

Future Scenarios and Navigating Uncertainty

The Greater Toronto Regional Plan



MICHAEL W. ROSCHLAU
RETIRED PRESIDENT & CEO
CANADIAN URBAN TRANSIT ASSOCIATION



The World's Most Liveable Cities

Global cities ranked by liveability in 2017 (100=ideal)



- | | | | |
|----|-----------|---|------|
| 1 | Melbourne |  | 97.5 |
| 2 | Vienna |  | 97.4 |
| 3 | Vancouver |  | 97.3 |
| 4 | Toronto |  | 97.2 |
| 5 | Calgary |  | 96.6 |
| 6 | Adelaide |  | 96.6 |
| 7 | Perth |  | 95.9 |
| 8 | Auckland |  | 95.7 |
| 9 | Helsinki |  | 95.6 |
| 10 | Hamburg |  | 95.0 |



THE WORLD'S MOST LIVABLE CITIES
(GOOD WORK AUSTRALIA & CANADA)



«An epic struggle looms... »

“..It will transform daily life as profoundly as cars did in the 20th century: reinventing transport and reshaping cities...”

- *The Economist*, Sept 2016



Navigating Uncertainty:

exploration of alternative
futures for the Greater Toronto
and Hamilton Area



THE REGION | Who are we?

The Greater Toronto and Hamilton Area (GTHA), consisting of Durham Region, Halton Region, the City of Hamilton, Peel Region, the City of Toronto and York Region, is the fastest growing and most ethnically diverse place in North America and is consistently ranked one of the most livable regions in the world. Growth propels our economy, provides opportunity, and is making the GTHA a more vibrant and dynamic place. However, as we grow and prosper, we must plan for this growth.

Our transit and transportation system has not kept pace with growth, contributing to congestion. Left unmanaged, congestion has direct, negative impacts on our economy, environment, quality of life, health and well-being. It has an impact on how well we are able to spend our time on what matters to us. Properly planning for growth requires forward-thinking investment in our transportation infrastructure, to enable people and goods to move efficiently and sustainably throughout our beautiful region.

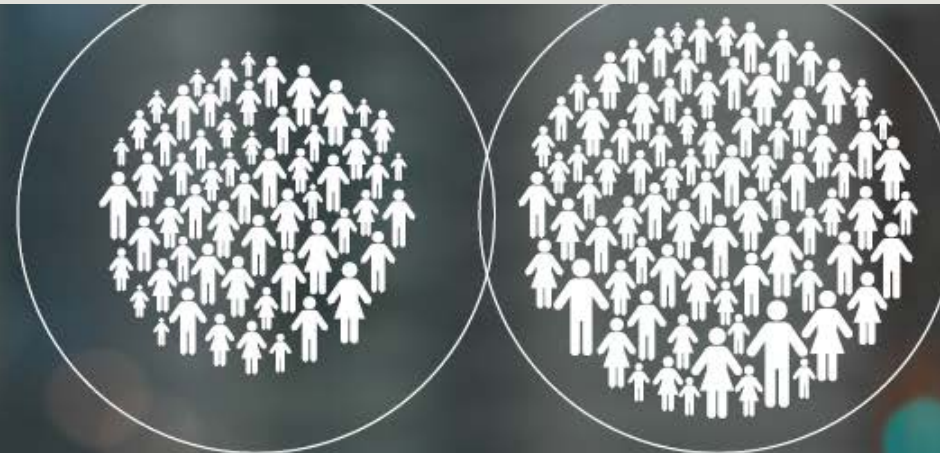
1986-2011

62%  Increase in population

AND

71%  Increase in car trips **46%**  Increase in transit trips

Sources: Transportation Tomorrow Survey (TTS 2011 Report) / Growth Plan for the Greater Golden Horseshoe, 2006



3.5 million more people over 30 years

2011 population 6.6 million

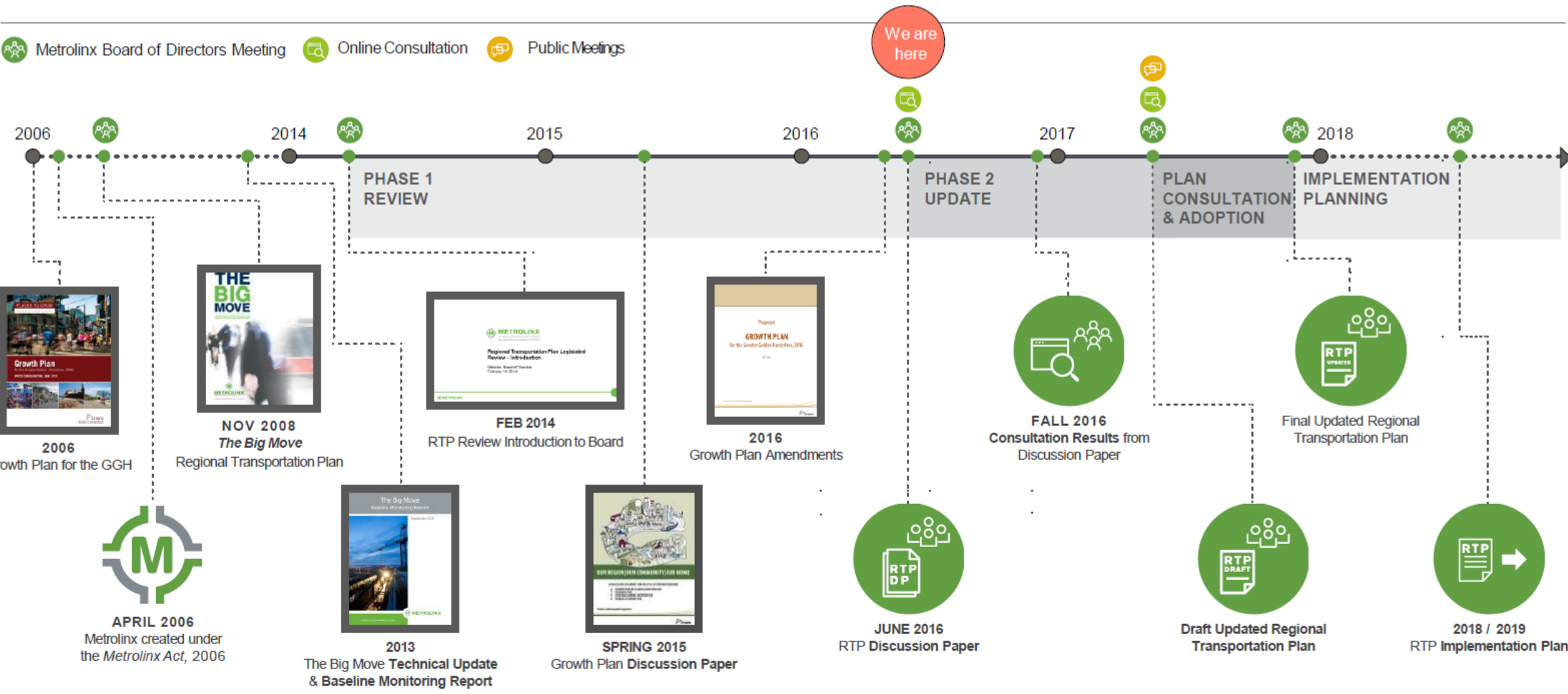
2041 population 10.1 million

 Total high-rises under construction in 2013



Timeline

 Metrolinx Board of Directors Meeting  Online Consultation  Public Meetings



Imagine ...

According to a report published just last month ...

“The year 2030 is predicted to bring to the GTHA a level of vehicle automation sufficiently pervasive to provide **at least one-quarter of all passenger kilometres travelled** in driverless robo-taxis and robo-shuttles.”

Imagine ...

“Given a projected GTHA population of 8.5 million by 2030, this would be mean just over **12.75 billion vehicle kilometres** at current travel rates and an average occupancy of 2.0 in two- to 12-passenger vehicles.”

