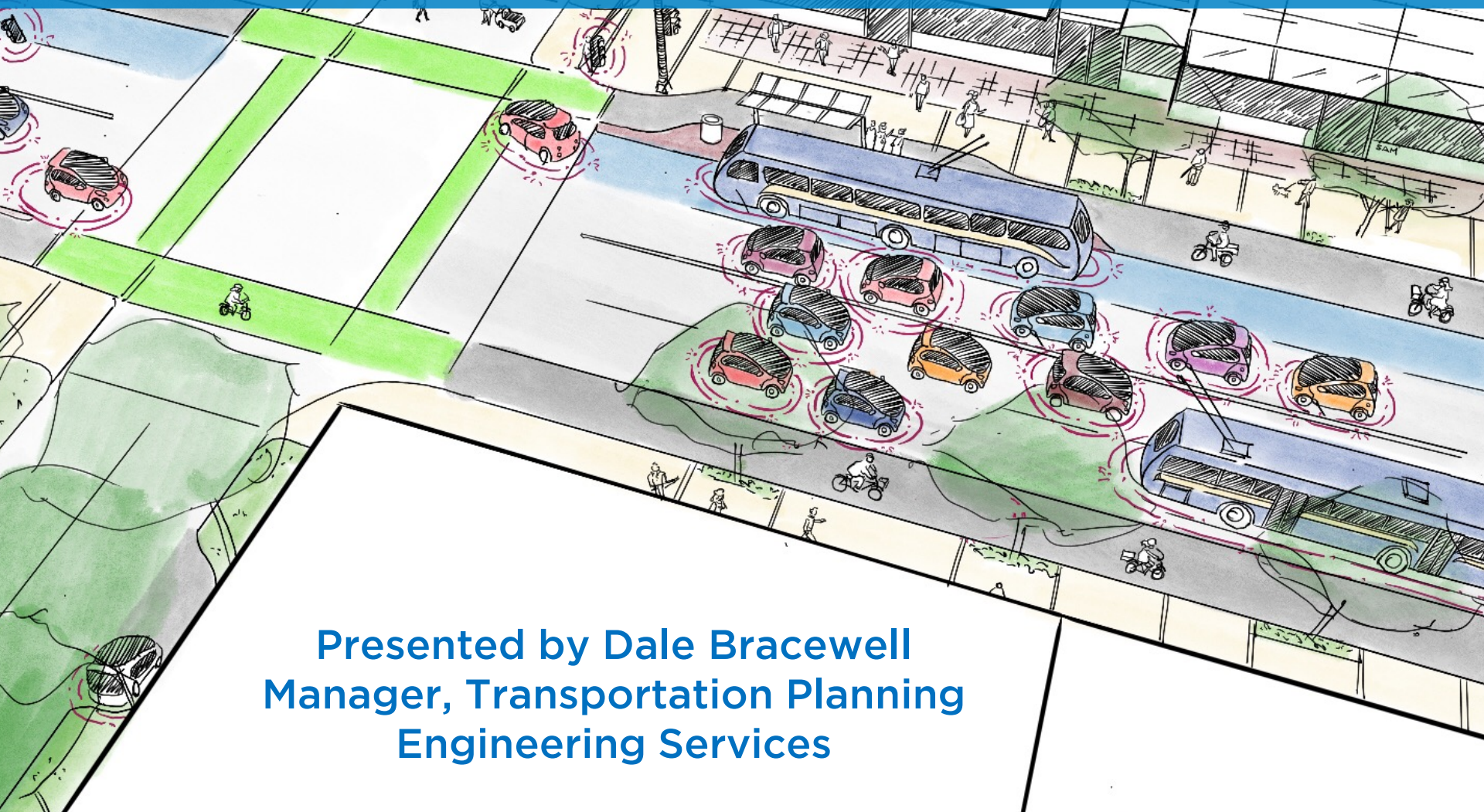


Vancouver's Mobility Future: *"Automating" Policy into Sustainable Results*

Vancouver City Council, January 30th, 2018



Presented by Dale Bracewell
Manager, Transportation Planning
Engineering Services



**AUTOMATED + CONNECTED VEHICLES:
IMPLICATIONS FOR VANCOUVER & NEXT STEPS**

Auto Industry Megatrends

- **A**utomated
- **C**onnected
- **E**lectric
- **S**hared



Potential Benefits

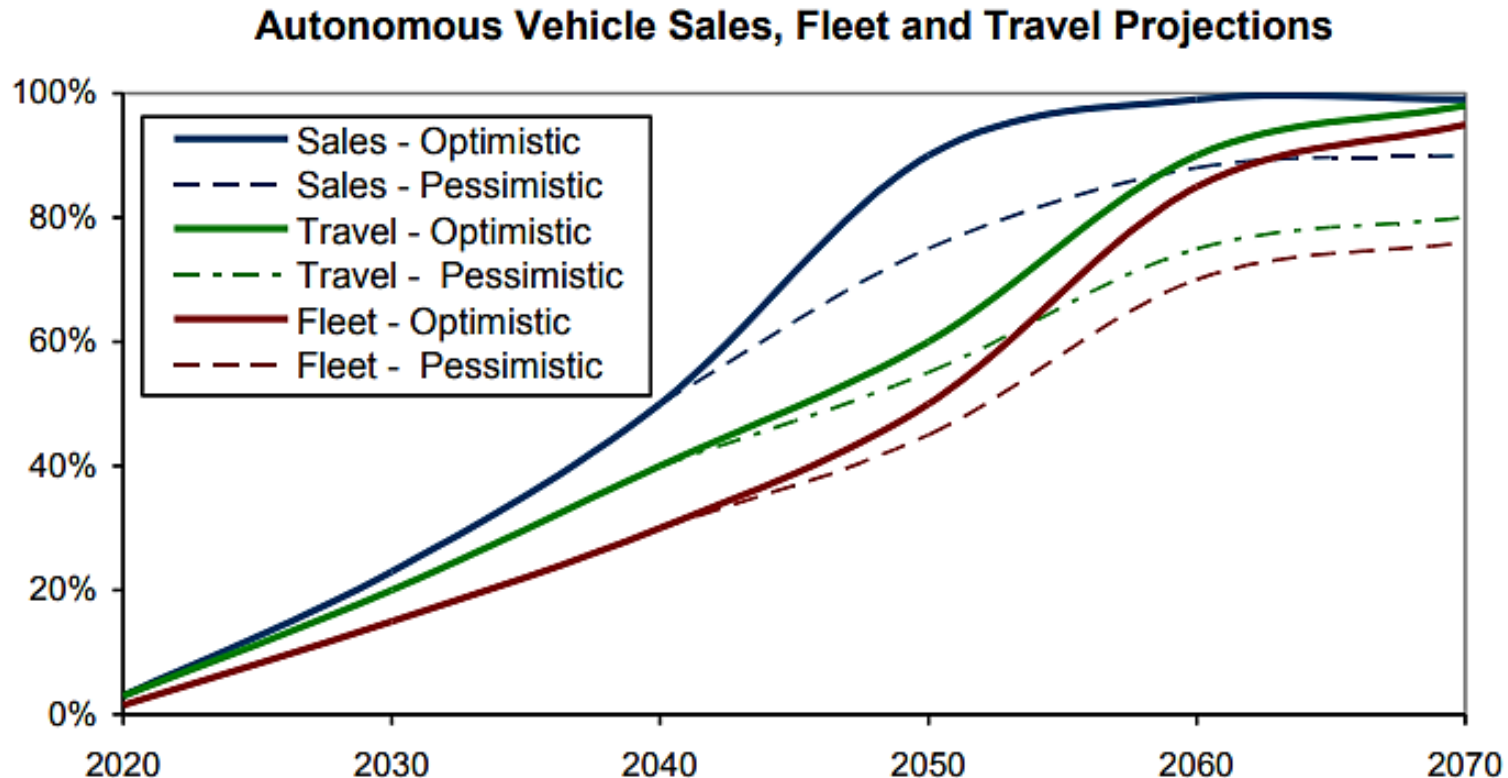
- Improved safety
- Increased mobility options
- Fewer cars overall = More space for walking, cycling, transit, public realm
- Decreased emissions
- Complement mass transit with flexible, on-demand shared service
- Improved transportation planning tools through better data
- Increased productivity during commute time



Potential Risks

- More driving: Longer commutes and induced sprawl
- Worsened health: Decreased walking and cycling
- Reduced investment in mass transit
- Hacking & cybersecurity threats
- Loss of privacy

Potential Rate of Automated Vehicle Adoption



If autonomous vehicle implementation follows the patterns of other vehicle technologies it will take one to three decades to dominate vehicle sales, plus one or two more decades to dominate vehicle travel, and even at market saturation it is possible that a significant portion of vehicles and vehicle travel will continue to be self-driven, indicated by the dashed lines.

