



TA14.5

The Future of Shared Mobility

TAF Board of Directors

Presented By: Joe Greenwood & Sasha Sud

FEBRUARY 9, 2017.

Visit us at marsdd.com

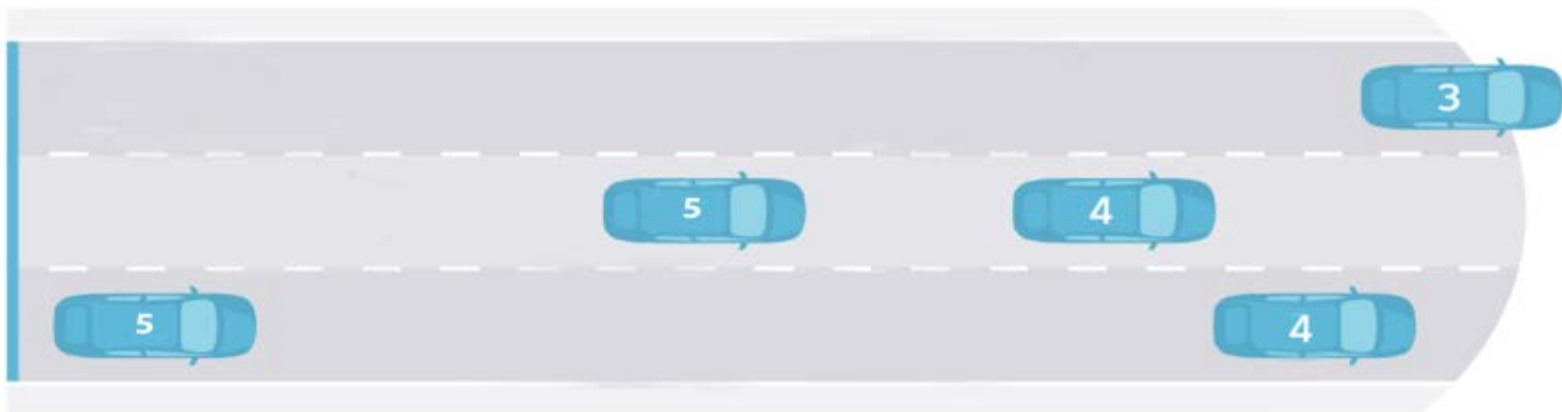


The Idea is simple...

21 people = 18 cars



21 people = 5 cars



GTHA transportation emissions: a growing issue

Over a third of GTHA's emissions come from transportation and these emissions are continuing to grow.

Investments in transit and electrification will be key drivers for reductions in the long term but we need to take actions that can drive reductions today, with technologies and solutions that exist today.

