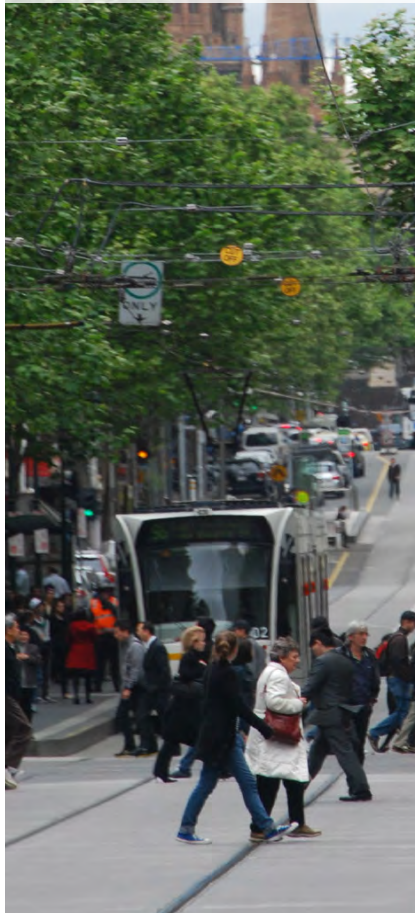
Walking and biking to the bus safely



Safer City Streets Meeting | Buenos Aires | 04.10.2019

Fabrizio Prati | fabrizio@nacto.org

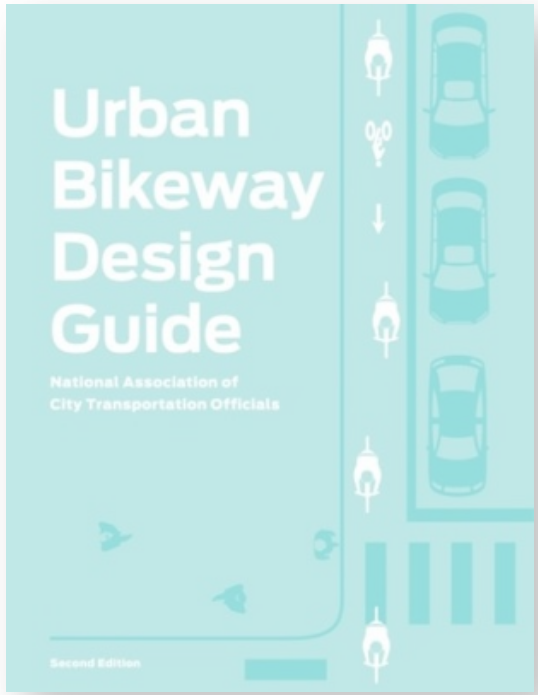
@GlobalStreet
www.globaldesigncities.org

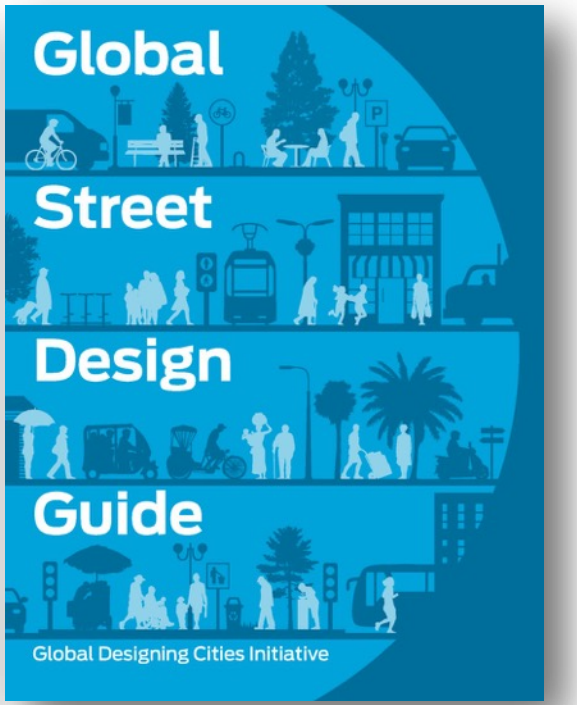
NACTO National Association of City Transportation Officials
GDCI Global Design Cities Initiative

Design Guidance

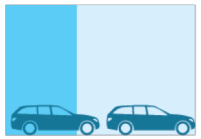
NACTO

Global Designing Cities Initiative





Transit facilities are the most efficient



Private Motor Vehicles
600–1,600/hour

Mixed Traffic With Frequent Buses
1,000–2,800/hour

Two-way Protected Bikeway
6,500–7,500/hour

Dedicated Transit Lanes
4,000–8,000/hour

Sidewalk
8,000–9,000/hour

On-street Transitway, Bus Or Rail
10,000–25,000/hour

Transit facilities are up to 40 times more efficient

The illustration shows the **hourly capacity of a 3 m-wide lane** (or equivalent width) by different modes at peak conditions with normal operations.

Efficiency is key, but it cannot come at the cost of **human life!**

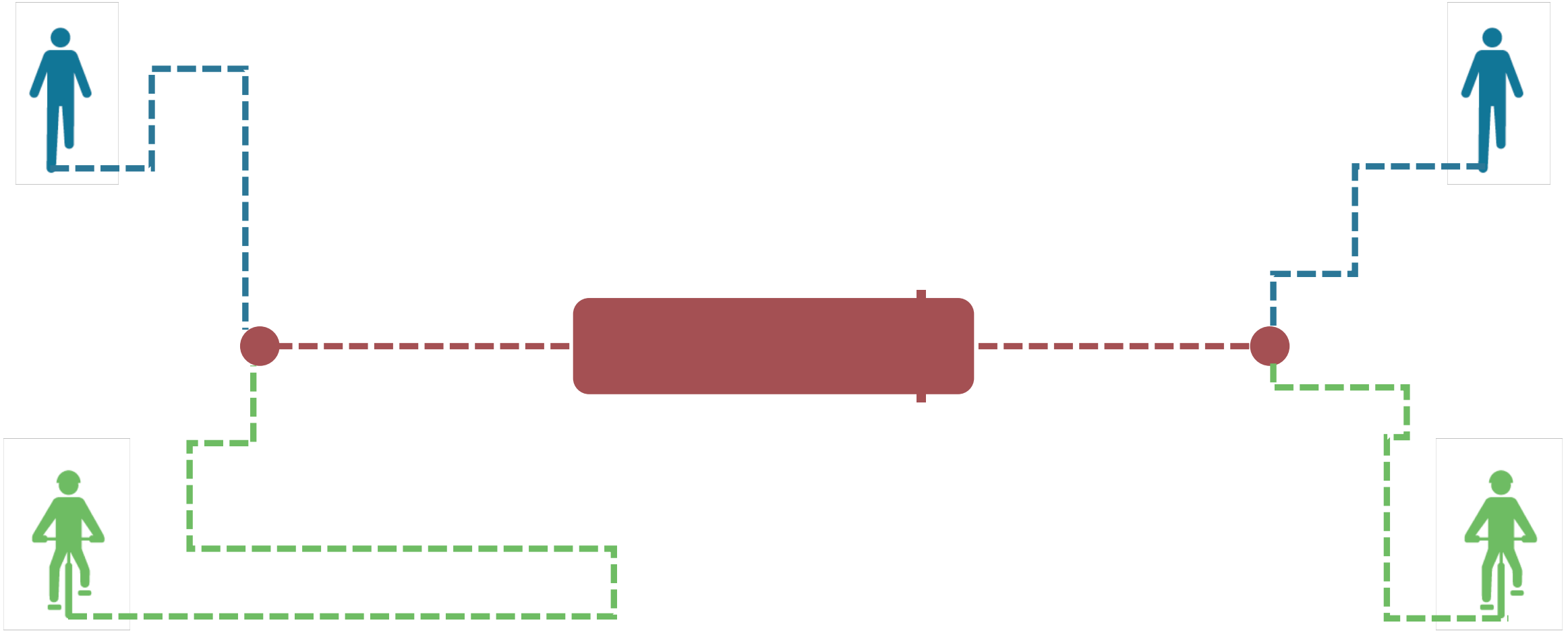
We've been considering the safety of the transit corridor, but we should expand to the whole street and its surroundings

Can people walk (or bike) safely to transit?

