Don't Allow Robots on Public Sidewalks and In Other Public and Quasi- Public Places in Ontario -- A Brief by the Accessibility for Ontarians with Disabilities Act Alliance to the Ministry of Transportation of Ontario

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1. The Bottom Line

This is the AODA Alliance's written submission to the consultation by the Ontario Ministry of Transportation on the possibility of allowing robots, including autonomous robots, to be used in public and quasi-public spaces, e.g. to deliver packages and shovel snow. We Are strongly opposed to this. This cannot be solved by regulatory standards. Such robots must be banned from public or quasi-public places, with strong penalties that are effectively enforced. This ban should be enacted in provincial legislation, whose enactment is preceded by public hearings and debates in the Legislature. The dangers that these robots pose cannot be effectively averted or minimized by permitting them in public places with regulations setting standards over their use or operations.

This brief does not take a position on the use of robots in private places to which the public is not customarily admitted, such as a factory or farm fields.

2. Who Are We?

The AODA Alliance is a voluntary non-partisan coalition of individuals and organizations. Our mission is: "To contribute to the achievement of a barrier-free Ontario for all persons with disabilities, by promoting and supporting the timely, effective, and comprehensive implementation of the Accessibility for Ontarians with Disabilities Act."

To learn about us, visit: http://www.aodaalliance.org.

Our coalition is the successor to the Ontarians with Disabilities Act Committee. The ODA Committee advocated more than ten years for the enactment of strong, effective disability accessibility legislation. Our coalition builds on the ODA Committee's work. We draw our membership from the ODA Committee's broad grassroots base. To learn about the ODA Committee's history, visit: http://www.odacommittee.net.

We have been widely recognized by the Ontario Government, by all political parties in the Ontario Legislature, within the disability community and by the media, as a key voice leading the non-partisan campaign for accessibility in Ontario. In every provincial election since 2005, parties that made election commitments on accessibility did so in letters to the AODA Alliance.

Our efforts and expertise on accessibility for people with disabilities have been recognized in MPPs' speeches on the floor of the Ontario Legislature, and beyond. Our website and Twitter feed are widely consulted as helpful sources of information on accessibility efforts in Ontario and elsewhere. We have achieved this as an unfunded volunteer community coalition.

Beyond our work at the provincial level in Ontario, over the past several years, the AODA Alliance has been active in advocating for strong and effective national accessibility legislation for Canada. Our efforts influenced the development of the Accessible Canada Act. We have been formally and informally consulted by the Federal Government and some federal opposition parties on this issue.

The AODA Alliance has also spoken to or been consulted by disability organizations, individuals, and governments from various parts of Canada on disability accessibility issues. We have also been consulted outside Canada on this topic, most particularly, in Israel and New Zealand.

3. The Danger

The Ontario Government is considering enacting regulations under the Highway Traffic Act to allow robots, whether autonomous or remotely driven, to use sidewalks in Ontario, to deliver products to customers. On October 18, 2021 the AODA Alliance took part in a Government consultation on a Government proposal that had been posted for public comment. Below we set out the text of the Ministry's slide deck presented at its October 18, 2021 consultation.

The AODA Alliance strongly opposes any reform, whether permanent or by pilot project, that would allow autonomous or remotely driven robots to use public sidewalks or other public or quasi-public paths and places, including for such things as the purposes of delivering products to customers or shoveling snow. By "quasi-public places", we include private property where the public is customarily admitted, such as stores and shopping plazas.

For the Government to allow these robots would be to knowingly create a substantial and worrisome new disability barrier impeding people with disabilities in their safe use of public sidewalks and other paths of travel. People with vision loss risk not knowing a robot is coming, or is in their path. They can pose a tripping hazard, or a danger of collision. For people with mobility limitations, including those who use mobility devices such as wheelchairs, they risk becoming a physical barrier in their path of travel, transforming an otherwise accessible route into an inaccessible one. For people with balance issues, they present a danger of losing balance from any inadvertent contact with a robot.