Greater Toronto Area (GTA)
Emissions Breakdown – 2014

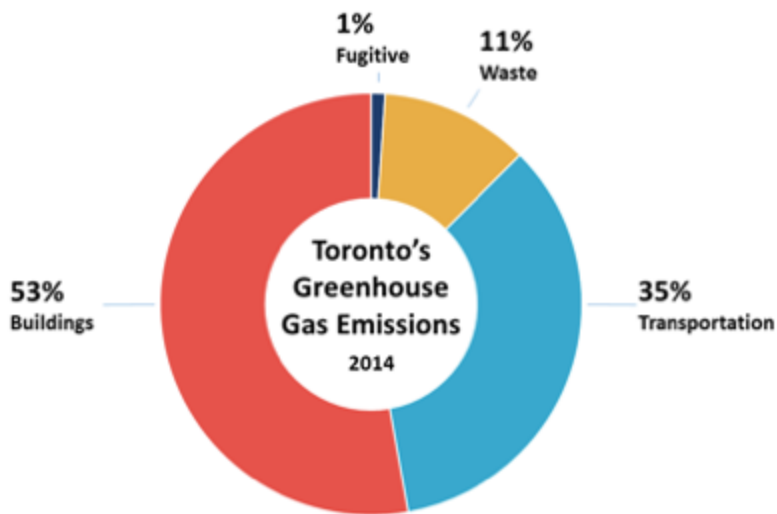
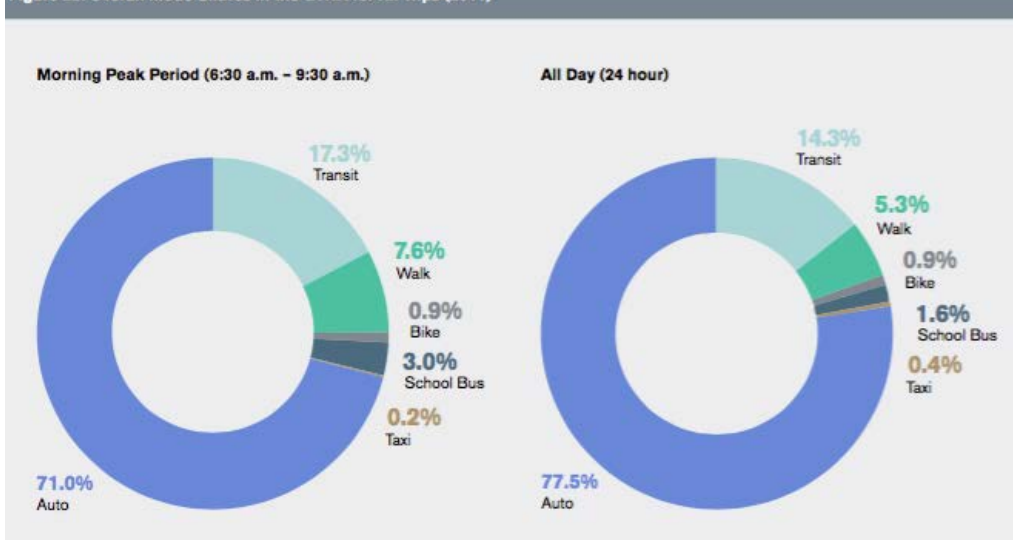


Figure 28: Overall Mode Shares in the GTHA for All Trips (2011)



GTHA: Key transportation challenges

70-90% of transportation in the GTHA takes place on roads. Mostly in 1 passenger vehicles



GHG reduction targets

Aggressive GHG reduction targets & net increases in transportation emissions



Cost of Congestion

Congestion costs GTHA residents and economy about \$3.3B each year (about \$1,600 per hh)

Source: Metrolinx



Lack of Access to Transit

Only 12% of residents are within a five minute walk of rapid transit.

Source: Metrolinx

New/ Enhanced Services: Earlier Sunday Transit Service

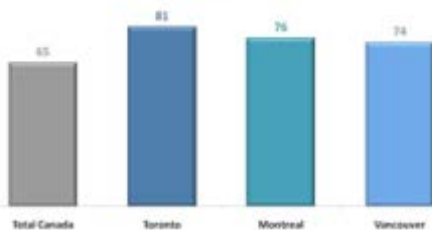
Operating Cost
2016: \$1.7 million
Annual: \$3.0 million



- ✓ Earlier Sunday morning subway, and connecting bus, and streetcar service
- ✓ subway service to start at 8:00 a.m.

Source: TTC

Round-trip Commute Times To/From Work (In Minutes)



Commute time

Highway bottlenecks in GTHA can increase commute times by 50%.

Source: CAA

Transit: Financial & Service Delivery Pressure

Increasing Service delivery and financial pressures on transit to meet increasing demand, changing customer expectations and potentially diminished revenue and funding.

Micro-transit - huge reduction potential achievable today

September 2016



Microtransit:
An assessment of potential to drive greenhouse gas reductions

The Atmospheric Fund & Coop Carbone



with the support of
Agence métropolitaine de transport and Institut de l'énergie Trottier

Prepared by: MaRS Discovery District
With contributions from: Richmond Sustainability Initiatives

MaRS Microtransit Scoping Study commissioned by TAF and COOP Carbone identified that the GTHA could reduce GHG emissions by

588kt over the next 5 years using solutions and technologies that exist today.

This is the same as:

- ✓ taking 25,000 cars off of the Gardener over the next 5 years
- ✓ ~10% of the reductions in the GTHA Go-Green BAU scenario

So what does this look like for people?



Suburban Rails
First-mile Last-mile



School Drop Offs



Low Density Neighbourhoods
Inter-city Commute



Shift Workers



“We ... require a fundamental transformation in how people and goods move around” in Ontario.

Environmental Commissioner of Ontario's 2016 Report.



