

Automated Shuttle Trial

Briefing to Toronto Accessibility Advisory Committee

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Agenda

1. Vehicle automation in transit
2. Our project
3. Accessibility requirements and safety considerations
4. Timeline

What are automated vehicles?

- Vehicle automation refers to a range of technologies that can conduct some or all parts of the driving task (like steering, acceleration and braking).
- These technologies include computers and sensors.
- The introduction of automation technologies into vehicles of all kinds could have benefits for the safety, accessibility, and efficiency of the transportation network.



Automated and connected vehicles at an urban intersection

Automation in the transit system

- Metrolinx, the Toronto Transit Commission (TTC) and the City of Toronto want to learn about the potential for automated vehicles to fill existing gaps in the transit system.
- In 2018, we secured funding from Transport Canada's Program to Advance Connectivity and Automation in the Transportation System (ACATS) to conduct a trial with an automated transit shuttle.



Example of an automated shuttle trial in Candiac, Quebec

What is an automated shuttle?

- Automated shuttles are a new kind of transit technology. They are:
 - Able to accommodate mobility devices like strollers, walkers, and wheelchairs
 - Electric powered (quiet and zero-emissions)
 - Low speed (approximately 20 km/h)
 - Small (8-12 passengers)
 - Able to conduct a range of driving activities on their own with some human oversight
 - Have a human attendant who is on board at all times



Example of an automated shuttle trial in Montreal, Quebec

Where will the shuttle be deployed?

- Connect a neighbourhood with no existing transit service to a major transit hub such as a GO station (first mile, last mile application)
- Serve a route not currently served by transit
- Serve a transit station that is fully accessible to permit transfers from the shuttle to the GO train or TTC



The shuttle would connect to a major transit station such as a GO station

Our goals

- Understand the potential of automated shuttles to fill gaps in the transit system in the future
 - No intent to scale up at this point in time
- Understand human interactions with automated shuttles
- Understand the technical requirements to operate an automated shuttle

Proposed trial plan

- Service to start Fall 2020
- Run for about 6-12 months
- Passengers ride for free
- Run only during morning and evening rush hours (approximately 6:30-9:30am and 4-7pm)
- Loop around about every 20-30 minutes
- Fixed route with fixed stops (locations TBD)
- 1 vehicle

This plan may change - feasibility to be confirmed with the vendor in 2020.



Example of an Automated shuttle demonstration in Calgary, AB

Accessibility requirements for the automated shuttle

- The detailed design of the vehicle depends on the vendor to be selected through a procurement process beginning in Fall 2019.
- We will require the vehicle and the service to comply with the:
 - Accessibility for Ontarians with Disabilities Act (AODA)
 - Metrolinx Accessibility Policy
 - TTC Accessible Customer Service Policy
- A human attendant will be in the vehicle at all times and will be available to assist passengers as required



Example of an Automated shuttle demonstration in Calgary, AB

Accessibility requirements for the automated shuttle (2)

- We currently anticipate having the following requirements for the potential vendors:
 - Make audible and visual next stop announcements inside and outside the vehicle
 - Have a ramp (deployable automatically or manually by the attendant)
 - Permit use by persons with disabilities accompanied by service animals
 - Provide a securement device
 - Maximize interior space for persons with mobility devices
 - Follow best practices in the design of any mobile applications or websites, if applicable
- Your input can help us shape the final requirements.

Safety considerations

- The shuttle route will be designed with safety as the top criteria, such as avoiding school zones, complex railway crossings, high-volume traffic areas, and busy or complex intersections.
- The vehicle will travel a maximum speed of approximately 20 km/h and come to an immediate controlled stop if anything comes into its path.
- Although the specific vehicle is not yet selected, we will seek vendors who have already demonstrated an excellent safety track record around the world where they have been deployed.

Timeline

- July 2018: City Council Approved Agreement
- Fall 2018: Request Information from Vendors
- Spring 2019: Draft Service Plan
- Fall 2019: Public Consultation on Draft Plan
- Fall/Winter 2019: Vendor Contracting
- Spring 2020: Route Assessment with Vendor
- Spring/Summer 2020: Set-up and Testing
- Fall 2020: Service Launch (6-12 months)
- Fall 2020-2021: Evaluation during and after service
- Spring 2022: Final Report

For more information:

www.toronto.ca/AVshuttle

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