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Commercial Vehicle Safety in Canada

2020 Annual Report to Parliament

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EXECUTIVE SUMMARY

This is the 14th Annual Report to Parliament on Commercial Vehicle Safety in Canada. As per the mandate set out in Section 25 (1) of the *Motor Vehicle Transport Act* (MVTA), the report (1): reviews the progress of the implementation of the rules and standards respecting the safe operation of extra-provincial truck and bus undertakings; and (2) reviews available statistical information regarding trends of highway accidents in Canada involving motor vehicles operated by extra-provincial truck and bus undertakings. This edition of the report covers the year 2020. Detailed regulatory information and safety data are presented, and trend assessments are conducted.

Part I of the report presents the regulatory update and focusses on the implementation of the National Safety Code (NSC) standards and the Safety Fitness Framework (SFF), which is embodied in the MVTA. Part II presents the motor carrier safety assessment. Note that the regulatory update is based on fiscal years (in this case 2019/20), and that the safety assessment is based on the 2020 calendar year. Also, since it is not possible to differentiate between extra and intra-provincial undertakings in collision statistics, the data presented in the safety assessment include all trucks and buses that fall under the regulatory oversight of the NSC.

Part I

The NSC is a comprehensive set of 16 standards that provide minimum operational and performance requirements for all important aspects of commercial vehicle, driver and motor carrier safety, with the objectives of reinforcing truck and bus safety, promoting efficiency in the motor carrier industry, and ensuring the implementation of consistent safety standards across Canada. It is applicable to trucks with a Registered Gross Vehicle Weight (RGVW) in excess of 4,500 kg and buses with a designated seating capacity of more than 10 persons, including the driver.

Under the 2015/16-2019/20 funding agreements with the Provinces and Territories (P/Ts), Transport Canada (TC) continues to focus on achieving a consistent safety fitness regime in all jurisdictions to ensure equity in treatment between extra and intra-provincial motor carriers. The overall assessment for 2020 is that the P/Ts have implemented safety rating regimes which, for the most part, are compatible with the MVTA and safety fitness requirements.

On the basis of data reported by the P/Ts through a survey conducted annualy by TC, the report details minor and significant deviations from NSC standards across the country. For example, it is noted that even though NSC standards are meant to apply to all commercial vehicles that weigh more than 4,500 kg (whether they are considered as intra- or extra-

provincial), AB, SK and YK have not implemented this general requirement. As a result, in these provinces, safety programs and regulations are not the same for intra- and extra-provincial motor carriers. While the NSC weight threshold for extra-provincial motor carriers is set at 4,500 kg in AB and YK and at 5,000 kg in SK, in these three jurisdictions the threshold for intra-provincial motor carriers is set at 11,794 kg or more.

The only change in 2020 is that AB reported issuing a registrar's exemption for passenger transportation from the requirement to hold operating authority certificates. As a result, commercial vehicle transporting passengers will no longer be required to produce this certificate during roadside inspections, although they still need to meet other regulatory requirements (hold a safety fitness certificate as well as the necessary insurance and a valid operator's license, pass a semi-annual Commercial Vehicle Inspection Program and put the associated decal on display, as well as any other regulatory requirements for operating of a commercial vehicle).

The data for 2019/20 indicates lower values for both the number of Commercial Vehicle Safety Alliance (CVSA) roadside inspections and facility audits conducted on extra-provincial motor carriers compared to the previous year. This could be interpreted as an early sign of the COVID 19 pandemic, however if there was indeed an effect, it is likely to be marginal. The data covered in the regulatory update for the 2019/20 period ends March 31st, 2020, and most government measures were just starting to be initiated at that time.

Part II

The second part of the report reviews crash statistics with a special focus on crashes involving heavy vehicles under the regulatory oversight of the NSC. The number of vehicles involved in various categories of crashes is presented, as well as single vehicle crashes, driver conditions and actions at the time of the crash and casualties resulting from heavy vehicle crashes. Crash rates, estimated on the basis of an econometric forecasting model are also discussed.

Of note, 2020 marks the first year of the COVID-19 pandemic, which is associated with a significant drop in general road user's traffic and exposure. This drop in exposure, substantial for general road users, is however not expected to have impacted CMV traffic the same way, as heavy vehicles evidently had to maintain a significant level of effort in support of a struggling Canadian population.

Globally, the safety assessment indicates positive downward trends for a wide variety of safety indicators related to heavy vehicles crashes. Most importantly, the lowest number of fatalities since 1992 was recorded in 2020 with a count of 317, which is 53% less than the highest count of 675 observed in 1997. Looking at the 2016-2020 period, there is a general decreasing trend, although the number of fatalities rose in 2017. With regards to injuries, there is again a significant positive trend since 1992. Looking at the 2016-2020 period,

there were two consecutive years of mild increases in 2017 and 2018, followed by significant drops in 2019 and 2020, with a total of 7,496 injured, by far the lowest count since 1992. Of note that there was a 28,3% decrease in 2020 compared to 2019.

Estimates of exposure suggest an overall increase in heavy trucks Vehicle Kilometers Traveled (VKT) for the 2014-2020 period. This increase occurred after the economic downturn of 2008 and 2009 and it is mainly related to tractor-trailer transportation activities. The model further suggests that this increase in exposure did not translate into a deterioration of safety performance. In fact, fatal and injury crash rates calculated based on the model and NCDB data have both been decreasing between 2005 and 2020 (69.6% for fatal crashes and 74% for injury crashes).

With regards to crash contributing factors as assessed by police officers at crash scenes, NCDB data shows that for the 2016-2020 period, vehicle defects were associated with less than 3.5% of crashes. Factors related to driver actions, and to a lesser extent to driver conditions, were identified as more significant contributing factors. While the numbers are low and driver condition was considered as "not normal" in only 4.8% of fatal commercial motor vehicle (CMV) crashes, fatigue and alcohol were identified as key contributing factors for those crashes. It is important to note however that fatigue is seriously underreported in this type of database. With regards to driver actions, when drivers were considered as "not driving properly", in 28.1% of fatal CMV crashes, inattention and speeding were the top contributors.

In sum, NCDB data for the 2016-2020 period reveals that inattention (which relates to both fatigue and distraction) and driving too fast (which relates to high-risk driving behaviors), are key crash contributing factors for heavy vehicle fatal crashes in Canada. This is consistent with the comprehensive assessment detailed in the final report of the *Human Factors and Motor Carrier Safety Task Force*[1] from the Canadian Council of Motor Transport Administrators (CCMTA).

[1] Thiffault, P. (2011). *Addressing human factors in the motor carrier industry in Canada (https://www.ccmta.ca/web/default/files/PDF/human-factors_report_May_2011.pdf)*.

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INTRODUCTION

Section 25 (1) of the *Motor Vehicle Transport Act*, 1985, C.29 (3rd Supp.) requires the federal Minister of Transport to prepare an annual report and table it before each House of Parliament on any of the first fifteen days on which that House is sitting after the Minister completes it. The report shall contain the following:

i) The available statistical information respecting trends of highway accidents in Canada, involving motor vehicles operated by extra-provincial truck and bus undertakings; and

ii) The progress of the implementation of the rules and standards respecting the safe operation of extra-provincial truck and bus undertakings.

The requirement is to focus on extra-provincial truck and bus undertakings. Motor carriers are identified as extra-provincial if they transport goods and passengers in more than one province or territory (P/T) or internationally, whereas they are identified as intra-provincial (also known as "local") if their operations are limited to the boundaries of one jurisdiction and therefore fall under the jurisdiction of a province or territory. It is however not possible to differentiate between extra and intra-provincial truck and bus undertakings when reporting on the implementation of the various safety standards since they usually apply equally to both and since the data is not broken down as such.

Similarly, collision data is reported for extra- and intra-provincial truck and bus undertakings as well as for non-commercial vehicles for comparison purposes. The term *commercial vehicle* refers to a truck with a Registered Gross Vehicle Weight (RGVW) in excess of 4,500 kg or a bus with a designated seating capacity of more than 10 persons, including the driver.

The report is structured in two broad sections. Part I focuses mainly on the National Safety Code (NSC) and the national Safety Fitness Framework (SFF). It provides descriptions of these two core elements of motor carrier safety oversight in Canada as well as progress reports on their implementation for the year 2020. Part I also describes the efforts made by the P/Ts to enforce the revised *Motor Vehicle Transport Act* (MVTA) and to apply the NSC standards for this period.

Part II is a review of road safety statistics. Note that because of the nature of the data, Part I is based on the 2019/20 fiscal year and Part II on the 2020 calendar year. The report is written as if back in time, in this case at the end of 2020, and does not discuss subsequent developments or measures taken, which will be addressed in the reports covering future years.

PART 1 – IMPLEMENTATION AND STATUS OF THE NATIONAL SAFETY CODE

NSC PROGRAM OVERVIEW

Motor carrier safety in Canada is a joint responsibility between the federal government and the P/Ts. The federal government has responsibility for extra-provincial truck and bus transport; however, under the MVTA, the P/Ts enforce federal regulations for extra-provincial carriers on behalf of the federal government and have sole responsibility for intra-provincial operations.

The NSC program was developed in 1987/88 by the federal, provincial and territorial governments. This regulatory regime focuses on oversight of *safety performance* instead of economic controls which are typically based on market entry and exit, route, and commodities as well as fees and services.