Simply maintaining the status quo poses a significant risk for the GTHA, namely a fragmented transportation system that does not meet the needs of the region's residents.

Sharing the Road, Mowat Centre August 2016

The technology and marketplace is ready to adopt

By 2020, it is predicted that ridesharing will grow from 2.3m to 26m users worldwide.

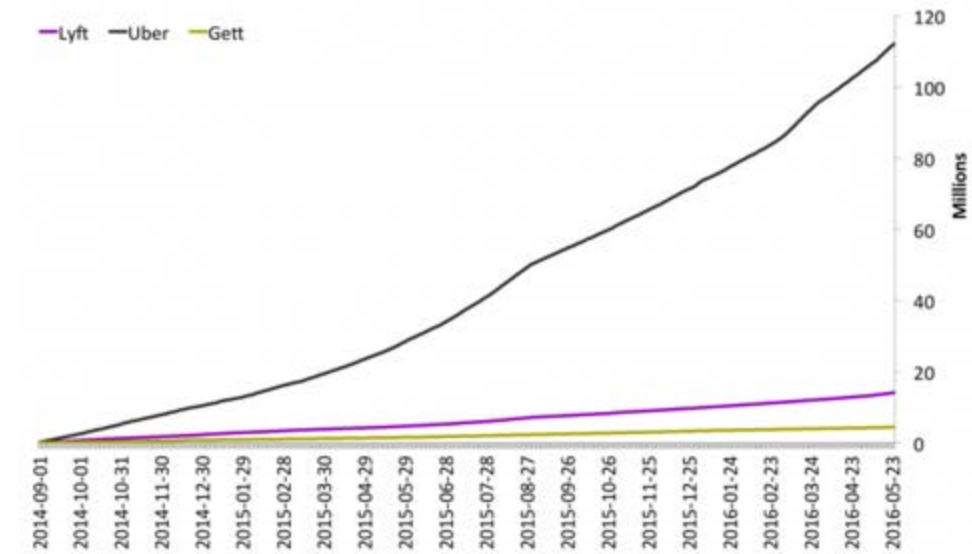
↑ +1,030% GROWTH

Even traditional automobile manufacturers (GM, Ford, Toyota and Honda) are investing in new services & business models (Lyft, Maven, Chariot, Getaround to name a few).

EV's and AV's technology rapidly being developed and tested in markets.

"BP Energy Outlook projects 100 fold increase in EV's by 2035"

Ride-Hailing Cumulative Global App Downloads
Between September 1, 2014 - May 25, 2016



Source: Priori, 2016

BI INTELLIGENCE



So why aren't we seeing these solutions yet?

- **Fragmented market, regulations and partnerships**
 - Inconsistent municipal rules across GTHA
 - Outdated provincial rules that limit pvt services across municipalities
 - Limited/no scaled public- private sector partnership enabled services
- **Concerns and/or perception about the impact of shared mobility solutions**
 - Increase in emissions and congestion if people shift away from mass transit
 - Transportation access and equity issues – if revenues stripped from more profitable mass transit routes
 - Growing opposition from incumbent service providers about inconsistent playing field and rules for new mobility solution providers
- **Incomplete and uncoordinated delivery of pilots**
 - Duplicated efforts: Lack of data, evaluation metrics, information sharing
 - No clear path to scale
 - Limited stakeholder buy to drive adoption

So why aren't we seeing these solutions yet?

Urban mobility unlocks **diffused benefits** for **diverse stakeholders**

- Interests don't always align, and;
- Even if they do, the timelines prevent coordination

*For e.g.: First & Last Mile at
GO Stations*

Metrolix: Innovation team pilot
mandate

Municipal: Congested access to
GO stations

Pvt Sector: Ridesharing services
to GO stations

MOT: Policy Review & Update

Metrolix: Regional
Transportation Plan



How can we stack these benefits across these stakeholders to drive a value proposition so obvious that the solutions just have to scale?



