DI1.7

Preparing the City of Toronto for Automated Vehicles

Ryan Lanyon, April 11 2019, Toronto Accessibility Advisory Committee

City of Toronto and AVs

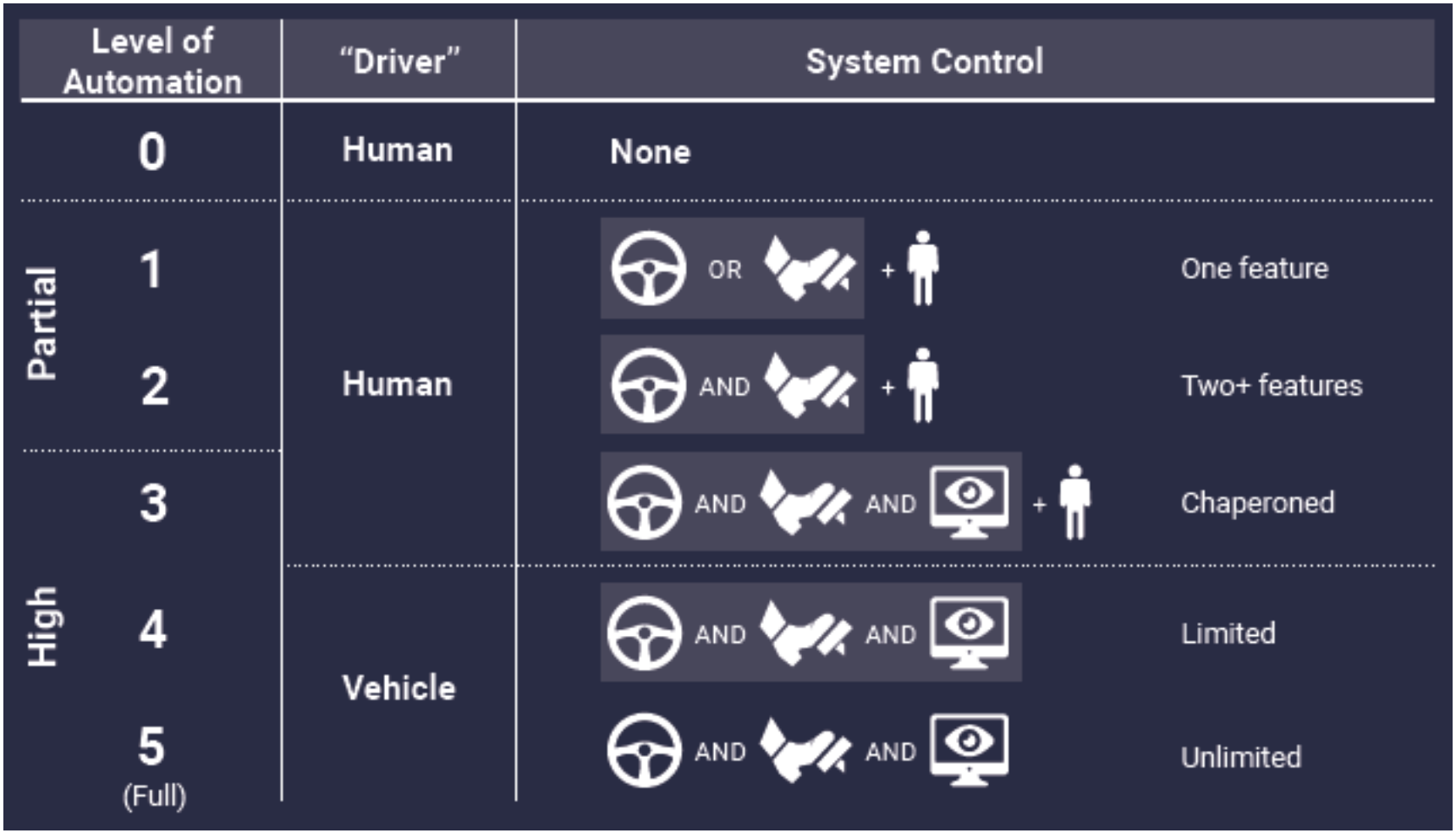
The City of Toronto does not have an official policy or position on automated and/or autonomous vehicles.

