STRENGTHENING SCHOOL BUS SAFETY IN CANADA

Task Force on School Bus Safety

Preliminary Report
June 2019

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1 EXECUTIVE SUMMARY

School buses are the safest way to transport children to and from school, more so than any other means of transportation. That is because school buses are built – inside and out – to protect children. They are painted a distinctive shade of yellow, and are equipped with flashing red lights and a stop arm designed to help children get on and off the bus safely. Governed by some 40 federal regulations[1] and a robust set of standards, school buses also have a series of structural safety features built in that are specifically designed to safeguard children in the event of a collision. For example, they are mandated to have reinforced joints, high roof crush standards, electronic stability control to help prevent rollovers, window retention to mitigate ejection, emergency exit requirements, and a highly effective seat design referred to as compartmentalization.

Even with this excellent safety record, there is room for improvement. As school bus safety is a shared responsibility among federal, provincial and territorial (FPT) governments, school bus operators, and a diverse road safety community, on January 21, 2019, the FPT Council of Ministers Responsible for Transportation and Highway Safety established an expert Task Force on School Bus Safety, comprised of FPT governments and the full range of school bus safety stakeholders, to identify opportunities to further strengthen school bus safety, with an emphasis on seatbelts.

Informed by the results of its broadly-scoped review, the Task Force recognizes that the school bus safety landscape continues to mature, and that a number of opportunities exist to help make school buses even safer. In order to achieve this increased level of safety, the Task Force has identified a series of countermeasures in three key areas of focus, including:

Driver Assistance: Driver assistance technologies, such as automatic emergency braking, can support the driver with the driving task, thereby reducing the severity of a crash or helping to avoid it entirely. These technologies should be pursued with a view to strengthening school bus safety.

Safety Features Outside the Bus: Statistics show that school children are most vulnerable outside the bus, in or near loading zones. To address this safety risk, measures to deter illegally passing motorists, coupled with technologies that allow for a full view of pedestrians around the bus, should be explored further.

Occupant Protection: Three-point seatbelts offer an additional layer of safety on school buses, particularly in the context of collisions involving rollover, side-impact, or vertical lift scenarios, provided they are installed properly and worn properly by all occupants. A July 2018 regulatory requirement governs how seatbelts are installed on school buses. At present, such installation remains optional in recognition of the strong safety record of school buses and the numerous financial and practical considerations associated with the installation and use of seatbelts (e.g. consequences of misuse). In view of the Task Force's ongoing efforts to tackle many of these considerations (e.g. development of draft Guidelines for the Use of Seatbelts on School Buses, to be validated by way of a pilot with interested jurisdictions), there is merit in further exploring whether to move toward future mandatory seatbelt requirements. In parallel, other occupant protection features must also be considered, including energy-absorbing side-structure padding and inflatable "curtain" airbags.

Taken together, this suite of countermeasures would support improved safety outcomes for the 2.2 million Canadian school children[2] who travel to and from school every day on Canada's 51,670 school buses[3].

[1] Transport Canada, https://www.tc.gc.ca/eng/motorvehiclesafety/tp-tp2436-rs200407-menu-130.htm

[2] Estimate based on total student population numbers from Statistics Canada table 37-10-0007-01

[3] Task Force on School Bus Safety jurisdictional assessment of fleet data – any missing values estimated with best available information

2 INTRODUCTION

School buses have an excellent safety record in Canada and are the safest way to transport children to and from school. At the same time, the importance of proactively reviewing and implementing measures to improve road safety cannot be overlooked, particularly in the context of safeguarding school children. This is why the Task Force on School Bus Safety was established in January 2019 with a commitment to take a fresh look at school bus safety, including the possibility - and implications - of mandating the installation of seatbelts on school buses.

Since then, the Task Force, which brings together federal/provincial/territorial (FPT) government representatives, safety associations, manufacturers, and school board representatives to support a cohesive pan-Canadian approach to this issue, has undertaken a comprehensive review of vehicle standards and vehicle operations, both inside and outside the bus, as well as a jurisdictional assessment of bus fleet composition and an assessment of operational and financial considerations for seatbelt installation and use.

This report is a culmination of the Task Force's findings to date and outlines a proposed way forward for school bus safety which is rooted in the following principles:

- commitment to transparency through early consultations and ongoing communication;
- thorough, evidence-based approach for an informed way forward;
- maintain public confidence in the credibility of Canada's motor vehicle safety regime; and
- continuous efforts to reduce fatalities and injuries on Canadian roads.

2.1 CONTEXT

Every school day throughout the country, over 50,000 school buses transport approximately 2.2 million children to and from school and activities, resulting in an estimated 792 million student trips annually across Canada.

Statistics derived from the National Collision Database show that children traveling to school by school bus are 72 times safer than those traveling to school by car, and 45 times safer than those walking and cycling to school. This exceptional level of safety afforded by school buses is in large part owing to extensive research conducted over decades in both Canada and the United States. This research has resulted in school buses that are equipped with unique occupant protection features, including electronic stability control to help prevent rollovers; stringent roof crush standards; window retention and emergency exit requirements; and compartmentalized seating (high-backed seats that are padded and closely spaced together). In addition, school buses are driven by trained, professional drivers, mostly during daylight hours and are not typically used in inclement weather.

There has been one school age fatality in a school bus in the last decade, and the number of school bus passenger deaths recorded since 1984 accounts for less than 1% of all motor vehicle related fatalities[2] involving school children in Canada. In fact, the greatest risk to the safety of children using school bus transportation is outside the bus, either from the bus itself or from the surrounding traffic. To address these dangers, buses are painted a distinctive shade of yellow to make them stand out. They have a set of warning lamps on the front and rear to indicate to drivers of other vehicles that the bus is stopped or stopping, and that children may be on the road. The bus also has a stop arm on the left-hand side to warn motorists that children are entering or leaving the bus and it is equipped with special mirrors. Many buses also have a pedestrian crossing control arm so that children will cross far enough in front of the bus that the driver can see them.

2.1.1 Roles and Responsibilities

School bus safety is a shared responsibility among FPT governments, owners/operators, school boards, and a diverse road safety community. The "yellow school bus" design familiar to Canadians is unique to Canada and the United States, with federally defined school bus classes and specific safety regulations. In both countries, standards committees comprised of industry and government officials working together (e.g. CSA D-250 Committee on School Bus Construction Standards) develop further technical specifications for the safety and durability of school buses. This approach is consistent with *Canada's Road Safety Strategy 2025*, in which FPT governments have committed to work together to support Vision Zero – zero fatalities, zero injuries – on Canada's roads.