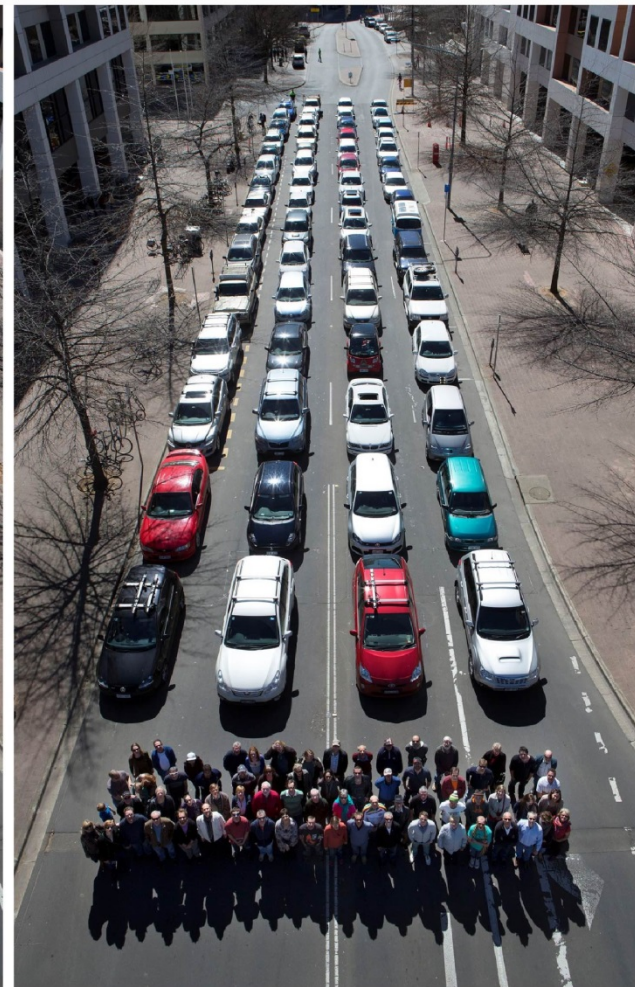
Space Required to Transport 48 People



Car



Electric Car



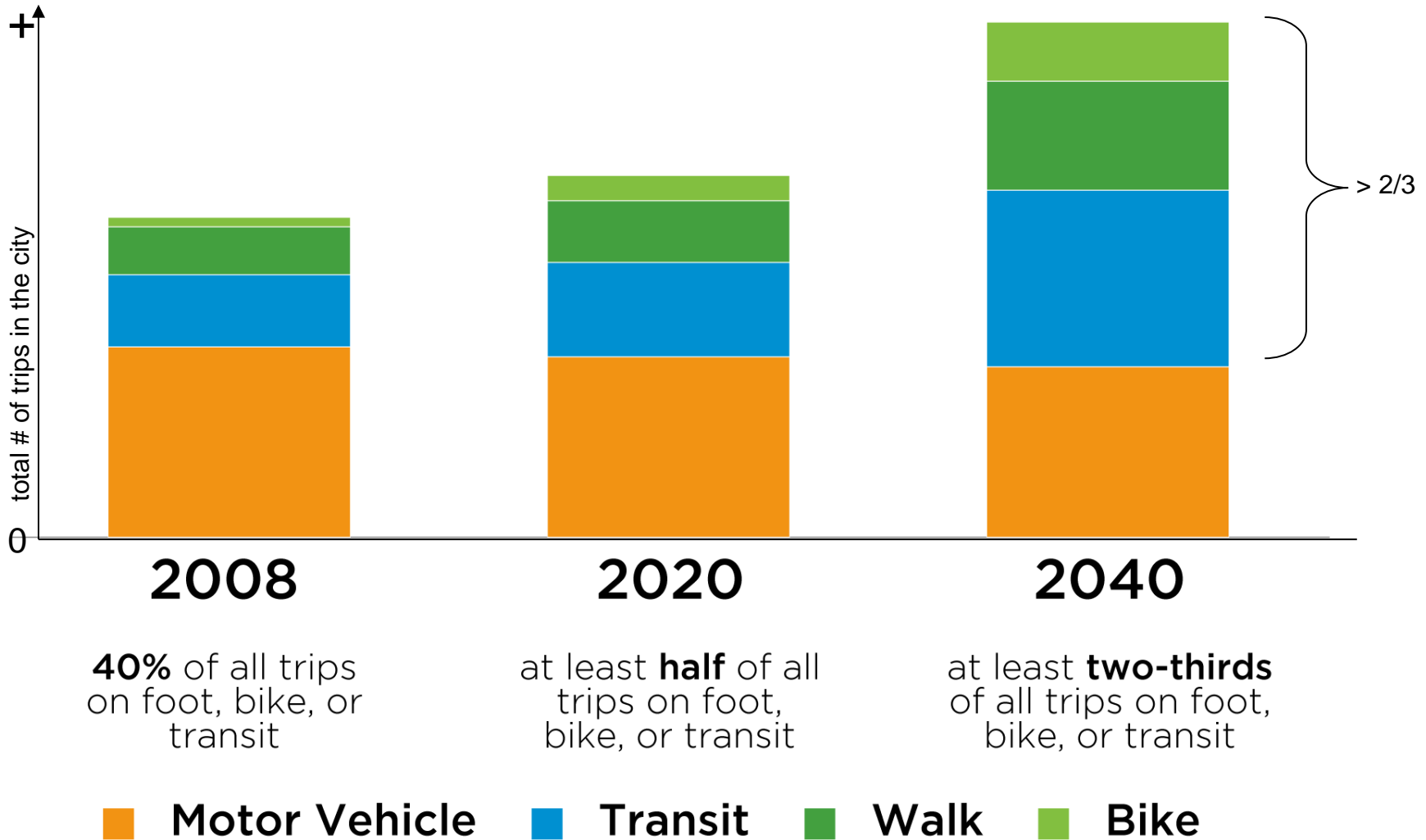
Autonomous Car

Source: Cycling Promotion Fund

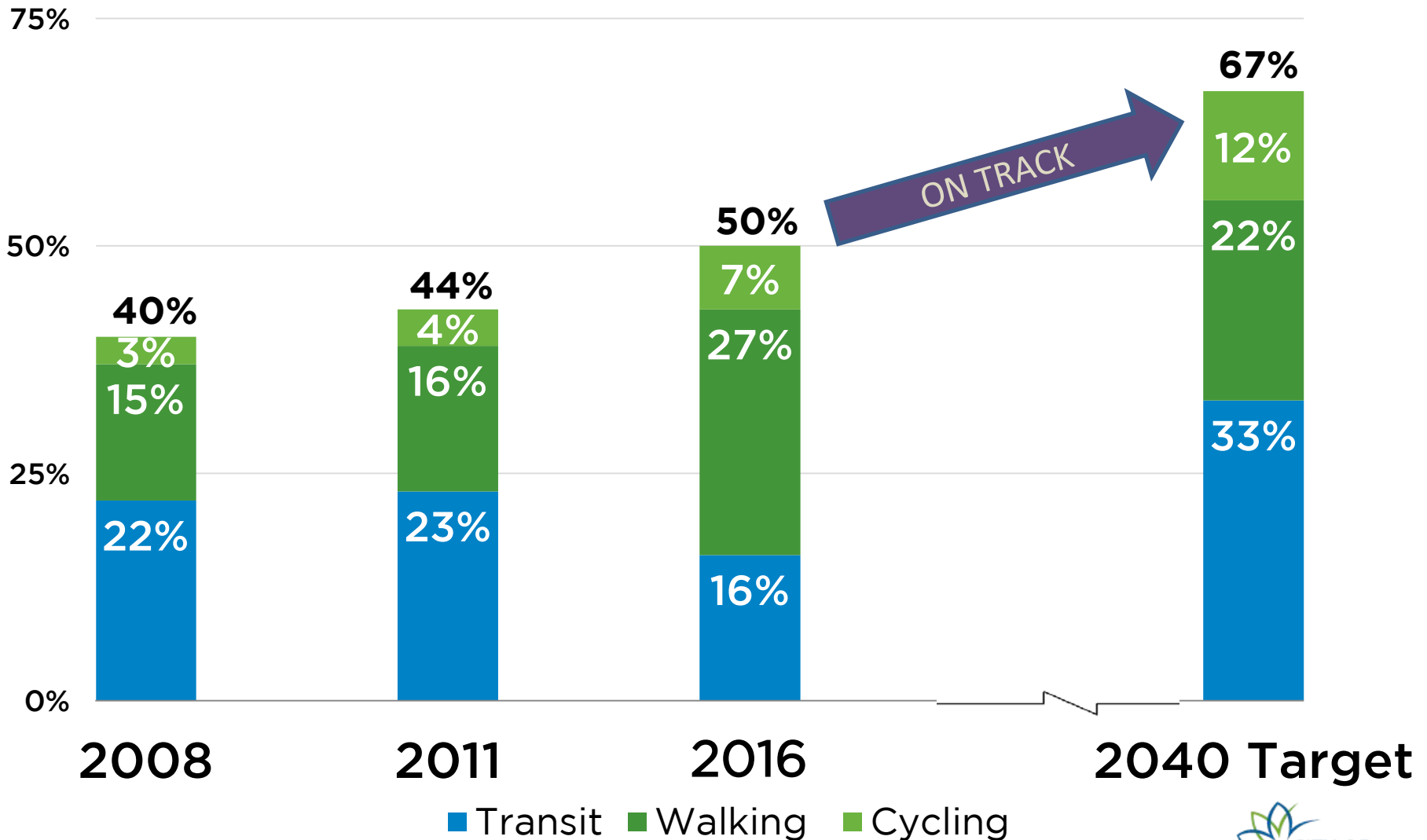


**Foundation for
Transportation in Vancouver**

TRANSPORTATION PLAN TARGETS



City of Vancouver Sustainable Mode Share Trends & Targets



For all trips beginning or ending in the City of Vancouver. Source: 2008, 2011 Translink Trip Diaries; 2013-2015 Panel Surveys, excluding recreational trips; Transportation 2040 mode share targets.

“Instead of adapting our cities to accommodate new transportation technologies, we need to adapt new transportation technologies to our cities in ways that make them safer, more efficient, and better places to live and work.”



