RAPID IMPLEMENTATION OF BIKEWAYS

Healthy Built Environment Forum

May 24, 2023

Matt Craig (he/him)
TransLink
matt.craig@translink.ca

Brian Patterson (he/him)
Urban Systems
bpatterson@urbansystems.ca

AGENDA

1. Introductions
2. About TransLink
3. What is Rapid Implementation?
4. Why Rapid Implementation?
5. Design Guidance
6. Planning & Design Considerations
7. Treatments & Materials
8. Activation & Beautification
9. Questions


Toronto, Ontario

1. INTRODUCTIONS

Join at slido.com
#HBE

ⓘ Start presenting to display the joining instructions on this slide.

1. INTRODUCTIONS

Where are you joining from today?

ⓘ Start presenting to display the poll results on this slide.

1. INTRODUCTIONS

What is your background?

ⓘ Start presenting to display the poll results on this slide.

1. INTRODUCTIONS

Why are you excited about rapid implementation of bikeways?

ⓘ Start presenting to display the poll results on this slide.

1. INTRODUCTIONS

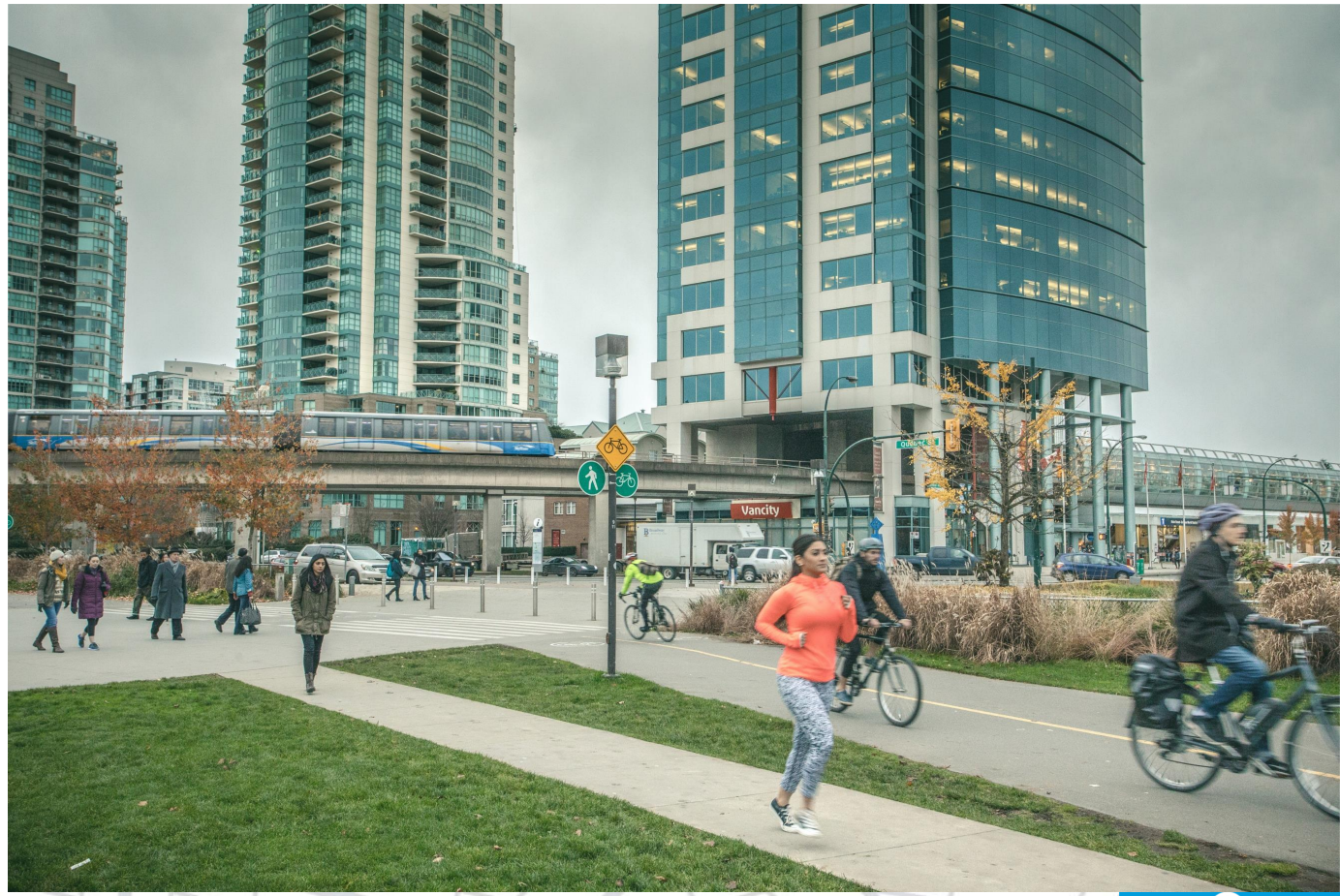
What do you hope to learn today?

ⓘ Start presenting to display the poll results on this slide.