Transport Canada is responsible for establishing regulations and setting safety equipment requirements in the Canada Motor Vehicle Safety Standards, including specific safety requirements for buses, such as brake systems, window retention to help prevent passengers from being ejected in the event of a rollover collision, and electronic stability control, a technology mandated by Transport Canada in June 2017 to reduce the risk of rollovers on school buses and other vehicles. Similar to other classes of vehicles, school buses are also required to meet stringent requirements for lighting, tires, wheels and other safety equipment. Transport Canada works with all orders of government to keep these standards up to date, and performs tests to ensure compliance.

As set out in the *Motor Vehicle Safety Act,* manufacturers are responsible for certifying that their vehicles, including school buses are designed and constructed in accordance with federal safety requirements.

[2] National Collision Database

Provinces and territories are responsible for the enforcement of safety on Canada's roads and highways. They prescribe driver and vehicle licensing requirements and rules of the road, such as seatbelt use and speed limits, and enforce the CSA D-250 school bus standard, which complements federal requirements (e.g. bus colour, crossing arm).

In the current context, the decision rests with school bus owners/operators and school boards, together with provinces and territories, as to whether to install seatbelts on school buses, bearing in mind a complex set of operational considerations and risk factors set out below (e.g. misuse). Any such installation must comply with Transport Canada's technical standard for school bus seatbelt installation without compromising the safety afforded by the existing compartmentalized seat design.

The Task Force on School Bus Safety is responsible for identifying and assessing potential measures to further improve school bus safety in Canada, with an emphasis on seatbelts, thereby supporting FPT Transport Ministers in establishing a cohesive pan-Canadian approach to the issue of school bus safety.

SCHOOL BUS SAFETY IS A SHARED RESPONSIBILITY AMONG FEDERAL AND PROVINCIAL/TERRITORIAL GOVERNMENTS AND OWNERS/OPERATORS

TRANSPORT CANADA

- Establishes regulations (includes authority to mandate seatbelts)
- Sets safety equipment requirements in the Canada Motor Vehicle Safety Standards (e.g. electronic stability control, window retention)
- Establishes technical standards enshrined in regulation (e.g. July 2018 school bus seatbelts)

PROVINCES AND TERRITORIES

- Enforce safety on Canada's roads and highways
- Prescribe driver and vehicle licensing requirements and rules of the road (e.g. seat belt use, speed limits)
- Enforce CSA D-250 school bus standard, which complements federal requirements (e.g. colour, crossing arm)

SCHOOL BUS OWNERS/OPERATORS/SCHOOL BOARDS

- Decide whether to install seatbelts on school buses (any such installation must comply with Transport Canada's new technical requirement without compromising the safety afforded by compartmentalization)
- Consider important factors such as unintentional misuse, unbuckling, and belt adjustment
- Ensure protocols in place for proper use so as not to compromise the safety afforded by the existing design

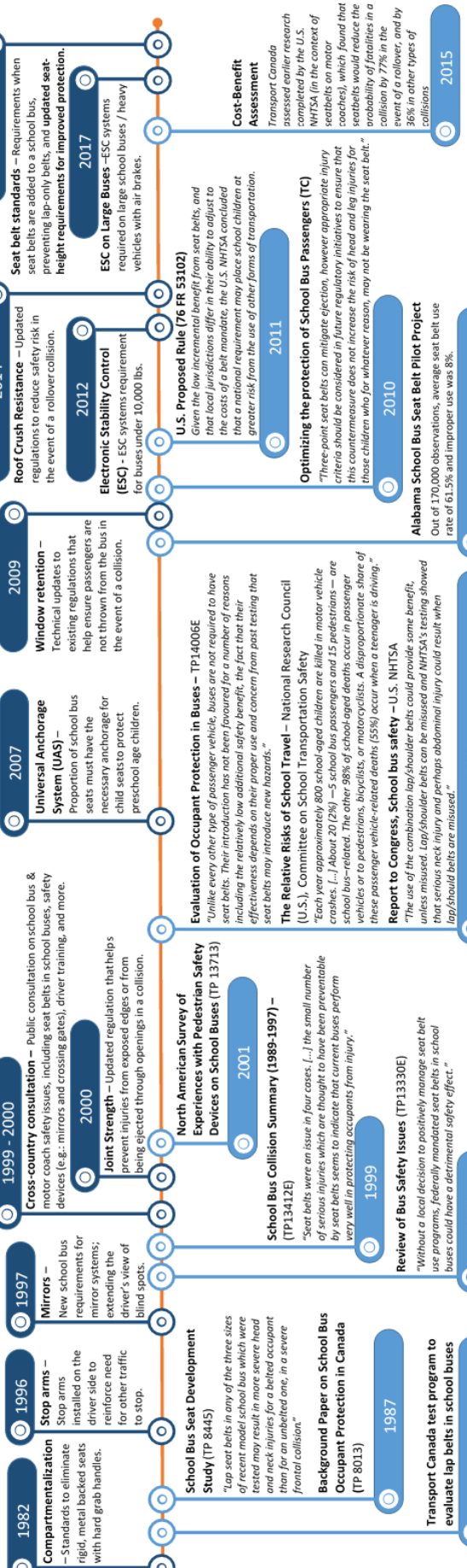
MANUFACTURERS

- Certify that vehicles, including school buses, are designed and manufactured to comply with the requirements of federal safety standards

2.1.2 Progress

Over the last three decades, considerable progress has been made to enhance school bus safety through a number of collaborative initiatives among all orders of government and industry (Figure 1). These include a broad range of activities that span the full safety and security continuum, including legislation; regulations and standards; research and testing; and policy and programs. Highlights of these efforts are set out below, and explained on Transport Canada's updated School Bus Safety web page, which hosts an annotated inventory of the extensive body of research on this topic.

Figure 1 - Progress to enhance school bus safety



2.1.3 Legislation

Bill S-2 came into force on March 1, 2018, introducing extensive amendments to the *Motor Vehicle Safety Act*, including strengthening the federal Minister of Transport's enforcement and compliance authorities in the area of road safety. In particular, the amendments afford greater flexibility to keep pace with new and emerging technologies. This includes modernized Ministerial Order provisions for exempting, modifying, or suspending vehicle safety standards and regulations; an Administrative Monetary Penalty regime; and new powers to order recalls at no cost to the consumer. Transport Canada is working to implement the full range of legislative amendments to further the safety and security of Canada's road transportation network, including school bus safety.

2.1.4 Regulations and Standards

On July 11, 2018, closely aligned with the current regulatory approach in the U.S., Transport Canada published amendments to the *Motor Vehicle Safety Regulations* with a view to improving bus occupant safety. As part of this regulatory initiative, Transport Canada introduced technical requirements for school bus companies that choose to install seatbelts on school buses. This regulatory measure ensures that lap-only seatbelts cannot be installed, and that if a school bus operator chooses to install seatbelts, there is a technical standard for manufacturers to follow that ensures correct installation (e.g. they must include a three-point lap and shoulder belt, and be anchored a certain way). This helps ensure the safety afforded by the existing compartmentalized seat design is not compromised. Transport Canada is an active member of the Canadian Standards Association CSA D-250 Committee on School Bus Construction Standards to help ensure provincial/territorial regulations complement federal requirements.

