Electric Low-Speed Vehicles in Ontario: Moving Forward

Inter-Ministerial Workshop
Ministry of Transportation

January 16, 2009
Horizon Boardroom
Though the federal government recommends electric Low-Speed Vehicles (LSVs) for use in controlled environments like university campuses, we would like to find a safe way for LSVs to be used on our roads due to their environmental advantages.

Based on the advice of an independent consultant that MTO retained, we have drafted an approach stipulating additional safety and equipment requirements so that LSVs can be driven on public roads in Ontario.

We are looking for our stakeholders' comments and feedback to inform our regulation-making process.
The province supports green initiatives. Ontario would like to see vehicles manufactured that are both fuel efficient and safe.

Ontario is interested in new, environmentally-friendly vehicles that will improve the mobility of all Ontarians; however, it’s important that the vehicles are constructed with appropriate safety features (including proper brakes, and lights).

The safe integration of new vehicle types with pedestrians and other vehicles is a key consideration before any new type of vehicle will be allowed on Ontario roads.

New vehicles are already being pilot tested on Ontario roads, including Segways, (electric) low-speed vehicles and electric bicycles.
In August 2008, the ministry commissioned a study by the National Research Council (NRC) to determine how LSVs can be safely integrated on Ontario’s roads.

The NRC report has been posted on MTO’s website.
National Research Council (NRC)
- Canada’s premier R&D organization since 1916
- 4,000 staff, 18 institutes, 2 technology centres
- Leaders in aerospace, construction technology, biotechnology, marine dynamics, materials processing, nanotechnology, transportation

Study Objective
- Identify risks, and provide risk-mitigating strategies associated with:
  - Safely integrating LSVs for operation in mixed traffic on public roads in Ontario;
  - Continued safe operation of LSVs in mixed traffic following their introduction onto public roads in Ontario.

Areas Of Identified Risks And Mitigation Strategies
- LSV equipment
- Human factors
- Operating restrictions
- Road infrastructure
- Traffic safety
- Licensing, Insurance & Disclosure
- Traffic flow
Under rules proposed to be released later this year, Ontario plans to permit:

1. Federally compliant LSVs to operate in controlled environments consistent with Transport Canada’s position; and

2. LSVs equipped with additional safety features to be driven on public roads.
1. **LSVs IN CONTROLLED ENVIRONMENTS:**

- Expand current five-year pilot project, that allows low-speed vehicles to be operated on public roads up to 40 km/h in provincial parks, municipal parks and conservation areas, to other controlled environments with roads of up to 50 km/h.

- Minimum “G” licence, vehicle registration and insurance requirements and HTA rules of the road apply.

- LSVs will be considered “motor vehicles” under the Highway Traffic Act (HTA) and thus will also have to meet applicable HTA equipment requirements.
## PROPOSED APPROACH

### 2. LSVs PROVINCE WIDE:

<table>
<thead>
<tr>
<th>PROPOSAL</th>
<th>RATIONALE</th>
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</thead>
<tbody>
<tr>
<td><strong>LSV Equipment</strong></td>
<td>Federal Requirement</td>
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<tr>
<td>Meet the federal standards for LSV class and be registered with Transport Canada.</td>
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<tr>
<td>Use same vehicle features as in 2008 Transports Quebec pilot project (i.e.; doors, defog/defrost and heating systems, 3-point seat belts, slow-moving vehicle sign, notice to its rear stating maximum speed, proximity warning sign that emits intermittent noise when the vehicle is near pedestrian/bicyclist).</td>
<td>NRC Recommendations (pages 129, 133 and 134)</td>
</tr>
<tr>
<td>Other applicable CMVSS 200 series standards (e.g., Occupant Protection, Driver Impact Protection, Occupant Restraint Systems in Frontal Impacts, Seat Belt Assembly Anchorages, Side Door Strength).</td>
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<tr>
<td>Prohibit modification or tampering with the maximum speed control or limiter of LSVs.</td>
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<tr>
<td>Slow-moving vehicle emblem.</td>
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2. LSVs PROVINCE WIDE (cont’d):