Residential and Civil Construction Alliance of Ontario, October 2017

Imagine ...

“At current average urban speeds and with an optimized fleet schedule, this would require a combined fleet comprising 150,000 vehicles (\pm 20,000) — presumably mostly electric and predominantly under commercial management.”

Residential and Civil Construction Alliance of Ontario, October 2017

Imagine ...

“One of the largest effects will be the end of municipal bus transit as a large-vehicle, fixed-schedule, fixed-route, and constrained-supply service.”

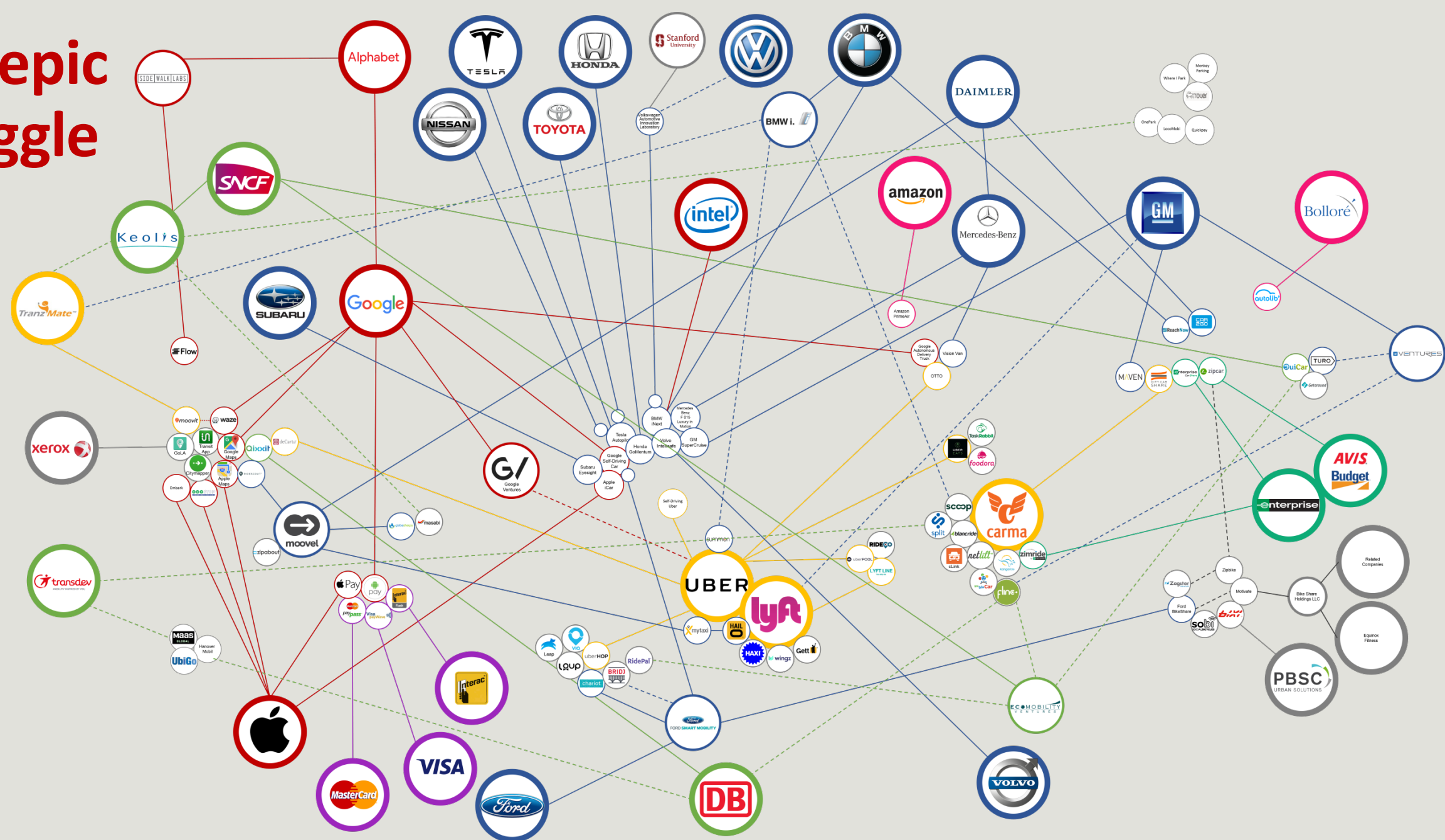
Residential and Civil Construction Alliance of Ontario, October 2017

Imagine ...

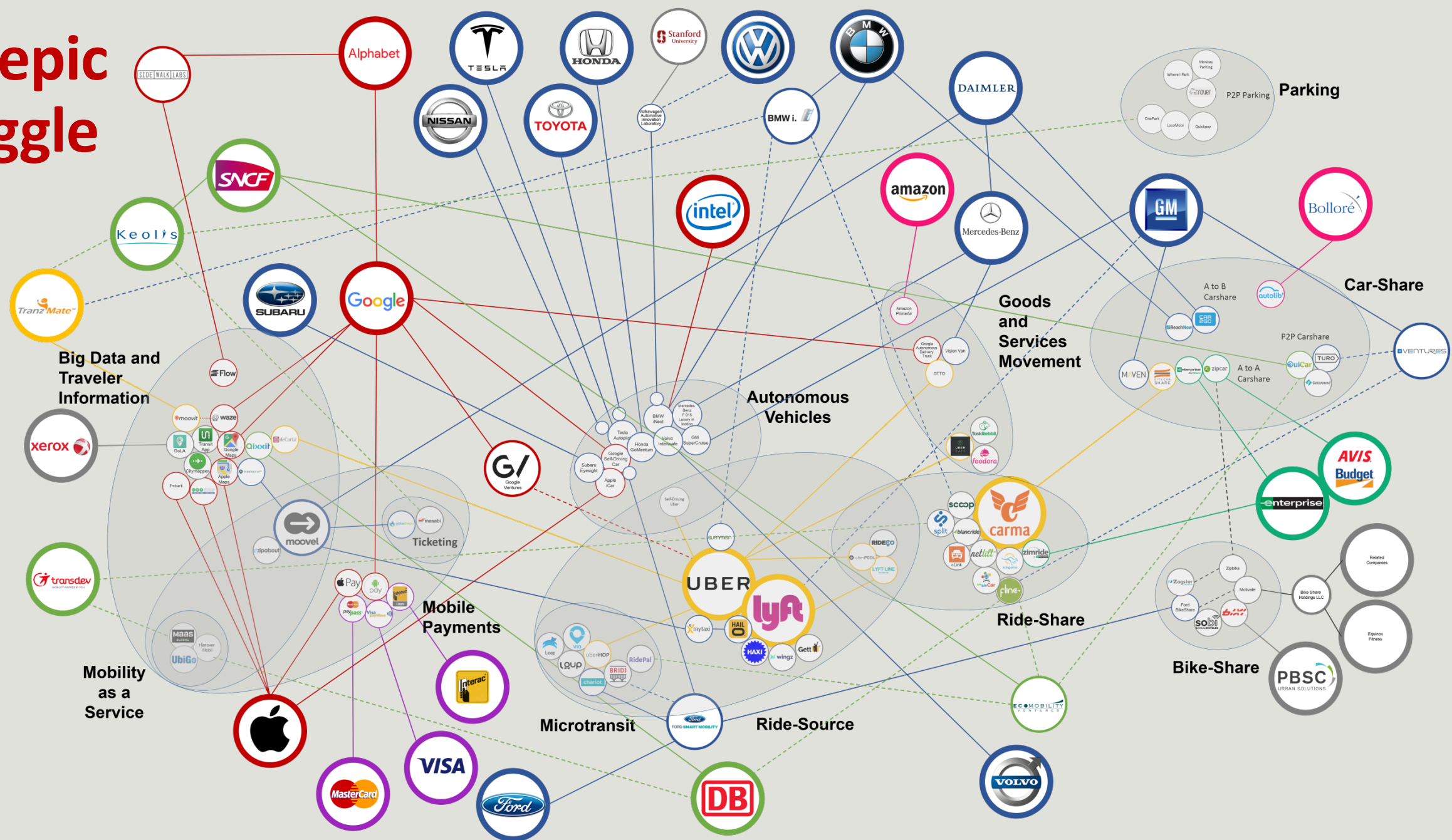
“If we knew which consumption model — cars or rides — will dominate, it would be easy to describe the nature of the coming disruption(s). The economic position of the automotive industry will strengthen regardless of whether travellers prefer buying cars or trips. The trick will be to do what needs to be done to shift car-buyers’ preferences toward ride buying.”