In June 2017, Transport Canada published a regulatory amendment mandating electronic stability control (ESC) for heavy vehicles, including school buses. These control systems are a crash avoidance technology designed to reduce motor vehicle collisions by improving driver control, preventing rollovers, and enhancing directional stability. This regulatory amendment is in alignment with the U.S. However, unlike the U.S., Transport Canada requires that ESC be installed on school buses as well.

2.1.5 Research and Testing

Transport Canada's crash avoidance research program monitors motor vehicle technologies that are related to safety to provide the Department the scientific basis to develop standards and regulations. Because evidence shows that the majority of injuries and fatalities involving school buses take place outside the bus[3], Transport Canada is assessing emerging vehicle technologies, including lane-keeping assist, lane departure warning, and automatic emergency braking. In addition, Transport Canada is continuing its research activities on sensors and camera technologies to support safety measures to protect pedestrians and cyclists around school buses and other heavy vehicles.

Transport Canada's Collision Investigations Team also has the mandate and expertise to conduct collision investigations and provides support to law enforcement for ongoing investigations, including vehicle inspections. Motor vehicle collision investigations allow Transport Canada to review existing safety standards and evaluate the need for further regulatory action under the *Motor Vehicle Safety Act*. To support these efforts, a pan-Canadian network of investigation teams was established in high-density traffic regions across Canada. In recent years, investigations have focused on crashes involving airbag deployments, moderately severe side impacts, and restrained rear occupants. Transport Canada also conducts special investigations of high-profile collisions, including incidents involving school buses.

[3] National Collision Database

2.1.6 Policy and Programs

On June, 2018, Canada's Minister of Transport chaired a Roundtable on Distracted Driving which brought together provincial/territorial government representatives, industry partners, law enforcement, and telecommunications service providers. Taking action in this area, the Canadian Council of Motor Transport Administrators (CCMTA) worked with Transport Canada to: conduct a survey of electronic device use by drivers across Canada; estimate the impact of these devices on collisions; and examine distracting technologies currently available.

Building on this progress, FPT partners are working to implement a pan-Canadian action plan on distracted driving to support data collection, public awareness, and a consistent approach to penalties across jurisdictions. In addition, in February 2019, Transport Canada published guidelines with respect to the installation and use of in-vehicle video monitor displays to reduce the risk of driver distraction.

In September 2016, a task force was established to examine safety measures to help protect pedestrians and cyclists around heavy vehicles. Following extensive consultation with the road safety community, and support from all jurisdictions, the task force published *Safety Measures for Cyclists and Pedestrians around Heavy Vehicles* in Fall 2018, which serves as a springboard for action to support all jurisdictions as they address safety challenges within their communities. In particular, the report outlines 57 safety measures to better protect vulnerable road users, including visibility and conspicuity measures; intersection and cross-walk designs; and roadway and cycling infrastructure.

3 What We've Heard

In order to support the Task Force's mandate to examine school bus safety, members collectively undertook a jurisdictional assessment of bus fleet composition, as well as data collection on current safety features and an assessment of operational and financial considerations related to the installation of seatbelts on school buses. Although the emphasis was on seatbelts, efforts also focused on other safety measures and supporting communications/awareness strategies, including advanced driver assistance technologies, safety measures outside the bus, and occupant protection features to further improve school bus safety in Canada.

The findings from this assessment are presented below. Taken together, they provide a snapshot of school bus safety in Canada, with a view towards:

- strengthening the evidence base with statistics at a pan-Canadian level;
- developing Guidelines for the Use of Seatbelts on School Buses to help those implementing seatbelt programs ensure that seatbelts, if installed, are used properly and worn at all times by all passengers;
- identifying jurisdictions willing to undertake school bus seatbelt pilot projects; and
- presenting options for equipping new buses and retrofitting existing fleets with additional safety features.

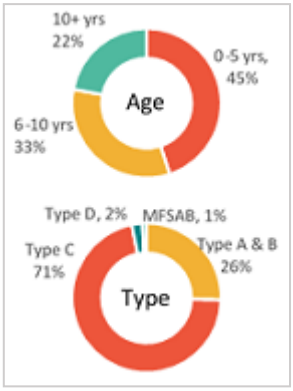
3.1.1 Fleet Composition in Canada

There are six types of school buses available in Canada. The CSA D250 standard identifies these by category, as defined below:

Type of School Bus		Description	Registered in Canada
	A1	A conversion or body constructed on a cutaway front section with an original equipment manufacturer chassis, and a left side driver's door. The service door is behind the front wheels. Gross Vehicle Weight Rating (GVWR) of 4581 kg (10,100 lbs) or less.	**1,665**
	A2	Same as Type A1, but with a GVWR greater than 4581 kg.	**11,295**
	B	A conversion or body constructed on a van, a front section vehicle chassis, or a stripped vehicle chassis, with a GVWR greater than 4581 kg.	**139**
	C	A body installed on a flat back cowl chassis with a GVWR greater than 4,581 kg. The service door is behind the front wheels, and the engine is mounted in front of the windshield.	**36,920**
	D	A body installed on a chassis with a GVWR greater than 4,581 kg, and an engine mounted: - Behind the windshield and beside the driver's seat; - At the back of the bus behind the rear wheels; or - Between the front and rear axle.	**1,169**
MFSAB		Multifunction School Activity Bus designed to pick up and drop off students where there is no need to control traffic.	**483**
APPROX. 51,670 SCHOOL BUSES REGISTERED IN CANADA - AVERAGE AGE OF 6 YEARS			

In order to develop a shared understanding of fleet composition across Canada and inform future policy direction and regulatory action in this area, the Task Force surveyed provincial and territorial school bus safety authorities to collect data on a range of school bus characteristics, including the number of buses in service, age of the fleet, service areas, category/type of buses and the installation of safety features (e.g. seatbelts, lighting systems, electronic stability control). The following provides a summary of the key findings based on the Task Force's jurisdictional assessment.