The NSC is a comprehensive set of 16 standards that provides *minimum* operational and performance requirements for all important aspects of commercial vehicle, driver, and motor carrier safety, with the objectives of reinforcing truck and bus safety, promoting efficiency in the motor carrier industry, and ensuring the implementation of consistent safety standards across Canada. It applies to drivers and carriers operating commercial vehicles exceeding an RGVW of 4,500 kg (except buses, which are defined by a designated seating capacity of more than 10, regardless of RGVW) and is intended for both extra and intra-provincial operations.

The NSC standards are developed by the Canadian Council of Motor Transport Administrators (CCMTA), which is the key national institution dealing with motor carrier regulation, through committees of federal, provincial and territorial governments, industry and associate members. Transport Canada (TC) and the P/Ts are equal members of CCMTA, however the standards are implemented, and legislation enforced by the provincial and territorial governments.

TC has co-funded the consistent and harmonized implementation of the NSC since 1987 through a series of contribution programs. TC's purpose in this area is mainly to improve motor carrier safety in Canada by facilitating the consistent implementation, by P/T governments, of the 16 standards under the NSC.

The amended MVTA of 2006 continues to allow provincial and territorial governments to enforce federal regulations on federal motor carriers on behalf of the federal government.

These governments are in turn responsible for ensuring that their safety rating systems comply with the requirements of the NSC.

The federal role is to provide funds, administrative support, and advice to the P/Ts in order to assist in the implementation and enforcement of the NSC. TC also has responsibility for monitoring the performance and the impact of the NSC program and for promoting national consistency in the application of the standards, as well as international harmonization.

DESCRIPTION OF NSC STANDARDS

Table 1 below identifies the NSC standards, indicates whether they are under review by CCMTA, when they were last amended, notes whether they are subject to a Canada/US reciprocity agreement and provides a description of their key elements.

Table 1: National Safety Code standards

#	Name	Description
1	**Single Driver Licence Concept - 1988** Canada/US Commercial Driver Licence (CDL) Reciprocity Agreement – 1989	Prohibits a driver from holding more than one driver's licence. In addition, administrative procedures have been established to ensure driving infractions are assigned to a single licence and record. A series of checks must also be conducted along with incorporating the driver record from a previous jurisdiction.
2	**Knowledge and Performance Tests (Drivers) – Revised 2020** Canada/US CDL Reciprocity Agreement – 1989	Establishes a process for standardized written and road testing of commercial drivers. It also identifies the key elements that will be evaluated by government officials charged with administering the tests. Note: Since 1988, jurisdictions have updated their individual requirements by upgrading knowledge tests to prevent fraud and enhance road tests. In addition, air brake training became mandatory.
3	**Driver Examiner Training Program – Revised 2020** Canada/US CDL Reciprocity Agreement – 1989	A standard designed to upgrade the skills and knowledge of driver examiners and ensure they are consistent across Canada.
4	**Driver Licensing Classification** **– Revised 2020** Canada/US CDL Reciprocity Agreement – 1989	Establishes a uniform classification and endorsement system for driver licences and ensures that a licence issued in one province/territory is recognized in all provinces/territories.
5	**Self-Certification Standards and Procedures – 1988**	Outlines the criteria for permitting carriers and driver training schools to train and test commercial drivers. Note: Not implemented in smaller jurisdictions due to the lack of demand arising from smaller carrier, driver, and fleet populations. This does not detract from national uniformity of requirements.
6	**Determining Driver Fitness in Canada – Revised 2021** Revised annually by CCMTA Canada/US Medical Reciprocity Agreement – 1998	The CCMTA Medical Standards for Drivers sets the medical criteria used to establish whether drivers (all classes) are medically fit to drive. Requires commercial drivers to undergo periodic medical examinations.
7	**Carrier and Driver Profiles – Revised 2002** Part of safety fitness framework	Provides jurisdictions with a record of driver and carrier performance in terms of compliance with safety regulations. Supports enforcement activity to remove unsatisfactory drivers and carriers from service and identifies the type of information which must be maintained on each commercial driver and vehicle.

8	**Short-Term Suspension – 1988**	Describes the criteria for suspending a driver's licence on a short-term (24 hour) basis when a peace officer has reasonable and probable grounds to believe the driver's ability is affected by alcohol or drugs.
9	**Hours of Service – Revised 2022** Federal regulations were implemented January 1, 2007, revised 2010. Matching jurisdictional regulations were implemented in 2007 by most jurisdictions	Limits the number of hours a commercial driver can be on duty and operate a commercial vehicle. It outlines the requirement for to track hours of service, describes the various cycles of operation and sets out driver and carrier record-keeping requirements.
10	**Cargo Securement – Amended 2013** Revised annually.	Outlines the minimum requirements for securing loads. Latest version is product of joint Canada/US research and standards harmonization effort.
11	**Maintenance and Periodic Inspection (PMVI) – Revised every 5 years** Updated in 2020. Canada/US Reciprocity Agreement – 1991	Outlines minimum requirements for maintenance and periodic inspections of the 3 million commercial vehicles operated by motor carriers in Canada.
12	**CVSA On-Road Inspections** Updated annually	Outlines the criteria for CVSA on-road inspections conducted by provincial and territorial commercial driver and vehicle enforcement inspectors.
13	**Trip Inspection – Revised 2009** Implemented in 2006	Prescribes daily trip inspection requirements on carriers. Intent is to ensure early identification of vehicle problems and defects, and to prevent the operation of vehicles with conditions that are likely to cause or contribute to a collision or vehicle breakdown.
14	**Safety Rating – Revised 2009** Implemented federally January 1, 2006, with matching rules in provinces. Canada/US Reciprocity Agreement – 1994/2008	Establishes the motor carrier safety rating framework by which each jurisdiction assesses the safety performance of motor carriers.
15	**Facility Audits – Revised 2003** Part of safety fitness framework Canada/US Reciprocity Agreement – 1994/2008	Outlines the audit process used by jurisdictions to determine a carrier's level of compliance with all applicable safety standards.
16	**Entry Level Training (Class 1)** (New, January 2020)	A standard designed to ensure that Class 1 commercial truck drivers are properly and consistently trained before they are licensed.

NSC FUNDING AND CONTRIBUTION AGREEMENTS

The NSC funding program is one of the ways TC works with the P/Ts to address motor carrier safety in Canada. TC's contribution is aimed at the development, revision, implementation, administration, and enforcement of NSC standards, as well as monitoring motor carrier safety performance. Overall, since 1987, the federal contribution under the NSC programs has been in excess of $140 million. The period under review in this report, focussed on the year 2020, is included in the 2015/16-2019/20 program ($22.2 million).

TC also contributes $60,000 a year to update enforcement training materials and the curriculum that assists Canadian jurisdictions to remain compliant with the roadside inspection standards of the Commercial Vehicle Safety Alliance (CVSA). This contribution is made through a renewed contract administered by the CCMTA. These funds are added to P/T resources in their respective motor carrier safety programs and are critical to smaller jurisdictions, allowing them to participate in the development and consistent implementation of nationally established safety rules applying to the truck and bus industry in Canada.

The consistent implementation of the NSC standards is the main objective of the contribution programs. However, the implementation of the revisions that are made to the standards, and which are agreed to by CCMTA, is not a condition for funding *per se*. The specific focus of the 2015/16-2019/20 contribution programs remains the implementation of the SFF, which requires the P/Ts to assign motor carriers a rating based on safety performance by incorporating collision, conviction and inspection data, as well as facility audit results, in a consistent, harmonized manner.

The SFF is embodied in revised NSC standards 7 (driver and carrier profiles), 14 (safety ratings) and 15 (facility audits) that were included into federal legislation under the revised MTVA in 2006. The P/Ts have agreed that these three standards will apply to all motor carriers (private/for-hire, extra and intra-provincial) so that similar safety and compliance performance result in a similar safety rating in each jurisdiction.

As detailed in previous annual reports, the 2003/04-2007/08 contribution agreements included performance targets related to the minimal number of roadside inspections and facility audits to be conducted annually by the P/Ts. These targets were removed in the subsequent agreements, including the latest 2015/16-2019/20 program. The basis for the removal was a concern that mandatory audit target levels, focussed only federally regulated motor carriers, diverted resources away from local motor carriers and made the system more rigid and less data driven.

Although targets were removed, Transport Canada has continued to monitor inspection and audit activity. If the number of CVSA inspections and facility audits were to increase or remain relatively stable in the years following removal of the targets, this would imply that the enforcement level and TC's monitoring ability was likely not impacted. However, a sharp drop in absolute number of audits or changes in the number or the types of CVSA inspections being conducted could create issues relative to the equity of enforcement of the NSC and MVTA requirements. At this time, 14 years after the targets were removed, the data does not indicate any significant nor systematic decrease in enforcement.

2020 STATUS OF JURISDICTIONAL IMPLEMENTATION OF NSC STANDARDS

Table 2 and associated notes indicate that the P/Ts have undertaken the bulk of the work to implement NSC standards and MVTA requirements. NU is not included in the table because no roads currently join the territory to other parts of Canada. As such, commercial activity in NU is solely intra-provincial and not a federal responsibility.

