



City of Toronto AV Tactical Plan: Charting a Path Forward

June 28, iCity-CATTS Symposium

City of Toronto and AVs

The City of Toronto does not have an official policy or position on automated and/or autonomous vehicles.

The views and opinions contained in this presentation do not represent those of the City of Toronto.



Status of AVs in Toronto

- Staff discussions and strategizing
 - Interdivisional Working Group
- City Council direction
 - 2016: Request to staff to report on staff preparations, potential implications, public acceptance.
 - 2018: Report to Public Works and Infrastructure Committee & City Council
 - Explore partnerships with other governments
 - Join Municipal Alliance for Connected and Autonomous Vehicles in Ontario
 - Request Federation of Canadian Municipalities to include in annual conference
 - Explore opportunities to collaborate with Sidewalk Toronto
 - Report back in 2019-Q1 on Automated Vehicle Tactical Plan 2019-2021



Approach to Date: Ask Better Questions

What is an AV?



What forms of transportation and trip types will likely be impacted first?



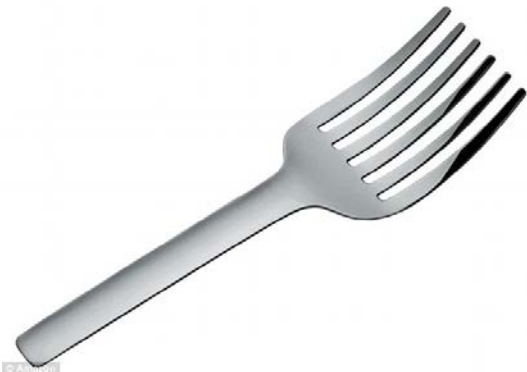
How could AVs change transportation demand and patterns in this area?



What options does the City have to guide or respond to these changes?

Approach to Date: Technologically Agnostic

- The Mowat Centre
 - “Policymakers should resist the temptation to embrace a particular vision of how automated vehicles might come to market.”
 - Avoid picking winners and losers
 - Be cautious to avoid unintentional consequences
 - Can conflict with obvious desires to improve other aspects of transportation e.g. emissions reductions
 - Need to remain open to a range of options and scenarios



“Policymakers can’t be expected to accurately predict how this will play out, and they should avoid that altogether by designing policy in a way that focuses on the public interest while remaining as technology agnostic as possible.”

