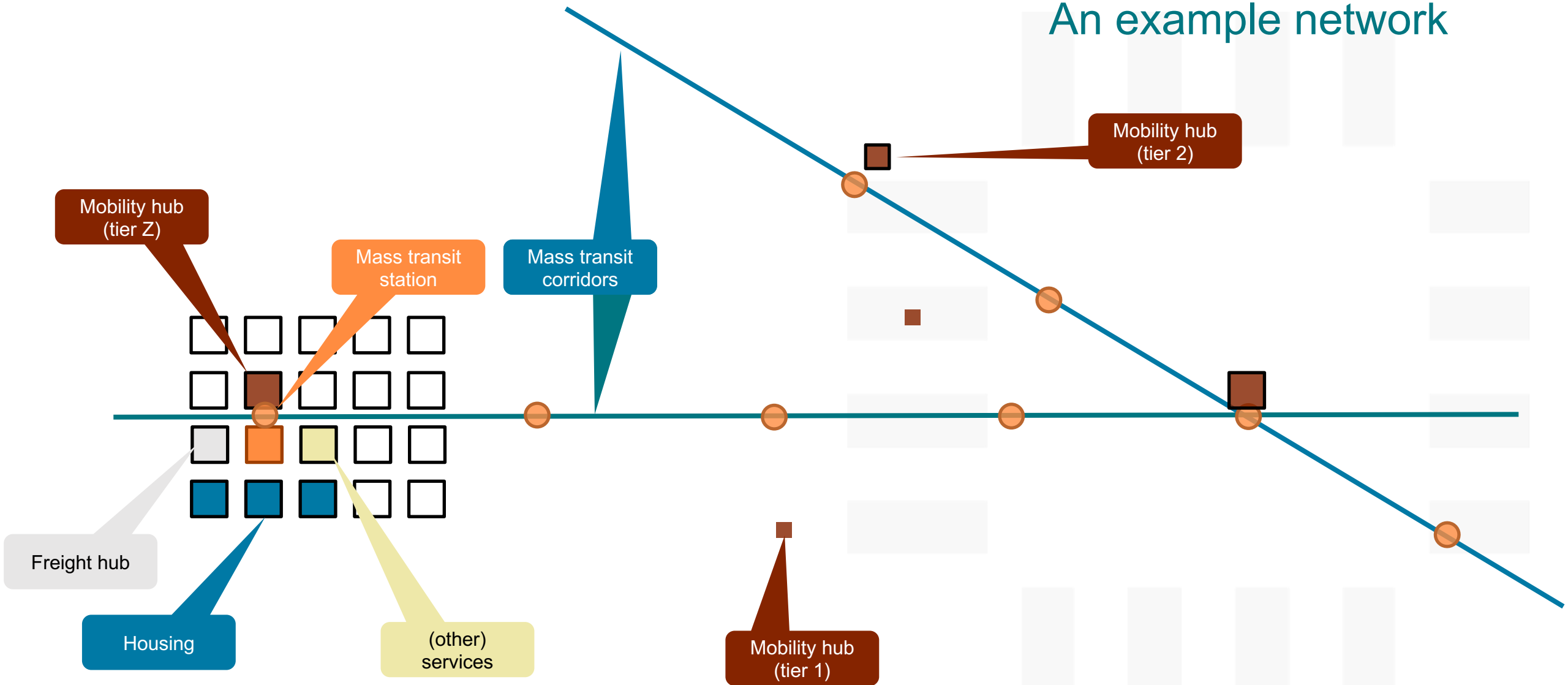
Source: Wessels, et al 2014

The neighborhood

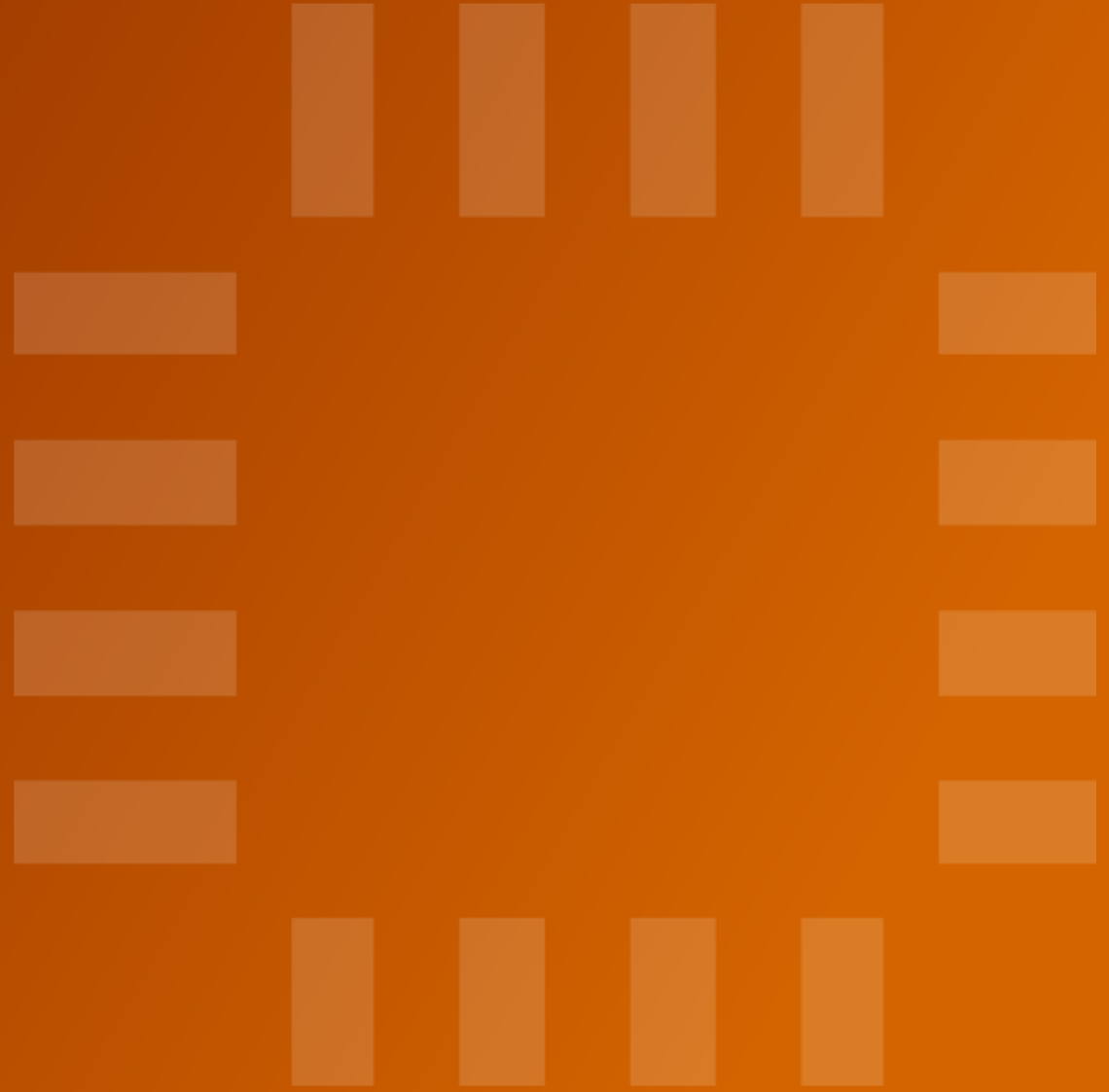


- 1.5 -3x denser than surrounding area
- Mix of land uses
 - Housing one block off
 - Corridor with passenger, freight hubs and other services

An example network



Examples



Minneapolis Smart Mobility Hubs

Goals: *Increase convenient access to low- or no-carbon transportation options, especially first mile/last mile options, which could cut down on automobile trips.*

Hubs include

- bus stop
- bench
- designated bike-share and e-scooter parking and
- way-finding signage with travel times to points of interest (depending on each tier in the typology)



What is a Mobility Hub?

A place where people can connect to multiple modes of transportation to make their trip as safe, convenient and reliable as possible.

<http://www2.minneapolismn.gov/publicworks/trans/mobilityhubs>

Pittsburgh's Mobility Hubs

- Installed on or adjacent to the street (like Healthy Ride, their bike-share system)
- Most co-located with transit stops
- Docking bays for six scooters
- Digital screens with relevant transportation information
- Supports information found in Transit app



Pittsburgh

- **56%** of Pittsburgh commuters drive alone
- Need for enhancing existing transit services by providing an integrated suite of mobility options
- First-of-its-kind consortium - **Pittsburgh Mobility Collective** - comprised of Spin, Waze, Zipcar, Ford Smart Mobility, Transit app, and Masabi
- Five action-oriented working groups:
 - Data and Measurement
 - Outreach and Marketing
 - Mobility as a Service (MaaS)
 - Parking and Curbside Coordination
 - Partnership and Contracting