Table 2: NSC implementation by jurisdiction 2020

NSC Standard	TC	BC	AB	SK	MB	ON	QC	NB	NS	PE	NL	YT	NT
General Requirements	MVTA												
1: 4,500kg>	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2: Unique Identifier	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
3: Weight	Y	5000 (M) (2)	4500 (S) Some (3)	5000 (S) Some (4)	4500 Some	4500 Some	4500 Some	4500 N	4500 Some	4500 Some	4500 N	4500 Some (3)	4500 Some
4: Exemptions (1)	Y	Same	Diff.	Diff.	Same	Same	Same	Same	Same	Same	Same	Diff	Same
5: Intra/extra	Extra only												
Safety Certificate Operating Authority (5)	MVTA	Y Bus	Y Bus (6)	Y Bus	Y	Y Bus	Y Bus	Y (7) Bus	Y Bus	Y Bus	N Y Bus	Y Bus	Y
Financial Responsibility	MVTA												
Minimum $1,000,000		Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
Dangerous Goods $2,000,000		Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
Endorsement		Y	Y	Y	Y	Y	Y	Y	Y	N(M)(8)	Y	Y	N (M) (8)
NSC 1 Single Driver Licence Concept	N/A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
NSC 2 Knowledge and Performance Tests	N/A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
NSC 3 Driver Examiner Training Program	N/A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
NSC 4 Classified Driver Licensing System	N/A	Y	Y	Y	Y	Y(M)(9)	Y	Y	Y	Y	Y	Y	Y
NSC 5 Self Certification and Procedures (10)	N/A	Y	Y	Y	Y	Y	Y	N/A	Y	N/A	N/A	N/A	Y
NSC 6 CCMTA Medical Standards for Drivers – Frequency (11)	N/A	Y	Y (M)	Y	Y(M)	Y	Y(M)	Y	Y	Y	Y	Y	Y
NSC 7 Carrier/Driver Profiles	MVTA	Y	Y	Y	Y	Y (12)	Y	Y	Y	Y	Y	Y	Y
NSC 8 Short Term Suspension	N/A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
NSC 9 Hours-of-service (13)	Y Jan 1/07	Y March 1/07 (14)	Y(S)	Y(S)	Y June 1/07	Y Jan 1/07	Y June 15/07	Y June 30/07	Y Dec/09	Y Jan 1/07	Y Jan 1/07	Y May 1/08	Y Jan 1/09
NSC 10 Cargo Securement (15)	N/A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
NSC 11 Commercial Vehicle Maintenance and Periodic Inspection requirements (16)	NA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N (M) (17)
NSC 12 CVSA On-Road Inspections	N/A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
NSC 13 Trip Inspection (18)	N/A	TBD (20)	Y Jul 1/09	Y Motorcoach 2012 (19)	Y July 1/08	Y (M) July 1, 2018	Y Nov 2016	TBD	Y Feb 1, 2018,	Y April 1/09	Y July 1 2012	Y Aug 1/08	Y Dec 2011
NSC 14 Safety Rating System and Procedures	MVTA	Y (M) (21)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
NSC 15 Facility Audit	MVTA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Key:

Y = Regulatory requirements in place, **N** = Regulatory requirements not in place, **M** = Minor deviation, **N/A** = Not applicable, **S** = Significant deviation, **TBD** = To be determined, **Diff** = Different treatment for extra/intra-provincial carriers.

Notes:

1) Most jurisdictions have minor exemptions (e.g. farm vehicles, fire trucks, urban transit buses). These vehicles do not typically fall under federal jurisdiction.
2) BC NSC applies to vehicles at 5,000 kg threshold as this is tied to vehicle registration and insurance systems in the province.
3) AB /YK NSC threshold is at 4,500 kg for extra-provincial (federal) carriers but at 11,794 kg for intra-provincial (local) carriers.
4) SK NSC threshold is at 5,000 kg for extra-provincial carriers and similar to BC tied to vehicle registration and insurance systems but at 11,794 kg for intra-provincial carriers.
5) All truck and bus operators require a safety fitness certificate (SFC). Bus operators require an operating authority in addition to the SFC. NL does not issue a Safety Fitness Certificate for any motor carrier; however, the unique NSC number is printed on each registration document. Buses do require an operating authority. AB introduced a pre-entry program in 2019 which eliminated temporary SFCs and is now requiring that federally and provincially regulated carriers complete a SFC course and pass a test prior to acquiring a SFC. Carrier must also complete a new carrier compliance review within 12 months of operation. AB has also now included a SFC renewal process. In MB, *The Traffic and Transportation Modernization Act* removed the requirement for bus operating authorities March 1, 2019.
6) In 2020, AB has issued a Registrar's Exemption to exempt passenger transportation from the requirement to hold operating authority certificates.
7) NB is still working to implement all aspects of application process and insurance requirements for safety certificates.
8) PE modifications to insurance requirements still pending. NT unlikely to mandate the insurance endorsement provisions of the safety certificate requirements as there are not enough insurance companies in NT that can provide this endorsement.
9) ON uses an alpha designation for driver licenses instead of numeric – otherwise all NSC classes of license present.
10) In small jurisdictions the carrier population is not large enough to support self-certification of some NSC standards (e.g. PMVI) and hence the standard is not adopted.
11) Some jurisdictions include requirements that are more stringent than NSC minimum requirements for frequency. In addition, the process is more tightly controlled as doctors are required to report the conditions that can affect driving. A medical assessment can be required at any time and upon renewal of license. A Canadian commercial drivers' license (CDL) cannot be obtained or renewed without a medical certificate. CDL's are renewed at least once every five years (sometimes more frequently).
12) ON has introduced their *Driver Behavior Predictive Model* with adjusted points that meet or exceed Standard 7.
13) Revised federal hours of service (HoS) regulations were implemented on January 1, 2007. These rules apply to any motor carrier that crosses a provincial/territorial boundary or an international border. Matching or mirror regulations governing both extra and intra-provincial motor carriers have to be enacted in provincial legislation in order for federal regulations to be enforced by provincial authorities. The table indicates the actual implementation date for the new regulations in each jurisdiction. Where target dates of implementation have not been established TBD (to be determined) is indicated. AB and SK apply federal HoS regulations to extra-provincial carriers only, different regulations apply to intra-provincial carriers.
14) By policy, BC does not enforce HoS requirements on any intra or extra-provincial commercial motor vehicles (e.g. trucks) between 5,000 kg and 11,794 kg. Effective April 2, 2019, BC introduced a HoS pilot project for commercial motor vehicles providing transportation of persons or property to or from a motion picture production site in BC. The hours allowed were determined in consultation with industry and recognize the unique work environment within the motion picture industry. AB is currently undergoing public consultations regarding HoS.
15) A series of amendments to the cargo securement standard were approved by the Council of Ministers responsible for Transportation and Highway Safety in the fall of 2010. A period of educational enforcement will precede the full implementation of the revisions. Most jurisdictions are now using the "adopt by reference" method to keep the standard updated, which explains the lack of variance from one jurisdiction to another for the year 2011.
16) CCMTA began an initiative to update the comprehensive maintenance and inspection standards applying to trucks, buses and trailers.
17) Inspection facilities are available in NT for extra-provincial motor carrier vehicles and NT is assisted by AB in complying with the national periodic inspection requirements.
18) All Canadian jurisdictions are moving to implement enhanced pre- and post-trip inspection requirements for commercial operators. There are different schedules for different vehicles (truck/buses). Revised target implementation dates are shown in the table. The challenge for a number of jurisdictions appears to be the requirement for mandatory under body inspections on a fixed kilometer or schedule for motor coaches. In Ontario, effective July 1, 2018, under body inspections for motor coaches expires the later of 30 days or 12,000 km (NSC 13 is the earlier of 30 days, 12,000 km). In NS regulations came into force in Feb 2018, matching NSC 13 with the additional requirement to remove snow & ice from commercial vehicle prior to operating on a highway.
19) SK still needs to implement the underbody inspections for motor coaches. Otherwise standard is in place.
20) BC has not currently implemented Standard 13 due to concerns with the timelines for mandatory under body inspections for motor coaches. BC will review based on ON's trial with changing the timeline to whichever is latest of every 12,000 km or 30 days. BC is also reviewing consultation feedback regarding the implementation of Standard 13 and anticipates moving forward with the required regulatory changes including the Schedule 4 timeline used by ON. Timeline for implementation has not yet been determined.

21) As of June 1, 2015, BC introduced three additional safety rating options: Excellent (to recognize carriers who had achieved an Excellent audit result as well as a Satisfactory profile status); Conditional-Unaudited and Unsatisfactory-Unaudited (to ensure unaudited carriers are still publicly accountable for their on-road performance prior to a quantifiable facility audit being completed.

VARIANCE FROM FULL IMPLEMENTATION OF THE NSC BY JURISDICTION

While it has been a general objective of the NSC that intra- and extra-provincial motor carriers are treated in like manner, each jurisdiction under the original NSC agreement is free to set different regulatory rules and record keeping requirements for truck and bus companies that operate wholly within their province or territory. Deviations to the NSC therefore do exist in the country and it is one of the core mandates of the annual reports to Parliament to document them. Table 2 presents detailed information relative to how the NSC standards were implemented in Canada in 2020 and identifies variations with the standards, whether they are minor or significant, as well as cases where intra- and extra-provincial carriers are treated differently. The table was circulated to the P/Ts and updated based on their input. As such, a deviation remains recorded from the previous year's report unless a jurisdiction specifically indicates that it has been removed.