MaRS is putting together a
Collaboration Proposal for key stakeholders
on Shared Mobility for the GTHA



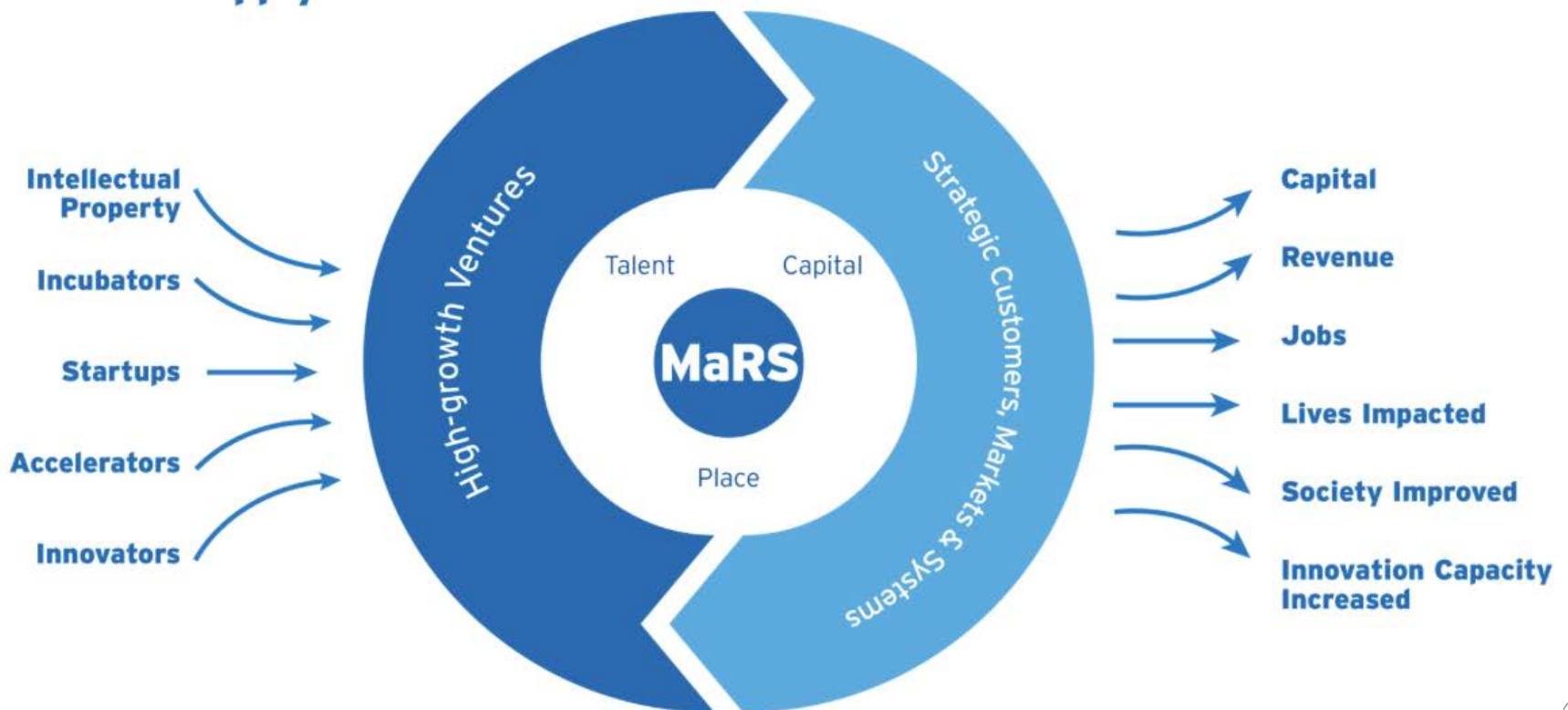


Innovation = invention + adoption

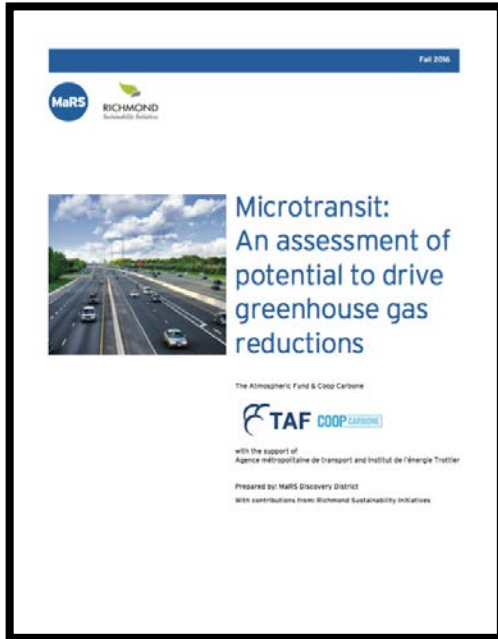
MaRS enables adoption at scale in complex regulated markets, like Energy, Health & Transportation.