-- Janette Sadik-Khan, Transportation Principal at Bloomberg Associates and NACTO Chair

Preparing for the Future of Mobility

1. Planning & Policy Development
2. Working with Others
3. Explore & Test Innovation
4. Planning for Resilience
5. Future Proof Parking & Civic Infrastructure

1. Planning & Policy Development

- Continue to advance municipal and regional objectives
- Council direction to advance ACES
- Internal working group
- Long range transportation planning

The City will change . . . How?

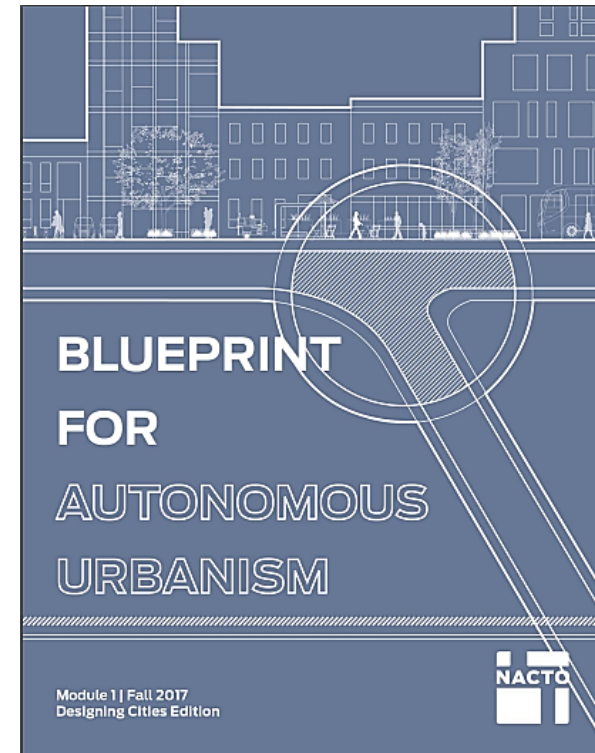
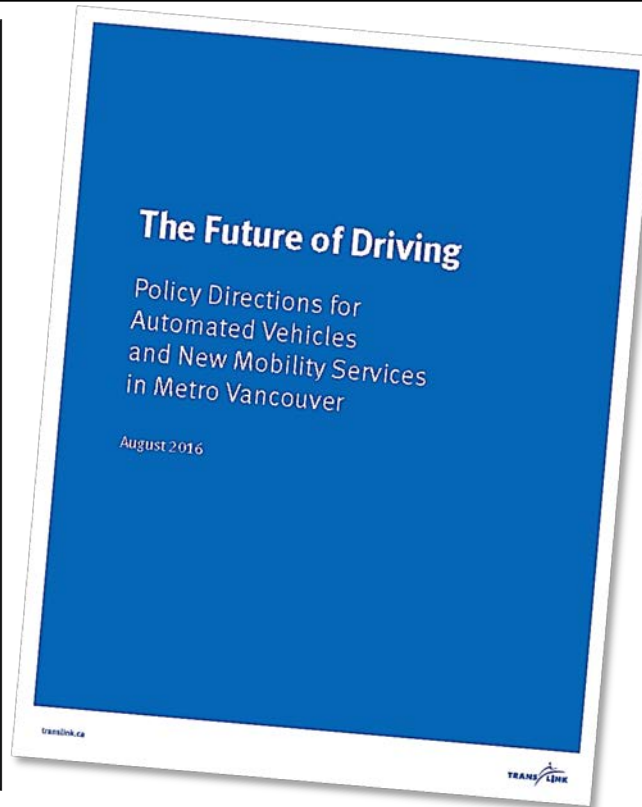
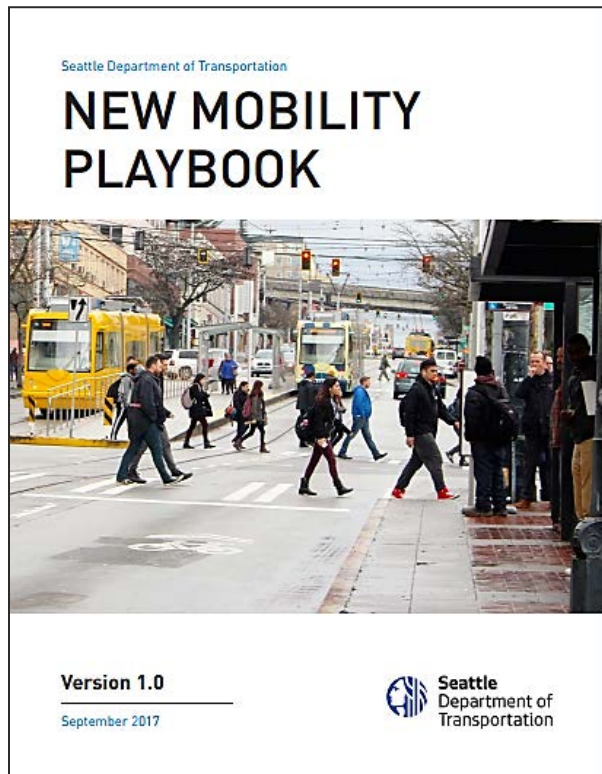


2. Working with Others



- Capacity-Building and Awareness
- Regional Coordination
- National and International Collaboration