Many of the variances are minor and have existed for a number of years. Some jurisdictions may be inclined to leave them in place until more substantial amendments are made to their regulations.

The NSC standards are dynamic and are periodically reviewed and updated to address contemporary issues in the motor carrier industry in Canada. Variances can occur due to different jurisdictional legislative priorities and obtaining resources to implement changes of revised NSC standards. Thus, in any given year, there can be higher or lower variances in consistency relative to the full implementation of the NSC. Historically, however, jurisdictions have typically moved to eliminate those inconsistencies over a longer time frame. As shown below, deviations can be related to general requirements or provisions of the NSC framework or they can be related to specific NSC standards.

VARIANCES WITH REGARD TO GENERAL PROVISIONS OF THE NSC

The NSC standards are meant to apply to all commercial vehicles that weigh more than 4,500 kg, whether they are considered as intra- or extra-provincial. Table 2 shows that except for BC, AB, SK and YK, the P/Ts have implemented this general requirement. BC varies only slightly from the NSC requirement; this is tied to the fact that the registration and insurance system are being maintained by a different agency. This deviation is therefore considered to be minor and unlikely to be changed.

In the case of AB, YK and SK, the NSC weight threshold for extra-provincial motor carriers is set at 4,500 kg (AB, YK) and 5,000 kg (SK). However, in these three jurisdictions, the threshold is set for intra-provincial motor carriers to 11,794 kg or more.

This means that in AB, SK and YK the full NSC applies only to intra-provincial vehicles that are over this weight threshold. Vehicles below this threshold, which operate wholly within these provinces, are exempted from the application of numerous NSC standards (e.g. hours-of-service rules, trip inspection and annual inspection, the safety rating program, etc.). While this variance is significant, these vehicles generally do not travel outside these provinces.

VARIANCES WITH REGARD TO SPECIFIC NSC STANDARDS

The 2020 data indicate that most jurisdictions continue to exempt some types of vehicles from the NSC program in their local regulations. These include municipal and farm vehicles, ambulances, fire trucks, hearses and some vehicles used in specific trades (e.g., plumbers). Since these vehicles are typically used locally, these deviations to NSC requirements do not generally affect extra-provincial truck and bus operations.

As mentioned above, three jurisdictions (AB, SK and YK) continue to treat extra- and intra-provincial carriers differently in their regulations. BC exempts trucks with GVWR of 11,794 kg or less from requirements to comply with the hours-of-service (HoS) regulations. By policy, BC does not enforce HoS requirements on commercial motor vehicles between 5,000 and 11,794 kg for both intra- and extra-provincial carriers.

Nearly every P/T has implemented the financial responsibility (insurance) and application process requirements of the MVTA and the NSC. PE and NT have yet to complete and implement outstanding regulatory requirements as of 2020.

With regards to the *Commercial Vehicle Drivers Hours of Service Regulations*, table 2 indicates that 11 of 13 jurisdictions had implemented revised provincial rules by the end of 2020. AB and SK have yet to implement provincial hours-of-service rules that mirror federal regulations. In those two provinces, the federal regulations apply to extra-provincial carriers only and different regulations apply to intra-provincial carriers.

Table 2 confirms incremental progress on the implementation of the revised trip inspection standard. As of 2020, only two provinces (BC and NB) had yet to implement the revised standard. Of note that in 2020, CCMTA's Entry Level Training (ELT) working group worked on developing new NSC standard # 16 aimed at governing the implementation of mandatory entry level training in Canada.

Table 3 presents the 2020 jurisdictional status regarding the implementation of the amended MVTA (2006) and the NSC standards included in the safety rating system. A note that the amended MVTA continued the focus of the 1987 amendments to the Act, when economic regulation of the industry was replaced by a focus on safety. The 2006 amendments consolidated the focus on safety fitness and were intended to create a *nationally consistent* safety fitness framework for motor carriers. In brief, the amendments require extra-provincial carriers to have a *safety fitness certificate*, which is to be issued by provincial authorities consistently throughout the country, on the basis of NSC 14 – *Safety Rating*, creating a uniform national safety regime.

The table indicates that the P/Ts have made further incremental progress to reduce the variances in safety rating requirements that were noted by Knowles in 2004 in an evaluation of the state of readiness of Canadian jurisdictions to implement the revised MVTA[2]. Table 3 is discussed in the next section addressing the implementation of the general provisions of the revised MVTA.

[2] CCMTA Carrier Safety Rating Project Readiness Review – Final Report" – September 2, 2004 – Prepared by Knowles Canada

Table 3: NSC safety rating regime – 2020 status of implementation

MVTA Components (1)	TC	BC	AB	SK	MB	ON	QC	NB	NS	PE	NL	YT	NT
1) General	MVTA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2) Identifies poor operators	N/A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
3) Adopted four stage intervention model (2)	N/A	Y(M) (3)	Y	Y(M)(3)	Y	Y	Y	Y	Y	Y	Y (2)	Y	Y
4) Base plate carriers only monitored	N/A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
5) U.S. carriers in safety rating regime (4)	N/A	N	N	N	N	Y(5)	Y(5)	N	N	N	N	N	N
6) Applications/insurance provision	N/A	Y	Y	Y	Y	Y	Y	N(S) (6)	Y	Y	Y (6)	Y	Y
7) All NSC Vehicles	N/A	Y	Y (M) (7)	Y(M) (7)	Y	Y	Y	Y	Y	Y	Y	Y (M) (7)	Y
8) All carriers evaluated on 24 month basis of data	N/A	Y (M) (8)	Y(M) (8)	Y(M) (8)	Y	Y	Y	Y	Y	Y	Y	Y	Y
9) All carrier collision, inspection and convictions exchanged	N/A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
10) All facility audits per NSC Standard 15	N/A	Y	Y	Y	Y (M) (9)	Y	Y	Y	Y	Y	Y (9)	Y	Y (M)(9)
11) Assign/change safety ratings based on 4 rating categories	MVTA	Y(M) (10)	Y (M) (10)	Y	Y	Y(M) (10)	Y (11)	Y(M) (12)	Y	Y	Y (10)	Y	Y (13)
12) All elements of safety rating standard 14 Implemented (e.g. safety plans)	N/A	Y	Y	Y	Y	Y(M) (14)	Y(M) (14)	Y	Y	Y	Y (14)	Y	Y
13) All collisions pointed per severity formula (e.g. 2, 4, 6 points)	N/A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
14) Use CCMTA conviction equivalency table	N/A	Y(M) (17)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
15) At fault preventability of collisions Assessed	N/A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
16) Receive and use U.S. data in safety rating system (15)	N/A	Y	Y	Y	Y	UNK	UNK	UNK	UNK	UNK	N TBD (15)	Y	Y
17) Exchanges carrier information electronically with other jurisdictions	N/A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y (16)	Y	Y

Key: **Y** = Regulatory requirements in place; **S** = Significant deviation; **N** = Regulatory requirements not in place; **UNK** = Unknown; **M** = Minor deviation **N/A** = Not applicable.

Notes:

1) Results in this table are based on internet research and updates provided by jurisdictions to CCMTA.
2) All jurisdictions use: 1) letter 2) interview 3) audit 4) show cause hearing, as part of the intervention process. Speed by which a carrier can move from 1 to 4 and an unsatisfactory rating varies as poor on-road performance (collisions/inspections and convictions) can result in some intervention steps being skipped (warning letter/interview) and prompt an immediate facility audit. NL adopted in regulation in 2005. In ON, the order of intervention has the audit preceding the interview.
3) BC and SK systems have 5 elements in the intervention process. BC's interventions are: 1) warning letter, 2) safety plan self-assessment, 3) educational compliance review, 4) audit, 5) show cause hearing. New entrants are visited by SK staff shortly after their safety certificate is issued to confirm their ability to comply with record keeping requirements.
4) On September 14, 2008, Canada and the United States signed a new agreement to reciprocally recognize each other's safety rating process. The safety rating/compliance review reciprocity agreement was signed by CCMTA and FMCSA and committed both sides to working towards exchanging collision, inspection and conviction data to populate the motor carrier profiles maintained in both countries. The intent of the revised reciprocity agreement is to eliminate duplication of tracking and monitoring efforts of motor carriers on both sides of the border thus removing an important impediment to cross border trade.
5) ON/QC assigns safety ratings to U.S. and Mexican motor carriers operating in their jurisdiction which is allowed. Based on a pre-existing reciprocity agreement on safety ratings and the intent to implement, the rest of the jurisdictions exclude U.S. motor carriers from their system. As a result extra-provincial motor carriers operating into the U.S. will have 2 safety ratings – 1 issued by the Canadian jurisdiction in which they are base plated and another issued by the Federal Motor Carrier Safety Administration (FMCSA) in the United States. U.S. motor carriers may have a competitive advantage over some Canadian extra-provincial motor carriers as they do not have to register in the safety rating programs of other Canadian jurisdictions (Exception ON/QC).
6) NB: not all elements of the application and insurance verification process in place due to resource issues. NL adopted application process in 2005 in regulation November 2005.
7) AB/SK/YK safety ratings for extra-provincial carriers at NSC weight threshold. Safety rating system applies to intra-provincial motor carriers at the 11,794 kg and greater threshold.
8) BC/AB/SK use a 12-month (more stringent) window than 24 months prescribed in NSC. More recent events weighted more heavily in BC and AB, but not in SK.
9) In 2018 MB piloted an "Alternative Assessment Model" for facility audits requested by carriers seeking a Satisfactory rating, which involved examining results from FMCSA audits, Manitoba Public Insurance risk assessments, SafeWork audits and so forth, as well as examining the carriers' internal safety management regime. This was used to reduce NSC 15 sample sizes. The program was discontinued after May 2018. NT was continuing to work to implement quantifiable audits and pass/fail criteria per NSC standard 15. NL adopted in regulation in 2005.
10) ON has five rating categories and includes "excellent". AB implemented an "excellent" category for motor carriers in their Partners in Compliance (PIC) program in 2010. As of June 1, 2015, BC has seven rating categories including "excellent" (to recognize carriers who had achieved an Excellent audit result as well as a Satisfactory profile status), "conditional-unaudited" and "unsatisfactory-unaudited" (to ensure unaudited carriers are still publicly accountable for their on-road performance prior to a quantifiable facility audit being completed). For data exchange purposes, "conditional-unaudited" and "unsatisfactory-unaudited" are currently translated back to their satisfactory-unaudited. NL adopted in regulation in 2005.
11) Since summer 2015, Quebec complies with the 4 ratings categories.
12) NB experiencing difficulty in immediately assigning unsatisfactory rating when minimum insurance levels not met. This is a reporting issue that will be addressed as part of a long term modernization project to upgrade systems.
13) NT implemented a system to assign 4 safety ratings per MVTA and NSC.