<table>
<thead>
<tr>
<th>PROPOSAL</th>
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<tbody>
<tr>
<td><strong>Traffic Safety</strong></td>
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<tr>
<td>Manufacturer to provide evidence of compliance with additional federal standards and indicate if LSVs eligible only for controlled environments and those for province-wide.</td>
<td>Public Safety and Law Enforcement</td>
</tr>
<tr>
<td>Daylight running lights compliant to CMVSS 108 or continual running of lights.</td>
<td>NRC Recommendations (pages 129, 131 and 134)</td>
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<tr>
<td>Roads 50 km/h or less.</td>
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<td>Cross higher speed roads only at controlled intersections.</td>
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<td>Prohibit transportation of small children and infants.</td>
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<td>Towing prohibition.</td>
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2. LSVs PROVINCE WIDE (cont’d):

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<tr>
<td>Licensing, Insurance, Disclosure</td>
<td>NRC Recommendations (pages 129, 130 and 139)</td>
</tr>
<tr>
<td>Clear warning signs inside vehicles for operating restrictions and risks from lack of full passenger car safety features.</td>
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<tr>
<td>LSVs registered as passenger cars.</td>
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<tr>
<td>Allow only G class or higher-class licensed drivers to operate LSVs on public roads.</td>
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<tr>
<td>Require that LSV buyers sign a “Notice of Limitations” document at the time of sale that explains what are the LSVs’ performance and safety limitations.</td>
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<tr>
<td>If deemed “Total Loss”, LSV will be branded irreparable.</td>
<td>Public Safety</td>
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</tbody>
</table>
Defining “controlled environment”?
- Most university/college campuses and gated communities contain private roads where LSVs already permitted.
  - Defining university/college boundaries?
  - E.g. University of Toronto downtown campus – “controlled” environment along College/Bloor/University/Spadina?
  - Permit LSVs only on self-contained university/college campuses?
- Average Daily Traffic volumes?
- Road classifications? (e.g. local, arterial, etc.)?
- Municipal by-laws?
- Signage?
- Islands?

Municipal by-law powers?

Duration of pilot?
DISCUSSION (cont’d)

- Ability of manufacturers to meet additional CMVSS 200 series standards?
- Method by which manufacturer will provide evidence that LSV meets additional federal standards?
- Method by which manufacturer will indicate if LSV is eligible for use in controlled environments only or province-wide?
- Ability to install ignition interlock device?
- Pass VIN check digit?
- Insurance?
- Ensuring that the Notice of Limitations provided during transactions on used LSVs?
NEXT STEPS

- Develop regulations.
- Post draft regulations on the Regulatory Registry, available on Service Ontario’s website, for public comment.
- Submit proposed regulatory package for Cabinet approval.
- Upon approval, public announcement and update MTO website.
MTO New and Emerging Vehicles:
http://www.mto.gov.on.ca/english/dandv/vehicle/emerging/

NRC-CSTT LSV Report:

Transport Canada LSV Information Sheet:
http://www.tc.gc.ca/roadsafety/tp2436/rs200803/menu.htm
The Motor Vehicle Safety Act (Canada) and its regulations define a “low-speed vehicle” as a vehicle that:

- Is designed for use primarily on streets and roads where access and the use of other classes of vehicles are controlled by law or agreement;
- Is powered by an electric power train;
- Does not produce emissions;
- Is designed to travel on four wheels;
- Does not use fuel as an on-board source of energy;
- Has a gross vehicle weight rating of less than 1,361 kg; and
- Has an attainable speed in 1.6 km of more than 32 km/h but not more than 40 km/h, on a paved level surface.
Low-speed vehicles may **LOOK** like other cars, **BUT**:

- Despite the demand, the general public may be unaware of the differences in safety standards between LSVs and passenger cars.
- Passenger cars must meet 40 federally mandated vehicle safety standards; LSVs must only meet 3.
- LSVs have not performed well in crash tests.

We know the care we take in setting the rules of the road is making a difference.