Residential and Civil Construction Alliance of Ontario, October 2017

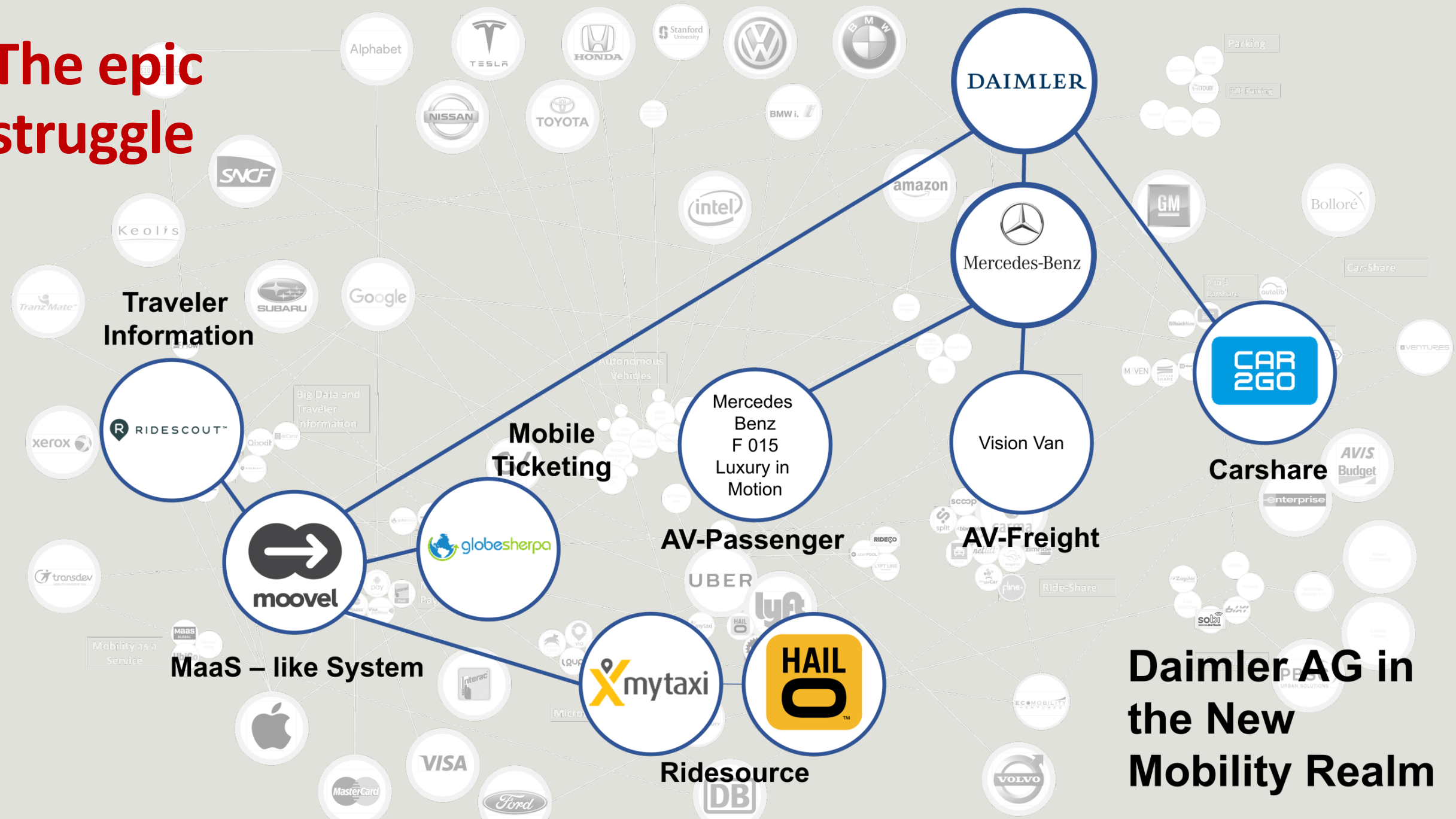
The epic struggle



The epic struggle



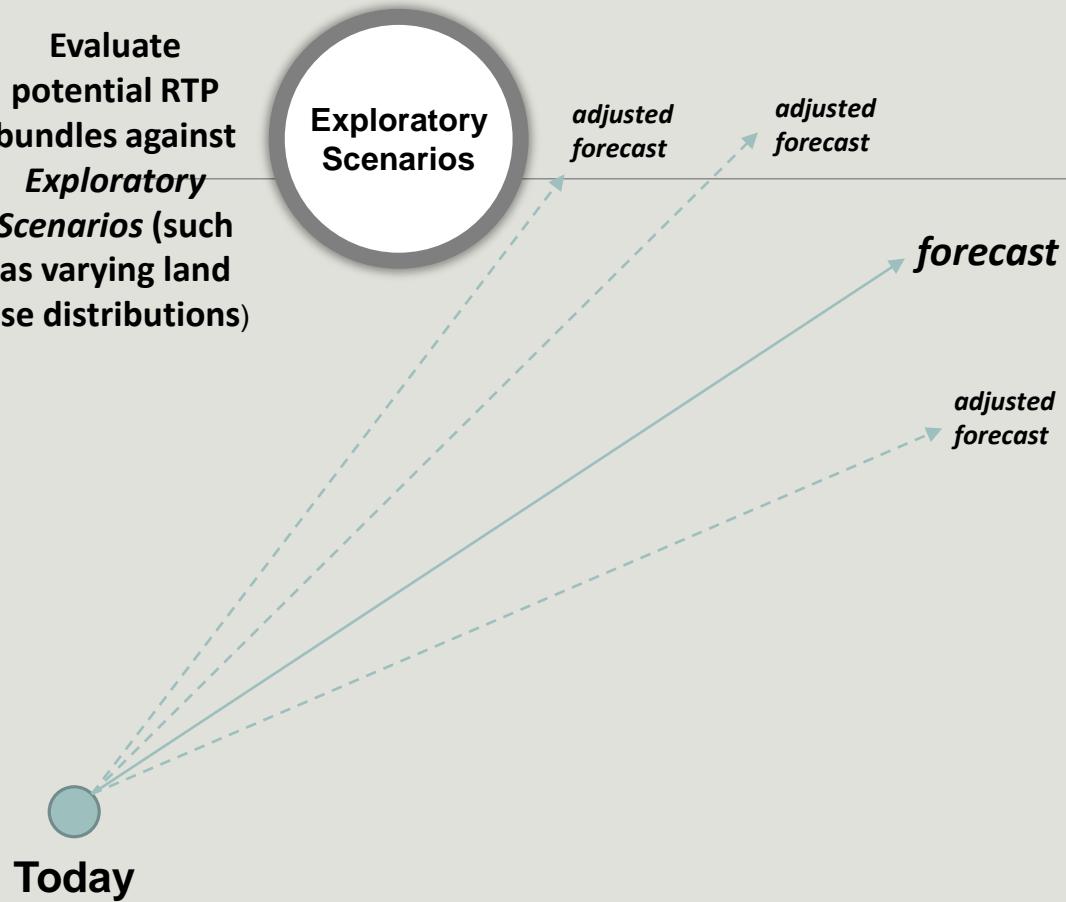
The epic struggle



**Daimler AG in
the New
Mobility Realm**

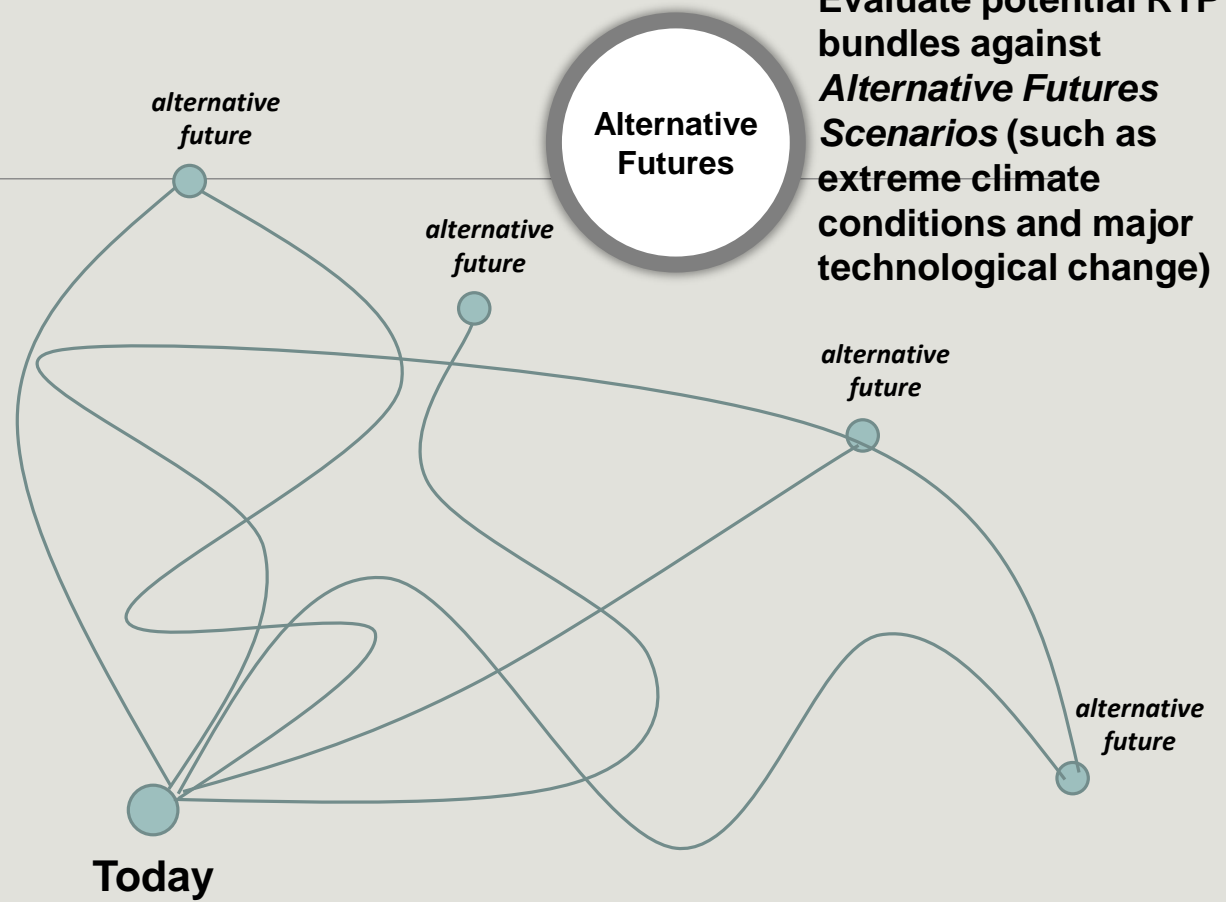
What are Alternative Futures?

Evaluate potential RTP bundles against *Exploratory Scenarios* (such as varying land use distributions)



Exploratory Scenarios are usually based on a predictable trajectory

Evaluate potential RTP bundles against *Alternative Futures Scenarios* (such as extreme climate conditions and major technological change)



Alternative Futures are usually uncertain and emerge through multiple paths

Meet the personas

Age: Early-40s
Live: Suburbs | **Work:** Toronto
Travel: Prefers the car, but will take transit, carshare, and ridehailing services on occasion.
Technology: ♥ ♥ ♥

Hard-working and family-oriented. Values safety, cleanliness, value, and speed. Likely to keep driving, but open to taking transit.

THE TIME & BALANCE SEEKER



Raymond

THE ASPIRING YOUNG TRAVELLER



Camille

Age: Early-20s
Live: Toronto | **Work:** Toronto
Travel: Uses a variety of modes, including transit, cycling and walking.
Technology: ♥ ♥ ♥

Young and active, but with lower income. Values affordability, safety, and reliability in travel. Open to trying new things.

THE SATISFIED MATURE URBANITE



Barbara

Age: Late-50s
Live: Toronto | **Work:** Toronto
Travel: Prefers to walk or take transit for most trips.
Technology: ♥

Intellectual and environmentally conscious. Values punctuality, safety, and affordability. Unlikely to cycle or use ridehailing services.

Age: Late-40s
Live: Suburbs | **Work:** Suburbs
Travel: Heavily reliant on the car. Might consider taking GO, but only for fun and entertainment.
Technology: ♥