14) ON/QC: a conditional safety rating can be applied based on carrier's on-road safety performance without having failed an audit. NL adopted in regulation in 2005.
15) BC/AB/SK/MB/NT/YT use U.S. event data (e.g. accidents and CVSA inspections) in their safety rating methodologies for evaluating their base plate extra-provincial motor carriers. It is unknown whether other Canadian jurisdictions include U.S. event data in their methodologies for evaluating their base plate extra-provincial motor carriers. NL may not be receiving and using US data. To be confirmed.
16) NL adopted in regulation in 2005.
17) BC uses the Conviction Equivalency Table in relation to the equivalency codes, but in October 2015 revised the points associated with each conviction type to better reflect the correlation to future accidents as well as using a 5 point scale to more accurately identify carrier's on-road performance.

A previous annual report to Parliament presented a 7-year review covering the 2012-2018 period[3]. Detailed information on the various processes involved in the implementation of the MVTA and the SFF, as well as regional differences in the country, were presented in this review. This information is therefore not repeated here if no changes have occurred in 2020. The reader is referred to this earlier edition for a more comprehensive discussion.

Overall, table 3 indicates that the P/Ts have developed and implemented a generally consistent safety rating regime based on the MVTA amendments and that they are issuing safety ratings to their base plate motor carriers. In 2020, there were no changes identified by the P/Ts.

Progress with the development of Electronic Logging Devices

Electronic Logging Devices (ELDs) help to ensure that a commercial driver's work and rest hours are recorded accurately and reliably. These devices are intended to replace paper-based daily logs, which can be falsified or incomplete, and, in some cases, duplicated or missing.

Although research and consultative efforts on this issue can be traced back to 2005, the 2009-2020 period saw the most intense development taking place from the federal government as well as from the P/Ts, both individually and within CCMTA. This period was indeed critical for the development of the *mandatory* use of ELDs to enforce compliance with hours-of-service regulations in Canada.

On December 16, 2017, Transport Canada published the *Regulations Amending the Commercial Vehicle Drivers Hours of Service Regulations (Electronic Logging Devices and Other Amendments)* in the Canada Gazette Part 1. The final publication, in Canada Gazette Part 2, took place on June 12, 2019. The coming-into-force date was set to be 24-months after publication of Part 2, therefore on June 12, 2021.

While this regulatory work was taking place, a significant effort was also undertaken by provincial and federal representatives within CCMTA's ELD *Technical Standard working group* to develop the Canadian ELD Standard. This standard establishes minimum performance and design specifications for ELDs, which are largely based on U.S. technical

[3] https://tc.canada.ca/en/road-transportation/motor-vehicle-safety/motor-carriers-commercial-vehicles-drivers/commercial-vehicles-safety-canada

requirements, but adapted to accommodate the Canadian HOS regulations. Version 1.1 of the standard was published on December 9, 2019, and the standard is incorporated by reference in the final federal hours-of-service regulations.

Note that to provide a high level of confidence in the effectiveness of ELDs, a third-party certification process was determined to be the most reliable method for ensuring that ELD models and software versions are compliant with the Technical Standard and the regulations. To that end, in 2019 Transport Canada entered into an agreement with the Standards Council of Canada for the accreditation of certification bodies (CB) that ELD vendors will be using to certify their ELD devices.

On October 15, 2020, TC issued the first ELD certification accreditation to FP Innovations. It can therefore act as a certification body for the testing and certification of ELDs, which will be valid for five (5) years from the issuance date, unless suspended or cancelled by the Minister.

2020 STATUS OF JURISDICTIONAL ENFORCEMENT OF THE MVTA AND NSC STANDARDS

Enforcement of the NSC standards comprises two components: CVSA on-road inspections and facility audits. TC's funding to jurisdictions is tied in part to jurisdictions performing both components. This approach is taken because studies have demonstrated a positive impact on safety.

The elimination of the performance targets for CVSA inspections and facility audits and the streamlining of the reporting requirements may however impact TC's ability to assess equity between extra- and intra-provincial motor carriers and formulate an overall view of commercial vehicle safety in Canada.

It is possible that with less data to review, the picture will become more limited and fragmented than in past years. A mitigating variable is that P/Ts still report on CVSA inspections and the audits conducted on extra-provincial carriers, although no targets have been established. Future assessments will determine the extent of the impact.

The data presented below come from jurisdictional reports supplied to TC based on the revised reporting requirements contained in last two funding agreements.

CVSA ON-ROAD INSPECTIONS

Research has repeatedly established that conducting roadside inspections of commercial vehicle drivers and vehicles has positive impacts on compliance rates and safety. Trained P/T inspectors conduct these inspections at roadside, weigh scales and motor carrier facilities based on inspection procedures and criteria created by CVSA, known as the *North American Standard Inspection Program*.

In Canada, the out-of-service (OoS) criteria developed by CVSA is specified in NSC standard 12 *CVSA on-road inspections*, which is updated annually. NSC 12 focusses on four key areas: driver, vehicle, dangerous goods and administrative compliance. CVSA inspections now include up to eight levels, however levels 1 to 5 are used on a more regular basis, with level 1 representing the most comprehensive inspection procedure[4].

Prior to the removal of CVSA inspection targets in 2009/10, the P/Ts were generally exceeding the targets, indicating fairly robust enforcement activities in all jurisdictions. As can be seen in table 4 and figure 1, this trend continues as the removal of targets did not result in a reduction of the total number of inspections. From a national perspective, there is in fact an upward trend after the removal of targets, as can be seen in figure 1.

Of note, the 331,511 inspections conducted in 2009/10 and the 320,982 conducted in 2010/11 exceed all other years where targets were in effect, with only the year 2005/06 having higher totals for CVSA inspections. As can be seen in table 4, there are only a few instances where inspection numbers fall below the former targets levels, but the national picture is nevertheless trending upwards.

There were 269.270 CVSA on-road inspections conducted in Canada during the 2019/20 fiscal year, a decline from the 339,969 conducted in 2017/18 and the 296,439 conducted in 2018/19, creating a mild downward trend for this 3-year period. Of note that the 2019/20 numbers still remain higher than the number of inspections conducted before the removal of targets in 2009/10, as depicted in figure 1.

One line of explanation could be the negative effect of the early months of the COVID 19 pandemic, but this is likely to be marginal given the data covered for the 2019/20 period ends March 31st, 2020, and that most government measures were just starting to be initiated at that time.

[4] For a description of CVSA inspection levels: https://www.cvsa.org/inspections/all-inspection-levels/

Table 4: CVSA inspections 2009/10–2019/2020

	Targets*	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20
BC	*22,545*	27,382	26,089	27,762	31,865	29,454	25,556	22,996	22,098	23,305	23,071	20,781
AB	*21,724*	32,013	36,720	32,119	32,771	30,156	30,913	25,947	28,124	28,367	27,694	25,846
SK	*8,555*	17,860	15,218	13,052	9,943	11,462	13,904	13,963	15,808	12,617	8,425	4,280
MB	*6,445*	7,494	6,189	4,837	3,541	3,841	4,876	3,804	3,804	7,125	6,610	6,533
ON	*77,153*	104,120	95,513	102,807	102,651	110,345	120,960	119,548	113,412	142,782	96,969	89,666
QC	*26,943*	100,440	96,320	35,408	65,204	73,620	79,328	95,029	85,058	97,620	106,027	94,452
NB	*5,642*	28,991	29,808	26,714	25,729	26,013	24,962	20,117	11,710	12,973	11,664	13,108
NS	*3,961*	7,502	10,145	10,618	7,987	9,578	8,971	9,390	9,354	10,908	11,624	10,222
PE	*1,036*	2,160	1,677	1,759	1,521	1,154	1,779	1,267	1,239	1,361	1,277	1,233
NL	*1,243*	1,748	1,986	1,765	1,636	1,157	1,047	1,333	1,941	1,349	1,411	1,864
YK	*562*	909	782	892	801	629	770	605	682	627	704	614
NT	*1,584*	892	535	635	1,021	834	840	1,120	741	935	963	671
Tot	*179,495*	331,511	320,982	258,368	284,670	298,213	313,906	315,119	293,971	339,969	296,439	269,270

*For analysis purposes only, these are the targets that were set in previous funding agreements, in force from 2004 to 2009.