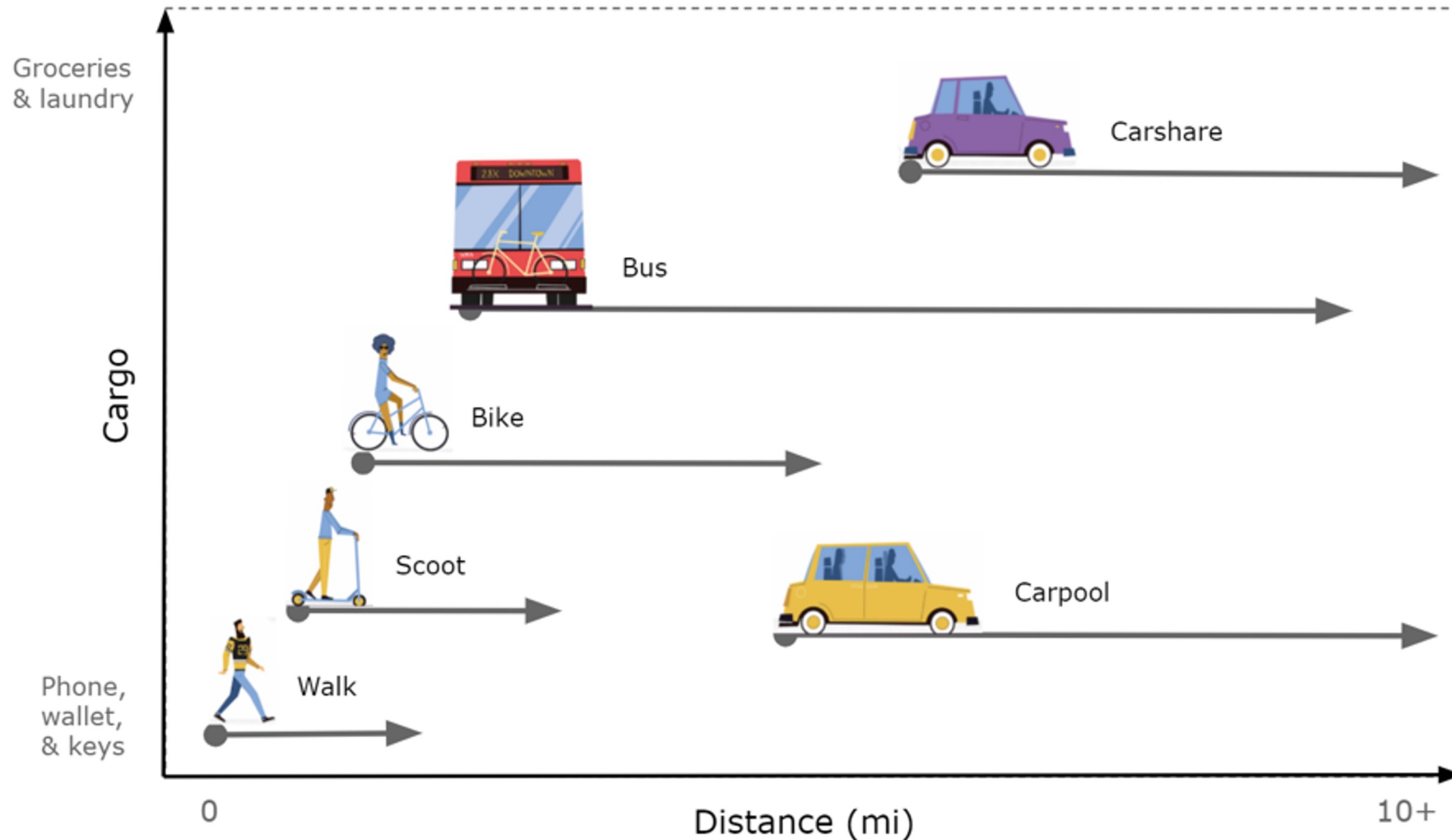




MOVE 412

www.move412.com
[@wemove412](#) (social)

Move 412 helps Pittsburghers select the right mode for their trip



Plan and pay for your trip in the Transit app, or visit a Mobility Hub!



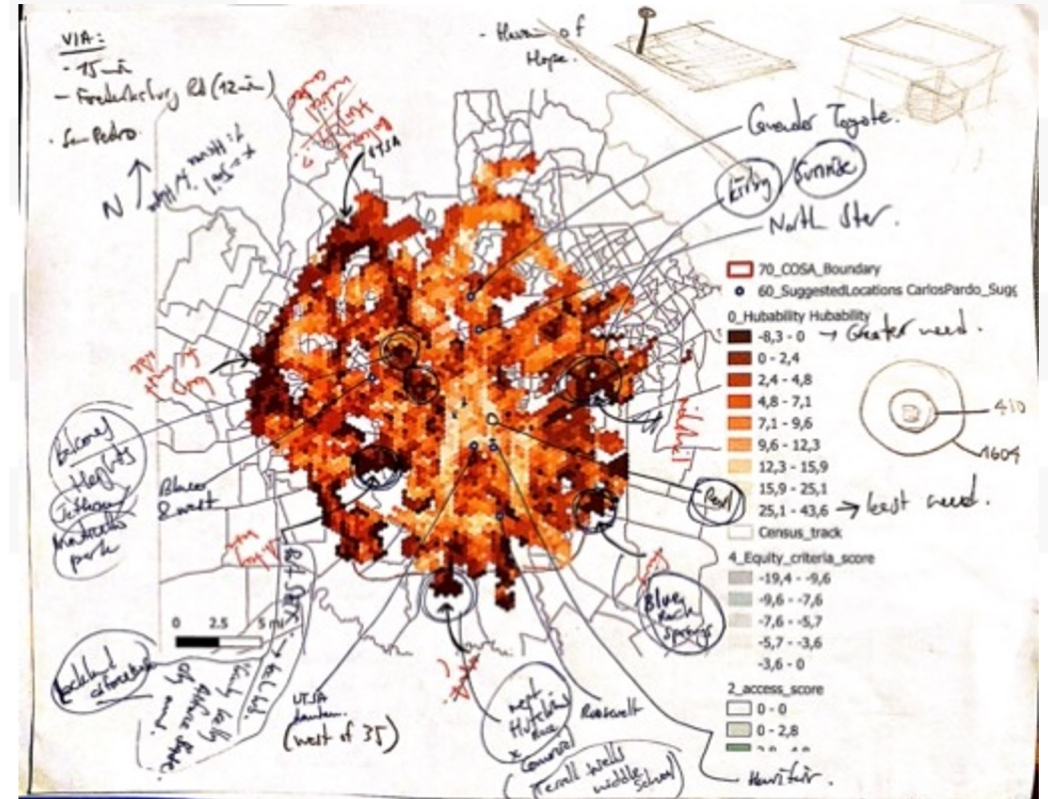
An initial exercise in San Antonio (with ULI!)



MOBILITY HUBS IN SAN ANTONIO A Path to Equity and Sustainability



JANUARY-NOVEMBER 2021



Utrecht Station (Netherlands)

- In Main station
- Largest bike parking station in the world
- Inaugurated august 2019
- 12,500 places
- Reducing “bicycle pollution” of nearby city center
- Managed by municipality, prorail and dutch rail
- Integrated to public transport fare!