These barriers will be unpredictable, an unforeseeable in advance. People with disabilities cannot plan strategies to avoid them, short of simply staying home. These robots, by definition, will be on the move, not remaining permanently in any fixed location.

Sidewalks are an important publicly-funded public resource created for pedestrians to safely use. Their use should not be undermined for such things as private companies' delivery robots.

Disability activists in jurisdictions that allow automated delivery robots to roam their sidewalks experience accessibility issues associated with these devices. Emily Ackerman, a PhD student at Pittsburgh University and a wheelchair user, found herself unable to access the curb cut due to an automated delivery robot blocking her way. This forced her to remain on the street as the traffic light turned green. The robot did not understand that it was time for him to cross the street as the pedestrian signal turned green. https://www.bloomberg.com/news/articles/2019-11-19/why-tech-needs-more-designers-with-disabilities

Roads are created as the place for vehicles to travel, including powered vehicles. As it is, public sidewalks and other paths of travel have far too many accessibility barriers. They are becoming increasingly cluttered with street furniture, art, signage, plants and other obstacles. We cannot afford any more barriers being added. These barriers include the lack of accessible curb cuts in too many places, trees, potted plants, sidewalk restaurant eating areas, and other clutter. In residential areas, this also includes weekly residents' garbage bins awaiting pickup.
These will create a new disability barrier for a wide spectrum of people with disabilities, old and young. For those who have just acquired a disability, they will inflict added hardships. For example, for a senior who is just lost some or all of their vision, they will need to undergo rehabilitation orientation and mobility training on how to get around independently. The added burden of coping with these robots will make that challenge more difficult.

As a result of Ontario Government action led in this context by the Premier's Office and the Ministry of Transportation, this situation has been made even worse in recent months and years. In 2019, the Ontario

Government harmfully allowed municipalities to permit electric scooters, over the strong objection of the disability community.

The Ford Government acted at the behest of corporate lobbyists for the e-scooter rental companies. It knowingly created safety dangers for the public, including for people with disabilities, seniors, children and others. This has included creating a danger caused by e-scooters ridden on or parked on sidewalks. It has burdened people with disabilities to have to battle in one city after the next to avert this danger. They have had to battle against well-funded feeding frenzies by the e-scooter rental company corporate lobbyists. The new barriers that e-scooters have created for people with disabilities in Ontario are amply documented at www.aodaalliance.org/e-scooters

Making this even worse, during the COVID-19 pandemic, municipalities have understandably permitted restaurants to use some sidewalk space for outdoor public seating areas. Municipalities have not required that these new outdoor seating areas be barrier-free for people with disabilities, and that they not preclude accessible and safe pedestrian travel on the sidewalk to pass by the restaurant, for people with disabilities. This has had the effect of creating even more new barriers, forcing some to have to divert dangerously into the street in the face of oncoming traffic, just to get around a restaurant seating area that occupies the public sidewalk.

The marginalizing impact that such COVID-19 measures have on people with disabilities would be compounded by adding an additional layer of barriers to sidewalks in the shape of delivery robots. Haben Girma, an internationally acclaimed disability activist and lawyer, in an essay on accessibility issues created by delivery robots notes that, in the wake of the pandemic, "the last thing we need is cities adopting tech that excludes blind people and endangers pedestrians with mobility disabilities." https://techcrunch.com/2020/08/11/the-robots-occupying-our-sidewalks/ .

The Accessibility for Ontarians with Disabilities Act requires the Ontario Government to lead Ontario to become accessible by 2025. The Government-appointed 2019 Independent Review of the AODA undertaken by former Lieutenant Governor David Onley found that Ontario is well behind schedule for reaching that goal. There are now just over three years left to get there. Ontario cannot afford to create any new disability barriers, like those that these robots would generate.

4. Enact Provincial Legislation and Do Not Address the Robots Issue by Mere Regulations Enacted Under the Highway Traffic Act

The Ontario Government is proposing to address this issue by enacting regulations under the Highway Traffic Act. We strongly recommend that instead, the Ontario Government should address this issue by introducing and publicly debating strong legislation into the Legislature to comprehensively deal with it. By passing legislation, the Legislature can deal comprehensively with it.