Innovation Supply

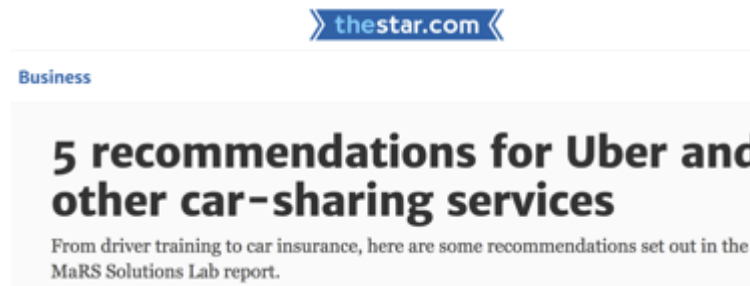
Global Demand



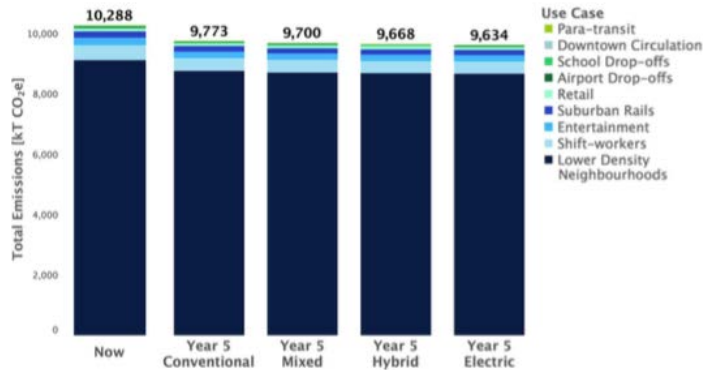
Our work to date



Supported City of Toronto and Ontario develop regulation for the sharing economy by working with key transportation sector stakeholders.



Study by MaRS and The Atmospheric Fund said commuter shuttles, ride-sharing could be key to cutting emissions by 588,000 tonnes, equivalent to taking 25,000 cars off the road for five years.



Shared Mobility Project overview

The Shared Mobility Project will identify, design, implement and scale transportation solutions that address specific challenges (identified previously) within the next 0-4 yrs.