Canada's School Bus Fleet by Province and Territory



Yukon

Fleet Age:
- 0-5 Years ..... **26 (43%)**
- 6-10 Years ..... **19 (31%)**
- +10 Years ..... **15 (25%)**

Vehicle Type:
- Type C ..... **60 (100%)**

Total **60**

New Brunswick

Fleet Age:
- 0-5 Years ..... **537 (43%)**
- 6-10 Years ..... **387 (31%)**
- +10 Years ..... **310 (25%)**

Vehicle Type:
- Type A1 ..... **45 (4%)**
- Type A2 ..... **248 (20%)**
- Type B ..... **4 (0%)**
- Type C ..... **903 (73%)**
- Type D ..... **22 (2%)**
- MFSAB ..... **13 (1%)**

Total **1,234**

Nunavut

Fleet Age:
- 0-5 Years ..... **52 (43%)**
- 6-10 Years ..... **38 (32%)**
- +10 Years ..... **30 (25%)**

Vehicle Type:
- Type A1 ..... **4 (3%)**
- Type A2 ..... **24 (20%)**
- Type C ..... **89 (74%)**
- Type D ..... **2 (2%)**
- MFSAB ..... **1 (1%)**

Total **120**

Manitoba

Fleet Age:
- 0-5 Years ..... **554 (22%)**
- 6-10 Years ..... **733 (29%)**
- +10 Years ..... **1,259 (49%)**

Vehicle Type:
- Type A2 ..... **59 (2%)**
- Type C ..... **2,487 (98%)**

Total **2,546**

Alberta

Fleet Age:
- 0-5 Years ..... **2,810 (39%)**
- 6-10 Years ..... **1,820 (26%)**
- +10 Year ..... **2,484 (35%)**

Vehicle Type:
- Type A1 ..... **1,044 (15%)**
- Type A2 ..... **456 (6%)**
- Type B ..... **89 (1%)**
- Type C ..... **5,098 (72%)**
- Type D ..... **106 (1%)**
- MFSAB ..... **321 (5%)**

Total **7,114**

Québec

Fleet Age:
- 0-5 Years ..... **5,497 (52%)**
- 6-10 Years ..... **3,900 (37%)**
- +10 Year ..... **1,253 (12%)**

Vehicle Type:
- Type A1 ..... **387 (4%)**
- Type A2 ..... **2,138 (20%)**
- Type B ..... **32 (0%)**
- Type C ..... **7,794 (73%)**
- Type D ..... **188 (2%)**
- MFSAB ..... **111 (1%)**

Total **10,650**

Newfoundland & Labrador

Fleet Age:
- 0-5 Years ..... **532 (53%)**
- 6-10 Years ..... **224 (22%)**
- +10 Years ..... **253 (25%)**

Vehicle Type:
- Type A1 ..... **70 (7%)**
- Type A2 ..... **111 (11%)**
- Type B ..... **4 (0%)**
- Type C ..... **819 (81%)**
- Type D ..... **5 (0%)**

Total **1,009**

Northwest Territories

Fleet Age:
- 0-5 Years ..... **32 (44%)**
- 6-10 Years ..... **23 (32%)**
- +10 Years ..... **18 (25%)**

Vehicle Type:
- Type A1 ..... **3 (4%)**
- Type A2 ..... **15 (21%)**
- Type C ..... **53 (73%)**
- Type D ..... **1 (2%)**
- MFSAB ..... **1 (1%)**

Total **73**

Saskatchewan

Fleet Age:
- 0-5 Years ..... **836 (27%)**
- 6-10 Years ..... **1,035 (34%)**
- +10 Years ..... **1,212 (39%)**

Vehicle Type:
- Type A1 ..... **112 (4%)**
- Type A2 ..... **619 (20%)**
- Type B ..... **9 (0%)**
- Type C ..... **2,256 (73%)**
- Type D ..... **54 (2%)**
- MFSAB ..... **32 (1%)**

Total **3,083**

British Columbia

Fleet Age:
- 0-5 Years ..... **1,060 (33%)**
- 6-10 Years ..... **1,075 (34%)**
- +10 Years ..... **1,031 (33%)**

Vehicle Type:
- Type A2 ..... **328 (10%)**
- Type C ..... **2,070 (65%)**
- Type D ..... **768 (24%)**

Total **3,166**

Prince Edward Island

Fleet Age:
- 0-5 Years ..... **8 (2%)**
- 6-10 Years ..... **134 (41%)**
- +10 Years ..... **181 (56%)**

Vehicle Type:
- Type A2 ..... **323 (100%)**

Total **323**

Nova Scotia

Fleet Age:
- 0-5 Years ..... **787 (54%)**
- 6-10 Years ..... **500 (34%)**
- +10 Years ..... **172 (12%)**

Vehicle Type:
- Type A2 ..... **71 (5%)**
- Type C ..... **1,384 (95%)**
- MFSAB ..... **4 (0%)**

Total **1,459**

Ontario

Fleet Age:
- 0-5 Years ..... **10,618 (51%)**
- 6-10 Years ..... **7,096 (34%)**
- +10 Year ..... **3,119 (15%)**

Vehicle Type:
- Type A2 ..... **6,903 (33%)**
- Type C ..... **13,930 (67%)**

Total **20,833**

*Estimates based on data from respondents across Canada, not all respondents had information on all data points for age and type. Missing values have been estimated with best available information.

In addition to those safety features that are already required and integral to the current bus design, such as emergency roof hatches, window retention, high roof crush standards, compartmentalized seats, the stop arm and bright yellow colour, other safety features currently found on the Canadian fleet include:

- Approximately 2% of school buses (small type only) are equipped with seatbelts. None of these seatbelt-equipped buses are among the Type C category, which account for the vast majority of the Canadian fleet (71%).

- An estimated 2% of buses in circulation are considered "seatbelt ready," that is, they have been built to accommodate the aftermarket installation of seatbelts.

- Few buses on the road today are equipped with electronic stability control (ESC) technology to reduce the risk of rollover. This is owing to the very recent coming into force of mandatory ESC. As the fleet turns over, the ESC penetration will increase accordingly. There is no requirement to retrofit the existing fleet with this technology.

Routes

- Of the 36% of jurisdictions who provided information about the routes serviced by their fleets:
    - 45% of buses operate in an urban environment;
    - 51% commute in a rural setting; and
    - 4% travel on urban/rural mixed routes.

3.1.2 Safety Features – Looking Ahead

The following outlines a set of school bus safety measures that can provide an additional layer of safety. These are set out in three key areas of focus: **Driver Assistance**; **Safety Features Outside the Bus**; and **Occupant Protection**. Measures identified herein are at varying stages of maturity and have been labeled accordingly. This approach enables FPT Ministers to consider measures that can be adopted in the near term, as well as those that warrant further research and exploration.

3.1.2.1 Driver Assistance

School Bus drivers in Canada undergo specialized training prior to assuming their role. All provinces/territories require that school bus drivers have a particular class of commercial licence that qualifies them to drive a vehicle of that size and type, and all require some level of school bus-specific training that covers such topics as legal frameworks and responsibilities, driver condition (fatigue, impairment), defensive driving, passenger behaviour, vehicle safety features, and emergency procedures. The hours of training, however, vary greatly from one province/territory to the next. For example, some school bus driver training programs require a minimum of 6.5 hours of training, whereas others, such as the Province of Alberta (effective March 1, 2019), require that school bus drivers participate in a provincial Mandatory Entry Level Training program for commercial drivers, where school bus drivers must undergo 53.5 hours of training.