Car-lover and homebody. Values convenience, speed, and control. Willing to drive long distances (up to 50 km one way)

THE TRADITIONAL SUBURBAN TRAVELLER



John

Age: Mid-30s
Live: Toronto | **Work:** Toronto
Travel: Typically drives, using either a personal vehicle or carshare. Will occasionally take GO or use a ridehailing service.
Technology: ♥ ♥ ♥

Educated, spontaneous, and ambitious. Usually drives or takes transit, but not a fan of either. Likes exercise but not while commuting. Likely to keep driving, but open to taking transit.

THE CONNECTED OPTIMIZING URBANITE



Dev

THE FRUSTRATED SOLUTION SEEKER



Susan

Age: Late-40s
Live: Suburbs | **Work:** Suburbs
Travel: Drives all the time, but open to taking GO, provided that they have an easy way to get to the station.
Technology: ♥ ♥

Highly-educated and affluent. Values punctuality, convenience, safety, and personal space. Finds travelling the region frustrating, and sometimes works from home.

Meet the personas

Age: Early-40s
Live: Suburbs | **Work:** Toronto
Travel: Prefers the car, but will take transit, carshare, and ridehailing services on occasion.
Technology: ♥ ♥ ♥

Hard-working and family-oriented. Values safety, cleanliness, value, and speed. Likely to keep driving, but open to taking transit.

THE TIME & BALANCE SEEKER



Raymond

THE ASPIRING YOUNG TRAVELLER



Camille

Age: Early-20s
Live: Toronto | **Work:** Toronto
Travel: Uses a variety of modes, including transit, cycling and walking.
Technology: ♥ ♥ ♥

Young and active, but with lower income. Values affordability, safety, and reliability in travel. Open to trying new things.

THE SATISFIED MATURE URBANITE



Barbara

Age: Late-50s
Live: Toronto | **Work:** Toronto
Travel: Prefers to walk or take transit for most trips.
Technology: ♥

Intellectual and environmentally conscious. Values punctuality, safety, and affordability. Unlikely to cycle or use ridehailing services.