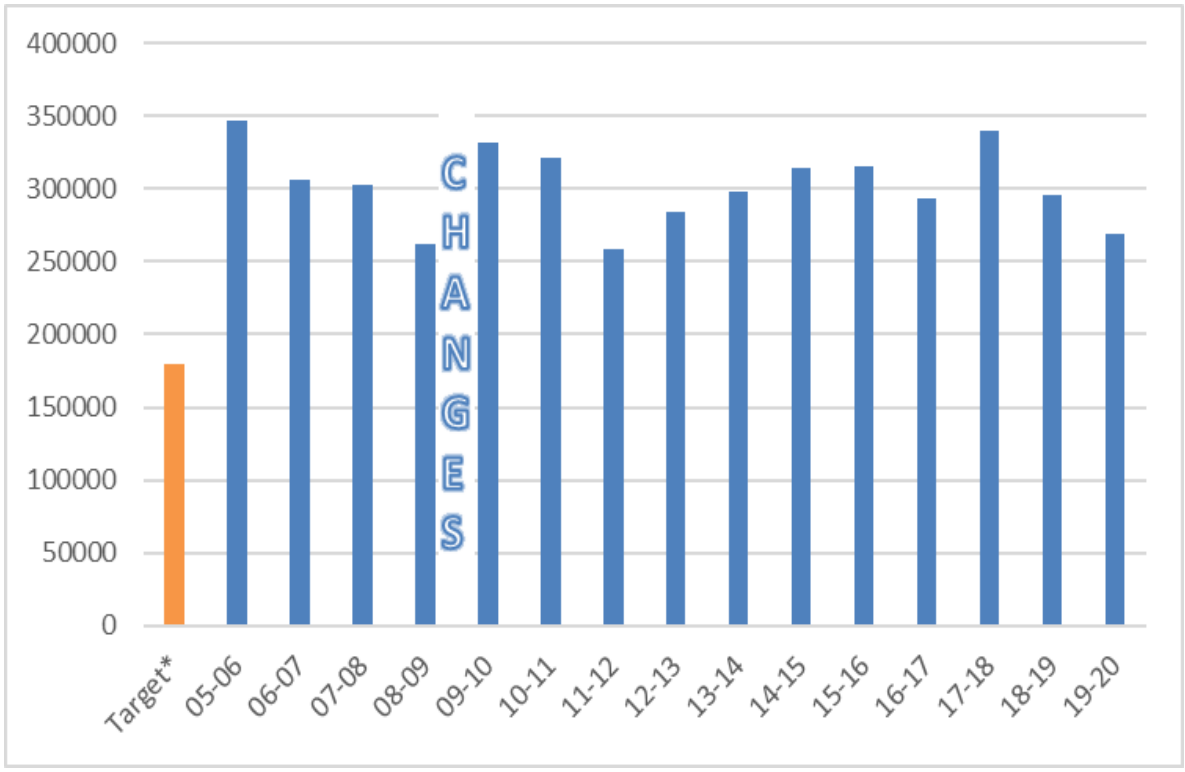

Figure 1: Number of CVSA roadside inspections in Canada per fiscal year before and after the 2009/10 removal of targets

ROADCHECK 2020

Operation Roadcheck is a 72-hour safety inspection program undertaken yearly by Canadian, US and Mexican enforcement officers to promote motor carrier safety. The event is coordinated by CVSA in partnership with CCMTA member jurisdictions. Heavy vehicles are randomly selected for inspection according to procedures developed by CVSA. Brakes, steering, wheels, tires, frames and the manner in which loads were secured are inspected, as well as driver documentation for compliance with licensing and HoS rules.

The results do not account for vehicles waved through and considered 'passed' due to the presence of a valid CVSA decal. Only vehicles without a valid CVSA inspection decal are inspected and reported on. The implication of this sampling method is that the results of Roadcheck in terms of OoS rates should not be extrapolated to the overall population of motor carriers.

CVSA summarized the results of Roadcheck 2020 for Canada as follows[5]:

There were 3,993 level I, II and III Inspections conducted. In total, 817 vehicles and 135 drivers were removed from roadways after the discovery of out-of-service (OOS) violations by inspectors, representing OOS rates of 20.4% et 3.4% respectively. Of these, the top 5 vehicle violations were brake system (32,1%), cargo securement (19.4%), tires (12.9%), brake adjustment (10.4), and light (9.1%). The top five driver-related violations were hours-of-service (73.7%), other (moving violations, cell phone use, etc. – 8.6%), expired license (6.9%), false log (4.6%), wrong class license (2.3%), and violating license restriction (2.3%).

FACILITY AUDITS

Conducting a facility audit involves a certified auditor visiting a motor carrier's principal place of business in order to conduct comprehensive assessments. Audits are conducted on the basis of a procedure defined in NSC Standard # 15 *Facility Audits*. As stated in the standard, it consists of a detailed examination of specific records, interviews with safety personnel as well as data collected during CVSA inspections. Audits serve as a means of evaluating a carrier's safety compliance and performance with respect to the identification of violations. The results are used in conjunction with the carrier profile (see NSC Standard # 7 *Carrier and Driver Profiles*) to establish the carrier safety rating (NSC Standard # 14 *Carrier Safety Rating*). Audits must be quantifiable, uniformly delivered within each jurisdiction and compatible with other jurisdictions. They are conducted by trained jurisdictional staff.

[5] https://www.cvsa.org/news/2020-roadcheck-results/

Facility audits are used to assign a satisfactory, conditional (in most jurisdictions) or unsatisfactory rating. The results of an audit typically require motor carriers to implement steps to improve safety and compliance performance within set time frames. If safety and compliance performance does not improve or becomes worse, the P/T may declare the motor carrier unsatisfactory and revoke the safety certificate, which prevents the carrier from operating on Canadian roads.

As can be seen in table 5, there can be significant yearly variations in the number of audits conducted by the P/Ts; some showing decreasing trends while others are increasing. Nevertheless, as shown in figure 2, the nationally aggregated numbers remain rather stable. Globally there is a mild decreasing trend after the year 2012/13, partly explained by an actual spike in audits for the years 2010/11to 2013/14. Furthermore, table 5 data reveals that the decreasing trend is mainly reflective of one jurisdiction where the number of audits has dropped significantly and steadily since 2012/13, and two others where milder decrease is noticeable for the year 2019-2020. Again, the data for 2019/20 could be showing early signs of the COVID 19 pandemic, but this is likely to be marginal given the data covered for the 2019/20 period ends March 31st, 2020, and that most government measures were just starting to be initiated at that time.

Table 5: Facility audits 2006/07-2019/20

	06/07	07/08	08/09	09/10*	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20
BC	340	300	295	205	251	253	190	126	80	45	47	52	61	39
AB	206	221	339	182	395	377	368	339	318	319	347	323	352	286
SK	133	82	80	129	30	32	49	79	101	141	156	134	205	57
MB	86	125	92	48	56	58	62	58	36	51	51	25	54	19
ON	803	496	681	237	200	211	269	248	278	175	152	158	149	155
QC	279	292	252	92	229	99	69	103	88	122	175	150	130	134
NB	85	81	79	65	94	98	155	113	61	93	47	76	68	42
NS	137	215	173	31	12	25	7	17	26	43	36	17	53	175
PE	15	17	13	13	13	13	13	13	13	13	13	13	13	13
NL	21	21	21	2	1	22	20	21	3	3	3	3	3	3
YK	3	4	3	3	4	7	7	8	6	6	6	8	8	6
NT	3	3	3	0	3	2	1	3	3	3	3	3	3	3
Tot	2,111	1,857	2,031	1007	1,288	1,197	1,210	1,128	1,013	1,014	1,036	962	1,099	932

*Audit targets removed in 2009/10 and reporting requirements changed: P/Ts now only report on the number of audits conducted on *extra-provincial* motor carriers.

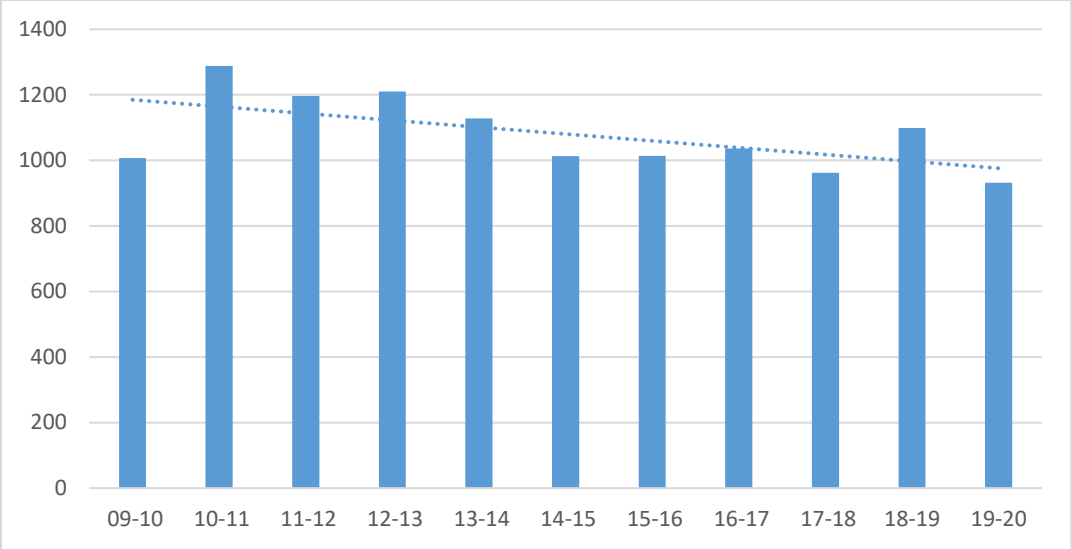

Figure 2: Number of facility audits conducted on extra-provincial motor carriers in Canada per fiscal year after the 2009/10 removal of targets.