2. Working with Others

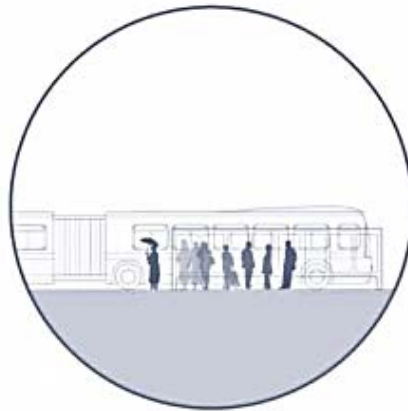


- Regional Coordination
- National and International Collaboration

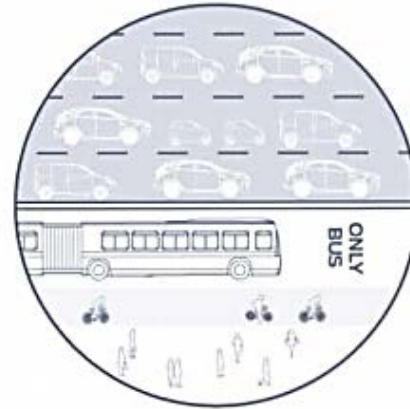
NACTO Blueprint for Autonomous Urbanism



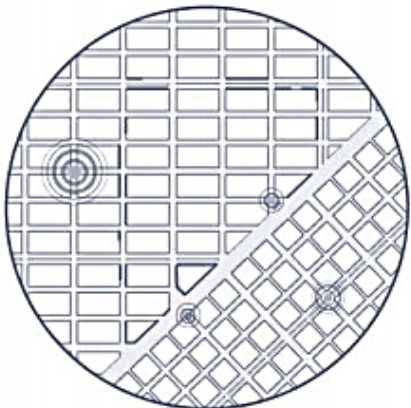
Safety is the Top Priority



Mobility for the Whole City



Rebalance the Right-of-Way



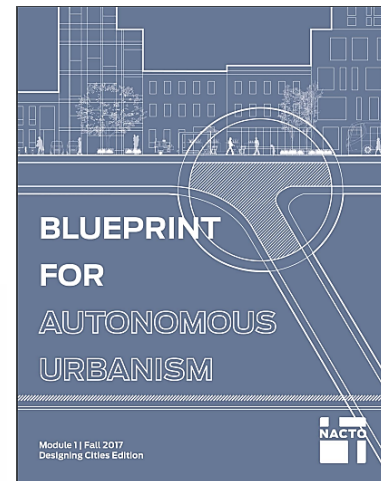
Manage Streets in Real Time



Move More with Fewer Vehicles



Public Benefit Guides Private Action



3. Explore & Test Innovation

THE EV ECOSYSTEM

Charging needs by neighbourhood and building use

Integrated and adaptable; part of City planning process;

All parking stalls in 1 and 2 family homes equipped with Level 2 circuit

Level 2 charging expanded to all public facing City properties

COMMUNITY CENTRE

Maintain focus on walking cycling and transit

Labelling of EV charging circuits improves visibility to new residents

Preferential parking rules under development

- **Electric Vehicle Ecosystem Strategy**
- Electric Bus Trial
- Shared Mobility
- SMART Cities

ELECTRIC VEHICLES – Current State

- Largest Municipal Electric Fleet In Canada
 - Across VPD, VF&RS, Parks, and Engineering services
 - 56 Light Duty
 - 33 Recreational and Construction
 - 53 Hybrid



3. Explore & Test Innovation

























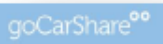











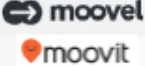



- Electric Vehicle Ecosystem Strategy
- Electric Bus Trial
- Shared Mobility
- SMART Cities

3. Explore & Test Innovation



- Electric Vehicle Ecosystem Strategy
- Electric Bus Trial
- **Shared Mobility**
- SMART Cities

3. Explore & Test Innovation

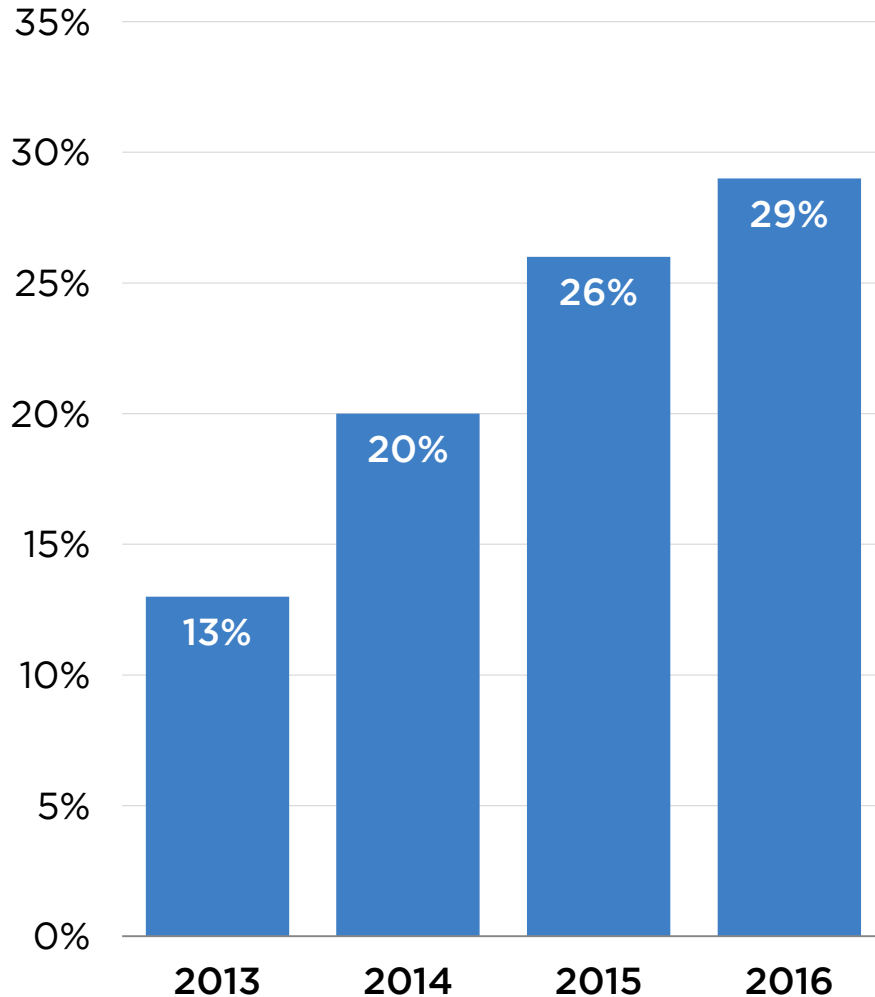
	Taxi Services	UBER	HAIL O	Xmytaxi
	Bike Sharing			 mobi Shaw) Go
	Micro-mobility			
	Car Sharing	zipcar. 		 CAR 2GO 
	Corporate Car-Sharing	AlphaCity		
	Car Rental			
	Ridesharing			
	Parking			
	E-Mobility			
	Public Transport			
	Integrated Mobility	 		

- Electric Vehicle Ecosystem Strategy
- Electric Bus Trial
- Shared Mobility
- SMART Cities

Source: Frost & Sullivan

3. Explore & Test Innovation

% of adults who are car share members



- Electric Vehicle Ecosystem Strategy
- Electric Bus Trial
- **Shared Mobility**
- SMART Cities

3. Explore & Test Innovation



Changing Gears:

Exploring the car-sharing culture shift in Metro Vancouver

January 2018

Highlights

- 26% of survey respondents have disposed of at least one private vehicle to car-share
- 40% have avoided acquiring a private vehicle due to car-sharing preference
- As many as 5% of all moving autos are car-share vehicles in some Vancouver neighbourhoods

- Electric Vehicle Ecosystem Strategy
- Electric Bus Trial
- **Shared Mobility**
- SMART Cities

3. Explore & Test Innovation



Look how we've used technology and data to improve connection and convenience so far:



Wi-Fi for everyone.

Free #VanWiFi in more than 40 public spaces across the city.

[About #VanWiFi →](#)



Wired bike sharing.

More than 400,000 car-free trips with Mobi by Shaw Go.

[About Mobi →](#)



EV plug-ins.

Electric vehicle charging stations at more than 250 locations.

[About electric vehicles →](#)



Quick response.

City vehicles run quicker with biodiesel and GPS technology.

[About green fleets →](#)



Smooth traffic.

Streaming video feeds from busy intersections help route planning.

[About camera data →](#)



Ask, act, participate.

Mobile push and pull updates with the VanConnect app.

[About VanConnect →](#)

- Electric Vehicle Ecosystem Strategy
- Electric Bus Trial
- Shared Mobility
- **SMART Cities**

4. Planning for Resilience

#ResilientCities

We are
100 Resilient Cities

Learn what that
means for you.