Only legislation can set requirements for public property, quasi-public property (such as shopping plazas) and private property. Regulations that the Government is contemplating under the Highway Traffic Act risk being far more limited in scope.

We realize that the Government may prefer the option of enacting regulations rather than bringing forward legislation, because Cabinet debates and decides what to do entirely in secret. However, for an issue that threatens public safety and disability accessibility, less secrecy and far more public accountability is required here. A very broad public consultation is needed, far more than the Ministry is now conducting.

It will be important for this ban to apply both to public property like sidewalks, and also to quasi-public private property, such as shopping plazas. A robot endangers the public in both such places. Legislation is the best if not the only effective tool for achieving this.

5. Ontario Government's Stated Rationale for Wanting to Merely Regulate Robots is Wrong-Headed

At its October 18, 2021 consultation meeting, the Government explained why it is proposing to pass regulations that would permit use of these robots, while purporting to merely regulate some aspects of their use. The Government explained that right now there is no law governing these robots. They are being used in various parts of the province. It is a free-for-all. The Highway Traffic Act only gives the Government limited power to regulate them by way of regulations passed by Cabinet. As such, the Government is proposing to set minimum standards for their use where it can, and to give municipalities power to locally regulate them.

The fatal flaw in the Government's reasoning is that it assumes that the only or best way to address this issue is by the Cabinet enacting mere regulations under the Highway Traffic Act. It disregards the option of the Legislature enacting legislation.

As noted above, legislation can ban the use of robots in any place, public, quasi-public or private, if the Legislature wishes. It can establish enforcement for that ban, such as the measures proposed in this brief.

The Government's rationale is the same as the similarly erroneous arguments made by the corporate lobbyists for electric scooters. They claim that because people use them illegally, it is preferrable to legalize them and regulate them.

If these robots present a danger to the public's health and accessibility, the proper public response is to ban then with effective enforcement, rather than legalizing them. By comparison, too many people now use dangerous drugs like crack cocaine. Current legal regimes do not prevent this. The solution is not to legalize crack cocaine.

6. No Way to Effectively Enforce Regulations Permitting Use of Robots in Public and Quasi-Public Places

If robots are permitted subject to Highway Traffic Act regulations or local bylaws, enforcing the law will be exceedingly difficult if someone is injured or endangered by a robot. The injured victim won't know who to sue or prosecute for their injuries. Robots are not people with a legal duty to remain at the scene of an accident.

If a person is injured by a robot, and the robot keeps moving, the individual has no capacity to stop it and to try to identify its source. This is all the more so for a person with a disability such as a mobility impairment or vision loss.

Even if those barriers are overcome, there is still no way to know who has deployed the robot. A robot might have a company name on it. However, there is no assurance that this company name is accurate.

It is no solution to require the company name, if present, to be in braille. It is unreasonable to burden people with disabilities with having to find the robot, and then grope it to find a braille label. Braille labels cannot be read if the robot is moving. The very notion that a person with vision loss should try to chase down a robot in public that has injured or endangered them, with one hand on their white cane and guide dog, and their other hand flailing around to see if there is a braille label to read on the robot, illustrates the absurdity of this entire venture.

Moreover, many people with vision loss do not read braille. Most who lose their vision have this happen later in life.

The most effective enforcement would be to have a total ban on these robots in public and quasi-public places such as sidewalks, and to authorize their immediate confiscation and disposal. If police or members of the public encounter a robot in forbidden locations like a public sidewalk, they should be able to seize the robot and dispose of it. This would quickly and effectively put an end to the problem.

Ironically, under the Government's proposal, a member of the public, endangered by a robot, risks prosecution for damaging private property if they disable a robot and dispose of it. However, the company endangering the public by sending out the robot into public places will for practical purposes face no risk of effective enforcement. The victims, and not the perpetrators, are the ones that the Government would leave at greatest legal risk.