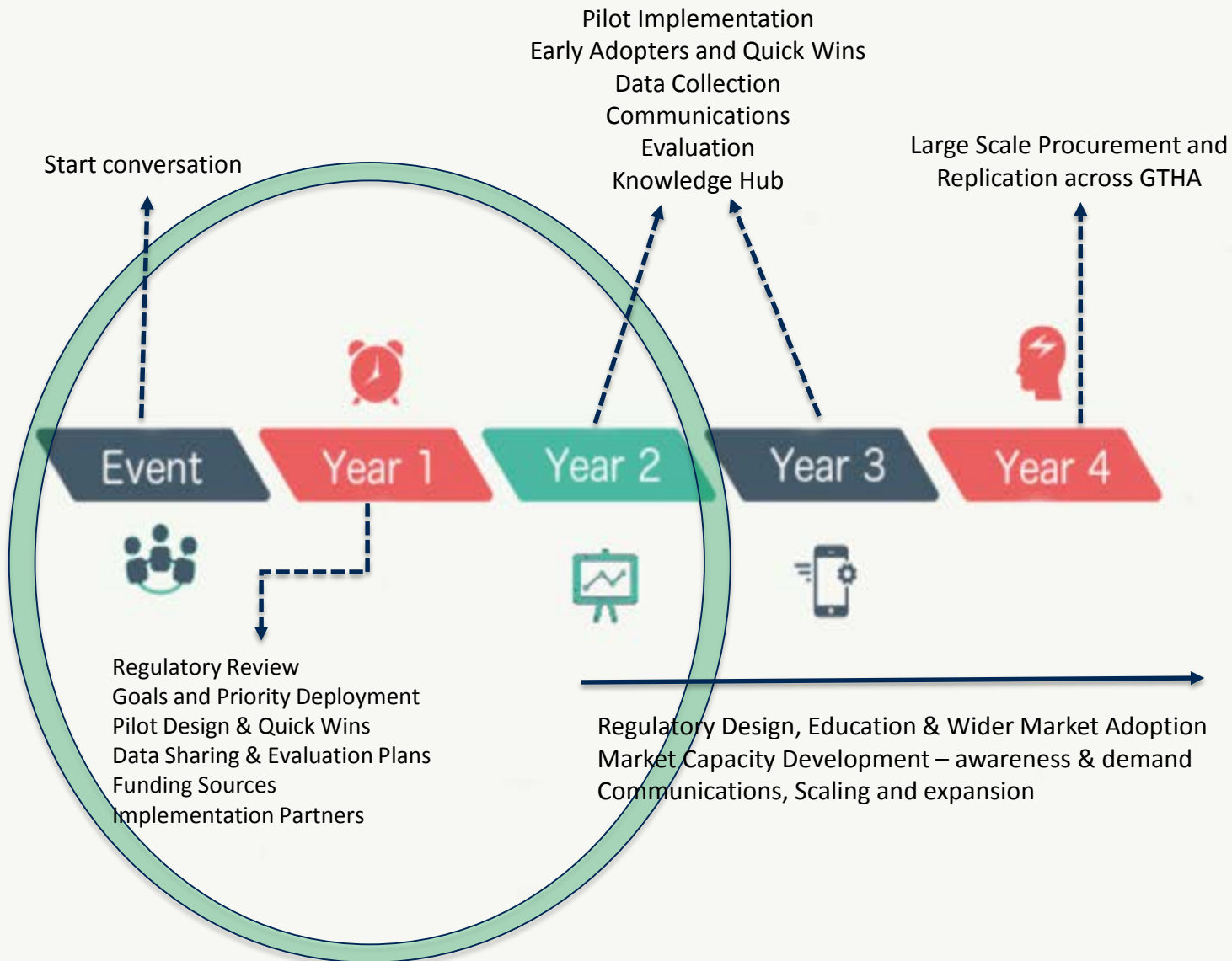
Reducing emissions from the transportation sector being a key component of the challenge.

We aim to engage stakeholders that can inform and define a shared mobility strategy for the region which can ultimately:

- STEP 1:** Understand and drive consensus around the most pressing challenges/opportunities
- STEP 2:** Guide solution co-design, implement and then test and evaluate solutions
- STEP 3:** Scale successful solutions using an integrated delivery approach with cross-sector collaboration and planning across private and public sector partners
 - **Establish a Knowledge Hub**
 - **Regulatory Change**
 - **PPP Partnerships**
 - **Business Model Development**



Shared Mobility Deployment Timeline



Discussion and Questions



Appendix



Urban Mobility Project deployment

Goal: Obtain key stakeholders buy-in to establish a shared mobility strategy and vision for the GTHA and co-create 2 -3 key solutions (pilot design, implementation and scaling) to achieve the vision.