On January 21, 2019, the Council of Ministers responsible for Transportation and Highway Safety tasked the Canadian Council of Motor Transport Administrators (CCMTA) with developing a standard on entry-level training for commercial drivers by January 2020. This measure will help ensure that commercial drivers can develop the necessary skills and expertise to safely operate their vehicles across Canada. The standard would address topics such as basic driving techniques, off-road tasks/manoeuvres, knowledge of regulatory requirements (e.g. hours of service), and vehicle inspection activities. The standard would be broad in scope, covering a wide range of drivers of heavy vehicles (e.g. trucks, motor coaches, transit buses). Consideration could be given to including school bus drivers in the future.

Advanced vehicle technologies, including automated safety features, have the potential to improve the safety of Canadians by helping the driver with certain elements of the driving task, thereby reducing the number and severity of collisions on our roads. Advanced driver assist systems (ADAS) can be applied in the context of school buses as a means to help mitigate the risk of driver error.

ADAS technologies are becoming more common and are available in many types of vehicles. Some examples include Automatic Emergency Braking (AEB), Lane Keeping Assist, Adaptive Cruise Control, Forward Collision Warning and Braking. The new technologies work to aid, warn and assist drivers in the driving task. Electronic stability control systems are another collision avoidance technology with proven safety benefits that are becoming increasingly prevalent in school buses as operators update their existing fleet.

Lane Keeping Assist and Adaptive Cruise Control technologies (to avoid a collision or lessen its impact) typically operate at set speeds (e.g. 70 km/hr for Lane Keeping Assist) and may not be suitable or cost-effective for school buses that make frequent stops on defined routes within a community.

AEB systems are recognized as an effective new vehicle safety technology with a practical application in school buses. Evidence shows these systems can improve safety by reducing the severity of rear-end collisions or helping to avoid them altogether. For example, there has been a 38% reduction of rear-end injury crashes in vehicles with AEB compared to those without (Fildes et al., 2015).The latest automatic emergency braking systems also have the ability to help avoid collisions with pedestrians, cyclists, and other vehicles crossing at intersections.

AEB systems are often paired with forward collision warning systems that sense when the vehicle ahead is slowing or stopped and alert the driver of the risk of a possible crash. While most systems use radar, some use a laser, or a camera. The system monitors the relative speed and following distance to the vehicle in front. When a vehicle gets too close to the vehicle in front, a signal (audible and/or visual) alerts the driver. Some systems offer collision warning with brake support. If the driver does not react after the collision warning has been given, the brake support function prepares the brake system to react quickly, and the brakes are applied slightly. A light jolt may be experienced. In the event of an imminent crash and the driver has not applied the brakes, some of the newer systems apply strong braking automatically to help reduce the impact of the crash. Many systems will also activate the seatbelt pre-tensioners, pre-charge airbag systems and brakes.

Recognizing that the greatest risk to the safety of children is outside the school bus, research efforts are underway relating to visibility and detection systems that provide in-vehicle warnings when there are nearby pedestrians. Transport Canada is actively conducting on-road field trials of new camera sensor technologies in collaboration with provincial/territorial, and municipal partners to evaluate their effectiveness and explore their applicability moving forward.

Using a single camera mounted on the windshield of a vehicle, these sensors can work in combination with AEB to identify an imminent collision and brake without any driver intervention. Passive warning systems also exist which alert the driver of a potentially dangerous situation so that the driver can take action to correct it.

3.1.2.2 Safety Features Outside the Bus

Statistics show that school children navigating outside the bus are far more vulnerable – either from the bus itself or from the surrounding traffic – than those riding inside the bus. The Task Force will endeavor to draw a statistical comparison between the number of school bus transportation-related fatalities and serious injuries that occur in and around school loading zones, versus to those that occur inside the bus. To address these dangers, school buses are designed with a series of exterior safety features. They are painted bright yellow to help them stand out. They have strategically placed flashing lights that warn other drivers of the presence of children on the road. The bus also has a stop arm on the left-hand side to prevent motorists from passing while children are entering or leaving the bus, and it is equipped with a series of special mirrors. Many buses also have a pedestrian crossing control arm so that children will cross far enough in front of the bus that the bus driver can see them.

	School Age Passenger Fatalities	School Age Passenger Injuries
School Bus	5	3,789
Cyclist	41	9,493
Pedestrian	158	22,629
Passenger Vehicle	395	64,512

Data for 1998 to 2017. Source: National Collision Database **Note: data was filtered for school-related travel, ie, weekdays from Sept to June during school hours (6:00am-9:59am) & (2:00pm-5:59pm)*

Despite the many external bus features aimed at keeping children safe and penalties in place for those who pass a school bus illegally, the safety of school children outside the bus can be improved with certain safety measures. Notable examples of exterior countermeasures include infraction cameras, exterior 360° cameras, and physical barriers, such as stop arm extenders and telescopic arms emanating from the rear of the bus.

While some additional external safety features require further study (e.g. rear telescopic arm), others, such as 360° cameras, and stop arm extenders that impose a physical barrier, are more widely available and have been shown to help deter passing motorists and significantly reduce violations. For example, a recent school bus safety pilot study[4] in the U.S. saw an 89% reduction in violations with the implementation of extended stop arms on a sample grouping of school buses in Charlottesville, Virginia. In addition, many manufacturers now offer 360 ° exterior cameras that provide a full view around the exterior of the bus to detect and protect pedestrians. On their own, camera technologies and barrier arms that intentionally block adjacent lanes of traffic are effective add-on features to complement the current exterior bus design. Together, these features can form an effective system to help reduce dangerous infractions by passing motorists.

3.1.2.3 Occupant Protection

Evidence shows that school buses have a strong occupant safety record in Canada, meaning that children are safer traveling to and from school by school bus than by any other form of transportation. This is owing largely to the extensive occupant protection features built into the bus, including the highly effective seat design referred to as compartmentalization. As occupant protection features evolve and mature, add-on safety features, such as passenger airbags and seatbelts, can provide an additional layer of safety to complement the existing design.

[4] www.cvilletomorrow.org

Studies show[5] that compartmentalization is highly effective in protecting school bus passengers in rear and frontal collisions, but offers less protection for passengers who experience a side-impact collision, a rollover, or a vertical lift scenario. While the latter school bus collision scenarios are seen infrequently, there are opportunities to explore additional occupant protection countermeasures with a view to improving passenger safety in this context.