DATA EXCHANGE

The safety rating framework and the NSC funding contribution agreements require the P/Ts to exchange collision, inspection and conviction data. The data is used in determining safety ratings and disciplining motor carriers. The exchange of collision, inspection and conviction data is therefore critical to ensure the robustness, comprehensiveness and completeness of the safety rating established by each jurisdiction for motor carriers under its supervision.

The CCMTA Canadian Conviction Equivalency Code tables are a reference tool that establishes equivalency of offences across the P/T legislative and regulatory frameworks. This enables jurisdictions to take appropriate action based on a common understanding of the severity of the infraction.

Table 6 summarizes the 2011-2020 nine-year trend in the volume of exchange of conviction information between jurisdictions. The values in the table represent the total number of convictions sent to other P/Ts by each jurisdiction for each of these nine years.

Table 6: Data exchange (convictions sent) fiscal years 2011/12 – 2019/20

Year	2011/12	2012//13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Total	59,201	62,607	62,385	75,902	86,911	100,561	73,359	75,049	90,874

P/Ts began using conviction information from other jurisdictions in their safety rating systems around 2002. The historical data indicates that the number of convictions exchanged remained relatively stable and consistent from 2005 to 2009. However, a significant increase in the number of convictions exchanged among jurisdictions occurred in the 2009/10 year. Then, as shown in table 6, there was an upwards trend in the volume of conviction data sent by jurisdictions during the 2011/12-2019/20 period. This is likely due to continuous enhancements made in individual jurisdictional systems to process the convictions. Overall, for the period, the data suggests that the safety fitness framework is functioning properly as more data is being exchanged and processed.

JURISDICTIONAL STAFFING LEVELS

The number of jurisdictional staff dedicated to enforcement activities can be used as an indicator of the level of effort, across the country, to support the SFF and to enforce motor vehicle safety regulations and NSC standards. The reporting requirements associated with the funding agreements specify that P/Ts must report the number of roadside inspectors and facility auditors on staff. Table 7 summarizes the number of personnel involved in the on-road and audit enforcement of the MVTA from 2013/14 to 2019/20. Historically P/T staffing levels have fluctuated and are affected by retirements, government priorities and budgets relative to filling vacant positions. Data from past reports to Parliament indicate that P/T staffing of on-road (CVSA inspections) personnel peaked in 2008/09 with 1,203 enforcement officers, while a peak of 112 full time equivalent (FTE) staff performed audits of motor carriers in 2007/08.

Table 7 shows that staffing levels have remained relatively stable over these 7 years, although there was a mild decreasing trend in the number of auditors. The data also shows a lower count of roadside inspectors in 2019/20, mainly explained by a significant drop in one specific jurisdiction. However, as discussed previously, the output of this workforce - the number of CVSA inspections and facility audits - remains fairly constant.

Table 7: Jurisdictional staffing levels 2013/14-2019/20

Years	2013/14 FTEs		2014/15 FTEs		2015/16 FTEs		2016/17 FTEs		2017/18 FTEs		2018/19 FTEs		2019/20 FTEs	
	Road	Audit	Road	Audit	Road	Audit	Road	Audit	Road	Audit	Road	Audit	Road	Audit
BC	175	17	184	16	179	14	176	13	186	13	149	14	143	14
AB	104	9	94	9	95	9	94	9	100	9	97	9	105	8
SK	30	4	42	5	48	6	47	6	35	6	27	6	31	6
MB	42	8	42	7	42	7	42	7	42	6	42	6	37	6
ON	288	29	303	28	290	28	281	27	280	27	280	27	171	19
QC	252	19	258	17	245	18	237	20	275	15	270	17	268	17
NB	46	3	49	3	54	3	43	3	44	3.5	44	3	40	3
NS	38	3	38	2	43	3	43	3	41	2	49	2	43	2
PE	11	1	12	1	13	1	11	1	11	1	11	1	11	1
NL	15	1	15	1	29	7	34	7	34	6	34	1	29	6
YK	3	.1	3	.1	3	.1	3	.1	2	.1	3	.1	5	.1
NT	8.5	1	9	1	10	1	9	1	9	1	8	1	9	1
Total	1,012.5	95.1	1,049	90.1	1,051	97.1	1,020	97.1	1,059	89.6	1,014	87.1	892	83.1

Key: FTEs = Full Time Employees; Road = On-road inspectors; Audit = Jurisdictional Auditors. Note: This table does not include staffing for administering other NSC standards.

It is important to note that this table does not include all the personnel that are used by jurisdictions to administer and enforce the MVTA and NSC standards. For example, all jurisdictions have staff that conduct knowledge and road tests, verify medicals and regulate the garages that perform annual inspections. Moreover, the table does not include the staff that process NSC/MVTA applications, perform policy analysis, or the IT resources in each jurisdiction that build the motor carrier monitoring systems and integrate the data used in assigning and rating motor carriers.

PART I SUMMARY

The regulatory update presented in Part I is partly based on data reported by the P/Ts in a comprehensive survey conducted by Transport Canada. The review centers on three key components: the status of implementation of NSC standards in Canada, the national implementation of the MVTA safety fitness regime and enforcement efforts conducted by P/Ts in support of the NSC and the MVTA.

Table 2 provided comprehensive details on deviations from NSC standards across the country. Deviations can be related to general requirements of the NSC framework or to specific NSC standards. In terms of general requirements, for example, it is important to note that NSC standards are meant to apply to all commercial vehicles that weight more than 4,500 kg, whether they operate as intra- or extra-provincial motor carriers. In this regard, the data indicate that AB, SK and YK have not implemented this general requirement. As a result, in these provinces, safety programs and regulations are not the same for intra- and extra-provincial motor carriers.

In 2020, AB issued a registrar's exemption to exempt passenger transportation from the requirement to hold operating authority certificates. As a result, commercial vehicle transporting passengers will no longer be required to produce this certificate during roadside inspections, although they still need to meet other regulatory requirements (hold a safety fitness certificate as well as the necessary insurance and a valid operator's license, pass a semi-annual Commercial Vehicle Inspection Program and put the associated decal on display, as well as any other regulatory requirements for operating of a commercial vehicle).

Under the 2015/16-2019/20 funding agreements with the P/Ts, TC continues to focus on achieving a consistent safety fitness regime in all jurisdictions to ensure equity in treatment between extra and intra-provincial motor carriers. The overall assessment for 2020 is that the P/Ts have implemented safety rating regimes which, for the most part, are compatible with the MVTA and safety fitness requirements.

The data for 2019/20 shows lower values for both the number of CVSA roadside inspections and facility audits conducted on extra-provincial motor carriers compared to the previous year. This could be interpreted as an early sign of the COVID 19 pandemic, however if there was indeed an effect, it is likely to be marginal. The data covered in the regulatory update for the 2019/20 period ends March 31st, 2020, and most government measures were just starting to be initiated at that time.

PART 2 - COMMERCIAL VEHICLE SAFETY STATISTICS

INTRODUCTION

Part II of the report provides data on reportable traffic collisions in Canada. Trend information respecting the general driving population is first presented followed by an assessment of collisions involving commercial vehicles (CMVs), including buses, straight trucks and tractor-trailers[6].

All vehicle, driver and victim information are derived from Transport Canada's National Collision Database (NCDB), which is a compilation of police report records of reportable traffic collisions that occurred on public roads in Canada. Collision data is sent to Transport Canada by each jurisdiction on a calendar year basis. Therefore, in contrast with the regulatory updates that constitute the first part of this report, and which are based on fiscal years, the following safety statistics will mainly focus on the 2020 calendar year.

GENERAL ROAD USERS' COLLISIONS AND CASUALTIES

Canada's road safety record continues to improve, as can be seen in table 8 and figure 3, which provide a general view of the trend in collisions and casualties from 2001 to 2020. In table 8, the columns headed "Collisions" indicate the total number of casualty collisions (includes collisions with serious injuries and fatalities, excludes property damage only collisions) while the columns headed "Victims" indicate the total number of victims in terms of fatalities, serious injuries and total injuries from collisions.

Figures 3, 4 and 5 plot the information on victims from table 8 and illustrate the steady improvement trends in terms of fatalities, serious injuries and total injuries for the 2001-2020 timeframe.

[6] From NCDB: Straight trucks are units over 4536 kg with a permanent mounted cargo body and tractor-trailers are road tractors with or without semi-trailers.