Diversity of Concerns

• Municipal

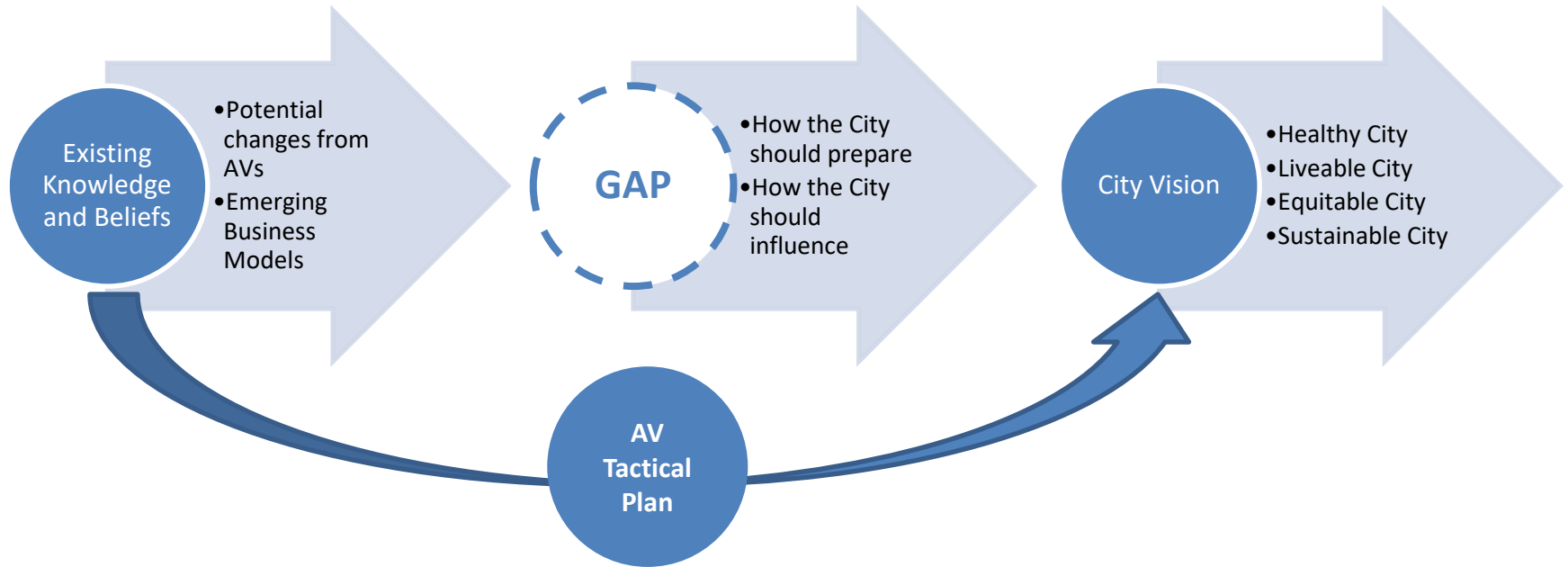
- **Toronto Employment and Social Services** - Automated technology may result in increased job access if the lower cost of these vehicles results in residents being able to seek better employment at greater distances. A potential challenge is the disruption in employment to people currently employed in the transportation field as vehicle operators who could see their jobs replaced or reimagined as full automation is available.

services - Automation must... emergency vehicles to have... incidents and for the re... vehicle approaches... and emergency... automated vehicle technology... provincial legal tools a... ment. Changes... various infractio

- **Toronto Transit Commission** - TTC staff conducted research on the use of AVs in the transit industry and reported to the TTC Board in March 2017. AVs have the potential to improve safety, reliability and efficiency when it comes to delivering transit service. The adoption of this technology would require the TTC to develop new policies and procedures and would completely transform the way service is delivered. For additional details on the implications to transit see the TTC's report.

incidents involving... staff... involving on-board

Incorporating AVs into City Goals



Draft City of Toronto AV Tactical Plan 2019-2021

Preamble

1. Equity
2. Environmental Impacts
3. Road Safety
4. Modal Shift
5. Transit-Centric
6. Traffic Management
7. Public Service Vehicles
8. Economic Development
9. Privacy and Security
10. Business Intelligence

Postscript

- Ten statements
 - Based on today's knowledge
 - Direct causality – how AVs are linked directly
 - Equity & Environment are cross-cutting
- None of the statements will supersede Council-approved policies, plans, strategies and directives (the “strategic”)
- Activities will be in conjunction with other orders of government as necessary.

Tactical Plan: Road Safety

3. The City of Toronto will encourage the adoption of advanced driver assistance systems that automate driving tasks without reducing the need for the human driver to monitor the driving environment [SAE levels 1 and 2] that are proven to create a net benefit to road safety.

- **Toronto's Road Safety Plan – Vision Zero (2017-2021)**
 - Vision Statement: The City of Toronto, with the commitment of all partners, aims to eliminate fatalities and serious injuries on city streets to create a safe and healthy city.
 - Technological Safety Measures will employ technical solutions to improve road safety. Initiatives such as passive detection, automated enforcement and enhanced data analysis will be utilized.

Tactical Plan: Modal Shift

4. The City of Toronto will encourage the adoption of advanced driver assistance systems that reduce car dependency and increase average auto occupancy, facilitate transportation demand management, and enhance the safety and attractiveness of walking, cycling, and transit.