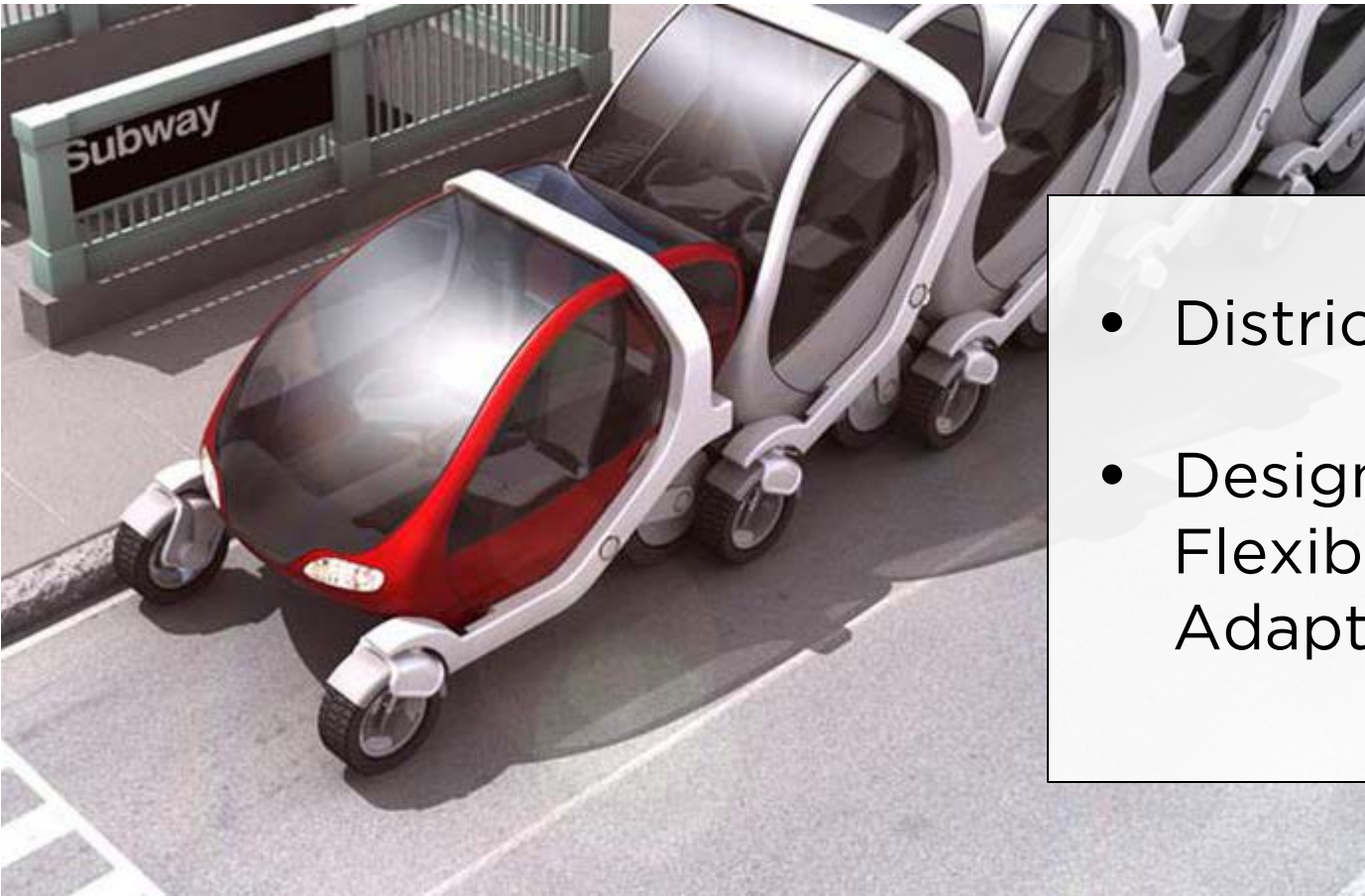
PIONEERED BY THE
ROCKEFELLER FOUNDATION

100

RESILIENT

CITIES

5. Future-Proof Parking & Civic Infrastructure



- District Parking
- Design for Flexibility and Adaptability

PEOPLE-MOVING CAPACITY: Vancouver Urban Transportation Modes (in persons per hour per direction - 3 metre lane width)



PRIVATE MOTOR VEHICLE
700—1,100



REGULAR BUS
1,000—2,000



2-WAY PROTECTED BIKE LANE
2,000—3,000



B-LINE BUS
2,000—4,000



WEST COAST EXPRESS
3,000—5,000



SIDEWALK
5,000—6,500



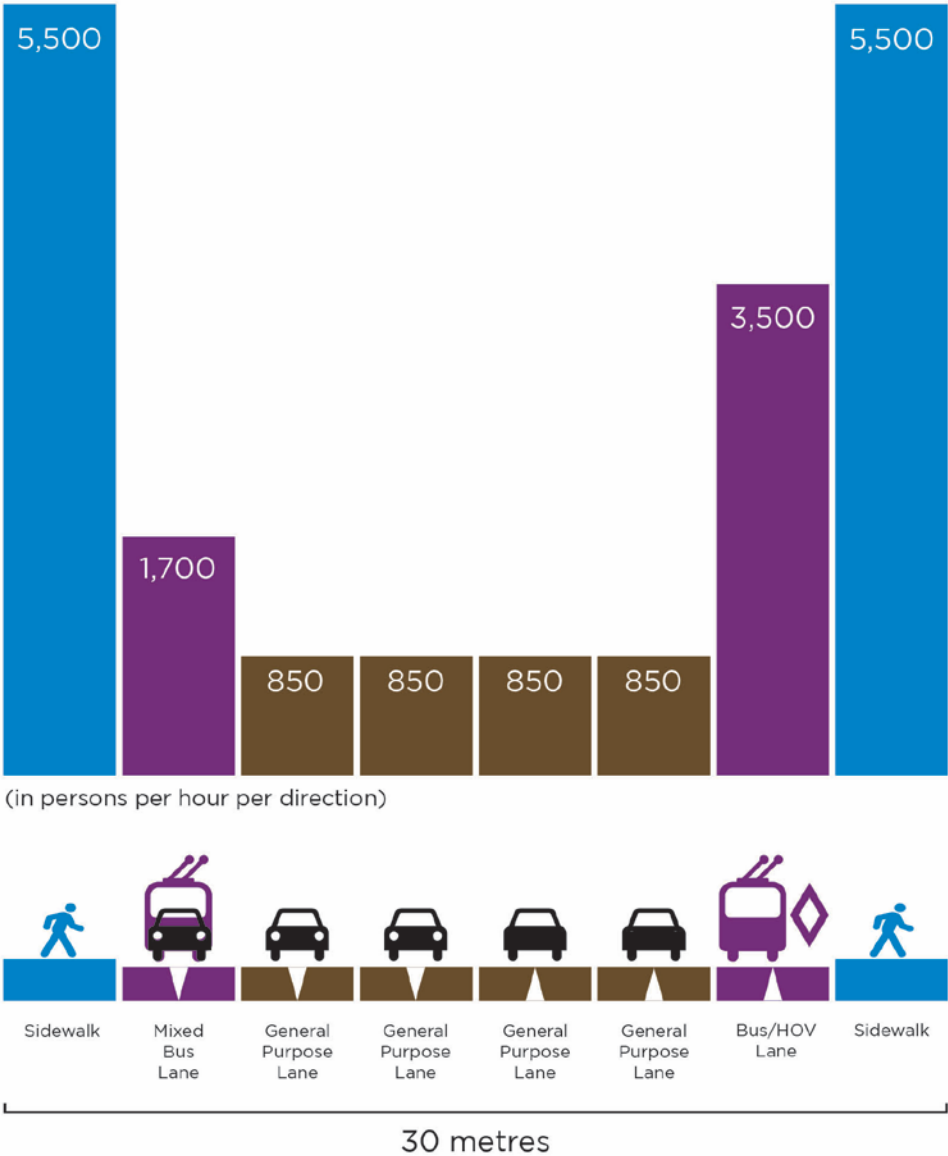
SKYTRAIN
16,000—26,000

Typical private motor vehicle capacity on Vancouver arterial streets and potential capacities for walk, bike and transit