2. ABOUT TRANSLINK

ABOUT TRANSLINK

- Established in 1999
- Regional Transport Authority
- Multi-modal mandate

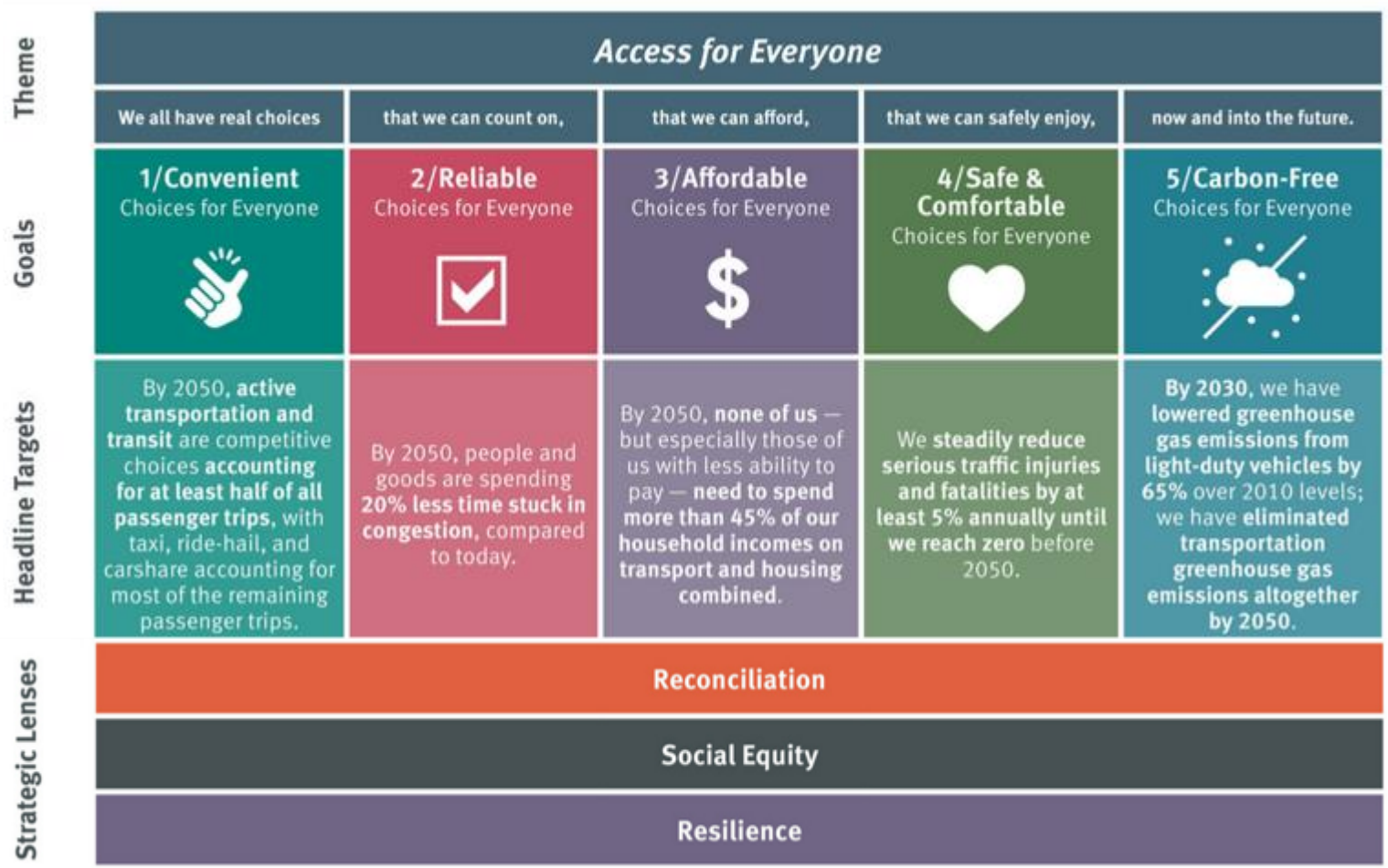


In 2022, we invested

$130 million

for 107 municipal projects including road upgrades and maintenance, cycling paths, and sidewalks.

TRANSPORT 2050



TRANSLINK URBAN SYSTEMS

10-Year Priorities is an ambitious $21 billion blueprint that outlines which of the investments in **Transport 2050** that TransLink will focus on delivering over the first decade.

Convenient, Reliable, Safe & Comfortable Transit

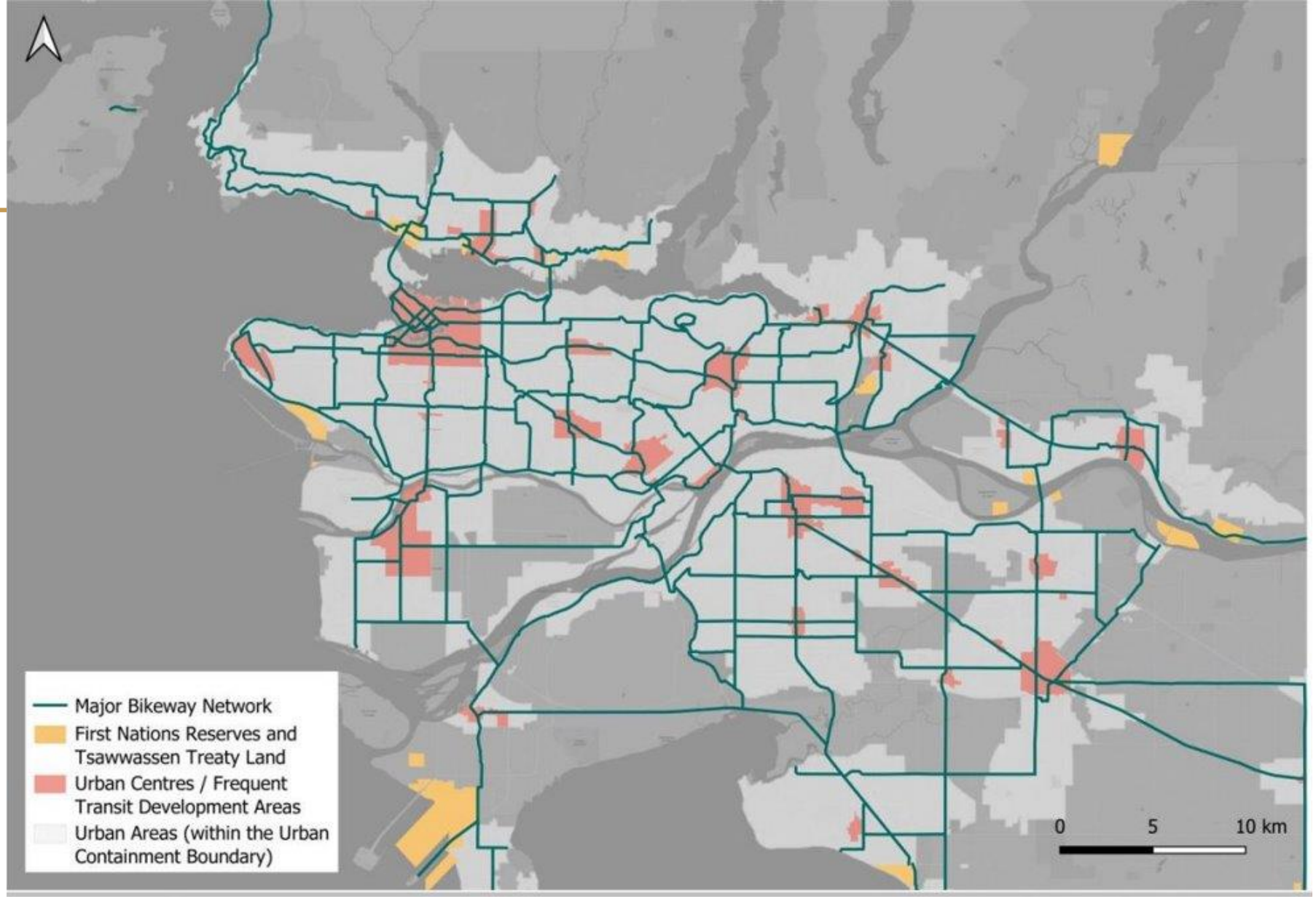
People-First Streets & Walking, Biking, and Rolling

Reliable & Fast Transit Network

10 YEAR PRIORITIES

By 2032, **build 450km of safe and comfortable cycling facilities** that connect within the 850km Major Bikeway Network, connecting Urban Centres and other major destinations across Metro Vancouver.