- **Toronto Official Plan (2015)**

- Policy: 3) The City will show leadership within the region in the implementation of TDM measures to reduce auto dependence and rush-hour congestion in the road and transit networks by:
 - b) actively pursuing measures which will:
 - *i) increase the proportion of trips made by walking, cycling, and transit;*
 - *ii) increase the average automobile occupancy rate;*
 - *iii) reduce the demand for vehicular travel;*

Tactical Plan: Transit-Centric

5. The City of Toronto will take a transit-centric approach to vehicle automation. The City will encourage the adoption of advanced driver assistance systems for public and mass transit vehicles, with the purpose of improving reliability, efficiency, safety, and seamlessness of transit. The City will also encourage the development of advanced driver assistance systems that facilitate increased transit priority.

- **Toronto Transit Commission 5-Year Corporate Plan (2013-2017)**
 - Mission: To provide a reliable, efficient and integrated bus, streetcar and subway network that draws its high standards of customer care from our rich traditions of safety, service and courtesy.
- **Toronto Official Plan (2015)**
 - Increasing transit priority throughout the City by giving buses and streetcars priority at signalized intersections and by introducing other priority measures on selected bus and streetcar routes

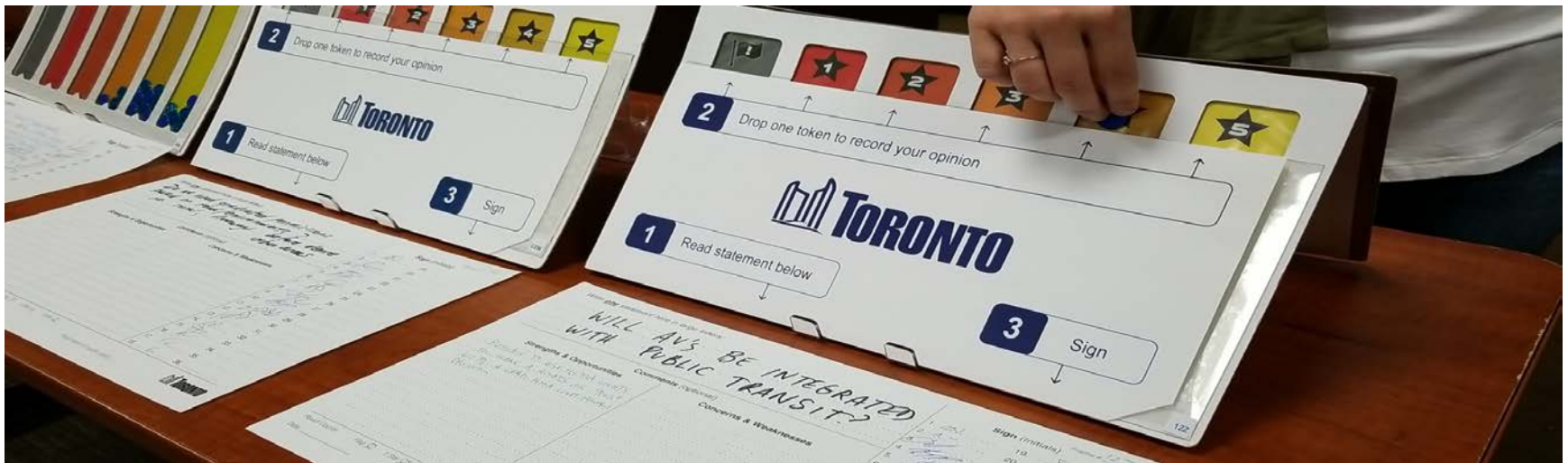
Tactical Plan: Traffic Management

6. The City of Toronto will enhance its ability to manage traffic in real-time through advanced driver assistance systems. The technology will be used for the purpose of measuring traffic congestion, providing improved traveller information, implementing active traffic management, as well as facilitating transit and emergency vehicle priority.