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

AV 101: What is an Automated Vehicle?

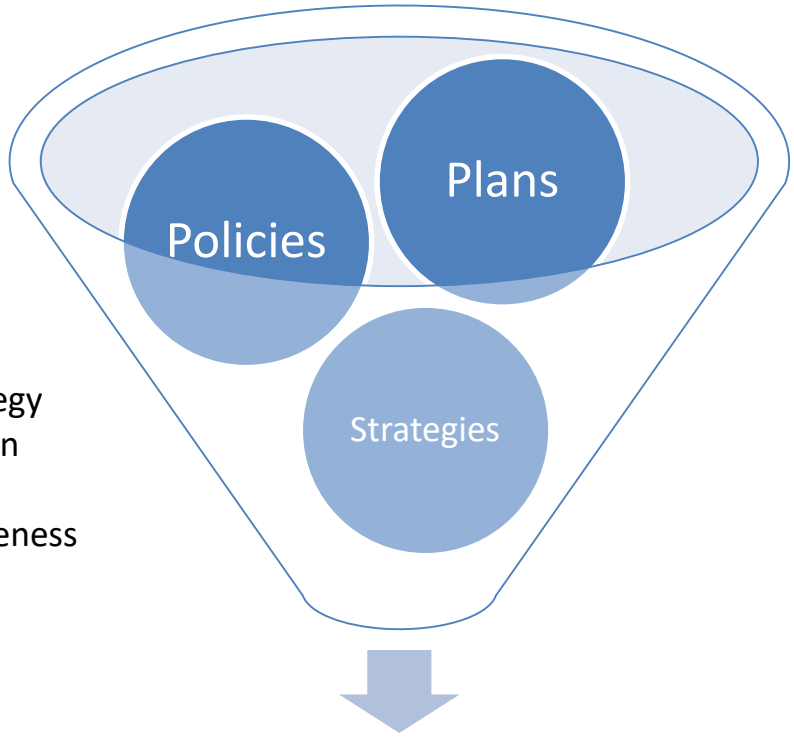


Interdivisional Working Group on AVs

- City Clerk's Office
- City Manager's Office
  - People, Equity and Human Rights
  - Office of the Chief of Staff
    - Civic Innovation Office
    - Strategic and Corporate Policy
    - Transformation Office
- City Planning
- Corporate Finance
- Economic Development & Culture
- Engineering & Construction Services
- Environment & Energy
- Exhibition Place
- Financial Planning
- Fire Services
  - Office of Emergency Management
- Fleet Services
- Information & Technology
- Legal Services
- Municipal Licensing & Standards
- Revenue Services
- Social Development, Finance & Admin
- Solid Waste Management
- Toronto Building
- Toronto Employment & Social Services
- Toronto Office of Partnerships
- Toronto Paramedic Services
- Toronto Parking Authority
- Toronto Police Service
- Toronto Public Health
- Toronto Transit Commission
- Transportation Services

A“Tactical Plan” on AVs

City’s Strategic Plan
Official Plan
Complete Streets
Curbside Management Strategy
Congestion Management Plan
eCity Strategy / Smart City
Collaborating for Competitiveness
Green Fleet Plan
TransformTO



Public Health Plan
Vision Zero
Equity, Diversity & Human Rights Plan
Working as One
Seniors Strategy
Strong Neighbourhoods Strategy
Economic Growth & Job Creation
Poverty Reduction Strategy

Automated Vehicles “Position” and Tactical Plan Framework

Consultation

- City staff
- Working Group
- Senior Management
- Public, Industry, and Stakeholder Consultation
- March 2018:
  - Nine workshops
  - 150 attendees from 73 orgs

Accessibility Stakeholders – March 21

Invited over 17 organizations for the Accessibility & Equity Workshop, with at least 11 in attendance:

Attended	Invited
• Alliance for Equality for Blind Canadians • Arrive alive DRIVE SOBER • Canadian National Institute for the Blind • CivicAction • CodeRedTO • Ontario Traffic Council • The Learning Disabilities Association of Toronto • Toronto Centre for Active Transportation • Toronto Rehabilitation Institute • Walk Toronto	• Canadian Association of Retired Persons • Canadian Council of the Blind • City of Toronto Disability Issues Committee • Community Living Toronto • Community Recreation For All • Toronto Seniors Forum