TRANSLINK URBAN SYSTEMS



MAJOR BIKEWAY NETWORK

BICCS RECOVERY PROGRAM

- Launched in 2021 to complement the existing Municipal Funding Programs
- Focus is on funding lighter, quicker, cheaper projects for utilitarian cycling trips
- Desire to show interested applicants best-practice precedents

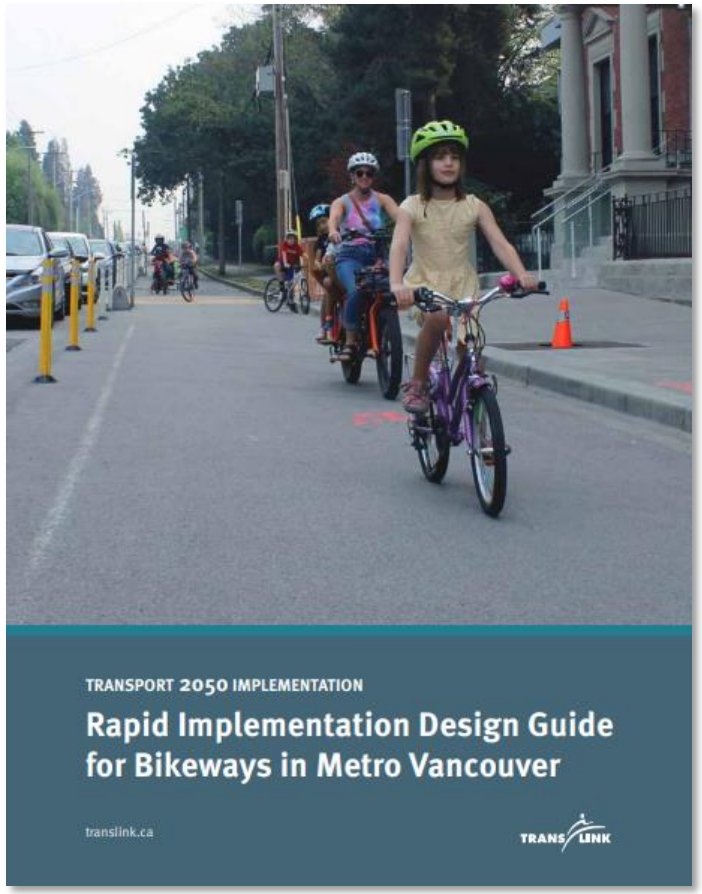

New Westminster

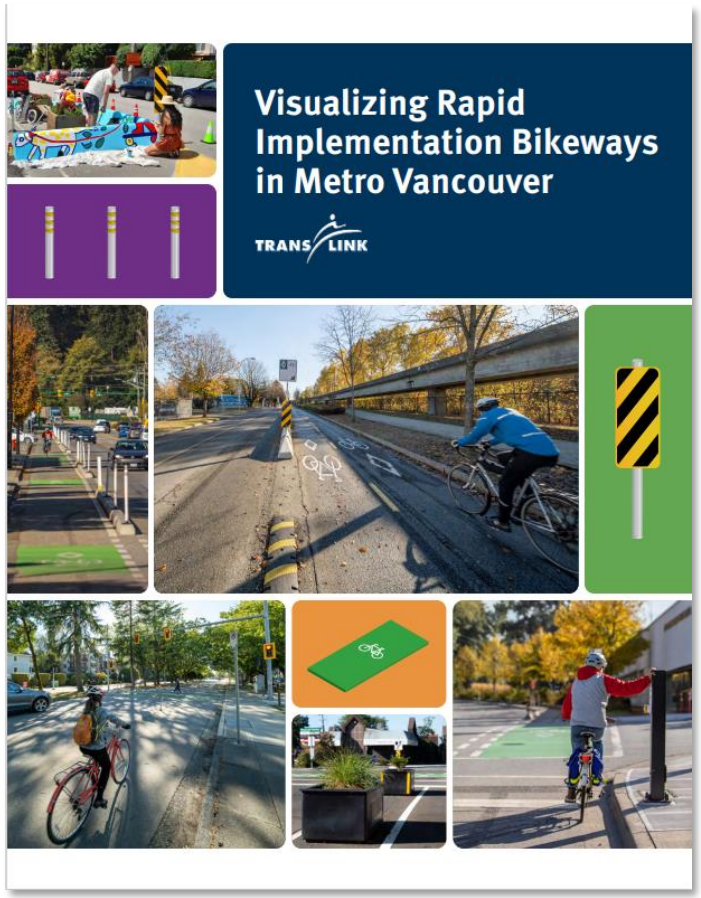
Vancouver

TRANSLINK URBAN SYSTEMS

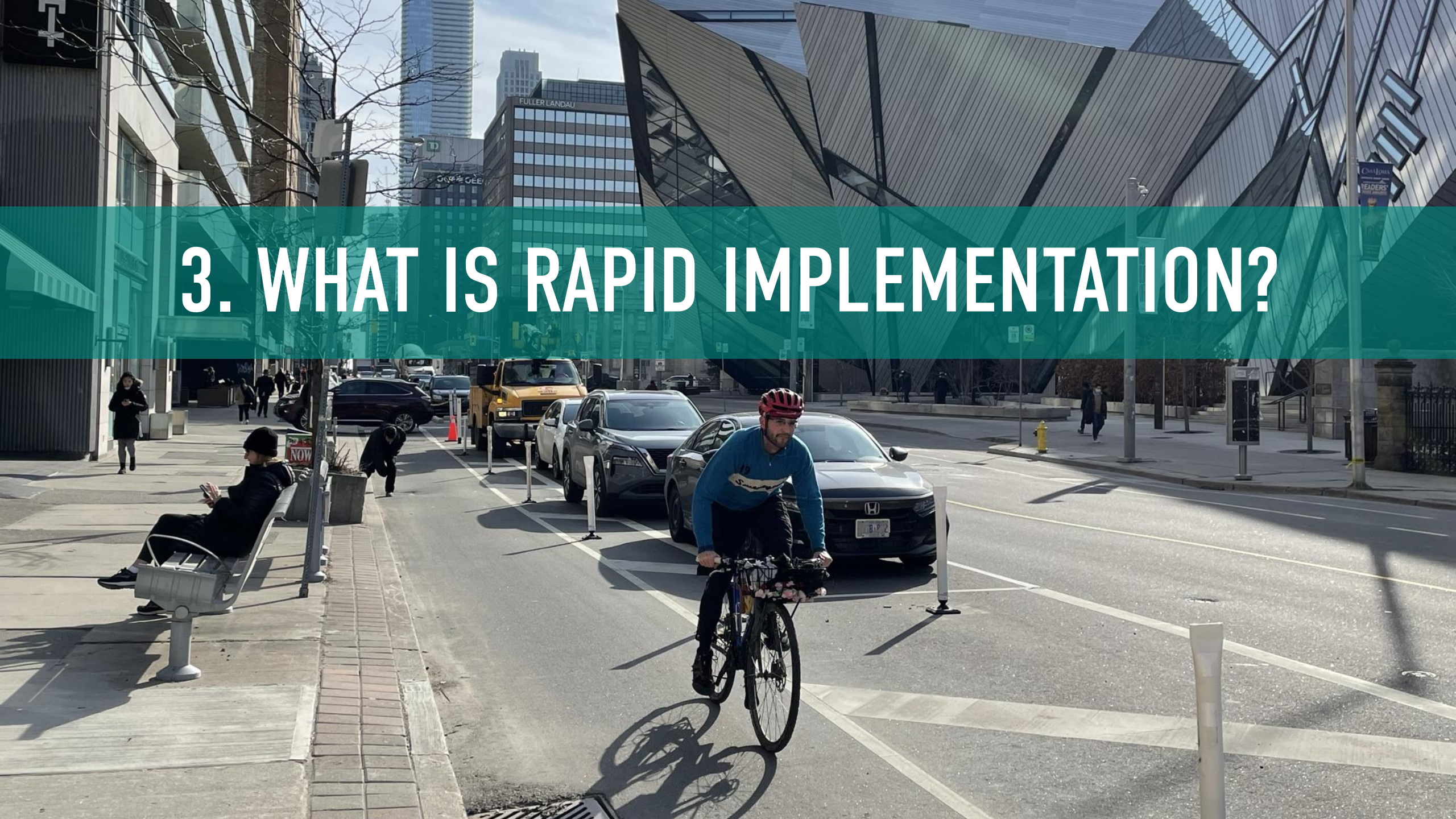
ADVANCING CYCLING IN METRO VANCOUVER

- TransLink is providing resources to support local government partners in the rapid implementation of the local and regional bikeway network