Preliminary investigation into improved side impact protection[6] features suggest that energy absorbing side-structure padding and inflatable "curtain" airbags have been found to reduce head and chest injuries. Recognizing that these countermeasures can help mitigate the risk of head injury and ejection in rare collision scenarios (i.e. side impact, rollover), further work is needed to explore options to incorporate such features into the school bus, noting the challenges associated with identifying: a low profile design that is sufficiently energy-absorbent and does not interfere with or compromise existing safety features, such as compartmentalized seats and the bus structure; a model that can offer protection to all sizes of passengers (e.g. kindergarten students and high school students alike); and a cost-effective, tamper-resistant, low- (or no-) maintenance design. Further work is needed by manufacturers to help address these considerations.

School buses have unique occupant protection features that make them different – and safer – than light duty vehicles, even in the absence of seatbelts. At the same time, evidence shows[7] that seatbelts – already an important feature of motor vehicle safety in Canada – can provide an additional layer of safety to the existing bus design by reducing the risk of ejection and lowering the risk of serious injury, particularly in the event of a severe collision such as a rollover, side impact, or vertical lift scenario.

Of note, a U.S. [Alabama] school bus cost-effectiveness study[8] found that, based on a 61% seatbelt usage rate assessed through a 2009 school bus pilot[9], the reductions of injuries and fatalities would result in 0.13 lives saved per year, and would prevent 7.6 injuries annually. In particular, the research estimates that seatbelts could have reduced Alabama school bus fatalities by 39%, on average.

Crash testing by the U.S. National Highway Traffic Safety Administration (NHTSA) found that three-point seatbelts may reduce the risk of moderate to serious injury by an estimated 30-35% in collision types with a high probability of ejection, and could lower the risk of serious to severe injury in frontal impacts by approximately 4-10%[10]. A NHTSA cost-effectiveness analysis estimates that three-point seatbelts on school buses could save 2 lives per year across the U.S., assuming 100% seatbelt usage nationwide[11]. Applying this same methodology in a Canadian context, preliminary estimates suggest that the installation of seatbelts on school buses could save approximately 0.02 lives per year across Canada.

Recognizing that seatbelts can offer additional protection, in July 2018, Transport Canada published a technical standard for the optional installation of seatbelts on school buses. That said, seatbelts alone will not reduce the risk to zero and there are a number of operational concerns and risk factors to address in advance of any potential regulatory action to require seatbelt installation (e.g. potential misuse, impact of cost on bus purchases). These topics are discussed below under *Seatbelt Considerations*.

[5] https://www.tc.gc.ca/en/services/road/school-bus-safety/publications.html
[6] Internal Research Report: Optimizing the Protection of School Bus Passengers (2010), Transport Canada
[7] https://www.tc.gc.ca/en/services/road/school-bus-safety/publications.html
[8] Cost-Effectiveness of Lap/Shoulder Seat Belts on Large Alabama School Buses - Tuner, Lindly, and Brown, 2010
[9] Brown and Turner 2009
[10] 2008 NHTSA Final Rule to Upgrade School Bus Passenger Crash Protection in FMVSS Nos. 207, 208, 210, and 222
[11] 2010 NHTSA Response to Petition. Federal Register, 75(209), 66686-66698

For example, seatbelts, if used improperly, could have a negative impact on overall safety. Bus seats, must be stiffened[12] to some degree in order to work effectively with seatbelts, which runs counter to the principles of compartmentalization. This means that, even when equipped with three-point seatbelts, all school bus occupants must wear them properly, at all times, or there is greater risk to unbelted occupants. Any mandatory installation of seatbelts on school buses should be considered in a manner that does not compromise the safety provided by existing school bus occupant protection features and does not encourage the adoption of less safe modes of transportation.

Recognizing that, since July 2018, there is a technical requirement in place for the safe (optional) installation of seatbelts on school buses in Canada, the Task Force has developed a set of draft Guidelines for the Use of Seatbelts on School Buses based on the key findings, best practices and operational guidance developed by U.S. jurisdictions in support of their school bus seatbelt programs. A pilot project, in partnership with interested jurisdictions, will serve to validate and, as appropriate, augment the Guidelines to support Canadian jurisdictions in addressing the operational challenges identified above and below.

Seatbelt Considerations

With some school buses carrying up to 72 children, there are a number of operational challenges relative to seatbelts, including those associated with:

- seatbelt adjustment relative to the size of child;
- winter clothing and its impact on proper seatbelt use;
- misuse, compounded by children moving around in their seats or unbuckling;
- a potential increase in use of child seats ("car seats") for small children who may not meet the minimum size requirement for school bus seatbelts* (in accordance with Transport Canada regulations, all school buses in Canada have a minimum number of seats equipped with special anchorage points to accommodate child seats);
- unfastening in emergency exit situations;
- loss of efficiency in routing solutions (additional time to secure seatbelts);
- driver liability/responsibility for ensuring children wear seatbelts, including securing and unbuckling students;
- contract impacts of increased cost of transportation; and
- funding challenges.

** Manufacturers now offer "integrated child seat" solutions with five-point harnesses for children 10kg-38kg.*

School bus owners/operators and school boards (together with provinces and territories) who have seatbelts installed on their school buses are ultimately responsible for ensuring that effective protocols are in place to mitigate these issues. The draft Task Force Guidelines for the Use of Seatbelts on School Buses have been developed to help address key operational concerns and are further supported by a strong culture of seatbelt use in Canada, where children have been conditioned to "buckle up" in a moving vehicle. In addition, the draft guidelines will serve to highlight additional training requirements for students, drivers, parents and schools.

[12] Internal Research Report: Optimizing the Protection of School Bus Passengers (2010), Transport Canada

3.1.3 Retrofit: Adding Seatbelts to the Existing Fleet

Some bus manufacturers in Canada are already producing new school buses that are "seatbelt ready." The issue of retrofitting, however, continues to be the subject of debate, including as it relates to the risk of perceived inequity if some buses are equipped with seatbelts and others are not. Some manufacturers indicate that retrofitting a bus to include seatbelts is impossible on the basis that the integrity of the bus structure after market is difficult to assess, rendering the manufacturer unable to certify the safe anchorage of new seatbelt-equipped seats.

Other manufacturers confirm that their newer model buses are in fact designed to be "seatbelt ready" and would require minimal effort to retrofit with belted seats. Should newer model buses be required to be retrofitted, the retrofit would occur at a licensed school bus dealership, and be conducted in accordance with the manufacturers' specifications, based on Transport Canada's technical standard for the installation of seatbelts on school buses. In general, buses with a model year greater than 4 years old would be deemed ineligible for retrofit due to exposure and aging structural features.

3.1.4 Financial Considerations for Bus Purchase and Retrofit

In 2011, the U.S. published a report[13] on the implications of mandating the installation of seatbelts on large school buses. It was found that the increased costs associated with the installation of seatbelts would result in fewer school bus purchases. This would lead to fewer children being transported in school buses, placing school children at greater risk from the use of alternate modes of transportation.