- In 2005, Ontario's fatality rate (0.87 per 10,000 licensed drivers) was the lowest ever recorded in Ontario.
- In that same year, the latest for which comprehensive information is available, Ontario had the safest roads of any province or state.
APPENDIX: JURISDICTIONAL SCAN

In Canada:

- B.C. – On June 6, 2008, regulations came into force allowing LSVs on all public roads with a maximum speed limit of 40 km/h, and on roads up to 50 km/h if a municipal by-law is passed.
- Alberta - In June 2008, Alberta Transportation said it will work with the Town of Jasper to grant a permit and cooperatively define the operating conditions for the use of LSVs within the town boundaries.
- Manitoba – On June 12, 2008, Bill No.15, which permits zero-emission and low-speed vehicles on highways, received Royal Assent and was proclaimed.
- Ontario – Began a five-year pilot project on September 19, 2006 to evaluate the use of LSVs on roads in provincial parks, municipal parks and conservation areas.
- Quebec – Effective July 17, 2008, an LSV pilot permitting Nemo and ZENN LSVs to use roads with speed limits up to a maximum of 50 km/h.

In the U.S. LSVs are permitted on public roads in at least 45 states (subject to varying operating restrictions).

In Europe, “quadricycle” vehicle class is the closest to LSVs. Quadricycles are exempt from crash testing, are not required to be electric-powered and have a maximum speed of 45 km/h (though models exist up to 80 km/h).
## APPENDIX: HTA EQUIPMENT REQUIREMENTS

<table>
<thead>
<tr>
<th>Applicable HTA Requirements</th>
<th>Non-applicable HTA requirements</th>
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<tbody>
<tr>
<td>Service brakes</td>
<td>Muffler, unnecessary noise, and fumes from engine requirements</td>
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<tr>
<td>High and low beam headlamps</td>
<td>Performance standards related to fuel and exhaust systems</td>
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<td>Lamps that are visible for 150 meters</td>
<td>Requirements for emission inspection reports</td>
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<td>A light for number plate</td>
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<tr>
<td>A horn</td>
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<td>Safety glass where ever glass is used</td>
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<td>Windshield wiper</td>
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<td>Mudguards</td>
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<td>Odometer</td>
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<td>Rubber tires (tires must be DOT approved)</td>
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<td>A right side mirror if driver does not have clear view through a rear window</td>
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<tr>
<td>LSV cannot be sold unless it complies with the federal Motor Vehicle Safety Act</td>
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APPENDIX: PROPOSED CMVSS 200 SERIES STANDARDS

- **CMVSS 201 - Occupant Protection**
  - Provides a "safe zone" within the interior of the vehicle for all occupants.
  - Ensures any objects that can be contacted by any part of an occupant's body in a collision are appropriately constructed or padded to minimize impact force within acceptable limits (e.g. padded dashboard, side panels, rear view mirror, storage compartment and glove box doors, instrument panel, sun visors, and arm rests).

- **CMVSS 203 - Driver Impact**
  - Ensures the force impacted by the driver's body against the steering wheel is minimal and within acceptable limits.
  - Also, the steering control system of a vehicle shall be constructed in such a manner that, during normal driving manoeuvres, no component or attachment is capable of catching the clothing, watch, rings, bracelets, other than loosely attached or dangling jewellery.
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- **CMVSS 208 - Occupant Restraint System in Frontal Impacts**
  - Ensures that forces to an occupant’s head and chest are minimized during a crash (involves crash test). Typically manufacturers use air bags to comply with this standard. This standard outlines requirements for the following:
    - Seat Belt Installation Requirements
    - Seat Belt Fit Requirements
    - Warning Systems
    - Release Mechanisms
    - Crash Protection Requirements
    - Air Bags
    - Tension-relieving Devices

- **CMVSS 210 - Seat Belt Anchorages**
  - Ensures the anchor points for seat belt assemblies meet minimum strength requirements in the event of a crash. (Passenger vehicle seat belt anchors are connected to the steel frame of the vehicle and do not rip out of the floor).

- **CMVSS 214 - Side Door Strength**
  - Sets resistance force limits for side doors to offer some protection to occupants in the event of a broad side collision. (Passenger car doors have limits for crush resistance that they must meet to protect its occupants).