People Moving Capacity in a Growing City - PRESENT

Vancouver
Arterial Street

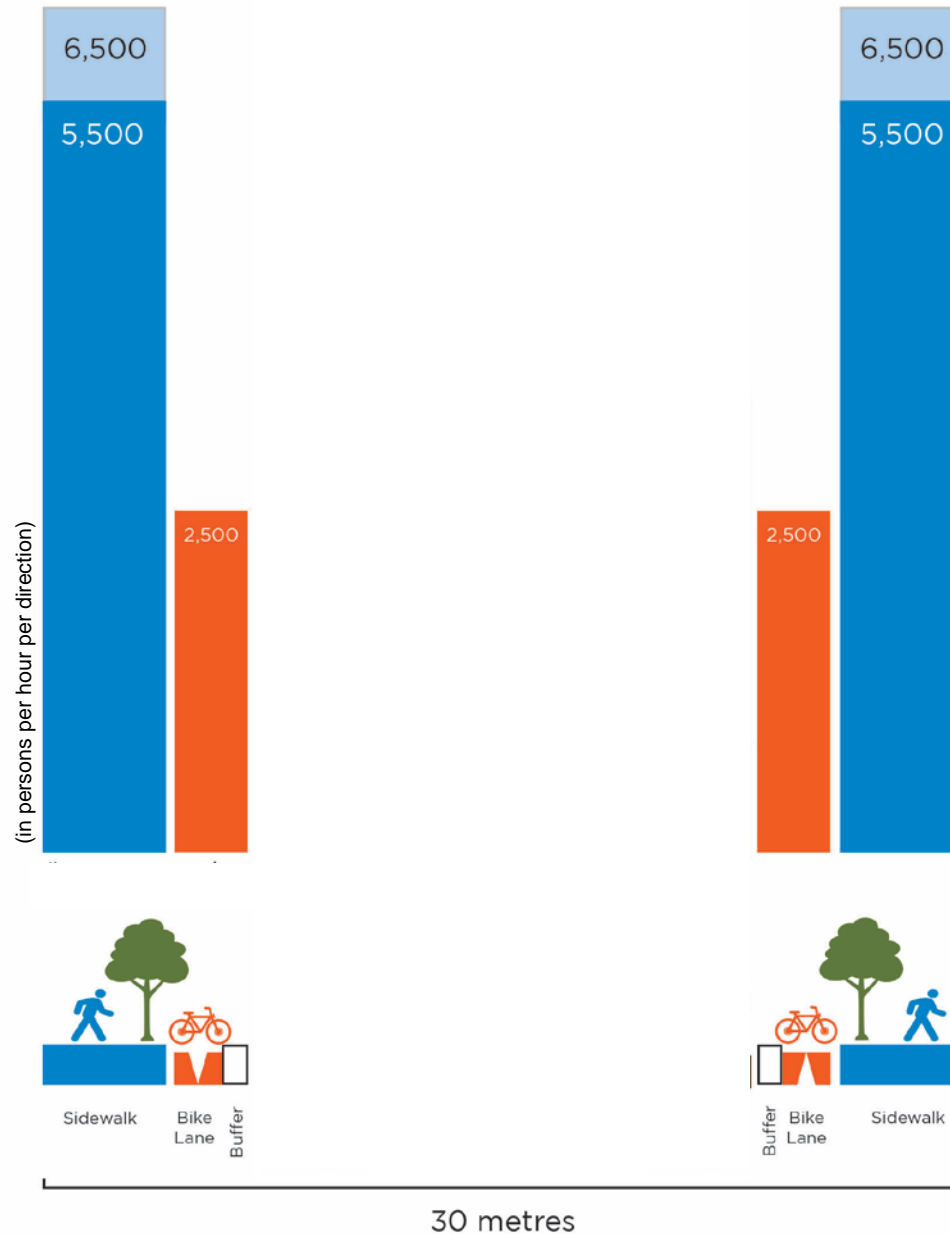
This street can
serve up to
20,000
people
per hour



People Moving Capacity in a Growing City - FUTURE

Vancouver Arterial Street

This street can
serve up to
18,000
people
per hour



People Moving Capacity in a Growing City - FUTURE

Vancouver Arterial Street

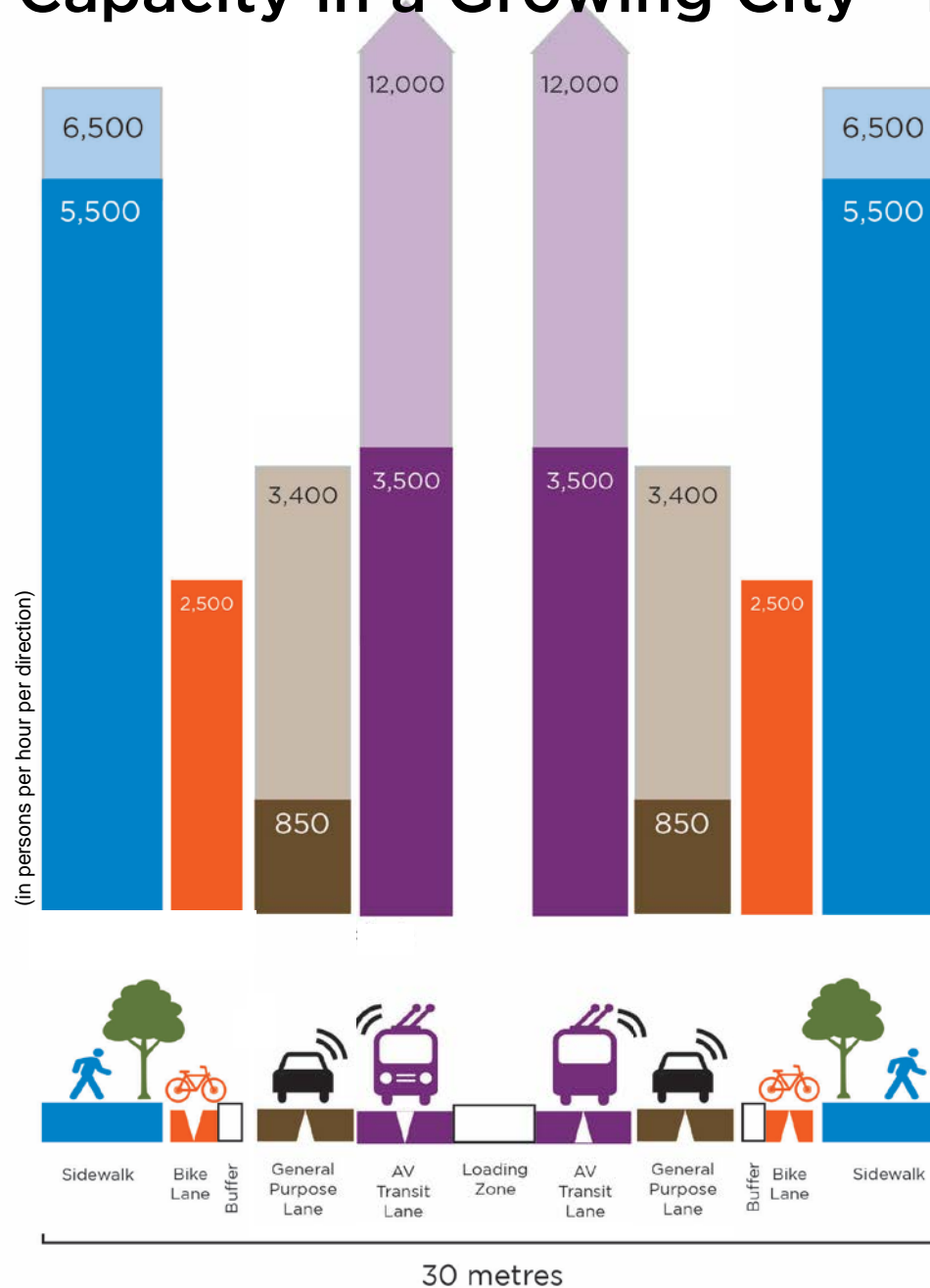
This street can serve up to **42,000** people per hour