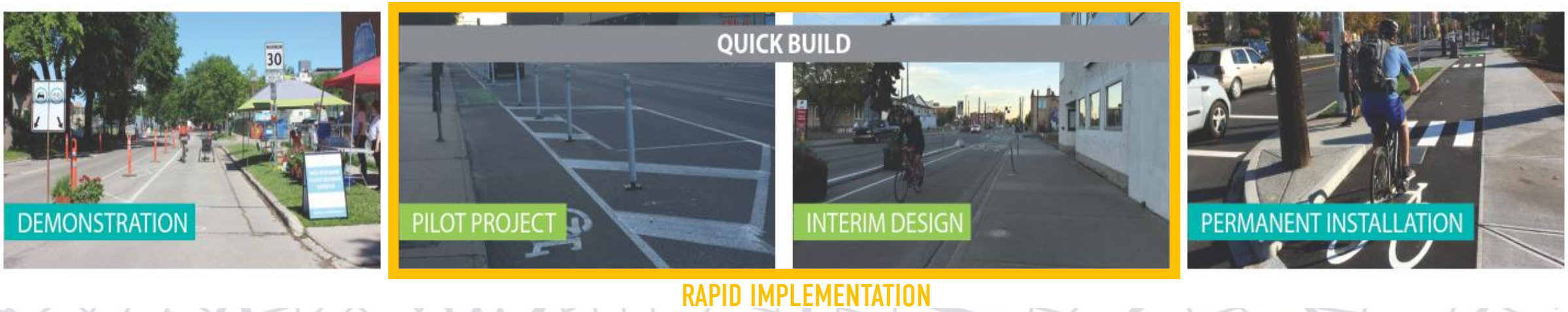
TRANSLINK URBAN SYSTEMS



3. WHAT IS RAPID IMPLEMENTATION?

WHAT IS RAPID IMPLEMENTATION?

- Uses low-cost, interim, temporary, adjustable materials
- Implemented within days, weeks, or months (rather than years)
- Can be easily modified
- Enables the delivery of safe and comfortable cycling facilities—as well as comprehensive cycling networks—all at once and at a lower cost than traditional methods



TRANSLINK URBAN SYSTEMS

SPECTRUM OF BIKEWAY IMPLEMENTATION

	Tactical / Demonstration	Rapid Implementation	Traditional Implementation
	Vancouver , BC 	Abbotsford , BC 	Vancouver , BC 
Delivery Speed	Hours to Days	Weeks to Months	Months to Years
Duration	Hours to Days Pilot project to showcase an idea	Months to Years Stepping stone to permanent infrastructure or end state	Years Permanent infrastructure
Space Required	Within curb-to-curb width	Within curb-to-curb width	May require street reconstruction beyond the existing curb
Materials	Temporary traffic management devices: • Traffic cones • Planters • Water barrels • Paint • Signage	Adjustable materials: • Flexible delineator posts • Curbs • Planters • Quick build surfaces and pavement markings	Permanent infrastructure; may consider: • Green infrastructure and landscaping • Lighting • Underground utilities • Curbside activities and amenities
Safety	Low	Moderate to High	High
Construction Effort	Low	Low to Moderate	High
Cost	Low	Moderate	High

KEY ELEMENTS

TRANSLINK URBAN SYSTEMS

4. WHY RAPID IMPLEMENTATION?

THERE IS AN URGENT NEED FOR ACTION

Our communities are facing a range of critical issues: climate emergency, social inequity, public health, road safety, congestion, and increasingly constrained municipal budgets

WE DON'T ALWAYS KNOW ALL THE ANSWERS

Opportunity to try, monitor, and adjust!

Photo Source: City of North Vancouver

QUICK TO IMPLEMENT

Can be installed in a matter of days

Can also help inform longer-term permanent designs

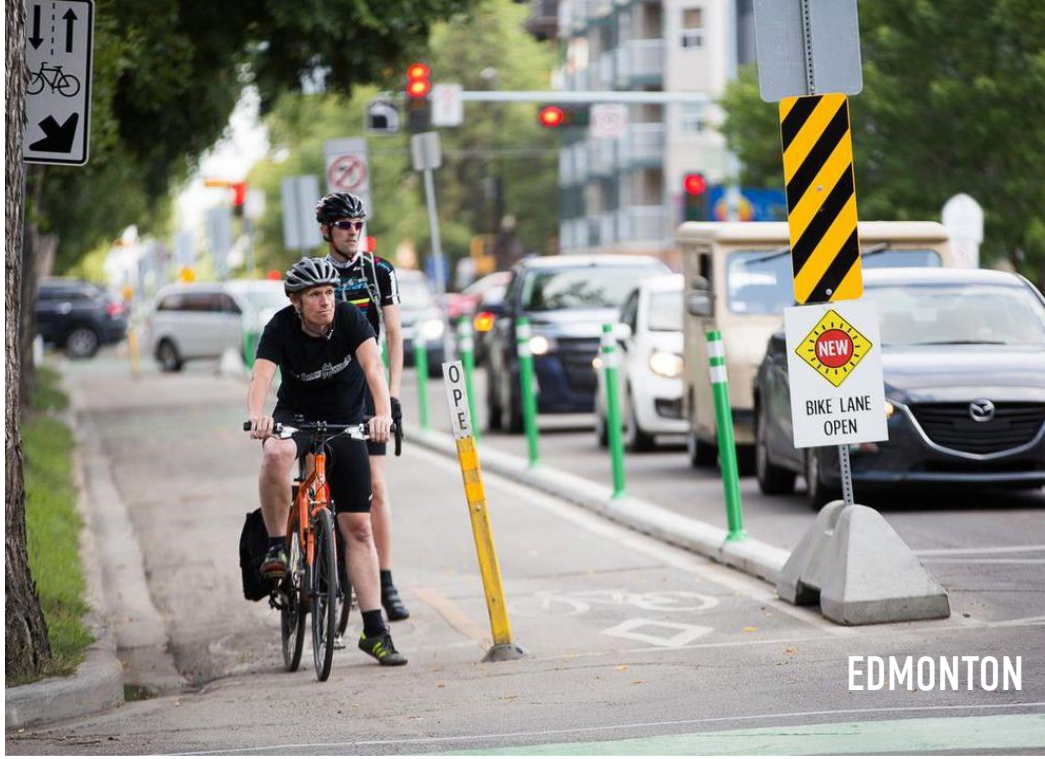
CAN BE A POWERFUL ENGAGEMENT APPROACH

Provides people with the opportunity to experience and interact with the project to provide informed input