<https://www.utrecht.nl/city-of-utrecht/mobility/cycling/bicycle-parking/bicycle-parking-stationsplein/>

Mobility Hub in Munich (Germany)

- 2 pedelecs with 4 pedelec* stands
- 3 parking spaces for car sharing station-independent
- 1 charging column for e-car sharing
- 4 parking spaces for car sharing
- 2 parking spaces for e-vehicles
- 1 charging station for citizen charging

Nearby: cargobike station

Munich Hubs are not always with public transport access

* pedal assist e-bike



Leipzig's (Germany) mobil (26 stations)

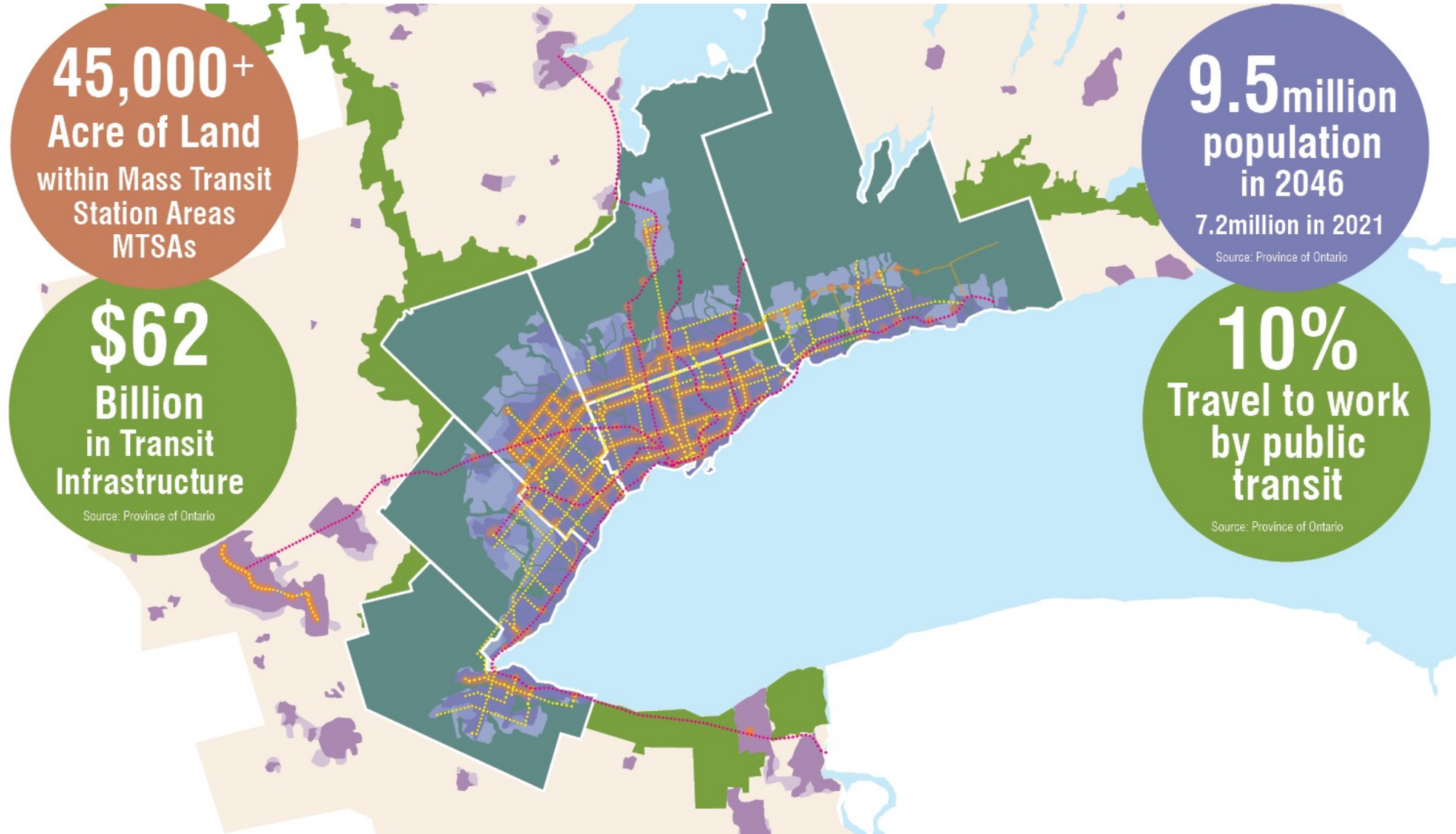
“The station equipment is the same everywhere:

- a blue and yellow column with a control terminal,
- parking bar for five bicycles
- five rental bicycles
- two parking spaces for car sharing vehicles
- two parking spaces for electric vehicles including a charging column.