- **Congestion Management Plan (2016-2020)**
 - Increasing the amount and quality of traffic information for improved planning, prioritizing and performance evaluation
- **Toronto Official Plan (2015)**
 - New technologies and practices that improve urban travel conditions for the movement of people, goods and services and help mitigate the environmental impacts of transportation will be pursued and implemented where appropriate.
 - *Enhanced transportation network data management, collection, analysis and monitoring*
 - *Incident & event response*
 - *Traveler information systems*

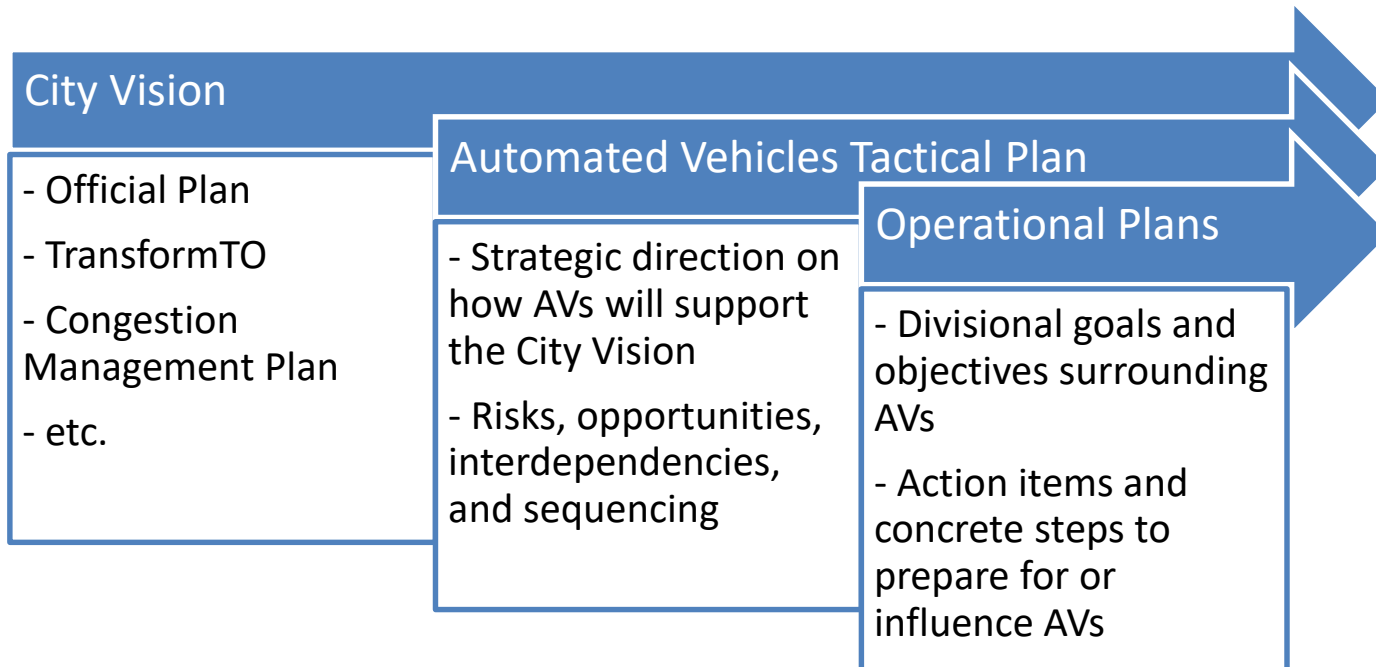
Tactical Plan Consultation

- Publicly released in January 2018
- Stakeholder Consultations
 - Invitation-only workshops in March 2018
 - Policy scrum with Harvard University in May 2018
- To come: Public and Industry Consultations



How Will We Use the Tactical Plan

- Provide unified direction across divisions
- Communicate clearly to stakeholders and industry
- Empower Divisions to establish objectives and workplans





Questions?

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