Age: Late-40s
Live: Suburbs | **Work:** Suburbs
Travel: Heavily reliant on the car. Might consider taking GO, but only for fun and entertainment.
Technology: ♥

Car-lover and homebody. Values convenience, speed, and control. Willing to drive long distances (up to 50 km one way)

THE TRADITIONAL SUBURBAN TRAVELLER



John

Age: Mid-30s
Live: Toronto | **Work:** Toronto
Travel: Typically drives, using either a personal vehicle or carshare. Will occasionally take GO or use a ridehailing service.
Technology: ♥ ♥ ♥

Educated, spontaneous, and ambitious. Usually drives or takes transit, but not a fan of either. Likes exercise but not while commuting. Likely to keep driving, but open to taking transit.

THE CONNECTED OPTIMIZING URBANITE



Dev

THE FRUSTRATED SOLUTION SEEKER

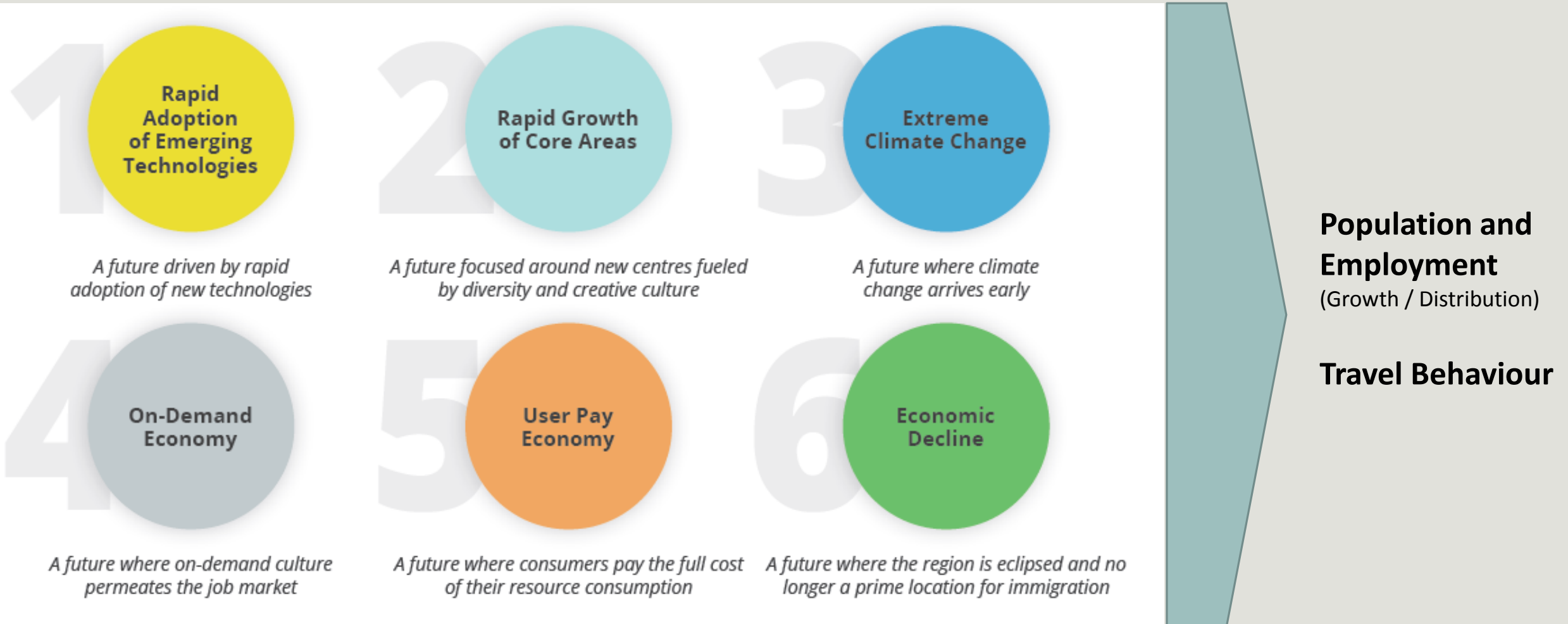


Susan

Age: Late-40s
Live: Suburbs | **Work:** Suburbs
Travel: Drives all the time, but open to taking GO, provided that they have an easy way to get to the station.
Technology: ♥ ♥

Highly-educated and affluent. Values punctuality, convenience, safety, and personal space. Finds travelling the region frustrating, and sometimes works from home.

Scenario Planning asks “what ifs” about Alternative Futures



Alternative Future Scenarios

Alternative Future Scenarios



On-Demand Economy

The rise of the casual or “gig economy” could create dispersed and lower density employment clusters, potentially making some fixed infrastructure and services less efficient and responsive. In this scenario, people could become more reliant on technology to make travel decisions and would be more likely to ride-share.



User-Pay Economy

The entry of private companies into the transportation sector could potentially dilute the cost-recovery of conventional transportation systems, and increase travel costs for those who can least afford it. In this scenario, low- and medium-income people would be more likely to choose walking and cycling options over vehicle travel, and live closer to work when feasible.



Economic Decline

The convergence of domestic and global trends, such as a changing markets and decreasing levels of immigration, could threaten the region’s ability to continually invest in our transportation and other infrastructure and services. In this scenario, people may find driving longer distances an attractive option due to less congestion and transit service reductions.

Scenario 1: Rapid growth of core areas



As a regular suburban driver, John will experience:

- Longer travel times due to increased road congestion
- More competition for premium parking spots near his office as lots near capacity
- Difficulty in adapting to new technologies needed for driving in densified areas



*Traditional
Suburban Traveller*

Scenario 2: Rapid adoption of technology



*Frustrated
Solution Seeker*

As a suburban traveller who is looking for better transport options, Susan will:

- Experience longer commutes as autonomous vehicle (AV) technology creates incentives for her to move further out
- Choose AVs a preferred mode of transportation
- Be less likely to use transit than today



Scenario 3: Extreme climate change



*Satisfied Mature
Urbanite*

As an urban resident who routinely walks and takes transit, Barbara will experience:

- Less reliable public transit due to climate change (flooding, rail line warping, slow zones)
- Increased conflict between car drivers and pedestrians as transit use decreases
- More crowding in urban neighbourhoods as global climate refugees arrive in GTHA



Scenario 4: On-demand economy



Aspiring Young Traveller

As a younger urban traveller who uses multiple travel modes, Camille will experience:

- Transport challenges of balancing multiple precarious jobs in various locations
- Increased reliance on technology for travel, in particular for ride-sharing and last mile connections
- Continued shared living arrangements due to precarious employment and affordability



Scenario 5: User-pay economy



As a traveller who works in Toronto and is open to new transport options, Dev will experience:

- Higher fees for auto travel
- Increased likelihood to consider cycling over ride-sourcing
- Increased competition over housing in closer proximity to jobs as people attempt to reduce transport costs

*Connected
Optimizing Urbanite*



Scenario 6: Economic decline



*Time & Balance
Seeker*

With his focus on maintaining his work-life balance, Raymond will experience:

- Easier highway driving as many people have moved away from the region
- Lower use of transit that is under-funded
- Job stability initially, but will consider relocating to other regions due to economic outlook for his children