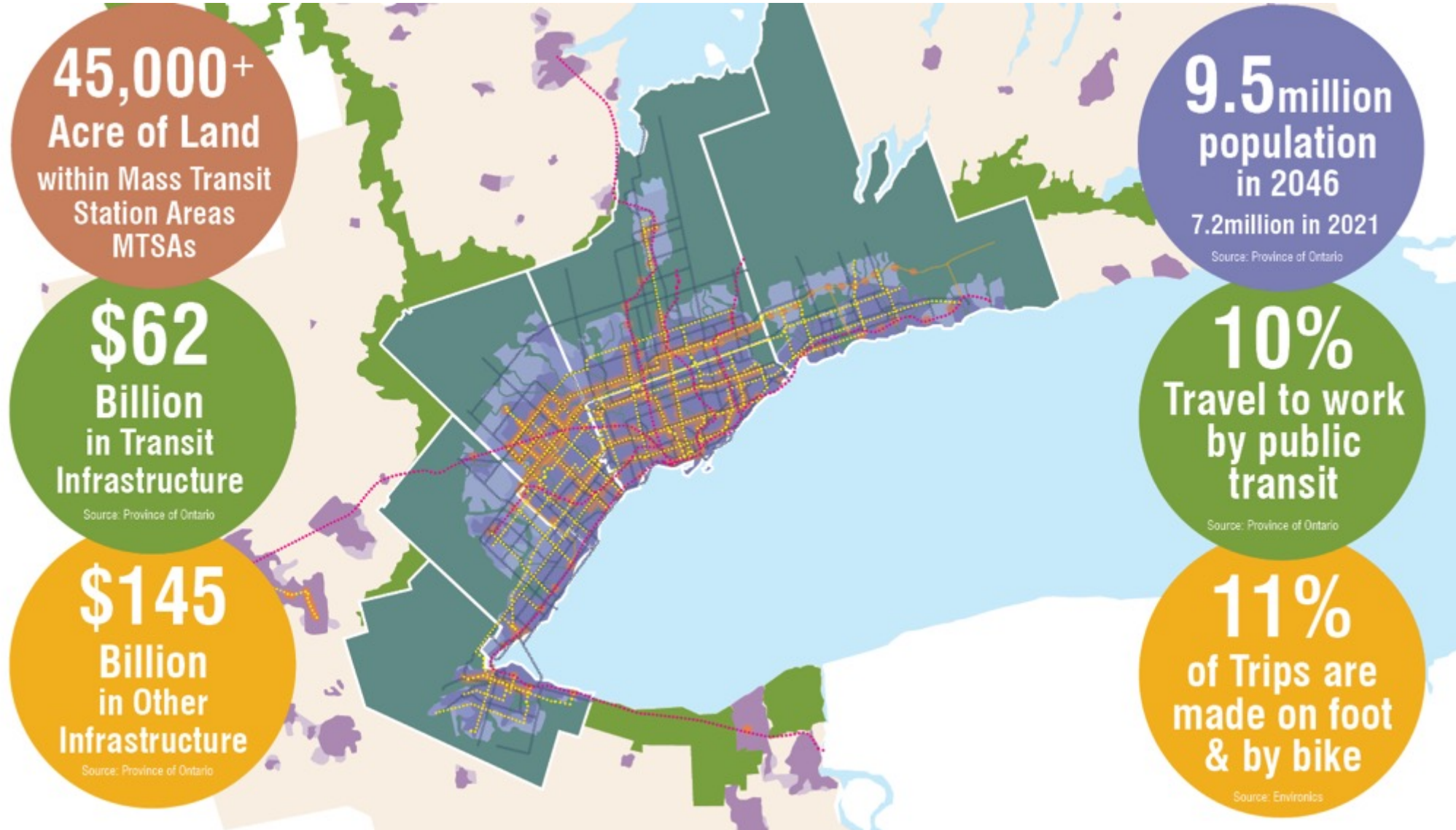
And app with info, booking, billing



GTHA, Ontario. The fastest growing city-region in North America shifting to a transit-oriented future.



The need to implement region-wide cycling infrastructure with transit. Reduce 60% of GHG emissions.



45,000+
Acre of Land
within Mass Transit
Station Areas
MTSAs

\$62
Billion
in Transit
Infrastructure

\$145
Billion
in Other
Infrastructure

9.5 million
population
in 2046
7.2 million in 2021

10%
Travel to work
by public
transit

11%
of Trips are
made on foot
& by bike

Transform auto-arterials into walkable amenities. Make 75% of short-trips possible by walking and cycling.

Car-free living as an affordable way of life

Deliver child-friendly 'Main Walk' from the outset

Zero
minimum
parking
in TOC

75%
of short-trips
are by walking
and cycling
(potential target)



Shift auto-infrastructure spending to AT active transportation infrastructure. Create new public resource.