It is unfair to burden a person suffering personal injury or property damage due to these robots to have to sue for damages. The costs and stresses of such litigation are substantial. People with disabilities traditionally have faced serious barriers in access to effective legal services, and barriers in the court system itself. Moreover, disproportionately, people with disabilities live at or near the poverty line. They thus cannot shoulder the costs of such litigation.

In addition, such a civil plaintiff would have the burden to prove who is responsible for their injuries. This presents all the monumental enforcement issues identified above, while dumping these hardships on private individuals with no public law enforcement and investigation powers. Add to this the possibility of a corporate defendant claiming that the fault lies with the robot's designer, including software developers. Why should members of the public ever have to endure this?

7. No Effective Measures Available to Controvert These Dangers

The Ontario Government is asking if there are any measures it could enact to offset the safety and accessibility dangers that robots pose. The short answer is that there are none. Any effort by the Government to enact such is, as has been the case for electric scooters, doomed to fail.

a) Requiring a Remote Driver Is No Solution

Autonomous robots present a huge danger to people with disabilities and others. These dangers are not eliminated or materially reduced if the law requires a robot to have a remote driver or monitor. There is no way for the public to enforce such a requirement. There is no way to know from looking at a robot, barreling towards you on the street or sidewalk, that there in fact is a remote driver somewhere, who is attentive to steering the robot.

If a company could even be identified as the robot's source, there is no way for a prosecutor or plaintiff to affirmatively prove in court that there was no remote driver operating the robot. There is no way to know whether the robot is in fact operating autonomously some or all of the time, even if a remote driver or monitor exists.

If there were a remote driver, it is vital that they only be permitted to steer one robot at a time. There is no way to know if a remote driver is directing multiple robots at the same time, dangerously dividing their attention.

There are no prior standards for training a remote driver, akin to a driver's education course for car-drivers. The simple fact that a human being is remotely involved does not ensure that they have the skills and knowledge needed to safely operate the robot.

There is a massive difference between having a driver in place in a motor vehicle on the one hand, and having a remote driver at some other location, on the other. The remote driver is not assured to have the same view as does a live driver on site in a vehicle. A live driver's own safety is at stake if they get into a crash. A remote driver's safety is never at risk from their remote driving of a robot.

There is no way to police whether the remote driver is paying attention and is not intoxicated or otherwise has reduced attention. Indeed, there is no way for the public to know if a remote driver is even in Ontario and hence within the reach of a police investigation, or is situated halfway around the world, far removed from the reach of Ontario law and the damage that their remote driving can cause.

b) Speed Limits Are No Solution

Of course, the faster a robot goes, the greater is the damage it can inflict in a collision. Despite this, these dangers are not eliminated by speed limits imposed on robots. It is not possible to effectively enforce speed limits for robots. It would require police on every street, and sidewalk, equipped with hand-held radar for tracking their speed, constantly looking to see if a robot needs to be monitored. Especially in a society reeling from the added public and

private costs of the COVID-19 pandemic, the enforcement costs would hardly be a societal priority, just so some mega-companies like Amazon can deliver their products without using delivery people.

Moreover, the dangers that these robots pose is not limited to the times when they are moving. When not moving, they are another form of unexpected sidewalk clutter that can be a tripping hazard for people with vision loss, and a barrier to mobility for people using mobility devices.

If a speed limit were to be set, it would need to be so slow that it would likely defeat the purpose of using robots. For example, if the speed were 3 KPH, businesses like Amazon will no doubt find that delivery people can get packages delivered more quickly by using human delivery people.

c) Robots Emitting Sound Helps But Is No Solution

One option being considered is to require that the robot emit a beeping or other audible sound. This could alert some people to the robot's presence. While this might help a little, it is also not an effective solution.

To be effective, there would have to be a universal sound, and a massive public education campaign to ensure that the entire public, including tourists from elsewhere, know that this is the sound of a robot.