Tactical Plan – Structure

SAMPLE – FOR DISCUSSION ONLY

Level	Sample		
Direction	**1. Equity**: The City of Toronto will encourage the adoption of driving automation systems in a manner that improves social equity and health.		
2050 Goal [2050 horizon]	**1.1 Equitable Mobility**: In 2050, the City will have harnessed the widespread adoption of automated vehicles to ensure all users have barrier-free access to personal mobility services regardless of age, ability, income level, or other factors; and will ensure reasonably equitable service levels to all neighbourhoods for all trip types.		
Tactic	**1.1.2 Access for Individuals with Disabilities**: Develop and implement a policy to ensure that shared automated vehicle fleet companies provide an appropriate level of barrier-free access and ensure that unnecessary limitations (i.e. visual, auditory, language) are avoided. Approaches should consider the safety needs of individuals who require the assistance of an attendant or service animal, and loading needs of seniors, families with children, and individuals with mobility impairments.		
Initiative [2022 horizon]	0. Do Nothing 1. Research and learn 2. Identify the issues and scope 3. Engage and consult with stakeholders	4. Generate policy options 5. Assess options and select preferred solution 6. Design and develop a solution	7. Test the solution 8. Implement the solution 9. Evaluate the effectiveness 10. Maintain the solution

Tactical Plan

Equity	• Equitable Mobility • Community Benefits • Health Equity
Modal Shift	• Increase Space Efficiency • Manage Transport. Demand
Environ-ment	• Vehicle Emissions Reductions • Vehicle Waste Reductions
Transit-centric	• Service Reliability • Transit Safety • Service Seamlessness
Road Safety	• Collision Prevention • Infrastructure • Emergency Response
Traffic Mgmt	• Active Traffic Mgmt • Curbside Mgmt • Goods Movement • Increasing Capacity

Tactical Plan

Public Service Vehicles	• Safety and Effectiveness • Service Delivery
Privacy & Security	• User Data Protection • Vehicle Cybersecurity
Econ. Dev.	• Sector Expansion • Employment • Sector Leadership
Business Intel.	• Data Collection • Data Management • Forecasting

Tactical Plan: Equity

EQUITY: The City of Toronto will encourage the adoption of driving automation systems in a manner that improves social equity and health.

Equitable Mobility - In 2050, the City will have harnessed the widespread adoption of automated vehicles to ensure all users have barrier-free access to personal mobility services regardless of age, ability, income level, or other factors and will ensure reasonably equitable service levels to all neighbourhoods for all trip types.

Key Performance Indicators:	• Median wait time for barrier-free automated vehicles versus standard automated vehicles by geographic area (neighbourhood) • Percentage of population able to access automated vehicle services

1.1.1 Access for Individuals with Disabilities	1.1.2 Access for Unbanked Individuals	1.1.3 Access for Low-Income Individuals	1.1.4 Equitable Service Coverage	1.1.5 Equitable Performance Standards

Health Equity - In 2050, the City will have harnessed the widespread adoption of automated vehicles to ensure equitable health outcomes resulting from mobility.

Key Performance Indicators:	• The City of Toronto will be determining the required key performance indicators from 2019-2022

1.2.1 Health Equity

Tactical Plan: Road Safety & Modal Shift

ROAD SAFETY: The City of Toronto will encourage the adoption of driving automation systems that are proven to create a net benefit to road safety.

Collision Prevention - In 2050, the City will have harnessed the widespread adoption of automated vehicles to ensure that traffic-related injuries and deaths from automated vehicles are zero.

4.1.5
Vulnerable Road Users

MODAL SHIFT: The City of Toronto will encourage the adoption of driving automation systems that encourage more space-efficient and active modes of travel, and facilitate transportation demand management.

Increase Space Efficiency - In 2050, the City will have harnessed the widespread adoption of automated vehicles to ensure a greater proportion of intraurban travel will be by more space-efficient and active modes of travel.