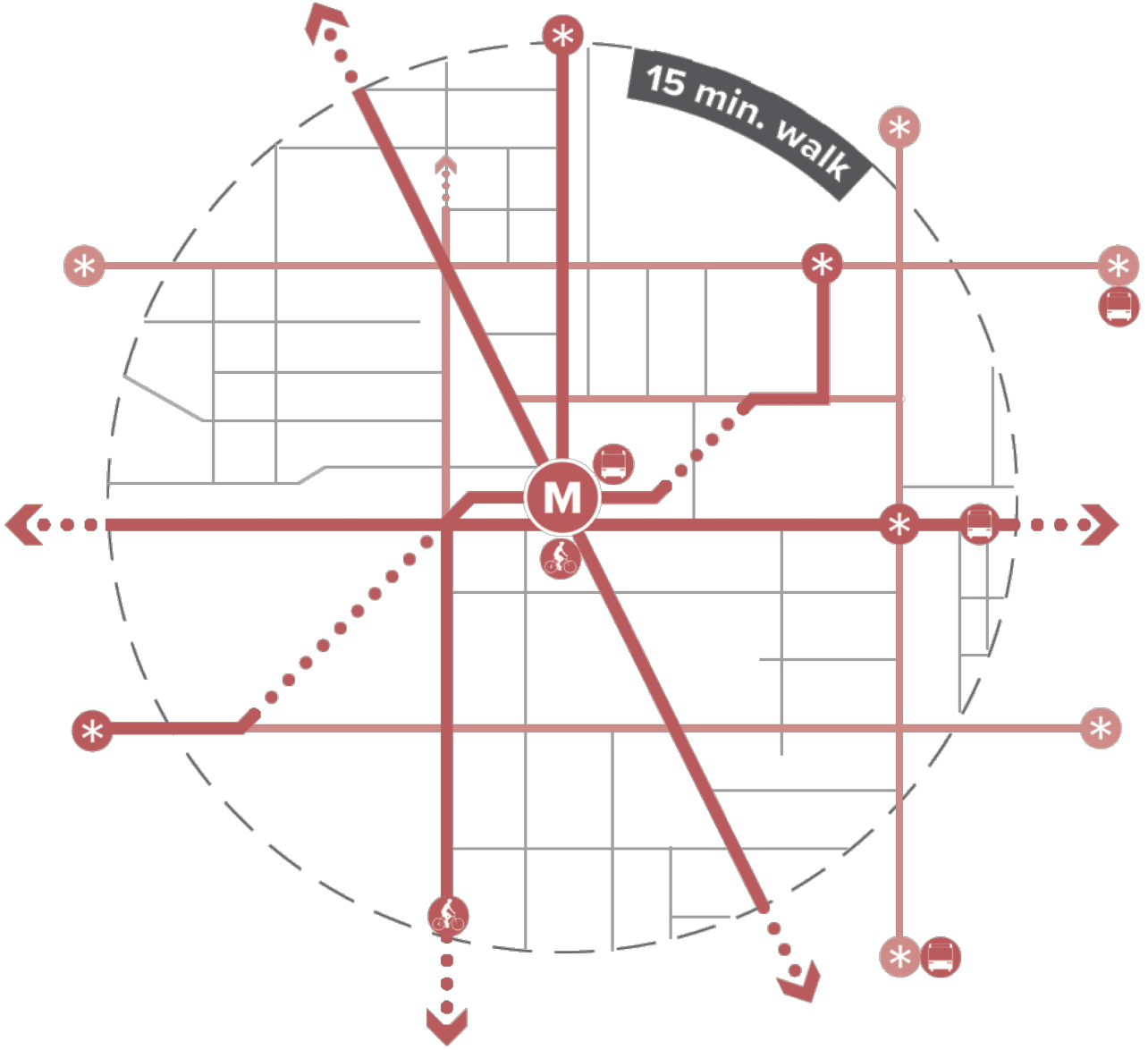
Can people cross safely a transit corridor?

Are speeds adapted to the context?

Everyone's transit journey begins with another mode



Understanding walking & biking access



Legend

- Pathway Arterial
- Pathway Collector
- Transit Hub
- Wayfinding
- Bus Stop
- Bike Route