Moreover, the audible alert must be ongoing, and not only when the robot approaches a person. It must be loud enough to be heard amidst city noises like traffic, construction, cars or restaurants blaring music, lawn mowers, etc. If not, a person might not be able to hear the robot sound, to localize its location and to know it is a robot.

d) How Does a Robot Get Insurance?

Whenever a motorized vehicle is permitted to operate in public, decades of wise public policy requires that the vehicle be licensed and insured. One of the dangers arising from electric scooters arises from the fact that the Ontario Government wrongly departed from that basic public protection, for no valid public policy (except for the enrichment of e-scooter rental companies).

This rases the question whether the province can effectively require that robots be insured. There is likely no robot insurance available. Moreover, there is no way for a member of the public or law enforcement official to ask a robot to produce its insurance policy for verification.

e) No National Safety Standards For Robots

Normally, motorized vehicles are not permitted on the road or other public places unless they have been tested and certified as meeting national safety standards. The Ontario Government has already endangered the public by not requiring this for electric scooters. It would make this even worse by not doing so for robots operating in public or quasi-public places.

As a first step, sufficient national safety standards would be needed. We are aware of none.

Such standards could include the permissible size, weight and shape of these robots. Just the shape alone of these robots is important. The severity of the injury they cause could be exacerbated by the shape, weight and size of the robot. If the robot is travelling at a higher speed, it gives people less time to become aware of their approach and to get out of the way. If the robot has sharp, hard edges and corners, not padded and rounded corners, they can inflict more damage. The heavier they are, the more damage they might inflict.

National standards could set requirements for permissible speeds, and for mandatory features to be included in the robots. They could set minimum requirements for a robot to be tested before its public use, including the tests that must be run. Whenever new software is added, they could add requirements for further testing before the robot might resume operation. We all know how new software can include bugs.

8. Snow-Shoveling robots Create Additional Dangers

One use for these robots would be for shoveling snow, e.g. on sidewalks. This presents additional dangers beyond other uses of robots on public sidewalks.
A recurring problem now facing people with disabilities during snowy periods is where snow is shoveled off a road or sidewalk, but piled up in another path of travel, such as a walkway from a house to the roadside. This results in new disability barriers being created that can make a hitherto accessible path inaccessible.

It must be a human being to be the one doing the snow shoveling, so that they can make sure this does not happen. Robots are less likely to avert the creation of these snow barriers.

9. Robots Can Also Damage Private Property

The foregoing addresses the risk of danger to people posed by robots. They also can damage a person's property. This in turn would shift an unfair burden to those suffering property damage to have to prove who is at fault, and the value of the loss. If the person is not present when the damage is caused, this will be impossible to do. If the person has vision loss, they will likely not be able to provide the necessary information to prove the claim.

10. Leaving Approval of Robot Use to Each Municipality Creates Undue Hardship for People with Disabilities

The Ontario Government is considering giving each municipality the power to set local requirements for robot use and/or power to decide if robots will be permitted. This would create a huge undue hardship for people with disabilities and others.

This would shift to people with disabilities and charitable community organizations the massive burden to have to battle against approval of robots, one municipality at a time. The Government inflicted this on the disability community two years ago, when it gave each municipality the power to allow e-scooters. Since then, people with disabilities have had to battle in one city after the next to prevent the danger posed by e-scooters. As noted earlier, we have unfairly been pitted against e-scooter rental companies' corporate lobbyists waging a well-funded lobbying campaign. In Toronto, we succeeded. In Ottawa, the corporate lobbyists succeeded. This has burdened our community with hours and hours of work, in the midst of the COVID-19 pandemic. People with disabilities in Ottawa have already suffered from e-scooters left in public places and ridden in public.

This ordeal should not be replicated in the context of these robots. It wastes a great deal of time, and resources of municipal planning and policy officials. They already have many pressing issues on their plates.

11. Don't Run a "Pilot" Project with Robots, Burdening People with Disabilities and Others to File Complaints

It is similarly wrong to authorize pilot projects with robots. It is wrong to experiment on non-consenting members of the public, as guinea pigs who will be subjected to this danger to their safety and accessibility. People are only supposed to be subjected to a human experiment if they consent to being involved in it.