In order to establish a baseline understanding of the financial aspects applicable to school buses in Canada, Task Force members, including manufacturers, provided information on the purchase cost for new school buses, along with the costs associated with retrofitting a bus with seatbelt-equipped seats, where possible.

Manufacturers and operators confirm that:

- Type C school buses, which account for approximately 71% of the Canadian fleet, cost between $110,000 and $120,000 to purchase new.
- New Type A school buses, which represent some 25% of the Canadian fleet, cost approximately $75,000.
- Adding seatbelts increases the purchase price by $8,000-$18,000, depending upon factors such as bus size and number of seats. Adding integrated child seats for small children (as an alternative to traditional "car seats") may increase this cost further.
- Retrofitting a bus to add seatbelt-equipped seats would cost in the range of $15,000 - $36,000 (depending on bus size, configuration, etc.), double the cost of a seatbelt "add-on" in a new bus.
- A limited number of buses are available for purchase "off the lot" at dealerships. The typical lead time to acquire a new bus is 2-4 months.

Based on a fleet turnover rate of 10% per year, the annual capital cost to install seatbelts on replacement buses is estimated at $68M per year across Canada, not accounting for any additional operational costs (e.g. human resources, maintenance costs). Moving forward, it will be important to explore the impact of these additional costs, including from a financial sustainability perspective.

[13] 2011 NHTSA Denial of Petition for Rulemaking

To retrofit the entire existing fleet of buses 4 years old and newer, it would cost an estimated $255M. However, according to manufacturers, not all buses in the 0-4 age range are indeed eligible for retrofit.

3.1.5 U.S. Approach to Seatbelts on School Buses

Canada's existing school bus seatbelt regulations align with equivalent U.S. regulations, which came into effect in November 2016 and outline a set of standards that manufacturers must follow when a school bus operator chooses to install seatbelts on its buses. This Canada-U.S. alignment is supported by extensive research, conducted over decades in both countries. This has culminated in a consistent Canada-U.S. approach to school bus safety, featuring compartmentalized seats that are specifically designed to protect school children in the event of a crash. At the same time, similar to Canada, the U.S. National Highway Traffic Safety Administration (NHTSA) supports the installation of three-point lap and shoulder belts on school buses for added protection in the event of a lateral or side collision. Following two separate U.S. collisions in 2016 involving fatalities, the U.S. National Transportation Safety Board recommended that states consider implementing lap-shoulder belts in school buses. The agency explained it as "closing the lid on the egg crate" of compartmentalization.

At the moment, eight states have introduced school bus seatbelt requirements within their jurisdiction, including Louisiana, Texas, California, Florida, New York, New Jersey, Arkansas, and Nevada. California and Florida are the only states that consistently implement this requirement, though it should be noted that Florida requires lap-only belts (which do not meet Canadian school bus standards), and that the provision of school transportation in the State of California is not mandatory for school boards. The rule in the other states is subject to available funding, and in practice, this means that the rule is often not implemented.

For additional context, in California, the installation of seatbelts on school buses has been viewed positively. When seatbelts were mandated on new buses in that state, retrofitting with seatbelts was not required and is permitted only if approved by the bus manufacturer. To ensure that all passengers are wearing their seatbelts properly, school bus drivers are allowed to get up out of their seats to buckle young children and are responsible for checking that everyone is properly buckled before driving away. While in transit, the driver is not liable if a child unbuckles their seatbelt. Prior to field trips, safety briefings are provided which include information on emergency exists, seatbelts, fire extinguishers, and first aid kits. Of note, one occurrence of an engine fire California[14] demonstrated the effectiveness of this training when a three point seatbelt-equipped bus carrying 35 students was forced to evacuate. In terms of student behaviour, fleet operators note very isolated instances of misconduct involving the use of seatbelts and, historically, these cases were limited to buses that were fitted with lap-only belts (e.g. buckling the lap belt across the aisle preventing movement up and down the aisle).

The state also offers environmental grants to replace buses that were manufactured prior to 1992, in an effort to reduce air pollution resulting from older diesel buses. This has allowed operators to purchase new buses that are equipped with seatbelts.

[14] McMahon, 3-Point Belts on Buses: Real World Experience Mitigates Most Concerns, 2015)

The table below summarizes seatbelt requirements in the U.S.

States	Lap belt only	Lap/shoulder belts	Additional information
Florida	✓		New school buses purchased since January 2001 had to be equipped with seatbelts or other federally-approved restraint system.
New York	✓		New York State does not mandate seatbelt use on school buses, leaving the decision to each school district.
New Jersey	✓	✓ *	*New buses built on or after Feb 21st, 2019 will require lap/shoulder belts.
California		✓	Requires all new school buses to have seatbelts but does not require school boards to provide school transportation (school buses are typically only available in affluent communities)
Nevada		✓	New school buses purchased by a school district as of July 1st, 2019 must be equipped with lap/shoulder belts. The state's largest district which buys 100-110 school buses each year, estimates the capacity reduction from seatbelts and the cost of the restraint systems will have an annual cost impact of $1.4 million to $1.8 million.
Louisiana		✓	Subject to funding.
Texas		✓	Subject to funding.
Arkansas		✓	State law now mandates if 10 percent of a school district's electors sign a petition to outfit its buses with seatbelts, the district must propose a levy for the added cost. The issue would then be decided by voters during the annual school election

**Note: According to manufacturers, the latest seating designs offer maximum flexibility with up to three 3-point belted seating positions and the option of integrated child seating, resulting in little to no seating capacity loss.*

4 CONCLUSION

A review of evidence by the Task Force on School Bus Safety confirms that school buses continue to be the safest form of transportation for school children in Canada. At the same time, the work of the Task Force has served to underscore that school bus safety can be strengthened – and that success in this regard demands a cohesive, pan-Canadian approach.

Consistent with the direction from the federal, provincial, territorial (FPT) Council of Ministers Responsible for Transportation and Highway Safety in January 2019, the Task Force has identified opportunities to further improve school bus safety in three key areas, including: **Driver Assistance**; **Safety Features Outside the Bus**; and **Occupant Protection**. Collaborative FPT efforts across these three areas of focus will lay the foundation for improved school bus safety outcomes moving forward, while ensuring that the level of safety afforded by the current design is not compromised.

Acknowledging the safety benefits and the financial and operational complexities regarding the installation and use of seatbelts – a key occupant protection feature set out herein – the Task Force will continue exploring this important topic as part of a broader suite safety measures to further strengthen school bus safety.