Source: First Last Mile Strategic Plan, LA Metro

0/ Contextualize speeds

1/ Make the corridors permeable + create frequent opportunities to cross

2/ Design forgiving transit streets to pedestrians / give them space + time

3/ Reduce conflicts between bus and bikes

0/ Contextualize Speed

Considering the context

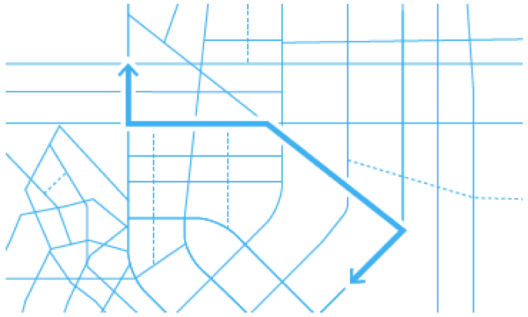
Demographics

Density

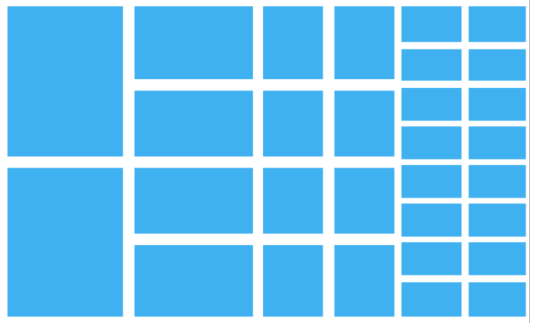
History and Culture

Mix of Uses and Destinations

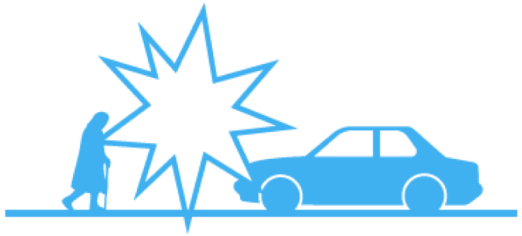
Access and Mobility



Street Networks and Connectivity



Block Sizes

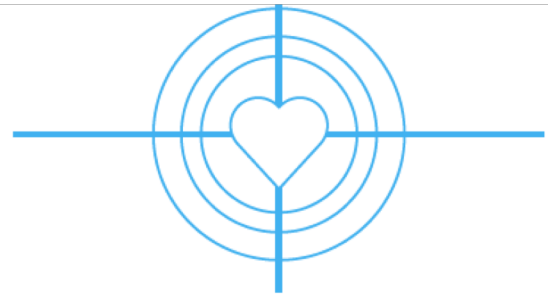


Road Safety

Ecosystems and Habitats

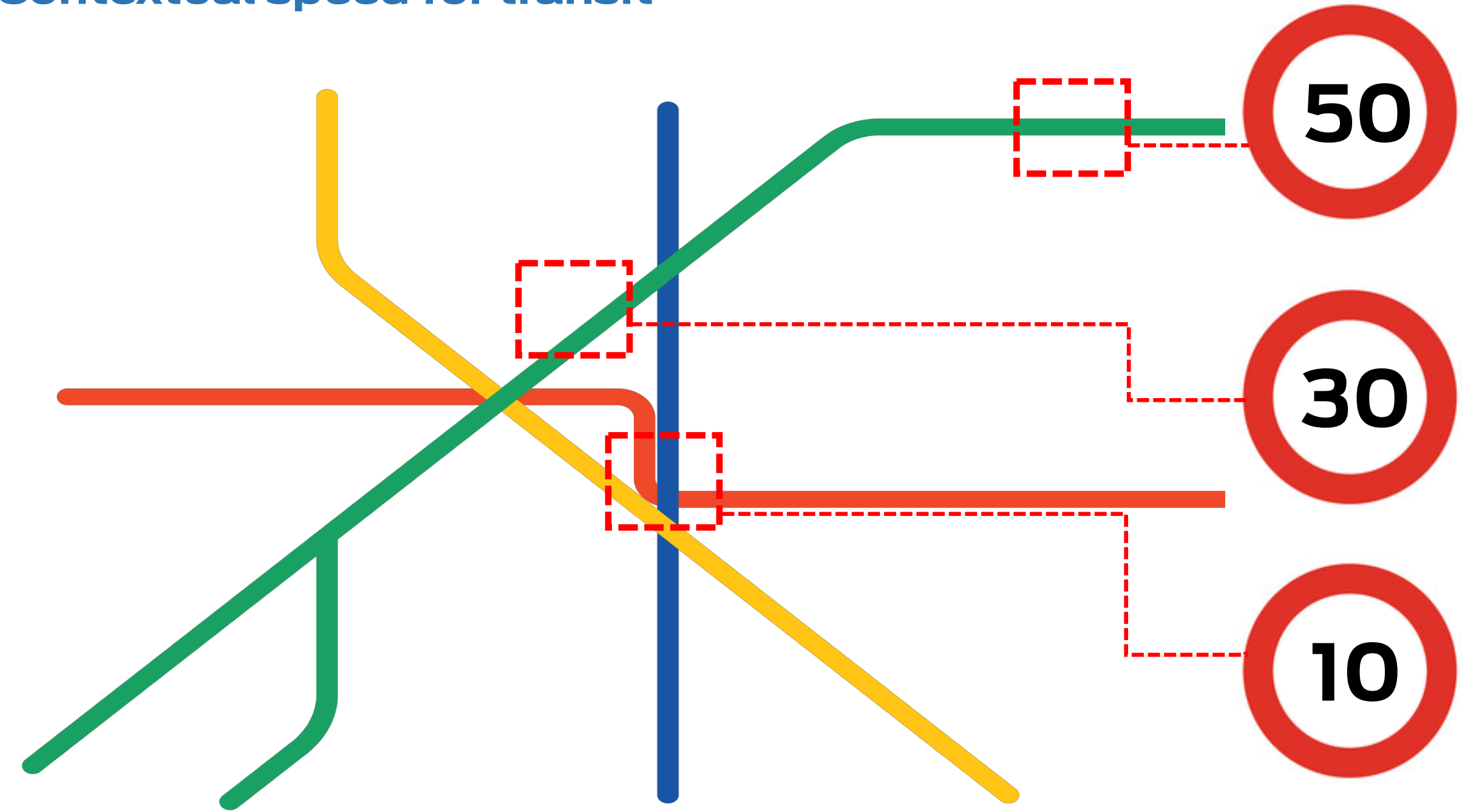
Natural Disasters

Geographic Features

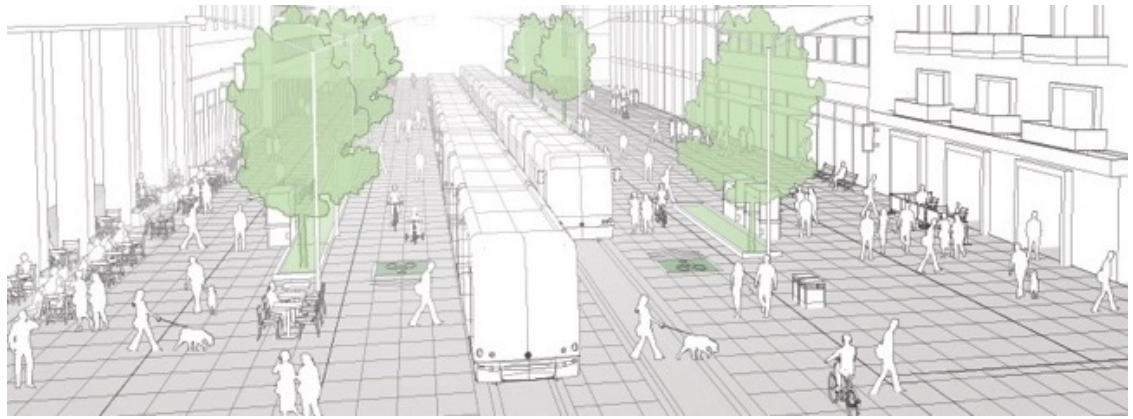


Public Health

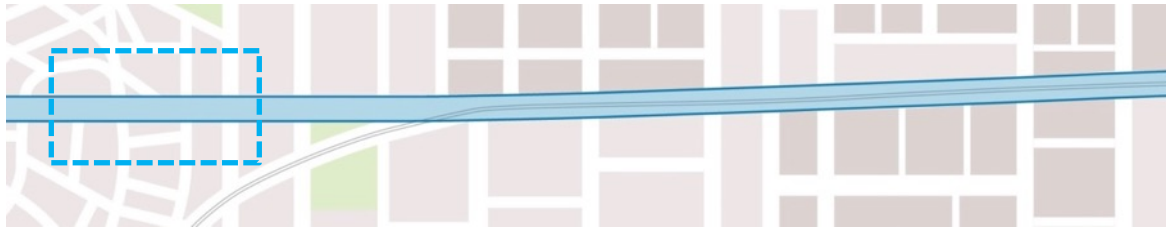
Contextual speed for transit



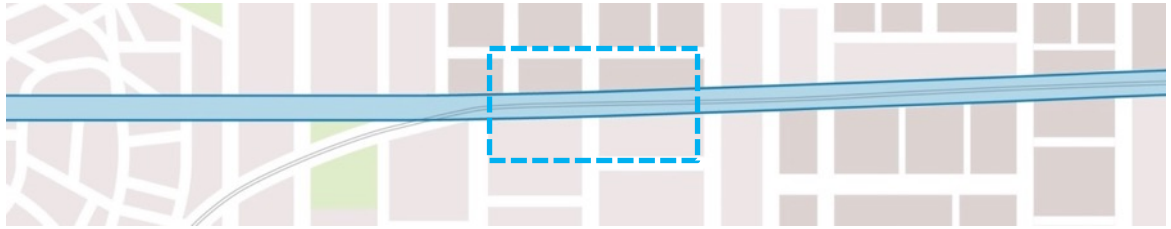
Considering the context



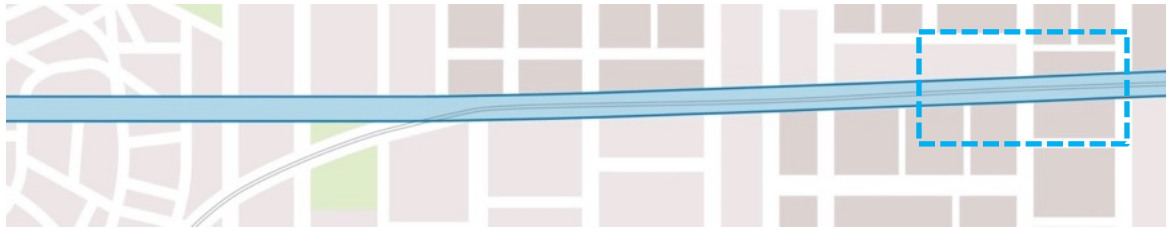
Context 1: Neighborhood Main Street



Context 2: Central Two-way Street



Context 3: Transit Mall



Considering the context

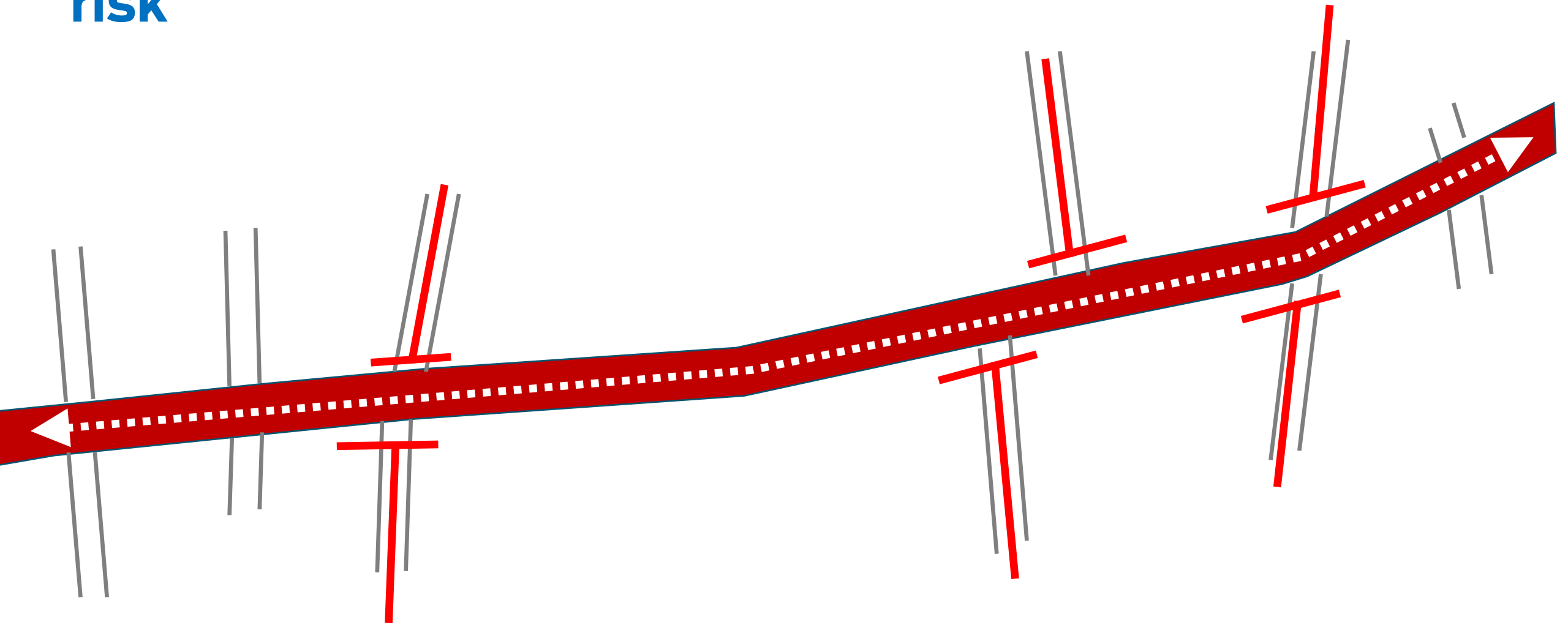
1/ Corridor permeability

Transit corridor project are an opportunity to reconnect the city

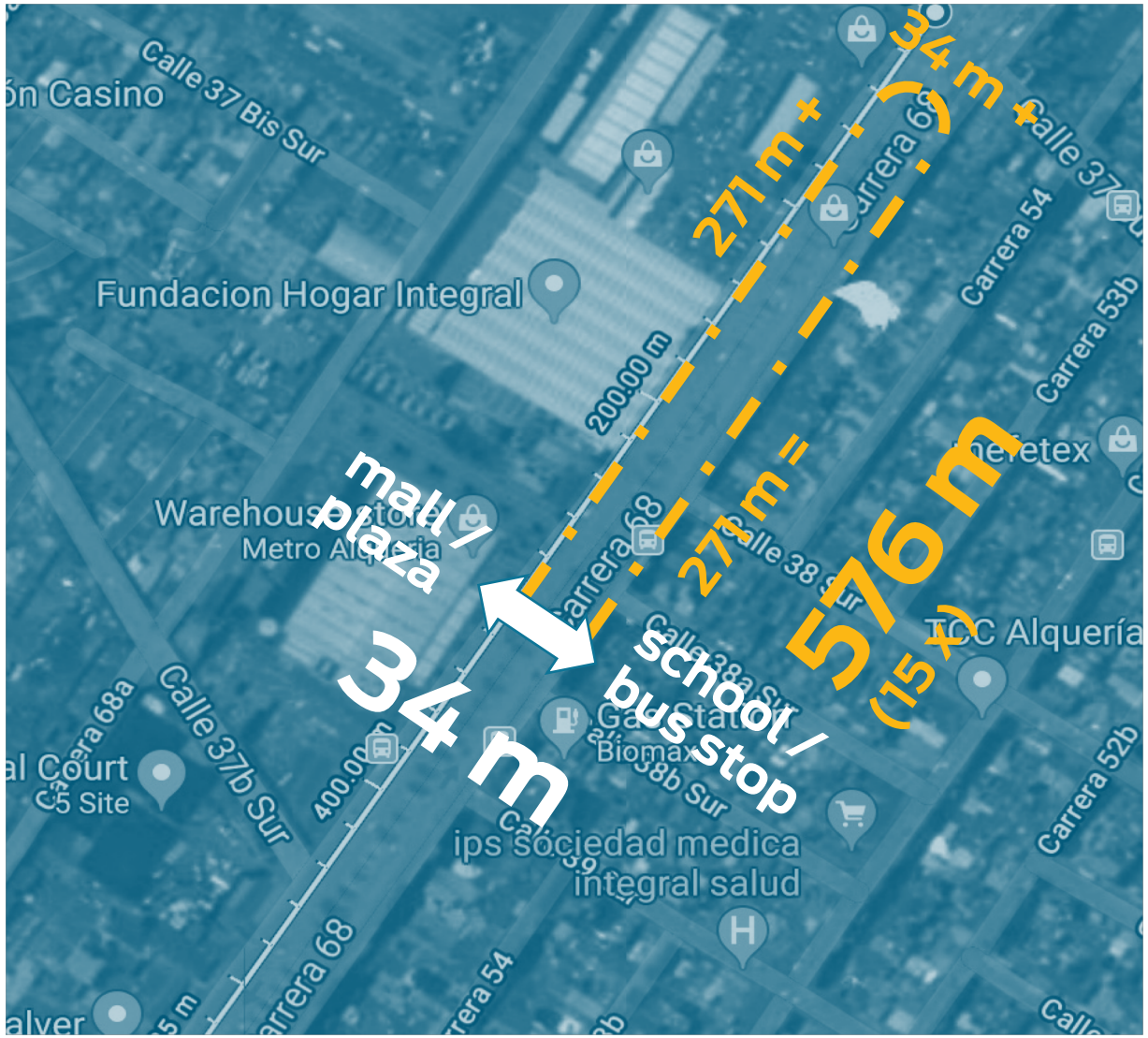
Avoid perpetuating or even creating barriers