Moreover, as the experience with e-scooters has shown, it is wrong to create this new danger, and then to shift the burden to the public to lodge complaints if they experience a problem. People have lots to do, without having this downloaded onto them without their agreement. Many won't even know they can report problems, or to whom they should report.

Appendix October 18, 2021 Ministry of Transportation Ontario Slide Deck for Public Consultation

MTO AV Program Enhancements 2021 Accessibility Seniors

Contents

Slide 1

Header: Ministry of Transportation

Title: Automated Vehicle Pilot Program

Consultations on Proposed Enhancements to the Pilot Program

October 2021

Slide 2

Title: Purpose of Consultations

Purpose of the proposals are to:

- Reduce burden for Ontario businesses and other entities seeking to test automated vehicles (AV), while protecting road safety.
- Facilitate innovation in connected and automated vehicle development and remain technology neutral, while protecting road safety.
- Align Ontario's Manufacturer Plate (M-Plate) and AV Pilot programs.

Purpose of the consultations are to:

- Seek participant input on the impact to stakeholders, concerns on road safety and any accessibility issues.

Footer: Note: the deck is confidential, for discussion purposes only. Do not distribute.

Slide 3

Title: Context: Automated Vehicle (AV) Pilot

- January 1, 2016: Ontario launched a pilot project to allow for the testing of automated vehicles (AVs) on public roads under certain conditions. Goals: establish rules, monitor industry developments, and evaluate the safety of AVs prior to them becoming widely available to the public.

- January 1, 2019: In response to advances in AV technology, to ensure economic competitiveness, and in cooperation with key industry and road safety stakeholders, the province made enhancements to the AV Pilot program to:
    - Permit driverless testing under stringent conditions to ensure safety
    - Permit testing of connected “platooning” technology under stringent conditions to ensure safety, in which large trucks are able to travel closely together while tethered electronically, towards greater efficiencies, and
    - Permit the use of conditionally automated vehicles (specifically, Society of Automotive Engineers (SAE) Level 3 AVs) by Ontario consumers.

Slide 4

Title: Proposals

Connected and automated vehicle (CV/AV) technology is rapidly evolving and new opportunities have emerged. As such, the Ministry of Transportation (MTO) is exploring the following changes:

- Proposal 1: Expand eligible entities for the AV Pilot
- Proposal 2: Remove restrictions on modification or manufacture of automated vehicles by pilot participants
- Proposal 3: Expand Manufacturer Plate Program eligibility to include approved AV Pilot participants
- Proposal 4: Expand Manufacturer Plate Program to allow carrying freight/goods and charging a fee
- Proposal 5: Add emerging types of AVs to the AV Pilot – automated farm vehicles only at this time
- Proposal 6: Develop a pilot framework for the testing of automated micro-utility devices

Slide 5

Title: 1: Expand eligible entities for the AV Pilot

Current Status:

- Eligibility for the AV Pilot is restricted to certain entities, such as: original equipment manufacturers (OEMs), technology companies, component and systems manufacturers, and academic and research institutions.
- A non-eligible entity seeking to conduct AV testing may still engage in testing by partnering with an eligible entity. However, the eligible entity must be the applicant to the pilot and own the vehicle to be tested.

Proposal:

- Remove regulatory restrictions and permit eligible entities that can demonstrate that they are able to meet all requirements entry to the pilot.
- This could expand eligibility for participation in the pilot to, for example but not limited to, ineligible entities such as municipalities, indigenous groups, corporations, transit companies etc.
- Any applicant must still satisfy all the requirements of the pilot program before they may be approved.

Slide 6

Title: 2: Remove restrictions on modifications of AVs by pilot participants

Current Status:

- If a vehicle is originally manufactured as a Society of Automotive Engineer (SAE) Level 4 or 5 AV, only the OEM is eligible to modify and test the vehicle under the current AV Pilot framework. Other eligible entities for the AV Pilot are only able to test vehicles that they converted into AVs (SAE Level 3, 4 or 5) and must be responsible for the conversion.