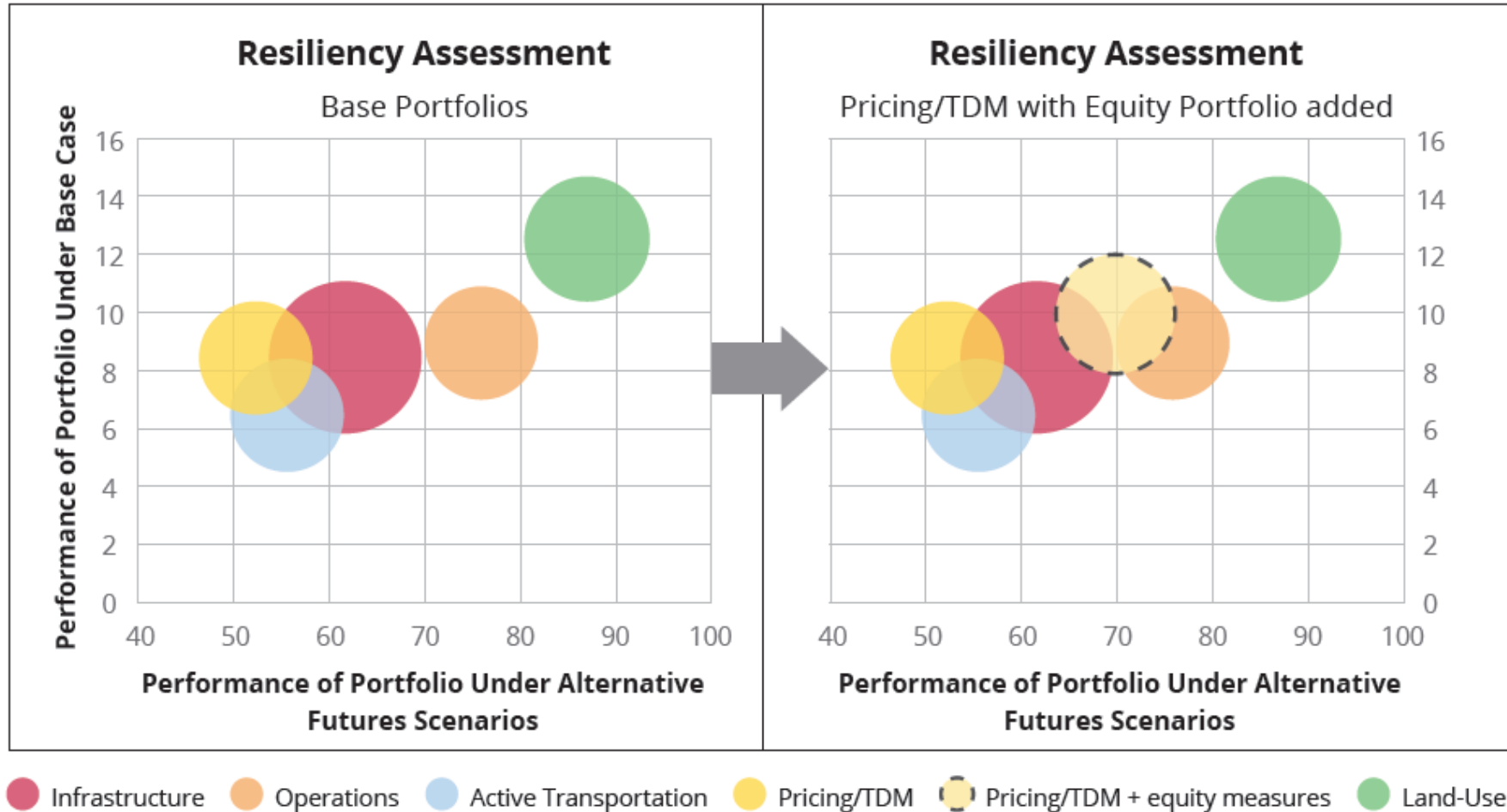


	Base Future	Rapld Adoption of Emerging Technologies	Rapld Growth of Core Areas	Extreme Cllimate Change	On Demand Economy	User Pay Economy	Economic Decline
Regional Population							
Nature of Employment	<div># of Jobs</div> <div>4.8 m</div> <div> </div>	<div># of Jobs</div> <div>↑</div> <div> </div>	<div># of Jobs</div> <div>▬</div> <div> </div>	<div># of Jobs</div> <div>▬</div> <div> </div>	<div># of Jobs</div> <div>↑</div> <div> </div>	<div># of Jobs</div> <div>▬</div> <div> </div>	<div># of Jobs</div> <div>↓</div> <div> </div>
Distribution of People and Jobs							
Travel in the Region	<div>Trips ▬</div>	<div>Trips ↑</div>	<div>Trips ▬</div>	<div>Trips ↓</div>	<div>Trips ↑</div>	<div>Trips ↓</div>	<div>Trips ↓</div>

Legend

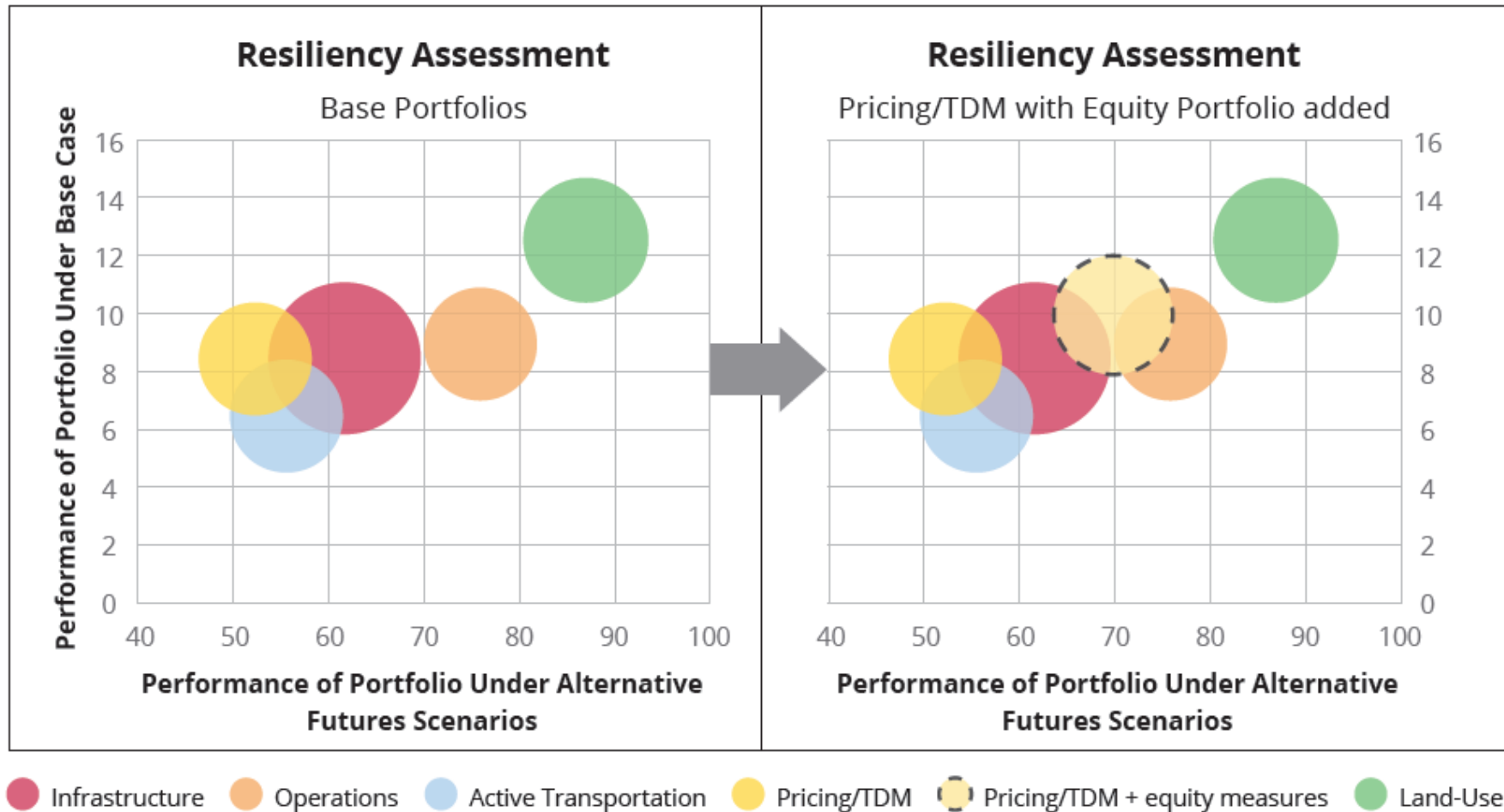


How do different portfolios of strategies perform under different scenarios?