Provide opportunity to cross the street at grade and safely

Transit Corridors designed with ‘blinders’ on disconnect communities, and put people at risk



950 m



Walking speeds range from
0.3 m/s–1.75 m/s

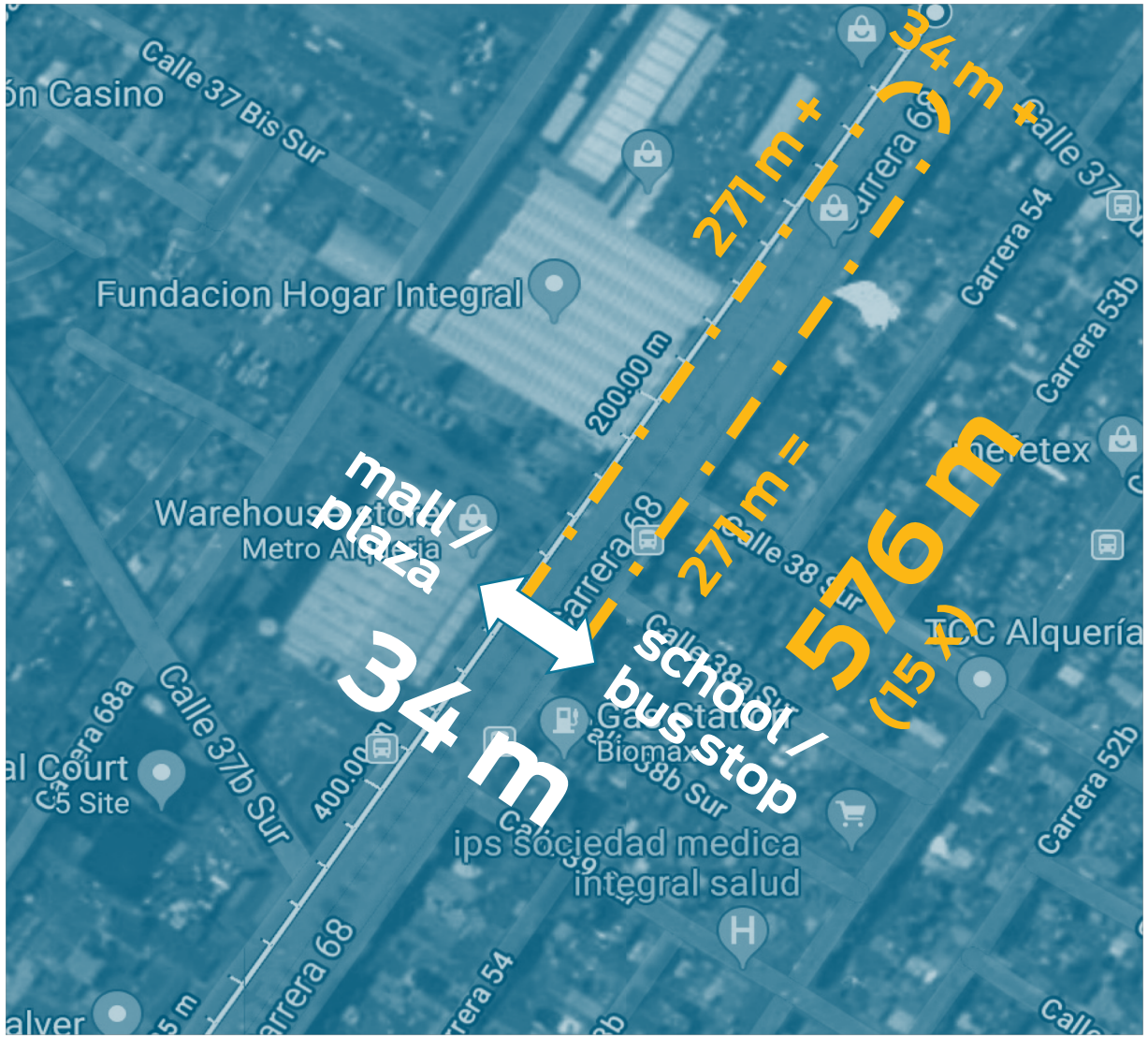
So if we take an average of
1 m/s:

576m = 576 seconds =
9.6 minutes

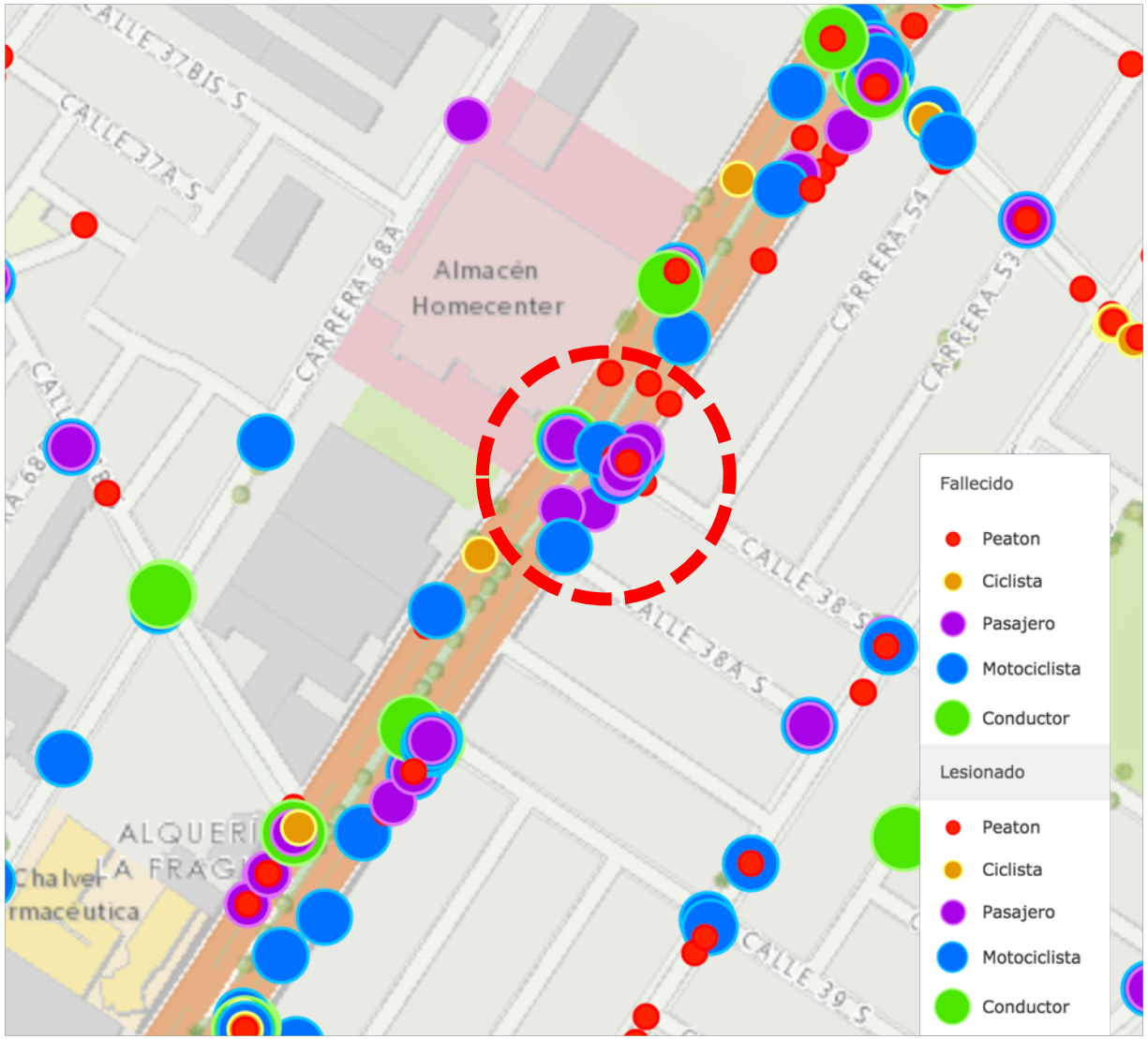
34m = 34 seconds =
0.5 minutes

Crossing Distance

800 people/hr
crossing at
that location

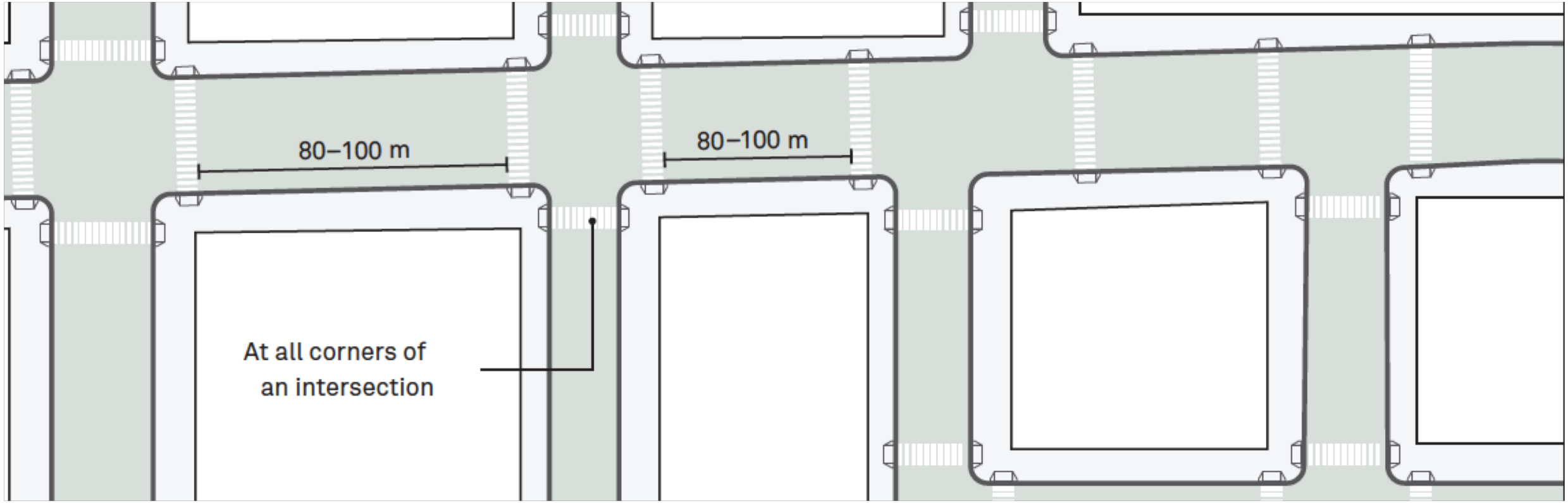


Crossing Distance



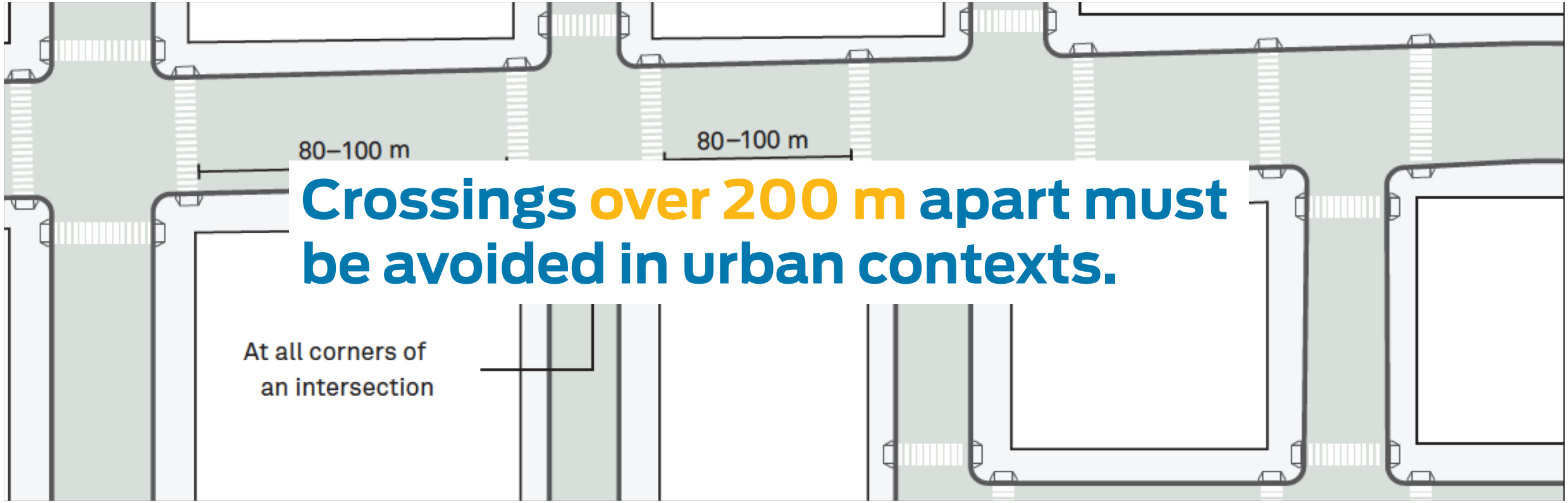
Injuries + Fatalities

Crossing distance



Safe, accessible crossings should be provided every 80–100m, and at all legs of an intersection, to ensure a connected walkable network.

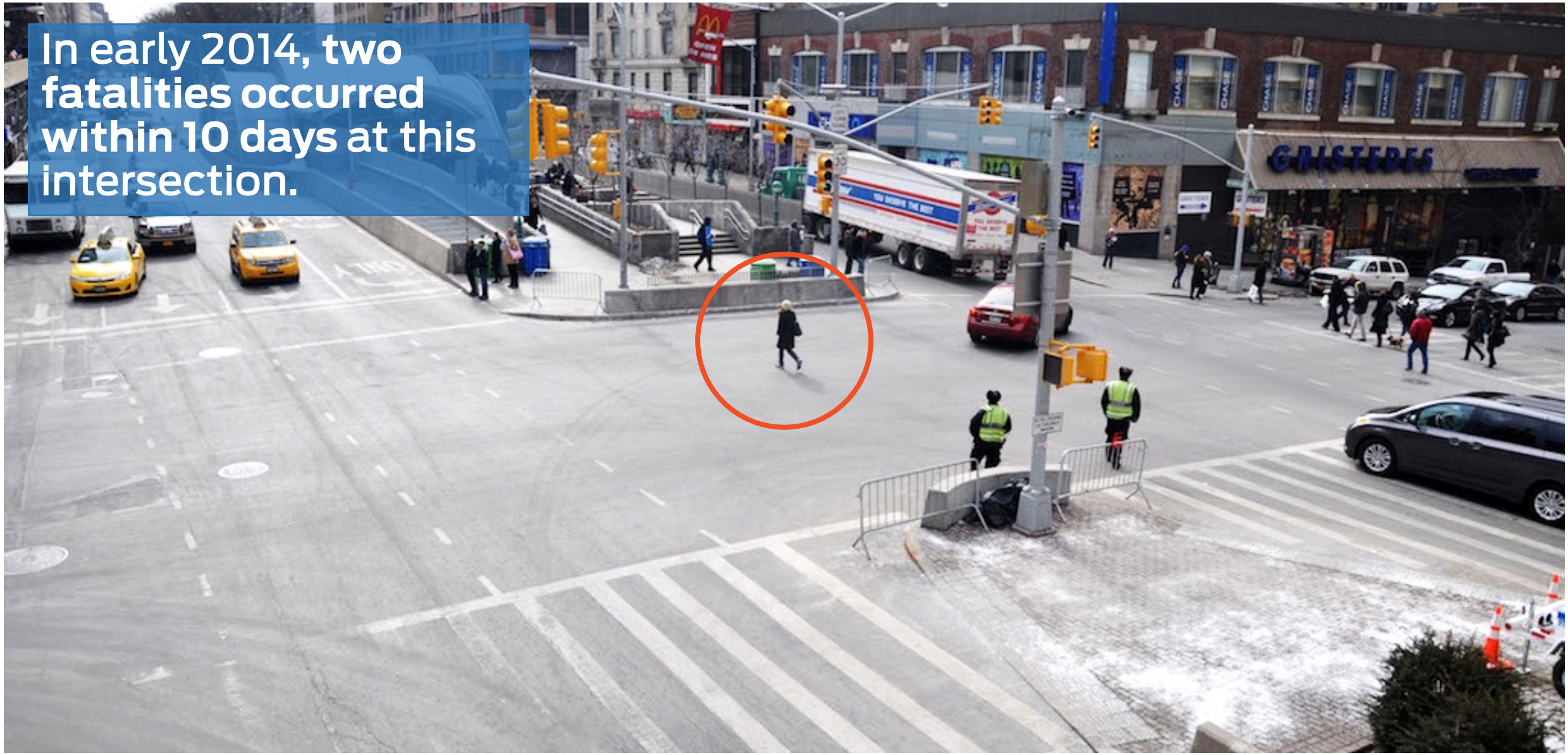
Crossing distance



Crossings over 200 m apart must be avoided in urban contexts.

Safe, accessible crossings should be provided every 80–100m, and at all legs of an intersection, to ensure a connected walkable network.