\$0.4 billion
for Road Reconst.
& Resurfacing

2022-2032 Budget
Source: Peel Region

6 through lanes +
2 left-turn lanes +
1 right-turn lane

\$1.2 billion
for New Roads &
Road Widening

2022-2032 Budget
Source: Peel Region

1,555 lane-km
Ex. Regional Road
\$260k/lane-km
to maintain

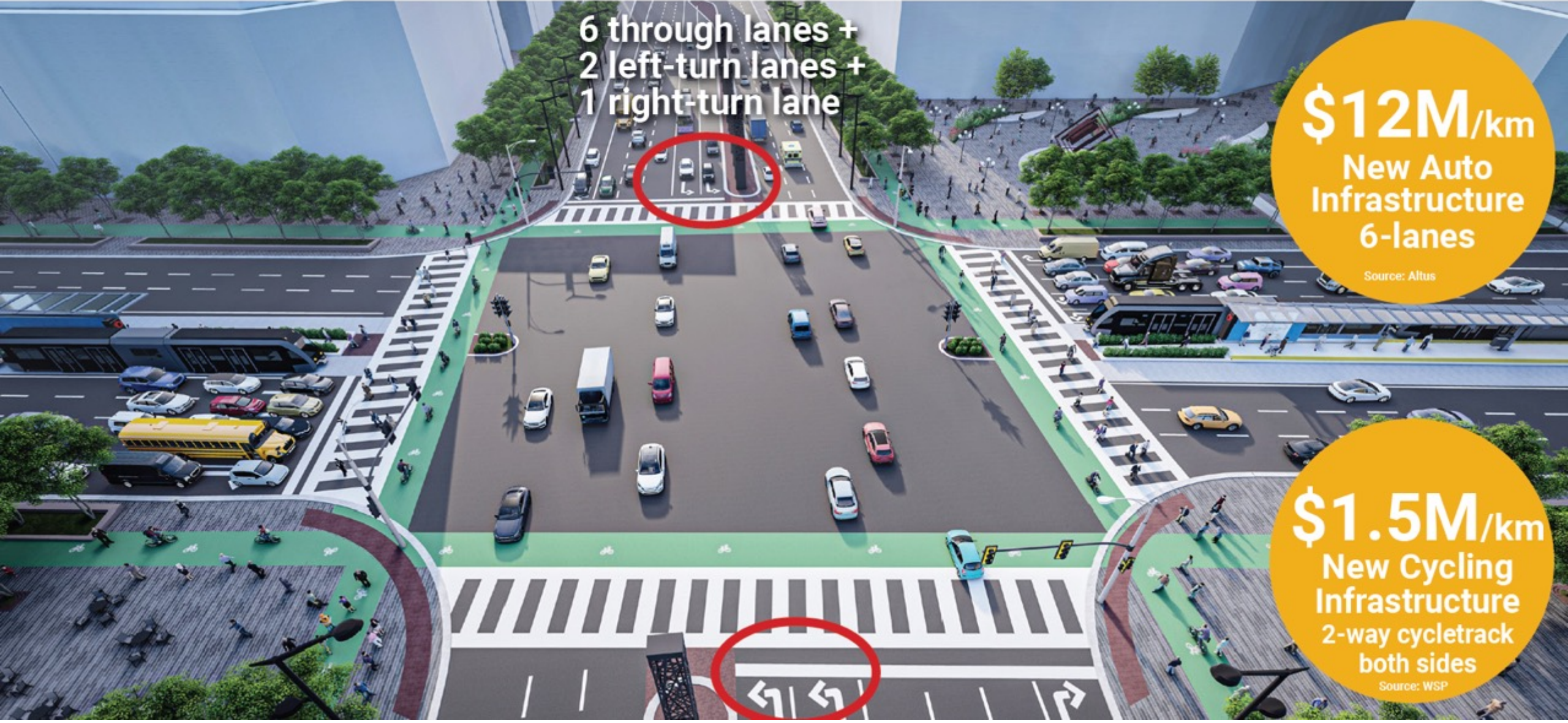
Source: Peel Region

\$0.1 billion
for Active
Transportation*

2022-2032 Budget
Source: Peel Region

*Includes spending for goods movement
and safety initiatives for Vision Zero

Accommodate growth by new AT infrastructure. Reduce new transportation infrastructure spending by 87%.



6 through lanes +
2 left-turn lanes +
1 right-turn lane

\$12M/km
New Auto
Infrastructure
6-lanes
Source: Altus

\$1.5M/km
New Cycling
Infrastructure
2-way cycletrack
both sides
Source: WSP

Repurpose traffic lanes as transit lanes. Redefine goods movement corridors. Connect mobility hubs.

Goods movement corridors as 4 lanes



Goods movement corridors in York are primarily 4 lanes

Reduce 135 lane/km of road, lower maintenance cost by \$35M.

Establish 'people-first' driven design from the outset. Shift culture and remove redundant infrastructure.

Reduce Crossing Distance

Repurpose Lanes for Rapid Transit

Remove Double Left-Turns



Delivering BRT

Bridge the gap between the timing of transit infrastructure and other infrastructure.

Development Requires:



Hard Infrastructure

Water
Wastewater
Roads



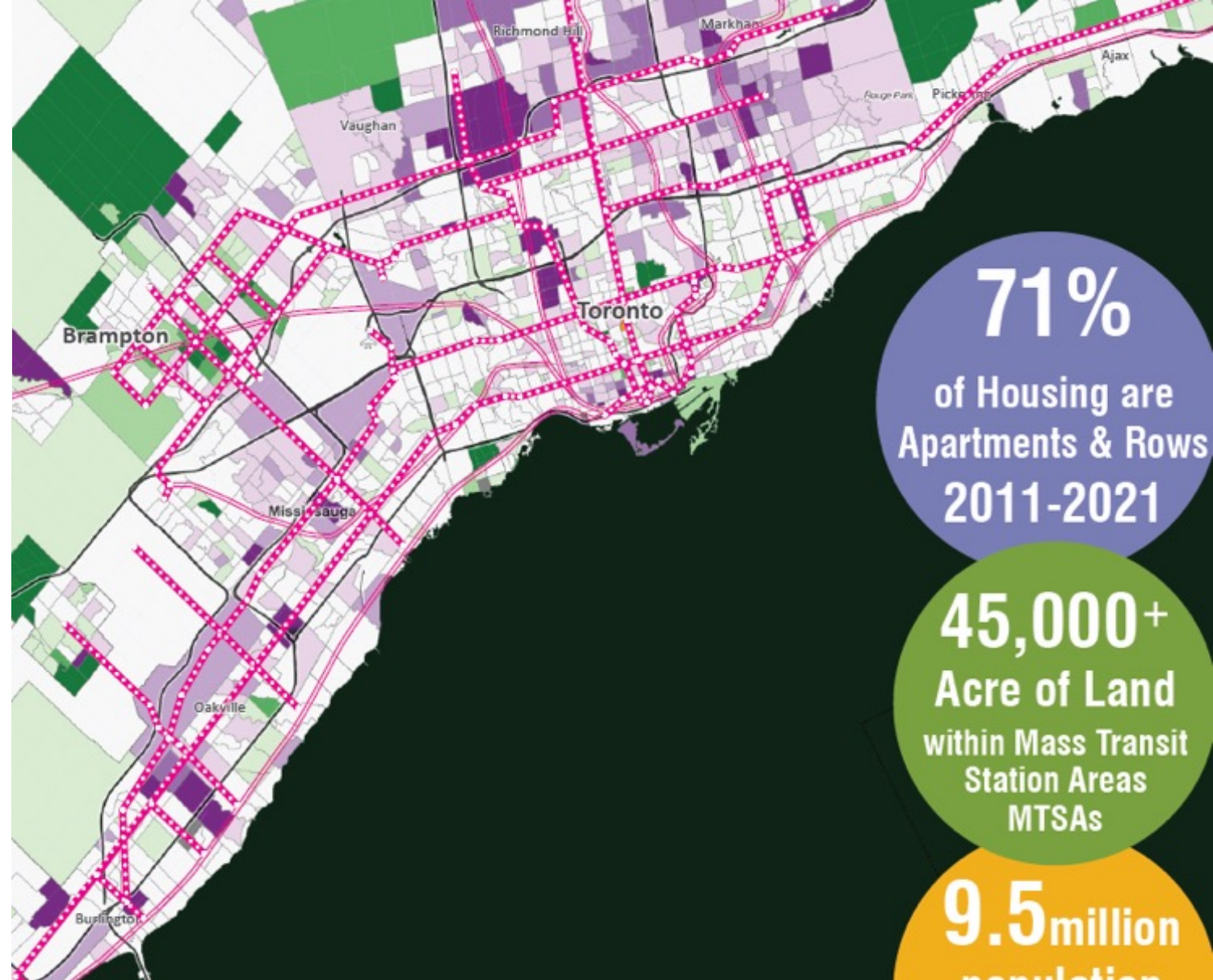
Soft Infrastructure

Education & Library
Social & Health
Parks & Recreation



Transit Infrastructure

LRT, BRT, All-day GO
Active Transportation
First and Last Mile

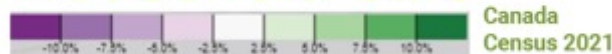


71%
of Housing are
Apartments & Rows
2011-2021

45,000+
Acre of Land
within Mass Transit
Station Areas
MTSAs

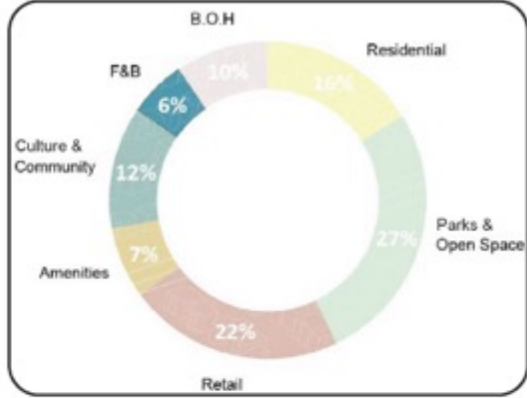
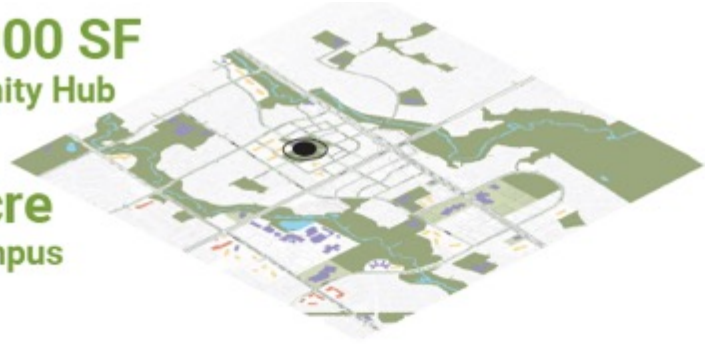
9.5 million
population
in 2046
7.2 million in 2021
Source: Province of Ontario

% of Change in Household Size



Bundle walkable neighbourhood with social infrastructure. Position community hub as a nucleus.