DEMONSTRATED RESULTS

- Increases in cycling trips and mode share
- AAA facilities appeal to a more diverse demographic of cyclists such as women and children
- High user support

European research conducted over the COVID-19 pandemic shows an increase in active transportation rates, including a significant increase (11-48% on average) in cycling where cities added provisional infrastructure



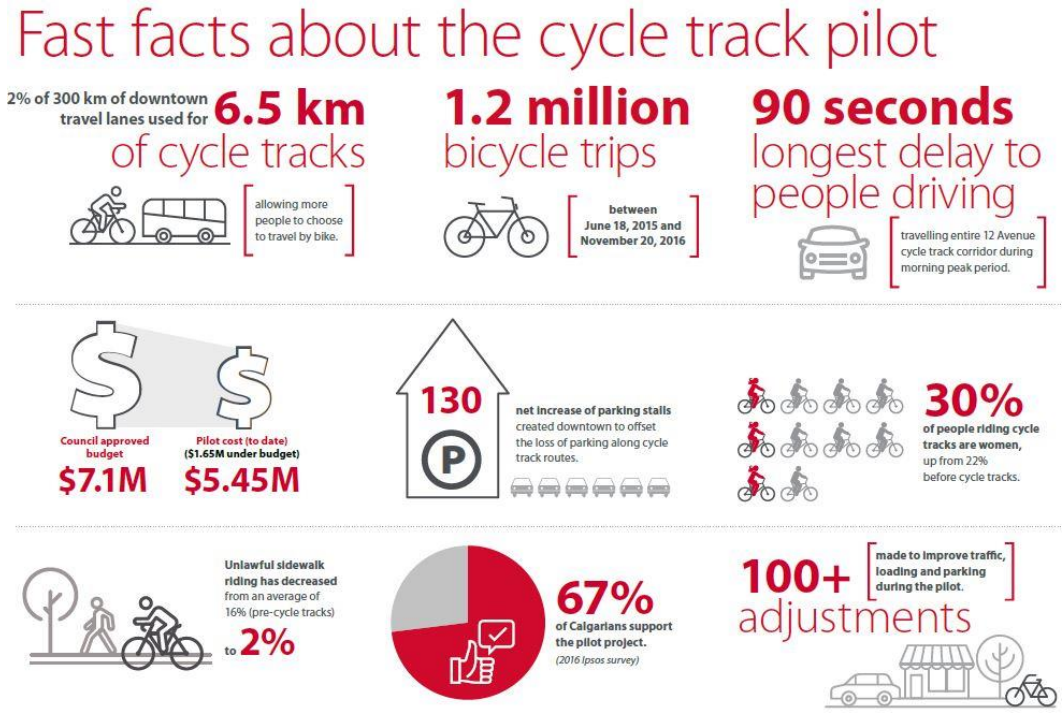
EDMONTON

CALGARY

TRANSLINK URBAN SYSTEMS

CANADIAN EXAMPLES

- **Calgary City Centre Cycle Track Network**
  - Number of cycling trips tripled
  - Proportion of women cyclists increased from 22% to 30%
- **Edmonton Downtown Bike Network**
  - 81% increase in downtown cyclists
- **Toronto ActiveTO Project**
  - Cycling increases of 65% across seven new routes
  - Richmond/Adelaide Streets are highest volume cycling corridors in the City



Source: City of Calgary

5. DESIGN GUIDANCE

ALL AGES AND ABILITIES FACILITIES

- Rapid implementation should emphasize All Ages and Abilities (AAA) facilities
- Typically **protected bike lanes** and **neighbourhood bikeways**