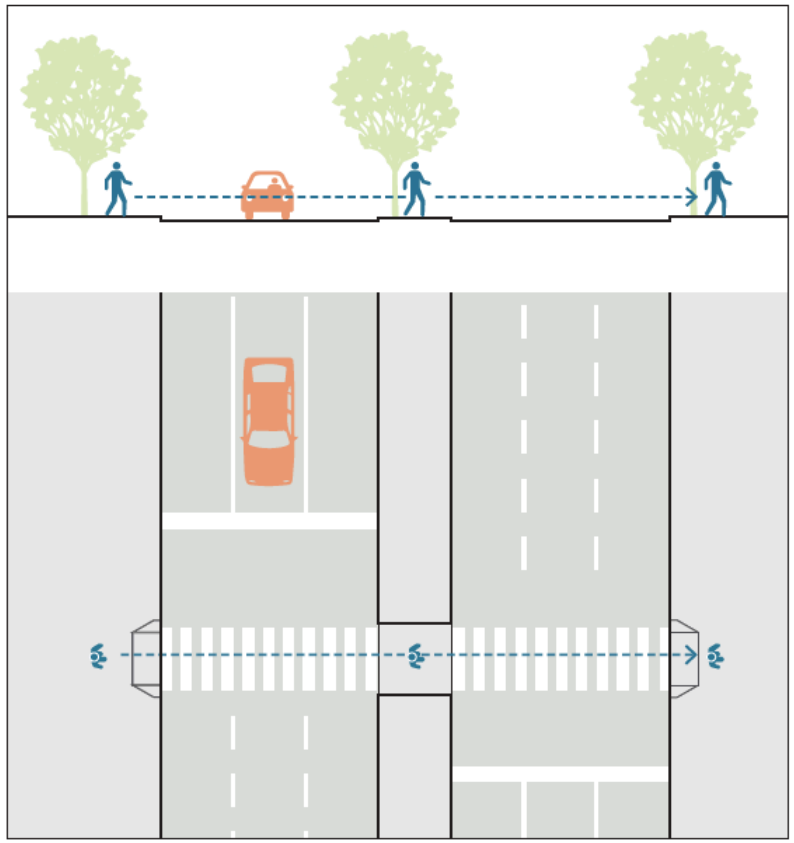
96th Street and Broadway Intersection, NYC

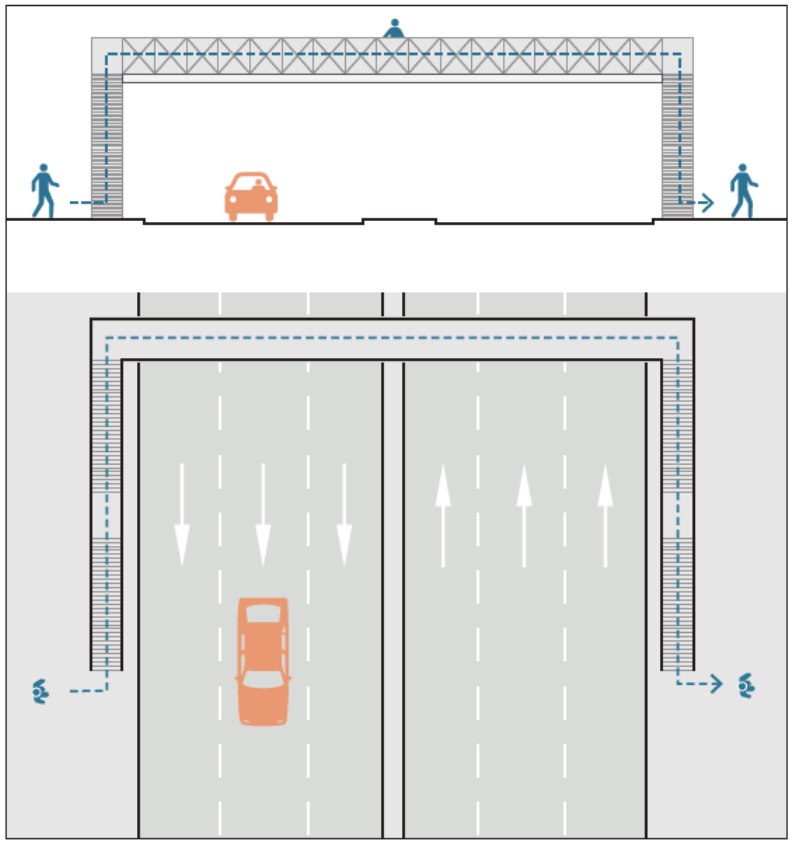


96th Street and Broadway Intersection, NYC

ONLY
ONLY
ONLY
CHASE
CHASE
CHASE

Grade separated crossings





Pedestrian bridges **unnecessarily** increase walking distances and times, take up valuable sidewalk space, and **cost 20+ times** the price of at-grade signalized crossings.

Crossings should be AT-GRADE!

2/ Give pedestrians space + time

UniGermano
Fundación Universitaria Colombo Germana
PARQUEADERO
TEINCO
Corporación Tecnológica Industrial Colombiana
TransMilenio

TransMilenio
PARQUEADERO
TEINCO

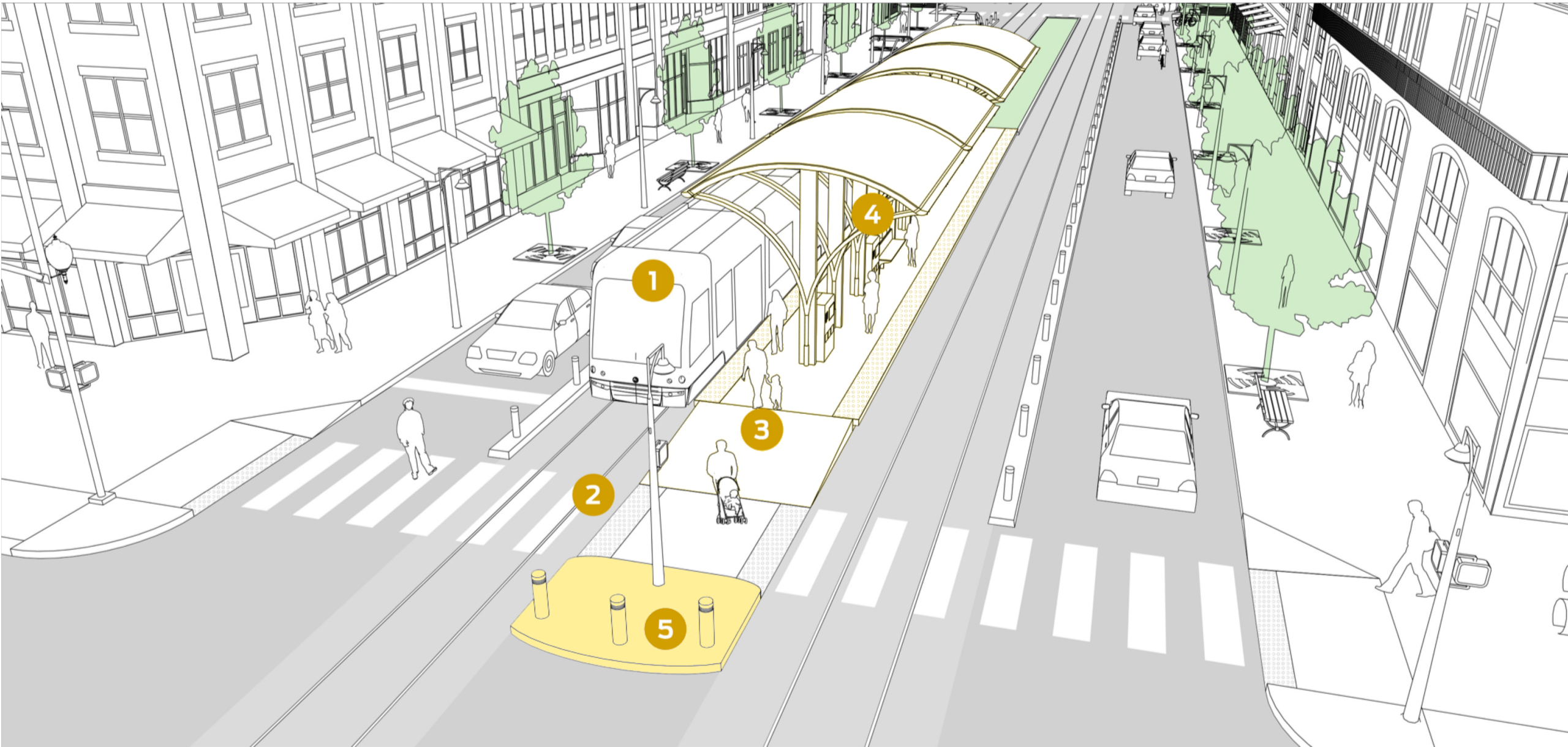
Refuge Islands

Don’t make people choose between a 25 tons bus and speeding cars!