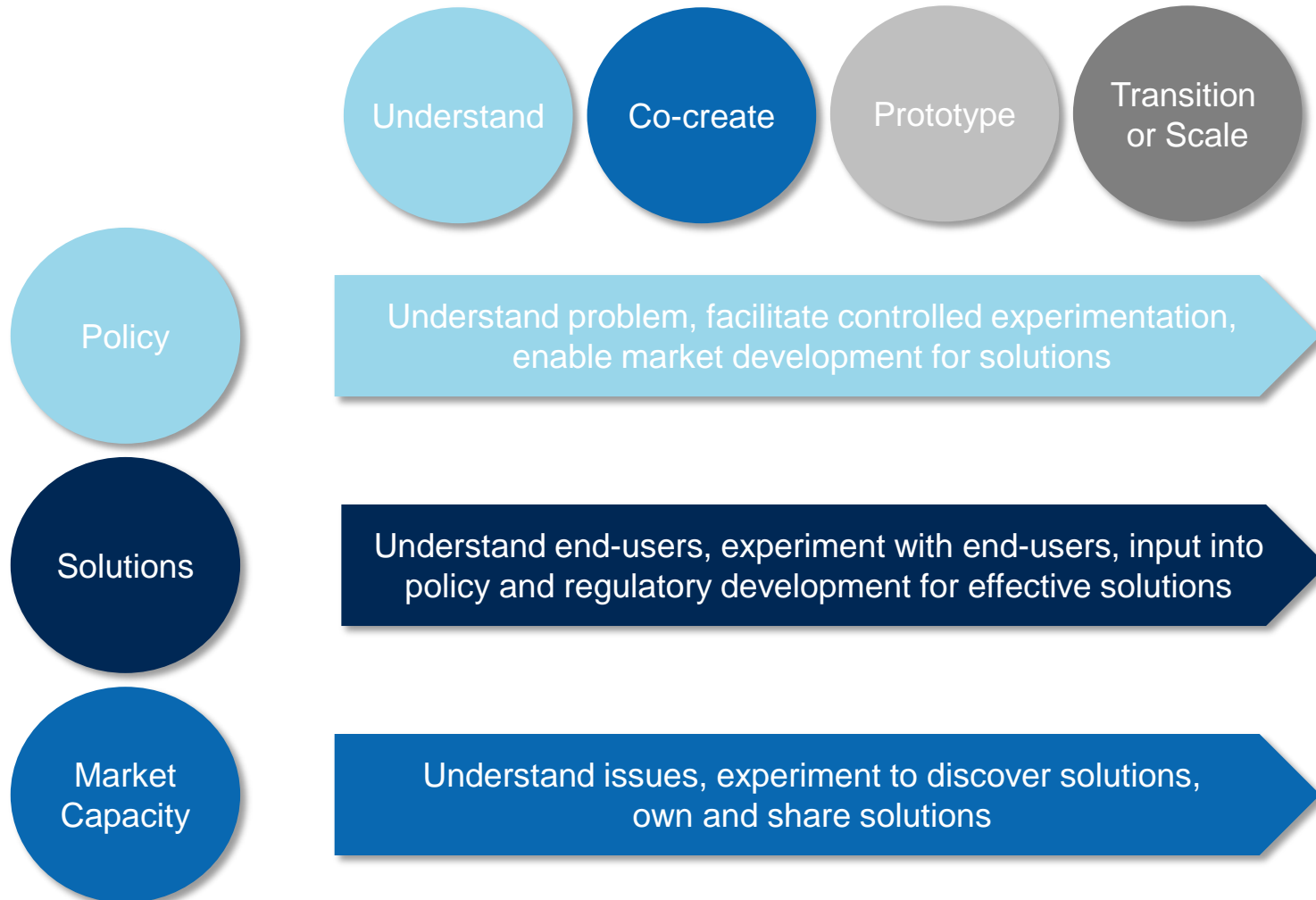
Milestones:

Year	Activity	Theory of Change Area
Year 1	<ul style="list-style-type: none"> • Kick-off Event w/ Project Advisory Committee & Expert Industry Panel • Program Vision & Charter Document Release • Establish Working Groups & Announce Members • Exploring quick wins • Convene key stakeholders to explore and educate on regulatory solutions for the GTHA • Announce Pilots: Goals, Design, Timelines & Funding • Pilot Launch Event: Regions, Sponsors, Participants & Demonstration 	<p>Identify Challenges, Opportunities & Co-design Solutions</p>
Years 2 & 3	<ul style="list-style-type: none"> • Pilot Launch, Implementation, Evaluation & Expansion 	<p>Procure, Implement & Evaluate Solutions</p>
Years 4	<ul style="list-style-type: none"> • Communication & Scaling across GTHA • Cross-sector collaboration/capacity building/planning for region wide adoption 	<p>Capacity Development & Scaling Market Adoption</p>



A MODEL FOR SYSTEMS CHANGE IN A REGULATED SECTOR

(NEW PRODUCTS, NEW SERVICES, NEW SYSTEMS)



APPLYING SYSTEMS CHANGE TO A COMPLEX PROBLEM

ENERGY DATA ACCESS



- Untapped value of energy data in Ontario
- Diverse and misaligned set of actors
- Data being collected, issues around consistent and reliable access

HOW THE AEC BROUGHT ACTORS TOGETHER TO ADOPT & EVOLVE THE GREEN BUTTON STANDARD IN ONTARIO



The Green Button standard allows consumers to access and share their electricity consumption data in a **consistent, electronic and secure** manner.

A Systems Change Approach to adopting Green Button