RAPID IMPLEMENTATION DOES NOT MEAN LOWER QUALITY

Adanac Street Bikeway, Vancouver

Photo source: Mike Zipf, COV

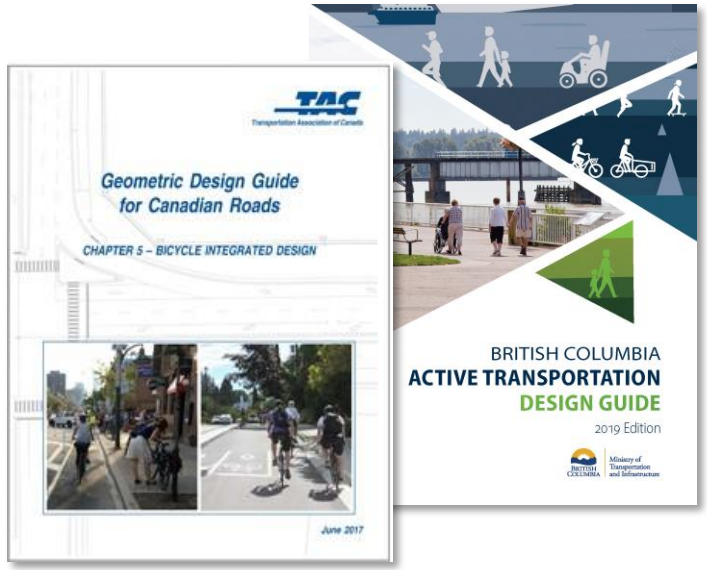
Table Tennis

Creative Seating

Skate Dot & Mural

BIKEWAY DESIGN GUIDANCE

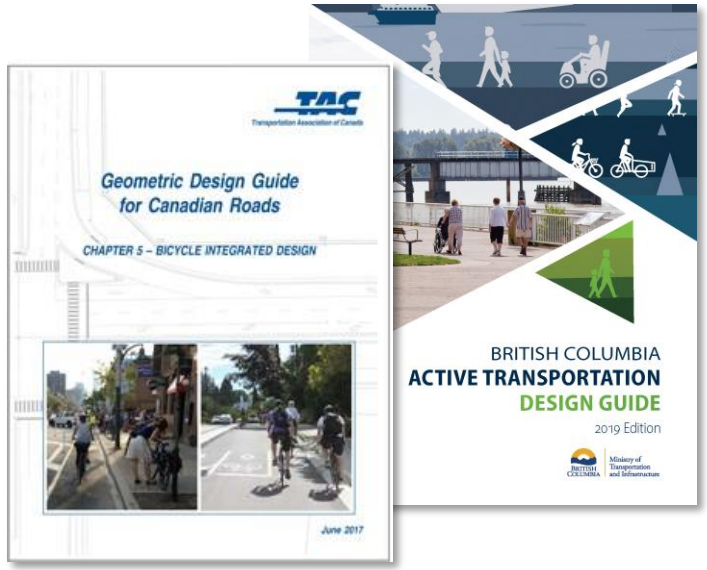
TACTICAL ⟷ PERMANENT



TRANSLINK URBAN SYSTEMS

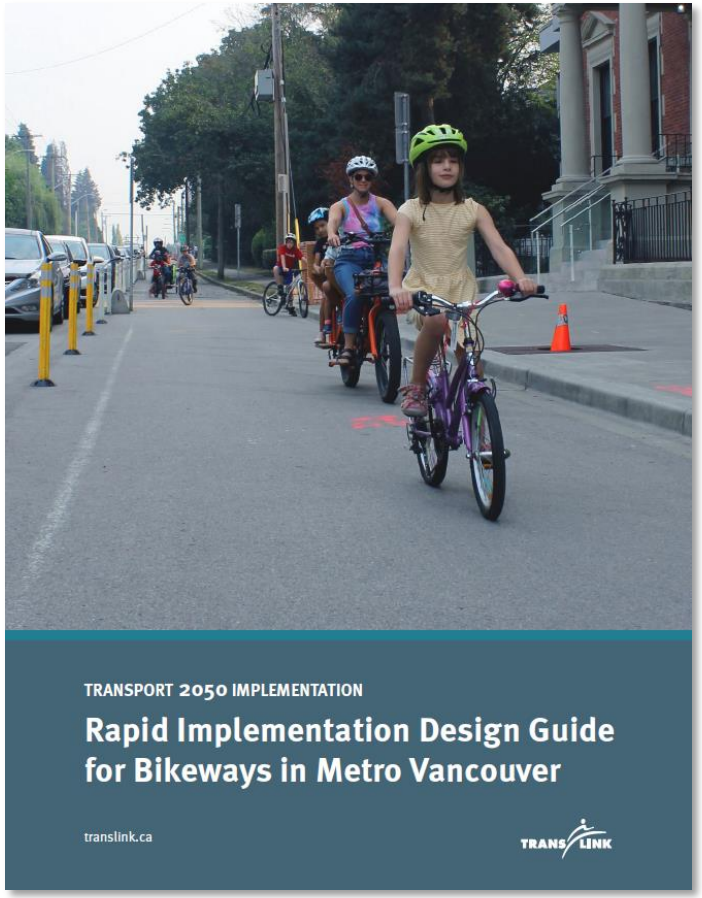
BIKEWAY DESIGN GUIDANCE

TACTICAL <---------- RAPID IMPLEMENTATION ----------> PERMANENT



TRANSLINK URBAN SYSTEMS

RAPID IMPLEMENTATION DESIGN GUIDE



Section 1 **Introduction**
Introduces the purpose of the guide, provides an overview of existing guidance, and includes a navigation guide for the document.

Section 2 **Rapid Implementation 101**
Outlines the basics of rapid implementation, including key elements, guiding principles, and the differences between rapid and traditional approaches.

Section 3 **The Case For Rapid Implementation**
Explains the rationale and key considerations for rapid implementation projects and profiles examples from across Canada and around the world.

Section 4 **Planning and Design Considerations**
Summarizes key considerations throughout the planning and design process, including defining the project need, assessing the site and network context, communications and engagement, implementation, operations and maintenance, and monitoring and evaluation.

Section 5 **Design Development and Material Selection**
Outlines key considerations for how to select among various treatments, provides design guidance for a range of treatments and materials, and summarizes opportunities for activation and beautification of rapid implementation projects.

Section 6 **Summary**
Provides closing thoughts and next steps, as well as a brief overview of the transition to permanent bikeways—including reporting back on rapid implementation efforts, budgeting, and available funding opportunities.

TRANSLINK URBAN SYSTEMS

6. PLANNING & DESIGN CONSIDERATIONS

GUIDING PRINCIPLES

SOCIAL EQUITY

ACCESSIBILITY

SAFETY

PREDICTABILITY

ESSENTIAL ACCESS AND SERVICES

OPERATIONS AND MAINTENANCE

COMMUNICATIONS

TRANSLINK URBAN SYSTEMS

DESIGN CONSIDERATIONS

- Available road space
- Frequency of driveways and intersections
- Accessibility
- On-street parking
- Curbside access
- Presence of transit stops
- Street drainage and maintenance
- Available capital and maintenance budgets

TRANSLINK URBAN SYSTEMS


Hi!
I'M A BUS PAD
We are working to make the Agnes Greenway accessible for people of all ages and abilities. This interim bus pad has been designed specifically to accommodate people using wheelchairs or other mobility devices.
The bike lane has been raised to sidewalk level to ensure a smooth crossing with enough width for buses to deploy accessible ramps.
Yellow tactile strips are provided to raise awareness when you are crossing the bicycle lane.
A marked crosswalk to indicate right-of-way for transit users, along with a sign for people cycling to let them know they should yield to people in the crosswalk.
TO PEDESTRIANS
On your bike
Be extra cautious if a bus is stopped
Slow down and yield to people getting on or off the bus
While you wait for the bus
Be aware and look both ways before crossing the bicycle path
Do not wait/stand in the crossing
Wait behind the yellow tactile strip until the bus stops
For more information, go to
NEW WESTMINSTER