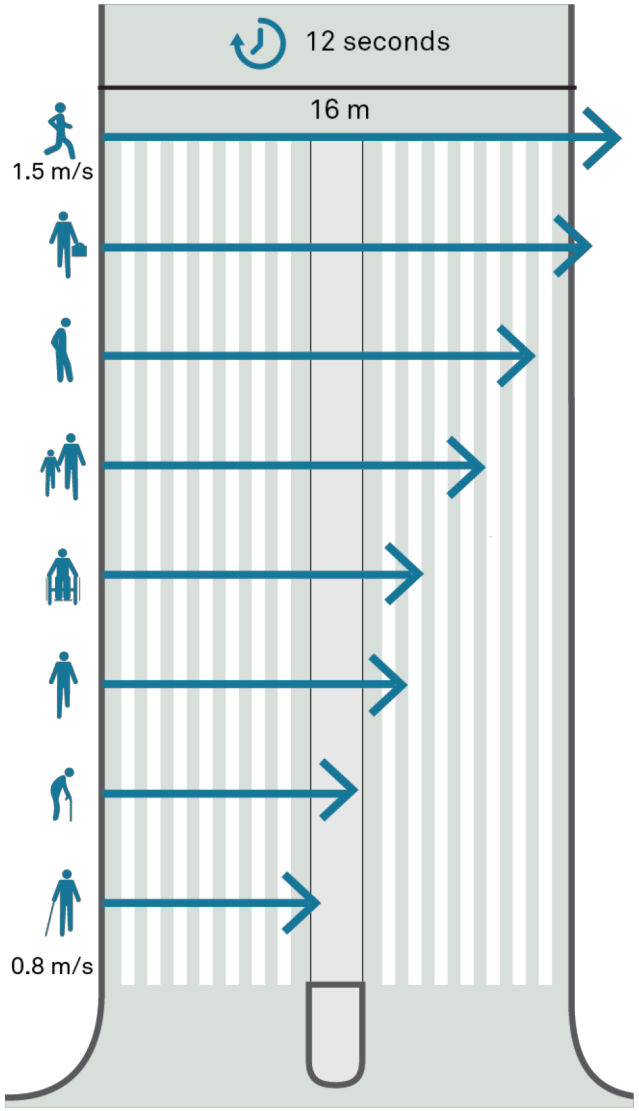
Refuge islands

Provide refuge islands when a pedestrian has to cross 3+ lanes

Median tips



Pedestrians signals

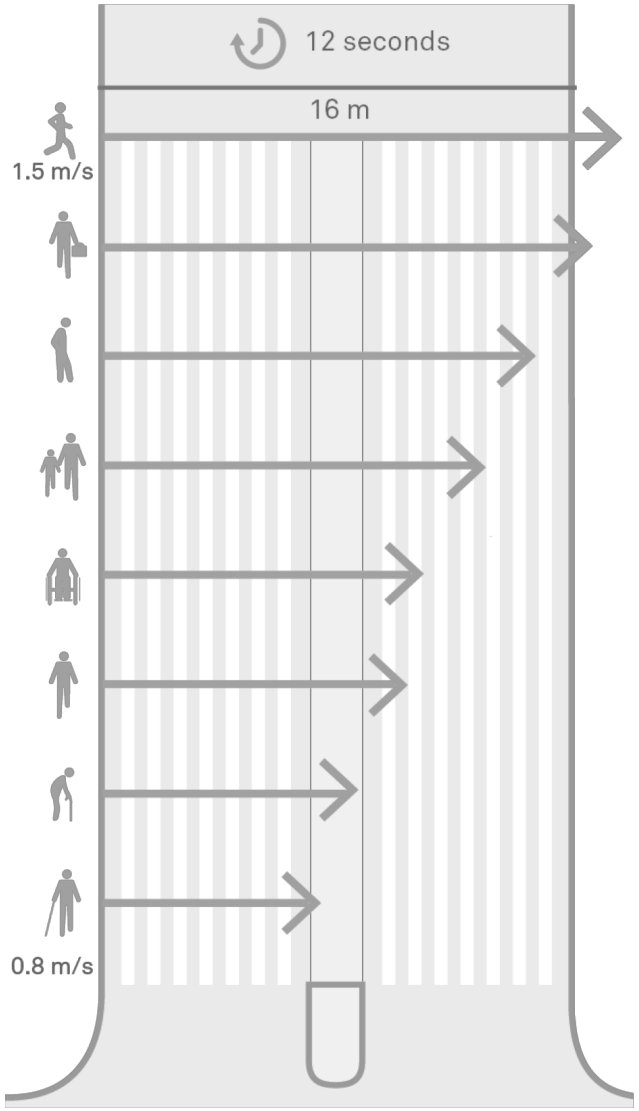


The clearance time is generally based on a **1 m/s** walking speeds applied to the total crossing distance.

Many pedestrians walk below this speed:

- provide frequent refuge
- increase clearance time to allow for a **0.5 m/s** speed.

Pedestrians signals



So we should give pedestrians

LESS DISTANCE to cross...