People Moving Capacity in a Growing City - FUTURE

Vancouver
Arterial Street

This street can
serve up to
50,000
people
per hour

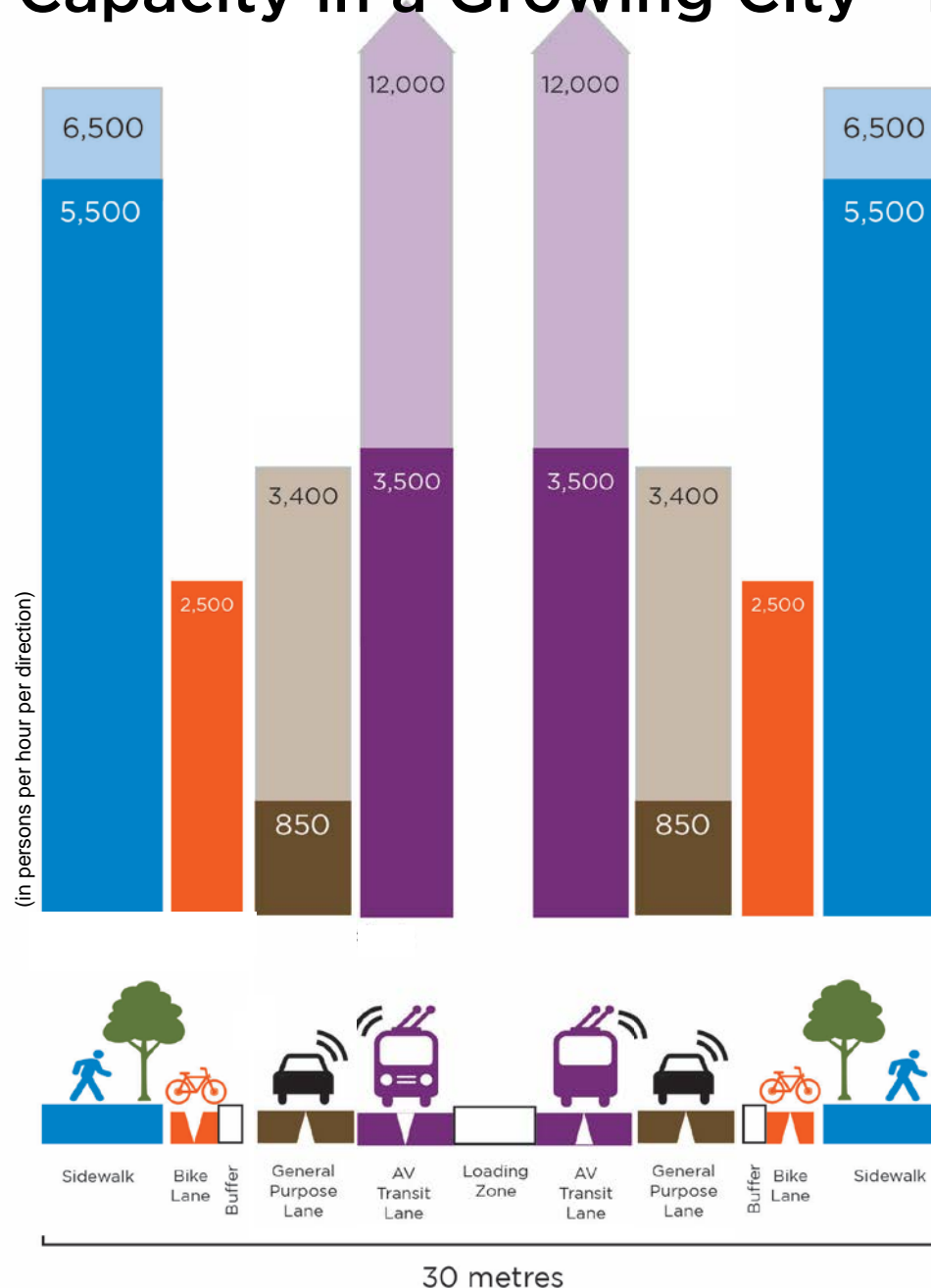


People Moving Capacity in a Growing City - FUTURE

Vancouver
Arterial Street

This street can
serve up to
50,000
people
per hour

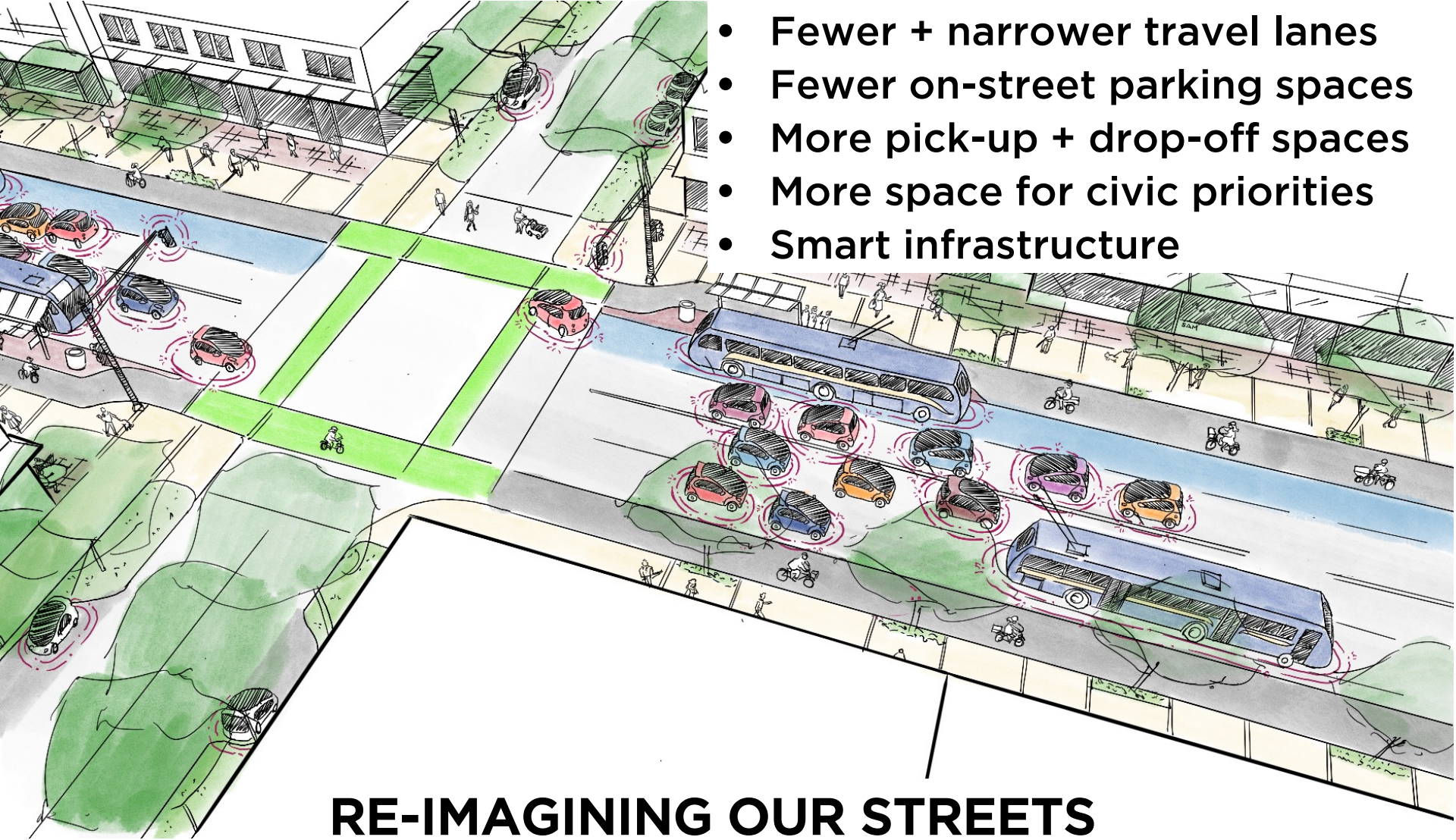
*(as compared to
the present of
20,000
people per hour)*





RE-IMAGINING OUR STREETS

Re-allocate road space as automated,
connected, electric, & shared vehicles
become real