MAXIMUM
30
km/h
The Decibel
A daily podcast from The Globe and Mail

PROCESS COMPARISON

TRADITIONAL APPROACH

Figure 5 – Traditional Bikeway Design Process

RAPID IMPLEMENTATION APPROACH

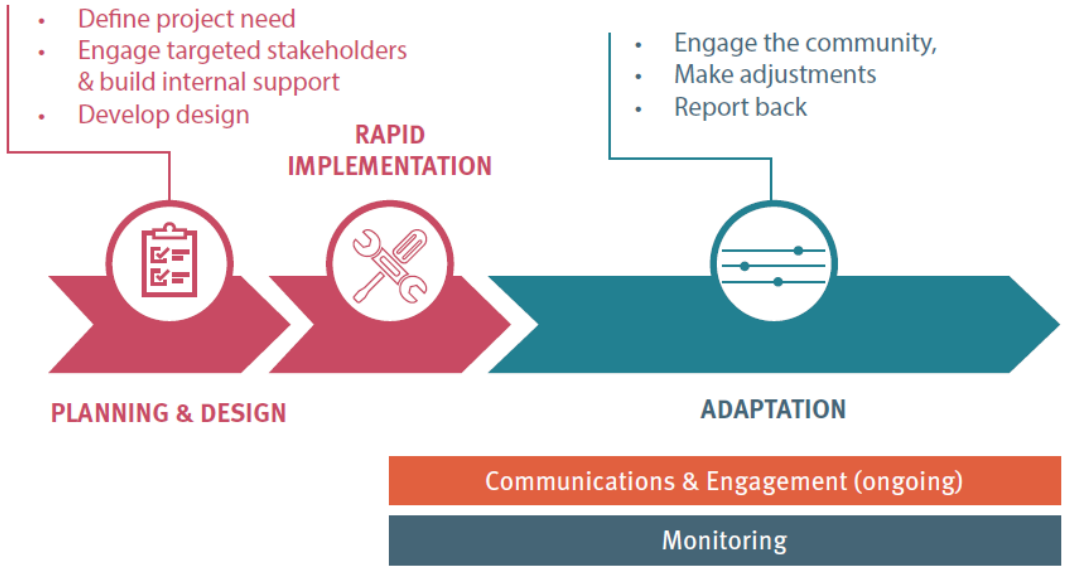
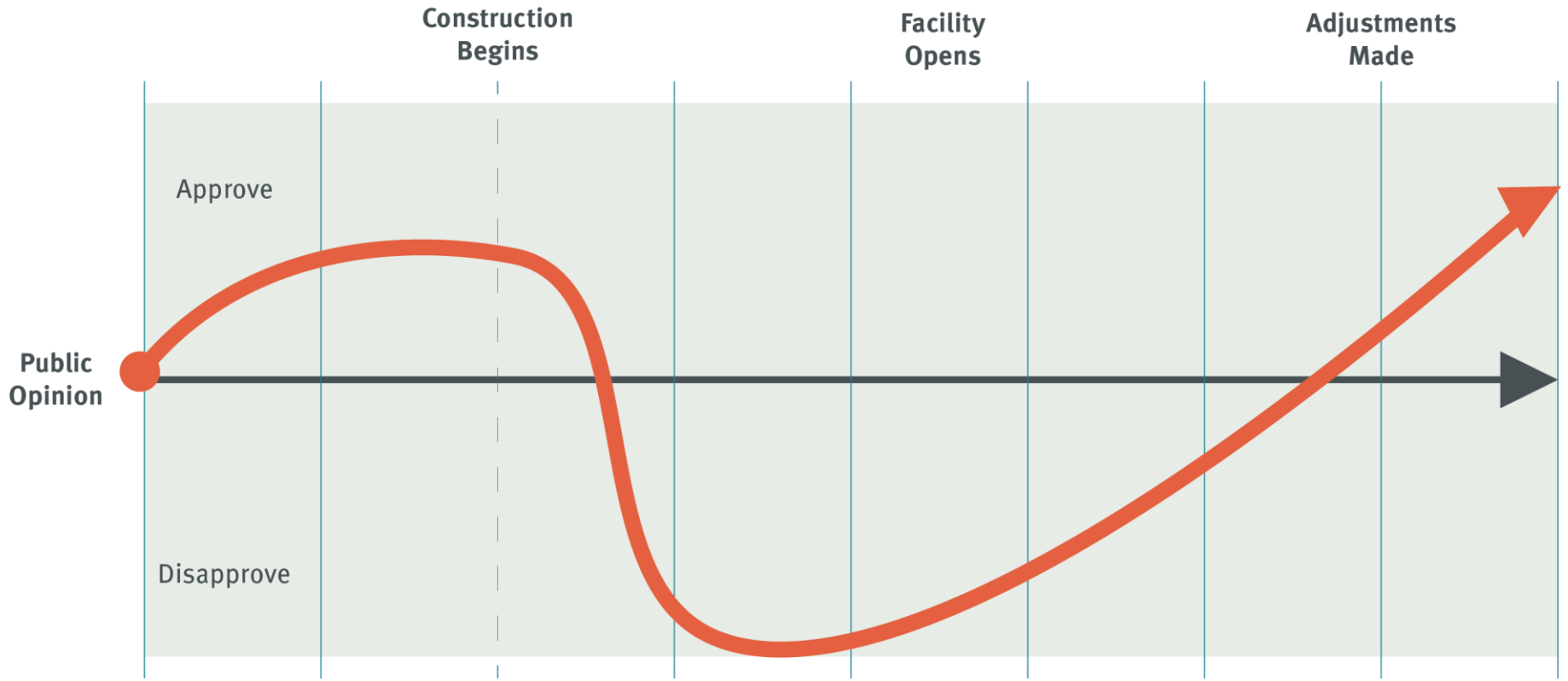


Figure 6 – Rapid Implementation Design Process

BUILDING POLITICAL WILL



7. TREATMENTS AND MATERIALS

PROTECTED BIKE LANE TREATMENTS

- Variety of treatments and materials
- Often used in combination (hybrid approach)
- Key considerations:
  - *Relative level of protection*
  - *Relative cost*
  - *Relative durability*
  - *Aesthetics*
  - *Installation*
  - *Maintenance*
  - *Drainage*

Figure 32 – Relative Level of Protection for various Protected Bicycle Lane Treatments

TRANSLINK URBAN SYSTEMS

FLEXIBLE DELINEATOR POSTS

Level of Protection	Low
Capital Cost	$ (>$500k/km)
Maintenance Cost	Medium
Durability	Low
Ease of Implementation	Easy
Pros	Allows pedestrian curbside access Provides delineation of parking lane if present Improves visibility of separation types such as low height barriers and curbs
Cons	Does not provide physical protection from motor vehicles Increased maintenance to replace dislodged or damaged flex-posts Not aesthetically pleasing

TRANSLINK URBAN SYSTEMS

MODULAR PLASTIC CURBS

Level of Protection	Low
Capital Cost	$$ ($500k-$1M/km)
Maintenance Cost	Medium
Durability	Medium
Ease of Implementation	Easy
Pros	Continuous barrier protection Can be installed on a curve Allows stormwater drainage to pass through
Cons	Mountable by vehicles Not aesthetically pleasing

PARKING PROTECTED BIKE LANES

(Delivered by Shifting Lane Markings)

Level of Protection	Low-Medium
Capital Cost	$ (>$500k/km)
Maintenance Cost	Low
Durability	Medium
Ease of Implementation	Easy
Pros	Allows pedestrian curbside access Provides physical separation when parked vehicles are present Painted buffer may be supplemented with flexible delineator posts or other types of physical protection, while ensuring gaps are provided for accessibility
Cons	No physical protection if parked vehicles are not present and if flexible delineator posts or other types of physical protection are not provided Vehicles may encroach while parking/loading unless flexible delineator posts or other types of physical protection are provided

PLANTER BOXES

Level of Protection	Medium
Capital Cost	$$ ($500k-$1M/km)
Maintenance Cost	High
Durability	Medium
Ease of Implementation	Medium
Pros	Physical protection Very aesthetically pleasing
Cons	Significant ongoing maintenance for watering, replanting, etc. Require more width

TRANSLINK URBAN SYSTEMS

PRE-CAST CONCRETE CURBS

Level of Protection	Medium
Capital Cost	$$ ($500k-$1M/km)
Maintenance Cost	Medium
Durability	High
Ease of Implementation	Medium
Pros	Physical protection Allows stormwater drainage to pass through Quick installation May be suitable for higher speed roadways
Cons	Limits curbside access

TRANSLINK URBAN SYSTEMS

EXTRUDED CURBS

Level of Protection	Medium-High
Capital Cost	$$$ ($1-2M/km)
Maintenance Cost	Low
Durability	High
Ease of Implementation	Hard
Pros	Physical protection Customizable width Suitable for higher speed roadways
Cons	Limits curbside access Requires gaps to accommodate stormwater drainage High cost

TRANSLINK URBAN SYSTEMS

CONCRETE BARRIERS

Level of Protection	High
Capital Cost	$$ ($500k-$1M/km)
Maintenance Cost	Medium
Durability	High
Ease of Implementation	Medium
Pros	Enhanced physical protection Not fixed to the roadway surface Provides opportunity for public art Suitable for higher speed roadways
Cons	Reduces the effective width of the bike lane Significant impact to curbside access High cost