Best plan is resilient across a range of potential futures

How do different portfolios of strategies perform under different scenarios?




Best plan is resilient across a range of potential futures

A Shift in Emphasis

The next plan will have increasing emphasis on strategies other than rapid transit infrastructure.



Strategy 1: Complete delivery of current regional transit projects



COMPLETE BUILDING GO, LRT, BRT AND SUBWAY PROJECTS THAT ARE IN DELIVERY
ADVANCE RAPID TRANSIT PROJECTS THAT ARE IN DEVELOPMENT
STRENGTHEN UNION STATION'S CAPACITY FOR GO EXPANSION BEYOND 2025
COORDINATE WITH THE PROVINCE'S HIGH SPEED RAIL PLAN

Strategy 2: Connect more of the region with frequent rapid transit

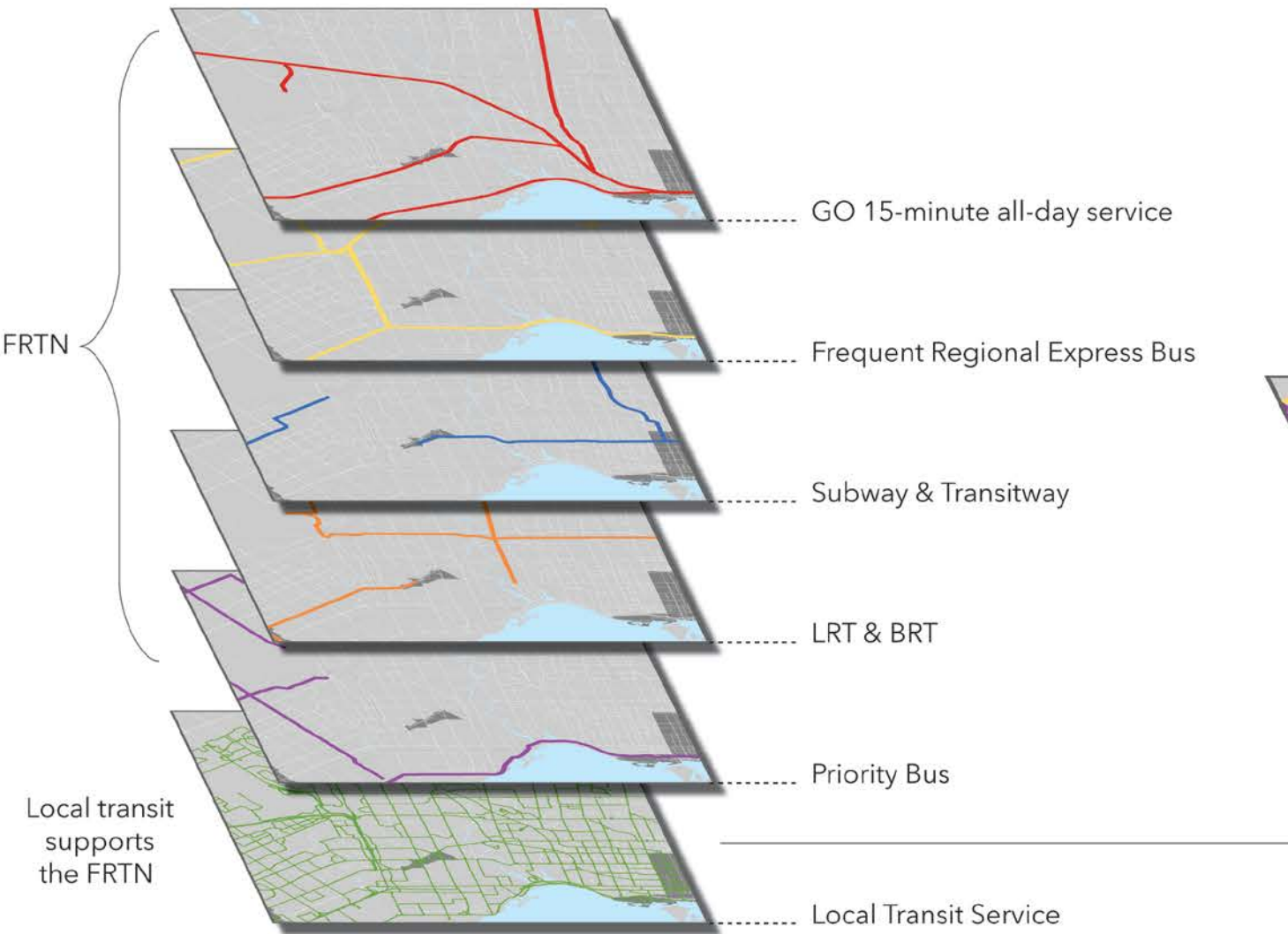


IMPLEMENT A COMPREHENSIVE FREQUENT RAPID TRANSIT NETWORK

DEVELOP COMPLEMENTARY BUS SERVICES (SUCH AS A REGIONAL 24 HOUR BUS NETWORK)

IMPROVE ACCESS TO AIRPORTS BY TRANSIT

Frequent Rapid Transit Network Concept



The Frequent Rapid Transit Network will connect Urban Growth Centres and key Mobility Hubs in the GTHA. It is envisaged as a seamless and reliable network of transit services that will run every 10 to 15 minutes all day, every day.