280,000 SF
Community Hub
+
13 Acre
Hub Campus



- 1. Retail**
 - High Street Retail (Ground Level)
 - Large Scale Retail (Upper/Lower Levels)
 - Grocery Store
 - Local + Pop Up Retail
 - Market
 - Convenience Retail
- 2. Office**
- 3. Local Amenity**
 - Communal Workspace (We Work etc)
 - Childcare
 - Laundry
 - Health + Wellness

- 4. Culture, Art + Hospitality**
 - Small + Large Scale Dining
 - Culinary Institutions
 - Theater for Performing Arts (Upper Level)
 - Programmable Studios
 - Art Gallery + Artist Residency
 - Exhibition Space
- 5. Community**
 - Community Hub
 - Sport + Recreation
 - Library
 - Learning + Training
 - Childcare
 - Social Service

21,000+
New Units
+
2m+ SF
Commerical



27,200+
Ex. Population
+
72,800+
New Population



Adaptable Model of a 24-hour Community Facility



9am-9pm
Health

9am-9pm
Social

10am-9pm
Library

6am-9pm
Daycare

8am-3pm
School

6am-11pm
Recreation

24 hour
Culture

24 hour
Tech

24 hour
Rooftop
Playfield
Park

Health & Social Hub

Library & Education Hub

Recreation & Food Hub

Arts, Culture & Design Hub

Technology & Innovation Hub

Green & Ecology Hub

- Health Clinics
- Agency Spaces
- Exhibition Venue
- Meeting Rooms

- Elementary School
- Daycare
- Library
- Study Space

- Community Kitchen
- Culinary & Pop-ups
- Gymnasium
- Dance Studios
- Lounge & Event

- Performance Space
- Exhibition Venue
- City Design Centre
- Cultural Workshop
- Agencies Showroom

- Lecture Hall & Event
- Co-work Space
- Start-ups and Accelerators
- Mentoring Space

- Urban Agriculture
- Eco-learning Garden
- Outdoor fitness
- Green energy connections

Lifelong Learning Model for Global Competency



\$26B GDP
in Ontario
6.5% growth

Technology & Innovation Digital Solutions of Automation

Relevance: Ministry of Economic Development, Job Creation and Trade, Ministry of Infrastructure, Ministry of Education

6,500+
innovation
and tech
companies in
Brampton



\$28B GDP
in Ontario
19% growth

Arts, Culture & Design Diversity and Mosaic of Identities*

Relevance: Ministry of Heritage, Sport, Tourism & Culture Industries, Ministry of Education

18,000+
youth arts prog.
participants in
Brampton



\$38B GDP
in Ontario
10% growth

Health, Social & Food Authentic Learning, Life Skills & Teacher Training

Relevance: Ministry of Children, Community & Social Services, Ministry of Health and Long-Term Care, Ministry of Infrastructure, Ministry of Education

2,300+
health & life
sciences
companies in
Brampton



\$64B GDP
in Ontario
20+% growth
clean energy

Recreation, Green & Ecology Global Phenomenon & Community Leadership

Relevance: Ministry of Heritage, Sport, Tourism & Culture Industries, Ministry of Environment, Ministry of Energy, Ministry of Education

**Teacher
Training**
ECE program
in Brampton



\$8B GDP
in Ontario
70% growth
green
infrastructure

Age Friendly & Active Mobility Walk and Roll to School

Relevance: Ministry of Transportation, Ministry of Seniors & Accessibility, Ministry of Education

80%
GHG reduction
by 2050 in
Brampton



Getting to Transit Oriented Communities Initiative

Established by ULI Toronto District Council's Regional Leadership Initiative and Future of Infrastructure Group (FIG)

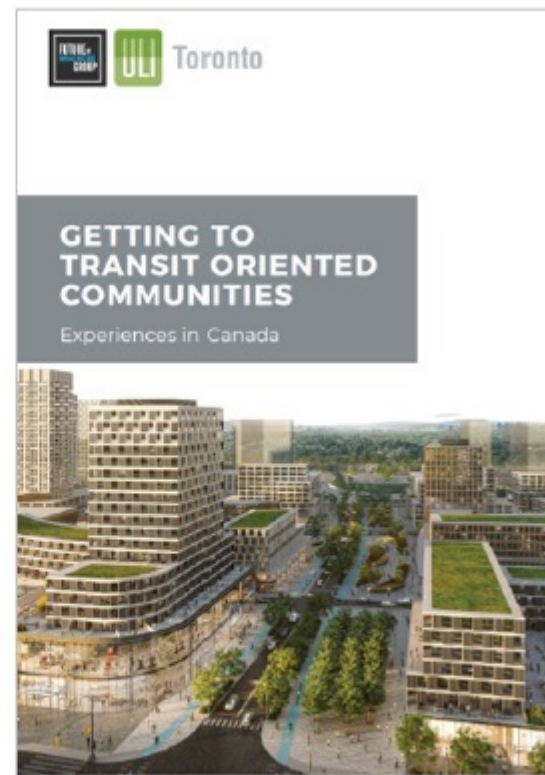
**Align Timing of
Infrastructure with
Development**

**Accurately Quantify
On-the-ground Needs**

**Create New Value
through Accelerating
Delivery**

Phase 1's Lessons Learned and Future Opportunities

- Shared vision to deliver effectively
- Clear governance & dedicated resources
- Integration of stations into the community
- Transition from cars to pedestrians
- Building in adaptability
- Capturing value
- Building community



Getting to Transit Oriented Communities Initiative Phase 2:

Create a Living Model of Transit Oriented Communities

'Living Plan' Collaborative Model

Design-in Social Equity


Unlock Transit and Mobility Hub

Climate Ready TOC

<https://toronto.uli.org/resources/getting-to-transit-oriented-communities-initiative/>

yvonne.yeung@sdgstrategies.ca





**Next Session August 18th:
Addressing Climate Change**

Credit: Danie Anderton



Thank You!

uli.org/infrastructure