5.1.1
Active Transportation Priority

Tactical Plan: Transit-Centric

TRANSIT-CENTRIC: The City of Toronto will take a transit-centric approach to vehicle automation. The City will encourage the adoption of driving automation 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 driving automation systems that facilitate increased transit priority.

Service Reliability - In 2050, the City will have harnessed the widespread adoption of automated vehicles to ensure that Toronto's transit system is more reliable and more efficient.

Key Performance Indicators:	• On-time departure • On-time arrival

6.1.1 AV Fleet	6.1.2 Microtransit	6.1.3 Transit Priority

Transit Safety - In 2050, the City will have harnessed the widespread adoption of automated vehicles to ensure that Toronto's transit system is safer for operators, customers, and other road users.

Key Performance Indicators:	• Number of killed/ seriously injured involving automated transit vehicles per 1000 population (vs. conventional transit vehicles) • Number of non-KSI collisions involving automated transit vehicles per 1000 population (vs. conventional transit vehicles)

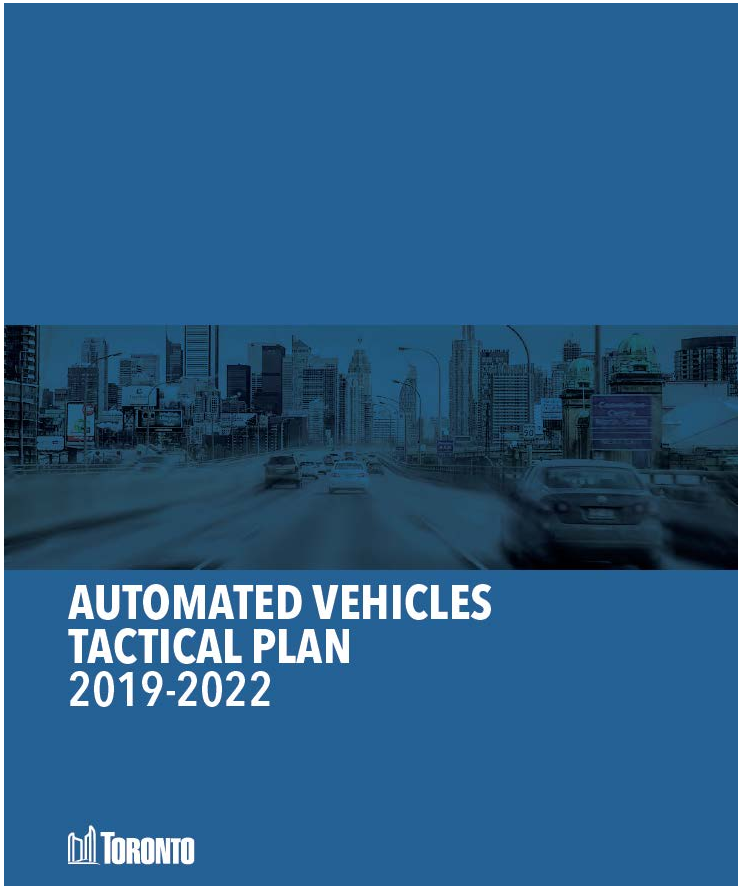
6.2.1 AV Transit Readiness	6.2.2 Transition to AVs - Transit

Tactical Plan: Transit-Centric Continued

TRANSIT-CENTRIC: The City of Toronto will take a transit-centric approach to vehicle automation. The City will encourage the adoption of driving automation 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 driving automation systems that facilitate increased transit priority.		
Service Seamlessness - In 2050, the City will have harnessed the widespread adoption of automated vehicles to ensure that Toronto's transit system is seamless to the user.		
Key Performance Indicators:	• Percentage of ridership satisfied with service seamlessness	
6.3.1 Transit-Centric Mobility-as-a-Service (MaaS)	6.3.2 Transit Incentives and Pricing	6.3.3 Access to Transit for Individuals with Disabilities

Tactical Plan Development – Next Steps

- Late-April 2019: Public posting of Tactical Plan Report for consultation
  - Circulation to all internal and external stakeholders, industry, public
  - Please provide your detailed feedback via comment at this time
- Summer 2019: Committee and Council consideration



Questions?

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