And MORE TIME to cross

3/ Reduce conflicts between bus and bikes

Cyclists + Transit

Addressing safety and comfort

Credit: *People for Bikes*

Large Vehicles

Credit: *City of Boston*

Frequent Overtaking

Credit: *truewheelers.org*

Competition for the Curb

Separate Bikes & Buses

Credit: *Adam Coppola for People for Bikes*

Put Bikes opposite the bus

Credit: *NYC DOT*

Organize at Stops

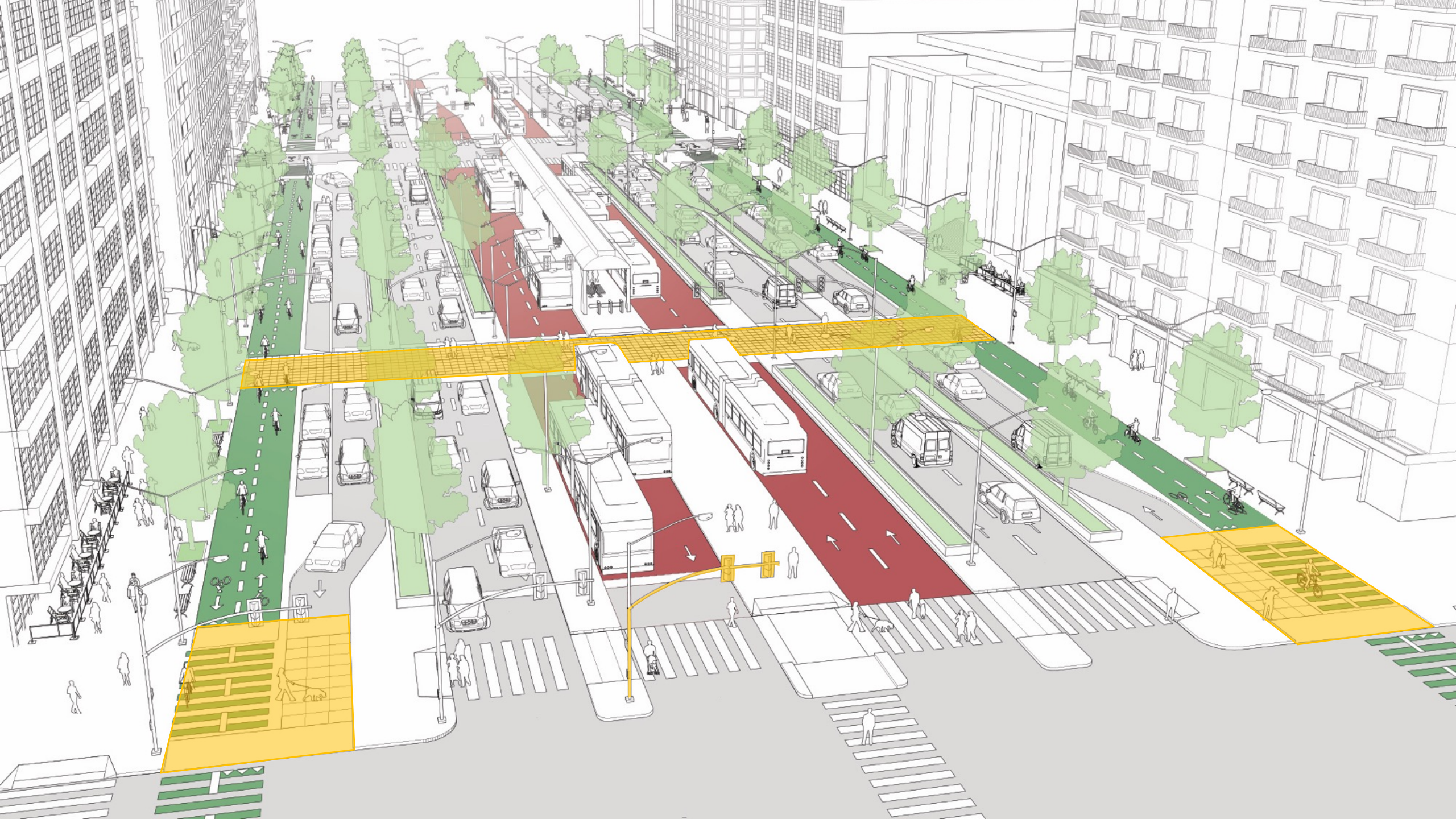
Fortaleza, Brazil

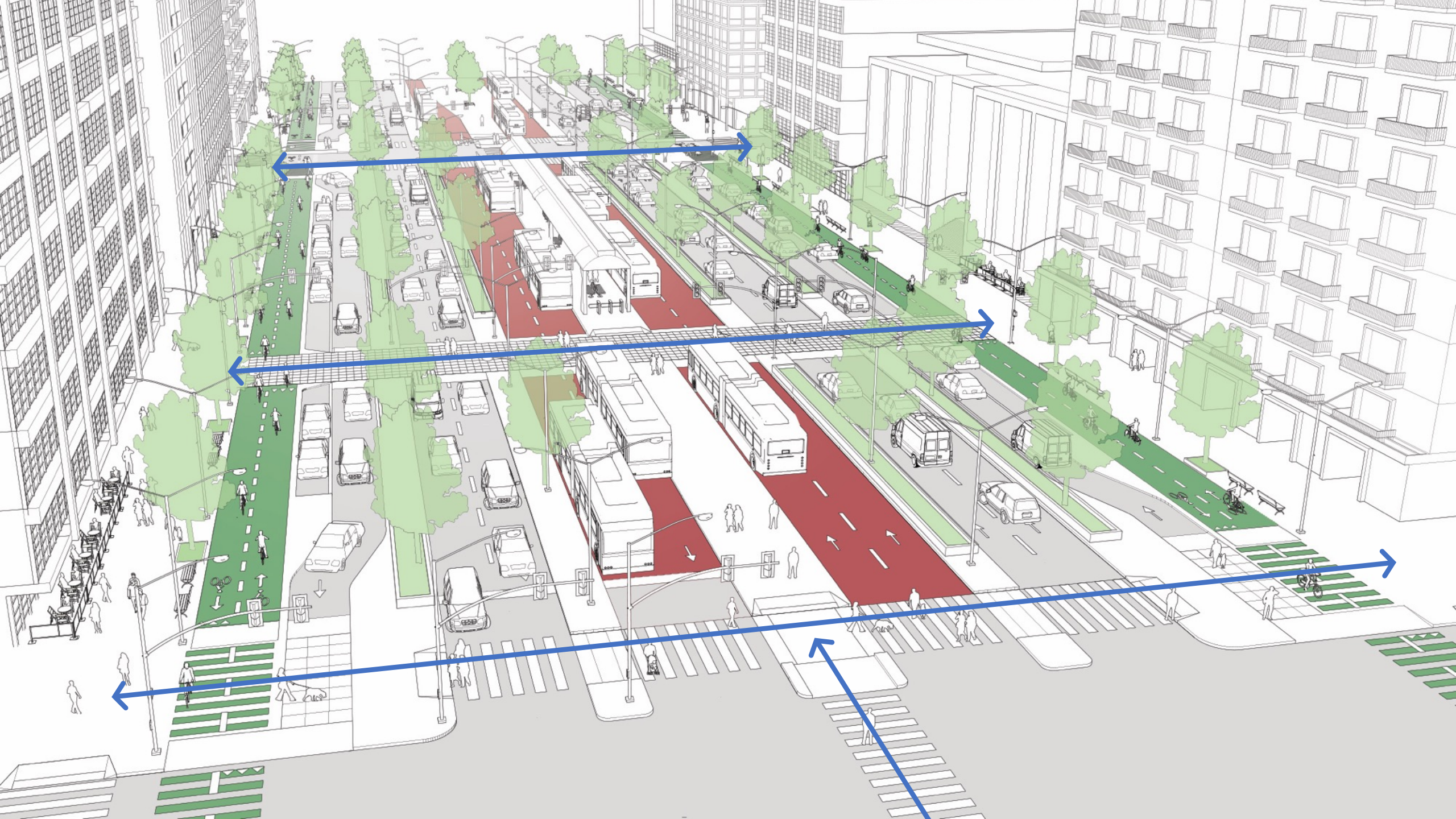
Organize at Stops

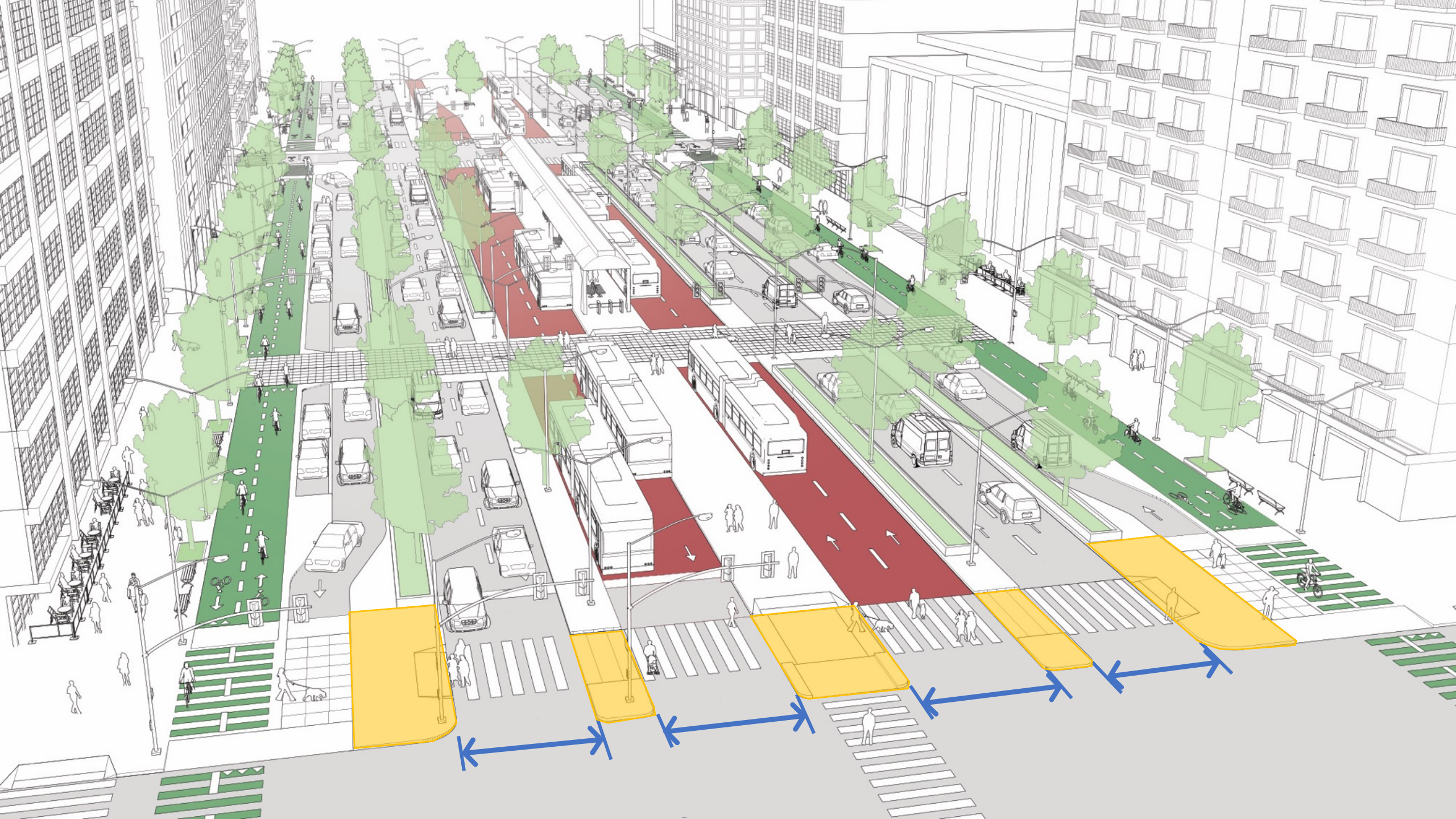
Chicago, USA

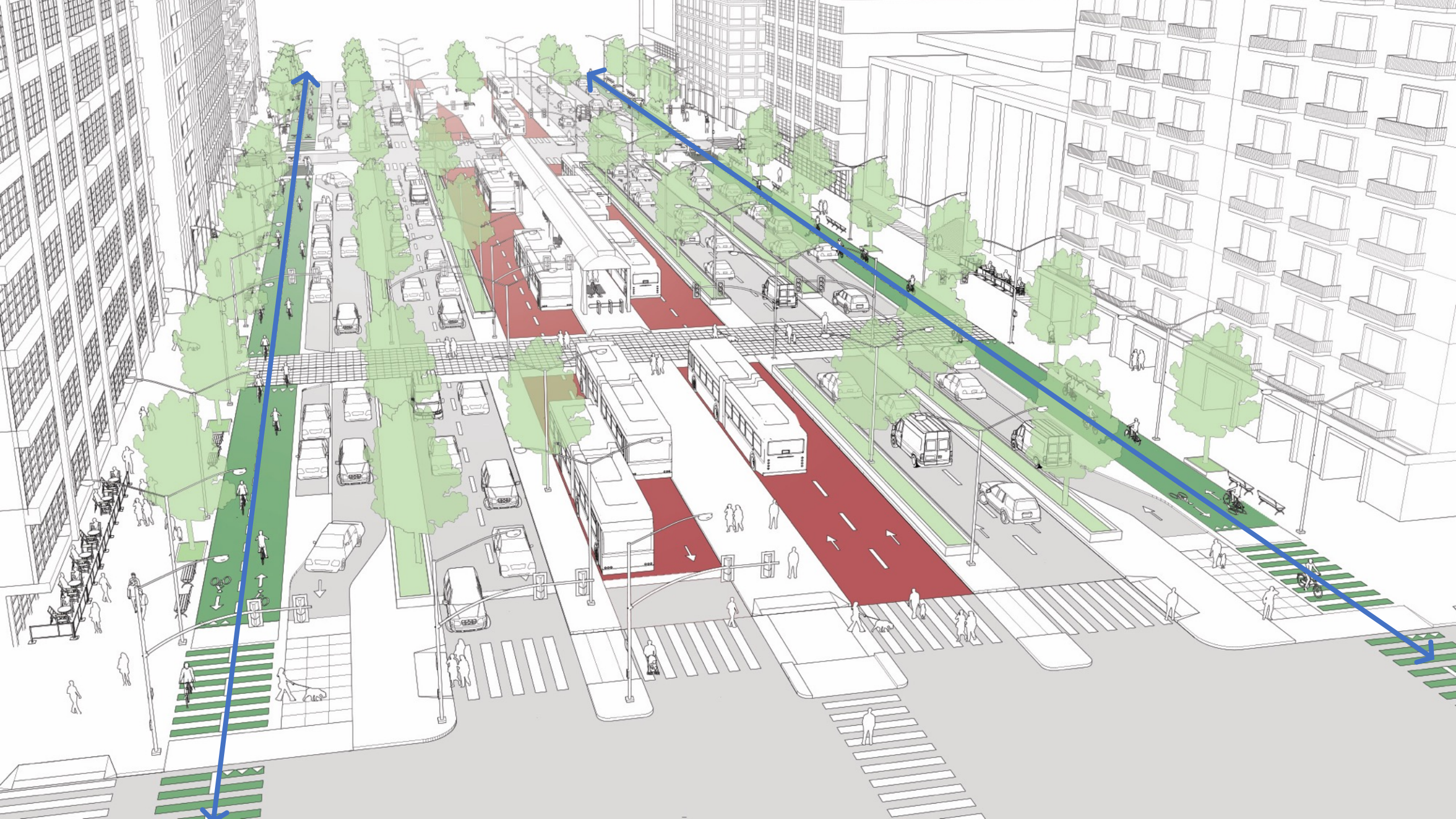
Organize at Stops

Barcelona, Spain









Design streets for transit that **Put people first!**

NACTO Global Designing Cities Initiative

Design for these guys!

¡GRACIAS!

www.nacto.org
www.globaldesigningcities.org

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