Proposal:

- Remove regulatory restrictions on the modification of vehicles by participants within the AV Pilot Framework. This would allow all eligible entities participating in the program to modify originally manufactured automated vehicles.

Footer: Please refer to Appendix for details on SAE Levels.

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Title: Discussion Questions for Proposals 1 and 2

1. What level of support would your organization have for these policy proposals? Why?
2. Does your organization have any concerns with these policy proposals?
    a. Should the expansion be limited to only certain entities?
    b. Should the vehicle manufacturer/converter have continued involvement? If so, what?
    c. Should conditions be placed on any entities? If so, what?
3. What impacts would these policy proposals have on your organization or the population your organization serves?
4. Are there any alternatives which your organization would like to suggest?

Slide 8

Title: 3: Expand M-Plate Program eligibility to include approved AV Pilot participants

Current Status:

- The Manufacturer Plate (M-Plate) Program allows for motor vehicles and motor vehicle component manufacturers to operate non-compliant vehicles on Ontario roads for the purposes of testing, demonstration, evaluation and exhibition.

- The M-Plate Program is currently restricted to motor vehicle and component manufacturers, which is inconsistent with the eligibility of the AV Pilot.
- Vehicles manufactured and equipped by the following parties are permitted in the AV Pilot:
    - Original Equipment Manufacturers (OEMs)
    - Technology Companies
    - Academic/Research Institutions
    - Component and Systems Manufacturers

Proposal:

- Expand the M-Plate Program to allow all entities eligible for the AV Pilot to test compliant and non-compliant Canadian Motor Vehicle Safety Standard (CMVSS) vehicles (e.g. driverless shuttles) on Ontario roads.
- Applicants would need to be approved into the AV Pilot prior to applying for the M-Plate program. The programs have separate application forms and approval.

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Title: 4: Expand M-Plate Program to allow carrying freight/goods and charging a fee

Current Status:

- Under the M-Plate Program, participants are not permitted to carry freight/goods and to charge a fee.

Proposal:

- Expand the M-Plate Program to allow approved AV Pilot participants using vehicles with an M-Plate to carry freight/goods, and to charge a fee.

Footer: Please refer to the appendix for further details on the Manufacturer Plate Program.

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Title: Discussion Questions for Proposals 3 and 4

1. What level of support would your organization have for these policy proposals? Why?
2. Does your organization have any concerns with these policy proposals?
    a. Should there be restrictions on the M-Plate, such as limiting the number of plates that can be purchased to the number of AV vehicles to be tested?
    b. Should Ontario consider a new plate for AV Pilot participants?
    c. What restrictions, if any, should be placed on allowance to carry freight/goods and charging a fee (e.g. amount or type of goods, whether the entity should be able to make a profit etc.)?
3. What impacts would these policy proposals have on your organization or population your organization serves?
4. Are there any alternatives which your organization would like to suggest?

Slide 11

Title: 5: Add emerging types of AVs to the AV Pilot Program

Current Status:

- The current regulatory framework does not capture automated farm vehicles as farm vehicles are not considered motor vehicles.

Proposal:

- Allow for the testing of automated farm vehicles on public roadways, excluding 400-series highways

- Current rules of the road for farm equipment continues to apply
- Applicant would still need to satisfy all requirements of the AV Pilot Program before they can be approved
- Most current rules for AV Pilot participation applies
- Current driverless conditions in the AV Pilot continues to apply if it is a driverless vehicle
- Some proposed differences:
    - Simpler data requirements
    - No transportation of hazardous goods, passengers or livestock
    - Platooning allowed (vehicles to travel close together to reap fuel efficiencies)

Slide 12

Title: 6: Develop a pilot framework for the testing of automated or remote-controlled micro-utility devices (MUDs)

Current Status:

- The province does not currently have a regulatory framework in place governing automated or remote-controlled MUDs such as automated personal delivery devices or automated snow plows.