TRANSLINK URBAN SYSTEMS

TREATMENT SUMMARY

	Flexible Delineator Posts	Modular Plastic Curbs	Parking Protected Bicycle Lanes (Delivered by Shifting Lane Markings)	Planter Boxes	Pre-cast Concrete Curbs	Extruded Curbs	Concrete Barriers
Level of Protection	Low	Low	Medium-Low	Medium	Medium	Medium-High	High
Capital Cost *	$	$$	$	$$	$$	$$$	$$
Maintenance Cost	Medium	Medium	Low	High	Medium	Low	Medium
Durability	Low	Medium	Medium	Medium	High	High	High
Ease of Implementation	Easy	Easy	Easy	Medium	Medium	Hard	Medium

* Capital Cost: $ = >$500k/km, $$ = $500k-$1M/km, $$$ = $1-2M/km, $$$$ = >$2M/km

Table 10 – Protected Bicycle Lane Rapid Implementation Treatments – Relative Rankings

TRANSLINK

NEIGHBOURHOOD BIKEWAYS

TRAFFIC DIVERSION

- Full road closures
- Conversion to one-way
- Diagonal diverters
- Median islands

NEIGHBOURHOOD BIKEWAYS

TRAFFIC CALMING

- Reduced speed limits
- Speed humps or tables
- Raised crosswalks
- Chicanes
- Curb extensions

TRANSLINK URBAN SYSTEMS

8. ACTIVATION AND BEAUTIFICATION

PLANTERS

DECORATIVE PAINT

DECORATIVE PAINT

StreetARToronto

Art by Philip Cote & Jim Bravo, in partnership with the Roncesvalles Village-BIA | 149 Roncesvalles Ave | Photo by Ian Pereira

Cycling is Elemental | Celebrating Toronto's newest outdoor Art Gallery!

Richmond St from Parliament St to Bathurst St

The StreetARToronto Richmond St. Cycle Track Mural Project titled 'Cycling is Elemental' is complete! Walk it, bike it, or drive by Toronto's latest outdoor art gallery to experience 353 unique and meaningful murals painted by a diversity of Toronto artists on cycle track barriers from Parliament St. to Bathurst St.

Themed zones route:
Earth themed Murals: Parliament St to Victoria St
Air themed Murals: Victoria to University Ave
Fire themed Murals: University Ave to Spadina Ave
Water themed Murals: Spadina Ave to Bathurst Street

Richmond Cycle Track Mural Curators:
Cindy Scaife, Alathea Milne-Hines, Mike Ormsby

Clockwise: All photos by Mike Hajmasy & Gage Fletcher, Artwork/Picture: Alathea Milne-Hines and daughter Simone in Air Zone; Artwork featured: Adam Giroux; Artists featured: RUN Collective—Cedar-Eve Peters, Nishina Loft & Jennifer Messon in Fire Zone; and Artwork featured — Anastasia Eve in Air Zone

CREATIVE ELEMENTS

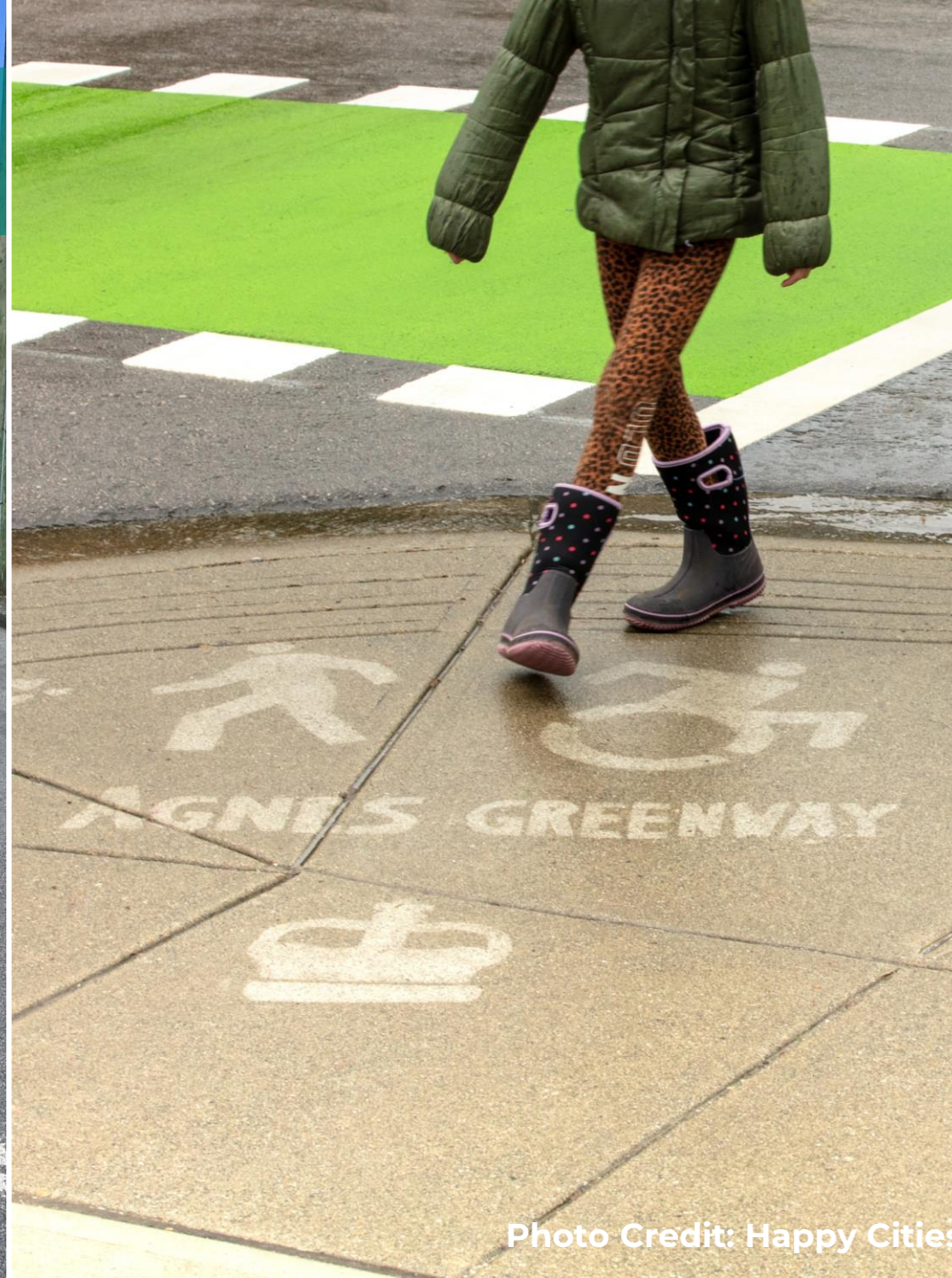


Photo Credit: Happy Cities

FURNITURE

PATIOS & PARKLETS

OTHER PLACEMAKING ACTIVATIONS

- Have fun! Many interactive elements possible.

TRANSLINK URBAN SYSTEMS

RAPID IMPLEMENTATION OF BIKEWAYS

Questions?

Matt Craig (he/him)
TransLink
matt.craig@translink.ca

Brian Patterson (he/him)
Urban Systems
bpatterson@urbansystems.ca