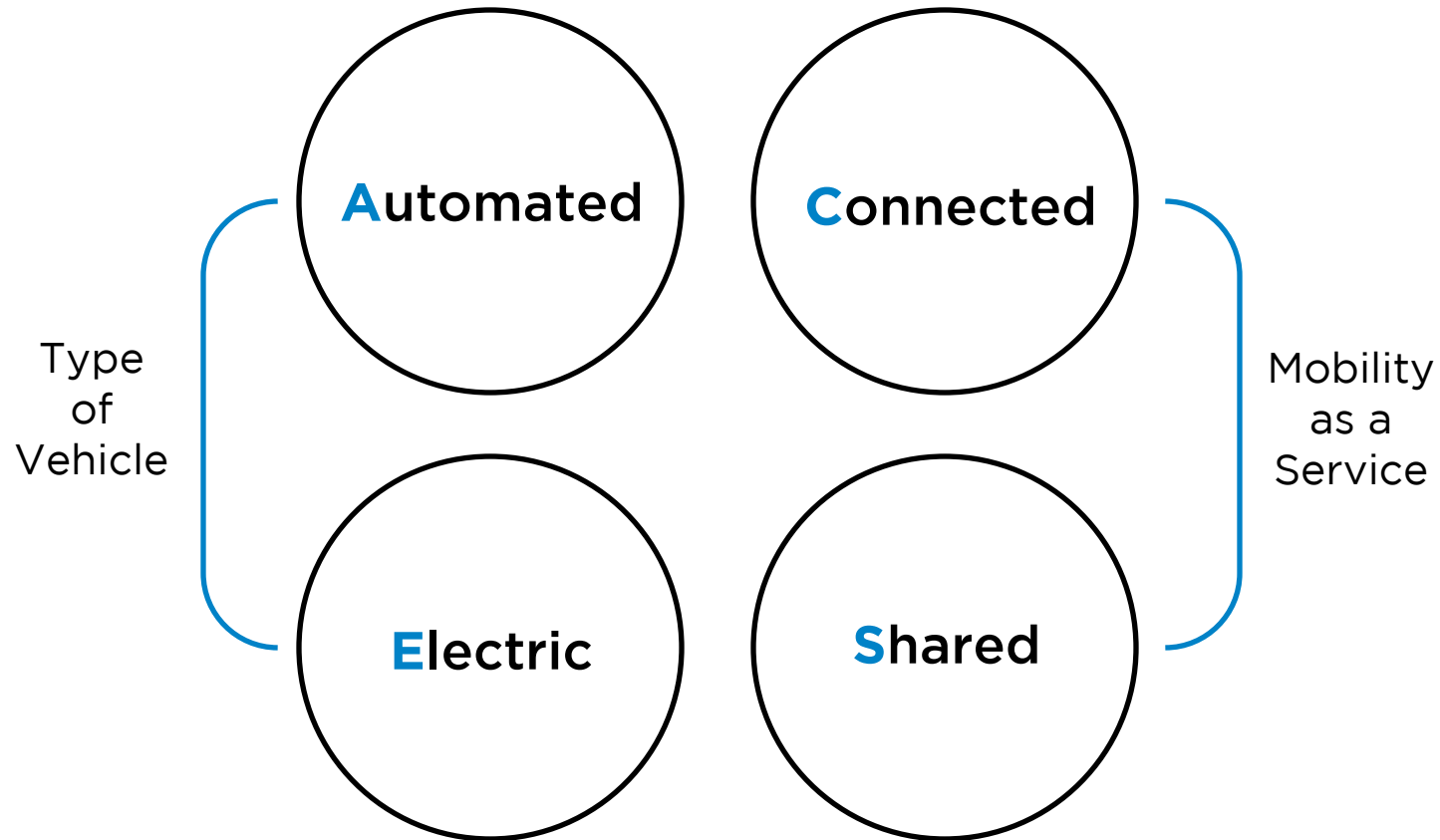


- Fewer + narrower travel lanes
- Fewer on-street parking spaces
- More pick-up + drop-off spaces
- More space for civic priorities
- Smart infrastructure

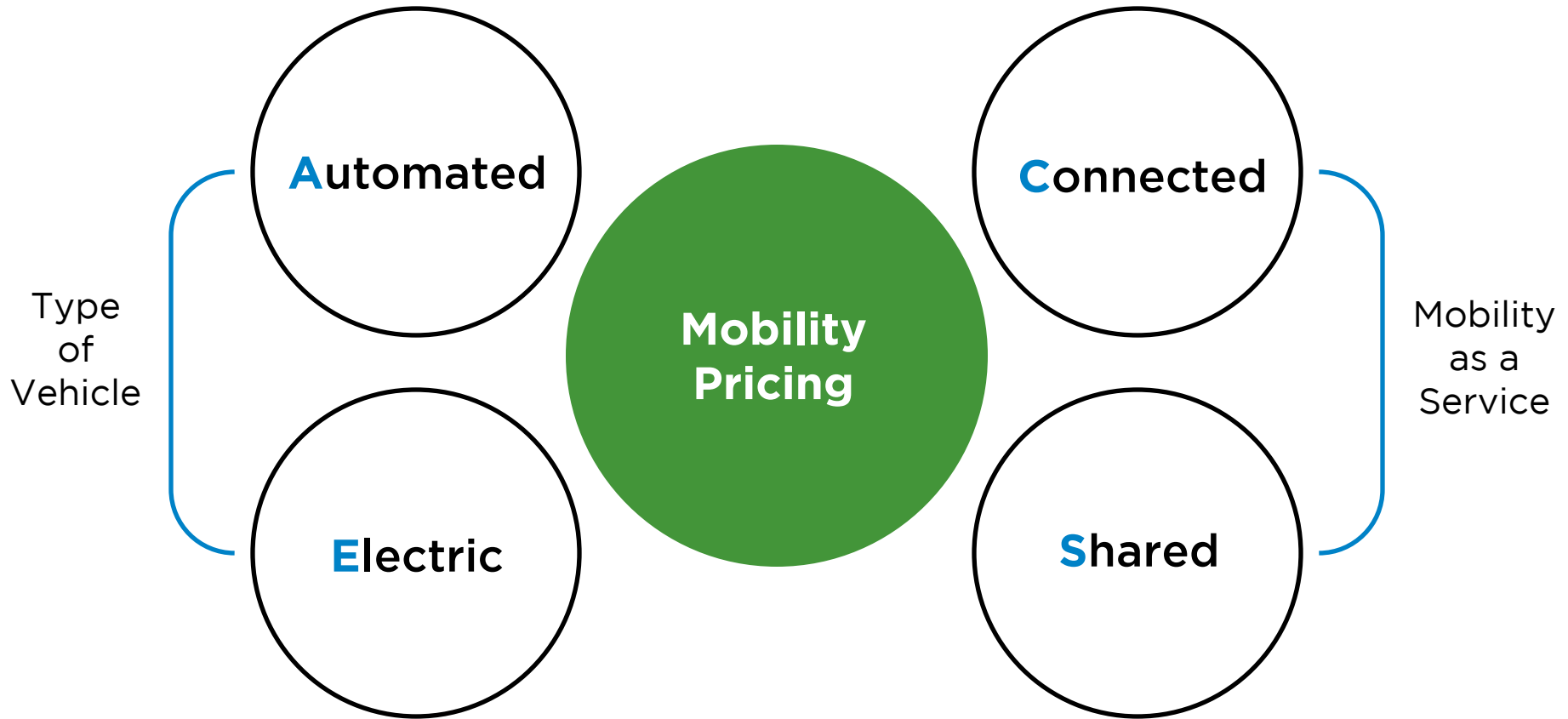
RE-IMAGINING OUR STREETS

Re-allocate road space as automated, connected, electric, & shared vehicles become real

Bringing It All Together



Bringing It All Together



WHAT IS MOBILITY PRICING ?

- The *It's Time* project is being guided by three key objectives:



Reduce traffic congestion

on roads and bridges across the Metro Vancouver region, so people and goods can keep moving, and businesses can thrive



Promote fairness

to address concerns around the previous approach to tolling some roads and bridges but not others, as well as providing affordable transportation choices



Support transportation investment

to improve the current transportation system in Metro Vancouver for all users

Vancouver's Future Mobility: Next Steps

1. Building Capacity & Awareness

- Police, Fire & Rescue Services, Park Board
- Preparing for operational testing/piloting

2. Long Term Planning & Resiliency

- City Core 2050
- Community Plans

3. Transportation Policy Development

- Report back to Council in 2019 to clarify the City's intention to accelerate innovation while achieving our City goals



Questions & Discussion