Proposal:

- Create a new 10-year pilot regulation for micro-utility devices leveraging the pilot authority of section 228 of the Highway Traffic Act.
- Will include micro-utility devices (MUDs) that:
    - May not qualify as motor vehicles under the Canadian Motor Vehicle Safety Standards and will not be defined as a motor vehicle in Ontario due to its small dimensions and low operating speeds

    - May operate primarily off-road in spaces such as private property, sidewalks, trails, or shoulders of roads
    - Are not meant for the transport of passengers, and
    - Are task oriented and may be operated or modified primarily to provide services such as snow plowing, goods delivery, sidewalk inspections, waste collection etc.
- Specialized MUD stream for automated sidewalk snow plows due to the need for their larger size/weight.

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Title: 6: Proposed general MUDs framework

Size: Equal to or less than L120cm x W74cm, 125kg

Weight and speed proposals: Maximum speed – 10 km/h in pedestrian spaces, 20 km/h on shoulders or

- Different speed limits for devices in different weight classes
    - E.g. 10 km/h speed limit for devices 125kg and less
    - 5 km/h speed limit for devices between 125kg and 250kg

Approval and Oversight: Municipal opt-in with authority to limit operations (e.g. where and when)

- Mandatory operator oversight capable of creating safe stop

Operational requirements:

- Yield to pedestrians
- Display name and contact and unique device number on device
- Collision reporting
- Good working order requirement and secure loads requirement

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Title: 6: Proposed MUDs framework continued

General safety requirements:

- Audible alerts – either within proximity alert, or always on directional white noise
- Lighting in low light settings, reflectors on sides
- Prohibit carrying of dangerous goods and controlled substances requiring federal placard
- General liability insurance of $5 million
- Braking system that allows device to come to a controlled safe stop (i.e. pulled to one side, not blocking passage)
- Follow pedestrian rules

Automated or remote-controlled sidewalk snow plows: follows general MUDs framework except:

- No maximum weight or dimension restrictions
- Maximum 10 km/h on sidewalks
- Requires, in addition to all other safety requirements, emergency stop buttons that are easily accessible
- Flashing blue light

Slide 15

Title: Discussion Questions for Proposals 5 and 6

1. What level of support would your organization have for these policy proposals? Why?
2. Does your organization have any concerns with these policy proposals?
    a. Do you agree with the proposed dimension and weight limits?
    b. Which speed limit option would fit your target population's needs best?
    c. What type of audible alert would best fit your needs? What proximity should trigger the audible alert?

    d. Are there other safety considerations?
3. What impacts would these policy proposals have on your organization or population your organization serves?
4. Are there any alternatives which your organization would like to suggest or other emerging vehicles that should be considered in the future?

Slide 16

Title: Next Steps

- Feedback received will be used to inform further policy development.
- Stakeholders and the public will have further opportunity to provide direct comment on the proposals through the Regulatory and Environmental Registries.
- If you have further comments or questions, please reach out to:

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Title: Appendix: Manufacturer Plate (M-Plate) Program

- January 1, 2016: Ontario introduced an M-Plate program.
- The M-Plate Program allows motor vehicle and motor vehicle component manufacturers to operate vehicles on Ontario roads for the purposes of testing, demonstration, evaluation and exhibition.
- To be authorized to purchase an M-Plate, motor vehicle or component manufacturers are required to complete and submit an application form to the ministry.
- Once approved, the ministry issues the applicant a letter to authorize the purchase and use of M-Plates.

- The M-Plate is eligible for use on a passenger vehicle, commercial vehicle, bus and a motorcycle.

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Title: Appendix: Society of Automotive Engineers (SAE) Levels of Automation description

To summarize SAE Levels:

Zero to two – the driver is driving and must constantly supervise any vehicle features that support the driver.

Three – the driver is not driving when the automated driving features are engaged, but when the feature requests, you must be ready to take over and drive.

Four and five – the person in the vehicle is not driving when the automated driving features are engaged. These automated driving features will not require you to take over driving.

Footer: For more information, please visit the SAE website at: SAE Levels of Driving Automation™ Refined for Clarity and International Audience