Strategy 3: Optimize our transport system

ADVANCE INTEGRATION OF FARES AND SERVICES

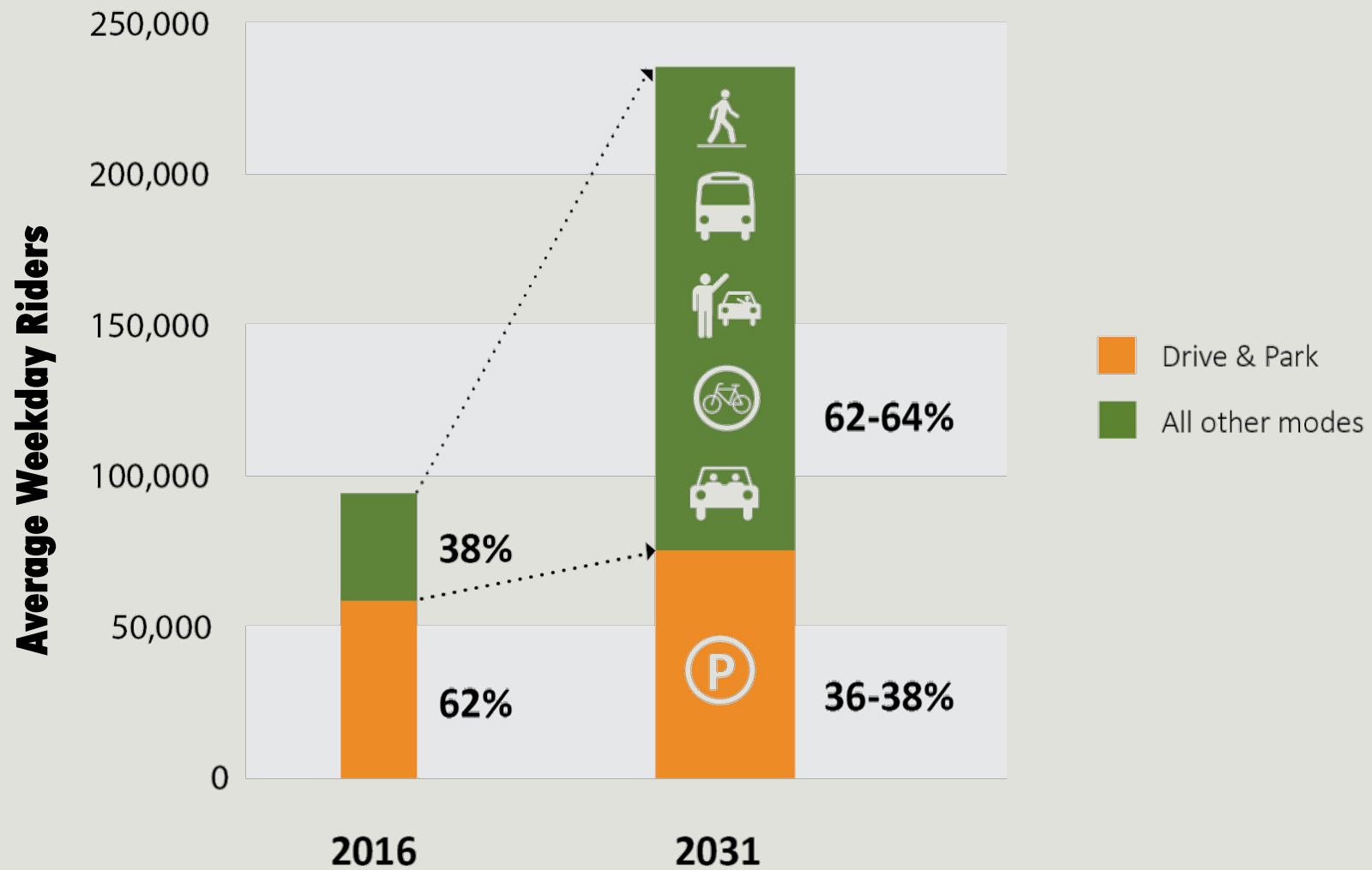
EXPAND FIRST AND LAST MILE CHOICES

SET CONSISTENT QUALITY STANDARDS FOR THE TRAVELLER EXPERIENCE

DEVELOP AND IMPLEMENT MOBILITY AS A SERVICE STRATEGY

PLAN AND DESIGN FOR UNIVERSAL ACCESS

Plan for First and Last Mile to and from Rail Stations



Strategy 4: Integrate land use and transport



REVIEW LEGISLATIVE LINKAGE BETWEEN PROVINCIAL AND MUNICIPAL PLANNING FRAMEWORK

REQUIRE TRANSIT SUPPORTIVE PLANNING BY MUNICIPALITIES FOR PROVINCIAL FUNDING

FOCUS DEVELOPMENT ON MOBILITY HUBS AND MAJOR TRANSIT STATION AREAS, INCLUDING JOINT DEVELOPMENT

EVALUATE INCENTIVES TO SUPPORT TRANSIT-ORIENTED DEVELOPMENT

PLAN AND DESIGN COMMUNITIES TO PROMOTE SHIFT IN TRAVEL BEHAVIOUR

COMPLETE A REGIONAL COMMUTER CYCLING NETWORK

EMBED TRANSPORTATION DEMAND MANAGEMENT INTO LAND USE PLANNING

RETHINK THE FUTURE OF PARKING

ENCOURAGE DEVELOPMENT OF FUTURE GENERATIONS OF PEDESTRIANS AND CYCLISTS

Strategy 5: Prepare for an uncertain future



DEVELOP REGIONAL FRAMEWORK FOR ON DEMAND AND SHARED MOBILITY

DEVELOP REGION-WIDE PLAN FOR AUTONOMOUS MOBILITY

ADDRESS CLIMATE RESILIENCY OF THE TRANSPORTATION SYSTEM

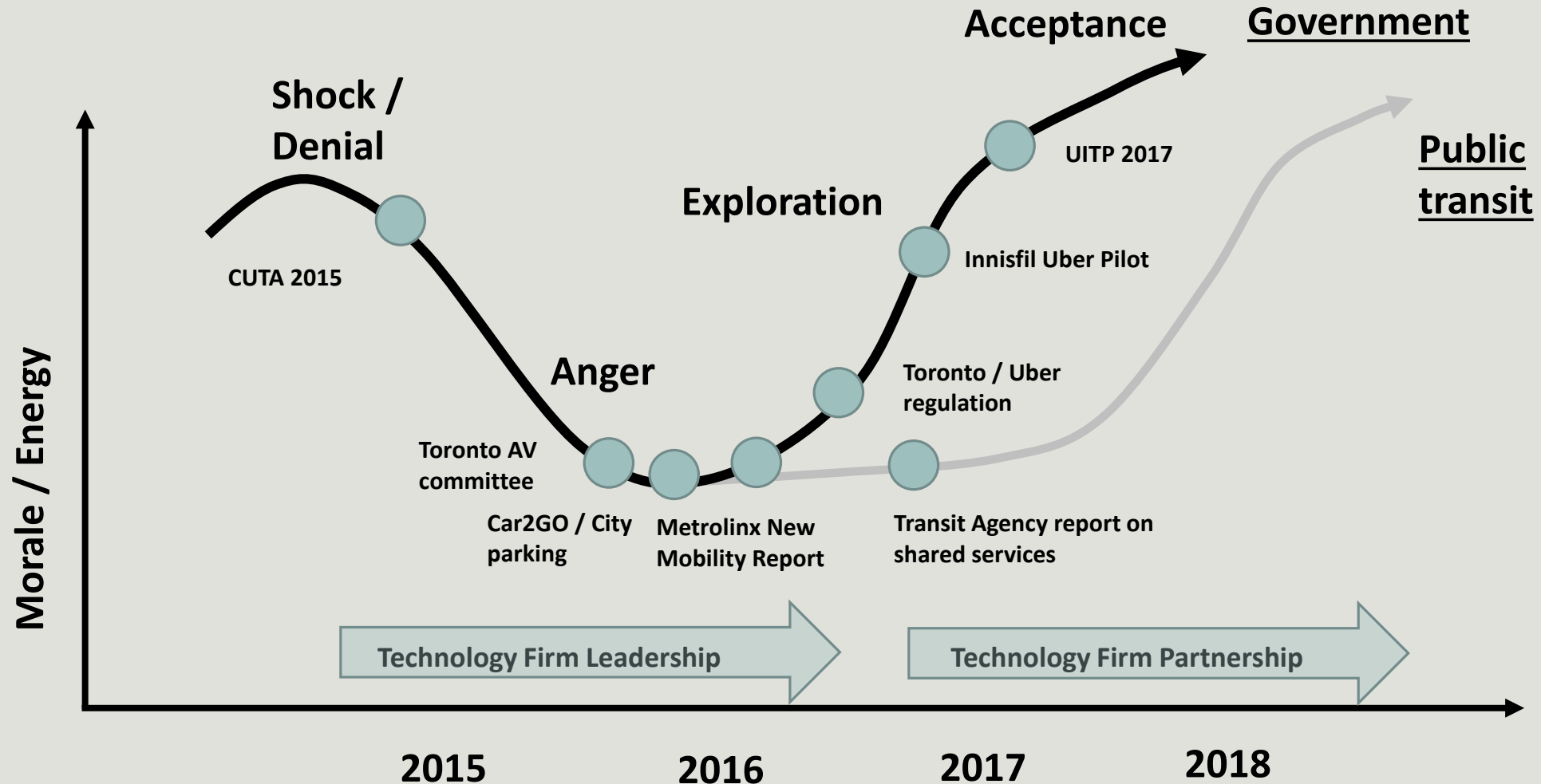
PREPARE FOR A FUTURE WITH LOW-CARBON MOBILITY OPTIONS

DEVELOP A REGIONAL TRANSPORTATION BIG DATA STRATEGY

PARTNER FOR INNOVATION

Where are we on the change curve?

Exploration phase, transitioning to acceptance,
but transit still lags government as whole



Where are we in the Trudeau - Turnbull Era?



Where are we in the Trudeau - Turnbull Era?



**“The pace of change has never been so fast,
but it will also never be this slow again”**

Future Scenarios and Navigating Uncertainty

The Greater Toronto Regional Plan



MICHAEL W. ROSCHLAU
RETIRED PRESIDENT & CEO
CANADIAN URBAN TRANSIT ASSOCIATION