Moving forward, FPT partners, together with key stakeholders, will continue working to promote a consistent, transparent approach to enhancing school bus safety. Transport Canada will provide regular updates to the Department's web presence regarding current and future school bus safety initiatives, including the ongoing work of the Task Force, and the publication of key school bus safety-related research.

5 ANNEX A: Members of the School Bus Safety Task Force

Members of the Steering Committee

Organization	Names
Transport Canada	Michael DeJong, Co-chair
Saskatchewan	Kwei Quaye, Co-chair
CCMTA	Allison Fradette, Executive Director
Prince Edward Island	Doug MacEwen
Ontario	Derek Deazeley Ryan Bailey Jason Burke Eva Musso
Manitoba	Sheila Champagne
Newfoundland and Labrador	Krista Cull
New Brunswick	Chris O'Connell
Alberta	Wendy Doyle
Nunavut	John Hawkins
Quebec	Lyne Vézina Marie-Michele Dion
Yukon	Ryan Parry
Nova Scotia	Peter Hackett
Northwest Territories	Stephen Loutitt
British Columbia	Cole Delisle Patricia Boyle

Members of the Advisory Panel

	Organization	Representative(s)
Chair	Transport Canada	Ibrahima Sow, Director of Road Safety Programs
Fleet Operators	Stock Transportation	Terri Lowe, COO
	Ontario School Bus Association	Michele O'Bright, Association Director Alex Bugeya, Safety and Legislation Consultant Robert Monster, Safety & Legislation Consultant
	Student Transportation of Eastern Ontario (STEO)	Janet Murray, General Manager
	Student Transportation Association of Saskatchewan	President, Trish Anderson
	Consortium de transport scolaire d'Ottawa	Patrick Pharand, Director
	Fédération des transporteurs par autobus (FTA)	Luc Lafrance , President and CEO
	Independent School Bus Operators Association (ISBOA)	Frank Healey, President Rob Murphy, Vice-President Brian Crow
	Pacific Western	Murray Glass, Vice-President, Student Transportation
	Sudbury Student Consortium	Renee Boucher, Executive Director
	Transportation Services at Grand Erie District School Board	Philip Kuckyt, Manager
	Windsor Essex Student Transportation Services	Gabrielle McMillan, General Manager
	Niagara Student Transportation Services	Lori Powell, Executive Director
	Halton Student Transportation Services	Karen Lacroix, General Manager
	Renfrew Country Joint Transportation Consortium	Robert White, General Manager
	Huron Perth Student Transportation Services	David Frier, General Manager
	Northwestern Ontario Student Services Consortium	Judi Green, General Manager
	Consortium de transport scolaire de l'Est	P. Rouleau, Directeur
	Chatham-Kent and Lambton Counties School Bus Info	Patti Authier, Transportation Coordinator
	Ottawa School Bus	Vicky Kyriaco, General Manager
Bus Manufacturers	Girardin Blue Bird	Michel Daneault, Vice-President
	Leeds Transit	Kelly Backholm, President & National Sales Manager
	The Lion Electric Co.	Yannick Poulin, Chef de l'exploitation, COO Yves Desjardins, Product Architect
	IC Bus	Joe Labonte, Product Safety Compliance Officer
	Daimler	Ricky Stanley, Senior Designer
	Daimler	David Cook, Senior Engineer
School Boards	Canadian School Boards Association	Laurie French, President Nancy Pynch-Worthylake, Executive Director
	Saskatchewan School Board Association	Shawn Davidson, President
	Manitoba School Boards Association	Alan Campbell, President
	La Fédération des commissions scolaires du Québec (FCSQ)	Alain Fortier, President
	Campbell River School District	Richard Franklin, Board Chair
	Toronto Catholic District School Board	Kevin Hodgkinson, General Manager
	Conseil scolaire catholique de district des Grandes Rivières	Linda Geno, Coordonnatrice des services du transport scolaire
	CLASS Shared School Services Chatham-Kent Lambton Kent District School Boards	Kent Orr, General Manager
	Saskatchewan School Board Association	Catherine Vu, Director of Corporate Services

Coroners	Chief Coroner of Ontario	Dr. Dirk Huyer, Chief Coroner for Ontario
	Chief Coroner of Nova Scotia	Matthew Bowes, Chief Medical Examiner
Safety Groups and Key Partners	Saskatchewan Working Advisory Group on Bus Safety	Phil Benson, Saskatchewan Association of School Board Officials Darren McKee, Saskatchewan School Board Association Ben Grebinski, League of Educational Administrators, Directors and Superintendents of Saskatchewan Josh Kramer, Ministry of Education
	Saskatchewan Government Insurance (SGI)	Ron Foord, Director, Carrier & Vehicle Standards Services
	Canada Standards Association (CSA)	Ken MacLean, Chair
	Canadian Association of Road Safety Professionals (CARSP)	Rob Wilkinson, Coordinator of Safer Roads Ottawa
	Traffic Injury Research Foundation (TIRF)	Mavis Johnson, Community Development Advisor
	Canadian Automobile Association (CAA)	Jason Kerr, Senior Director of Government Relations
	Canadian Association Of Chiefs Of Police (CACP)	Charles (Chuck) Cox, Chief Superintendent
	Canada Safety Council	Raynald Marchand, General Manager
	School Bus Safety Awareness Nova Scotia	Jackie Norman, President and CEO
	Motor Coach Canada	Jennifer Fox, Director, Regulatory Affaires
	Ontario Safety League (OSL)	Brian Patterson, President and CEO
	Manitoba Association of School Business Officials	Roger VanDeKerckhove, Provincial Transportation Director
	Nova Scotia Transportation and Infrastructure Renewal	Bradley Bryden, Motor Carrier Division
	Government of Alberta	Chris Yanitski, Vehicle Standards Engineer
	Association of Student Transportation Services of BC	Robyn Stephenson, President Frank Marasco, Association Manager
	Western Canada Bus	Doug De Hoop, Vice President and GM
	Alberta Education	Rick Grebenstein, Senior Manager, Transportation
	Ministry of Education BC	Michael Nyikes, Director, Program and Policies Unit, Capital Management Branch
	Ministère des Transports du Québec	Mélanie Drolet, Direction générale du transport terrestre des personnes / Direction du conseil et du soutien aux partenaires Marie-Eve Lancup, Agente de recherche en droit
	Société de l'assurance automobile du Québec (SAAQ)	Nathalie Drouin, Conseillère en sécurité routière
	Student Transportation Association of Alberta (STAA)	Lisa Weder, President
	Alberta Student Transportation Advisory Council (ASTAC)	Scott Hucal, Chair
	Ontario Ministry of Transportation	Ryan Bailey, Special Projects, Road Safety Policy Office
	Government of Saskatchewan, Ministry of Education	Sheldon Ramstead, Executive Director
Labour Union	UNIFOR	Len Poirier, Director Road Transportation