Table 8: Collisions and casualties 2001-2020

	Collisions		Victims		
	Fatal[1]	Personal Injury[2]	Fatalities[3]	Serious Injuries[4]	Injuries[5](Total)
2001	2,415	149,023	2,758	15,296	216,542
2002	2,583	153,832	2,921	15,894	222,665
2003	2,487	150,493	2,777	15,110	216,123
2004	2,438	145,150	2,735	15,572	206,104
2005	2,551	145,559	2,898	15,792	204,701
2006	2,586	142,517	2,871	16,044	199,976
2007	2,455	138,615	2,753	14,410	192,745
2008	2,193	127,571	2,431	12,851	176,394
2009	2,007	123,449	2,216	11,955	170,770
2010	2,021	123,615	2,238	11,796	172,081
2011	1,849	122,350	2,023	10,940	167,741
2012	1,848	122,834	2,075	11,104	166,727
2013	1,772	120,371	1,951	10,662	164,525
2014	1,675	114,617	1,841	10,445	156,557
2015	1,693	117,857	1,887	10,835	160,806
2016	1,738	116,583	1,900	10,573	158,854
2017	1,698	112,714	1,861	10,104	152,773
2018	1,754	109,580	1,939	9,463	149,065
2019	1,623	104,169	1,762	8,917	140,801
2020	1,591	72,917	1,745	7,868	101,572

1: "Fatal collisions" include all reported motor vehicle crashes that resulted in at least one death, where death occurred within 30 days of the collision, except in Quebec before 2007 (eight days).

2: "Personal injury collisions" include all reported motor vehicle crashes which resulted in at least one injury but not death within 30 days of the collision, except in Quebec before 2007 (eight days).

3: "Fatalities" include all those who died as a result of a reported traffic collision within 30 days of its occurrence, except in Quebec before 2007 (eight days).

4 "Serious Injuries" include persons admitted to hospital for treatment or observation. Serious injuries were estimated from 1999 to 2019 because several jurisdictions under-reported these numbers.

5 "Total Injuries" include all reported severities of injuries ranging from minimal to serious.

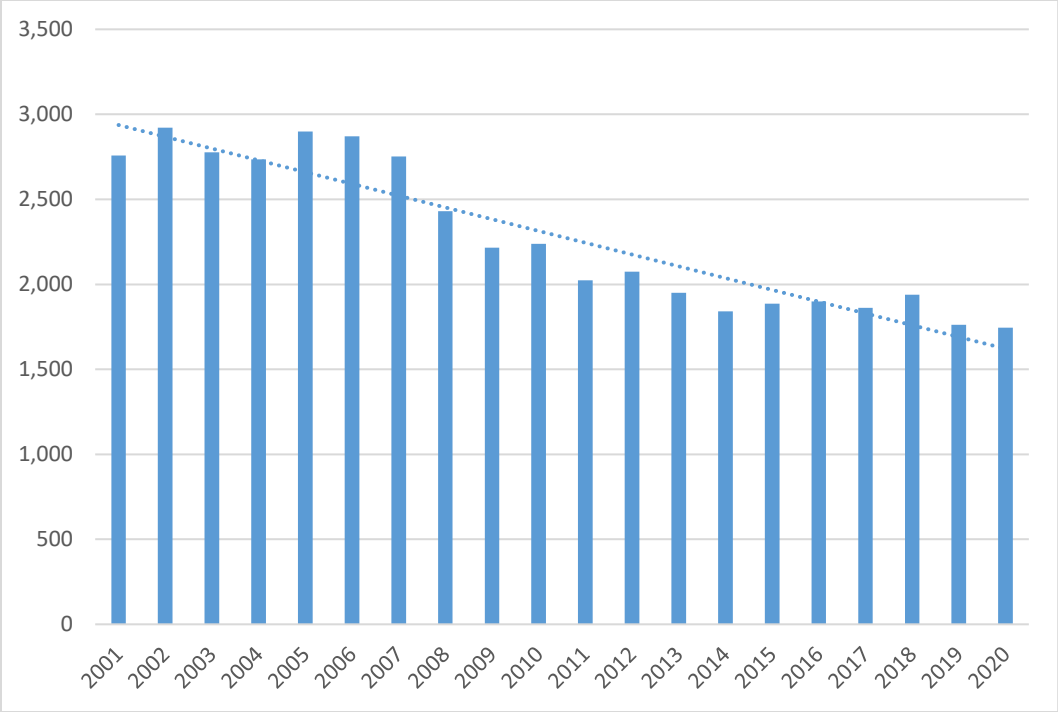

Figure 3: Road crash victims 2001-2020: fatalities

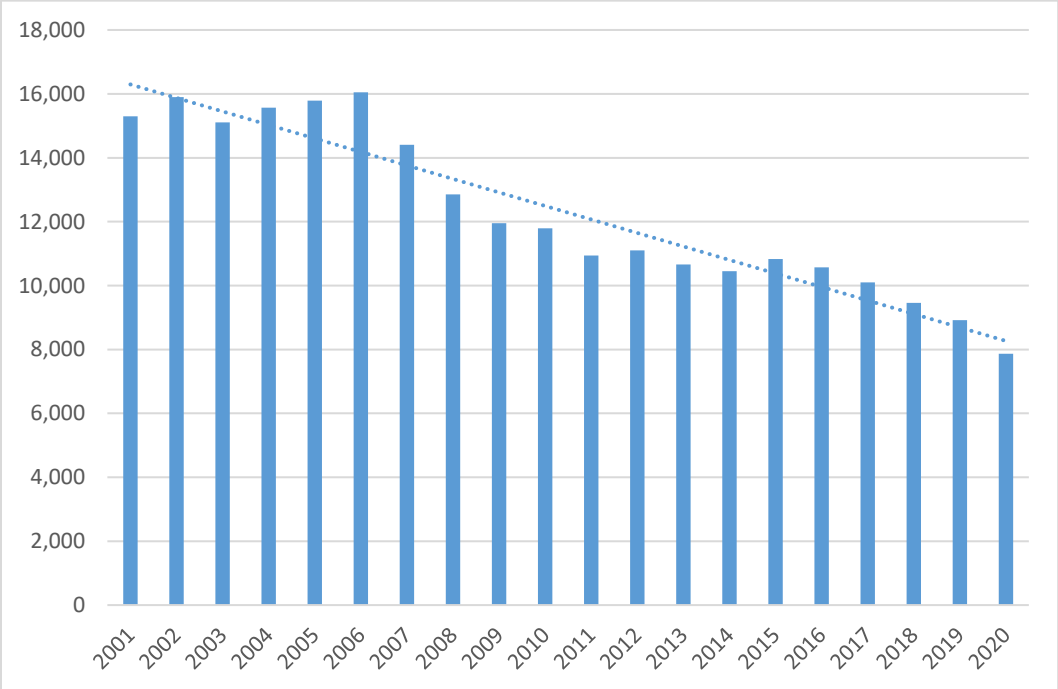

Figure 4: Road crash victims 2001-2020: serious injuries

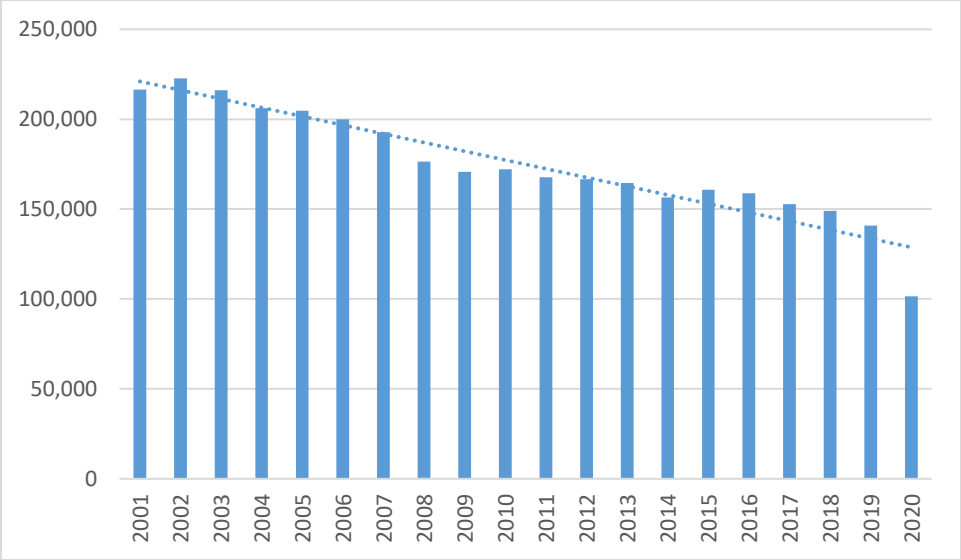

Figure 5: Road crash victims 2001-2020: total injuries

In 2020, 1,745 persons lost their lives on Canadian roads, compared to 59, 18 and 13 in rail, marine and air respectively. These numbers emphasize that road transportation remains a serious health and safety issue for the Canadian population. Nevertheless, it is important to note that annual fatalities have dropped a significant 51.7% between 1993 and 2020. Notwithstanding a massive increase in the number of registered motor vehicles, Vehicle Kilometres Travelled (VKT) as well as GDP growth (see figure 6), it is worth noting that 1,870 fewer people lost their life on Canadian roads in 2020 compared to 1993.

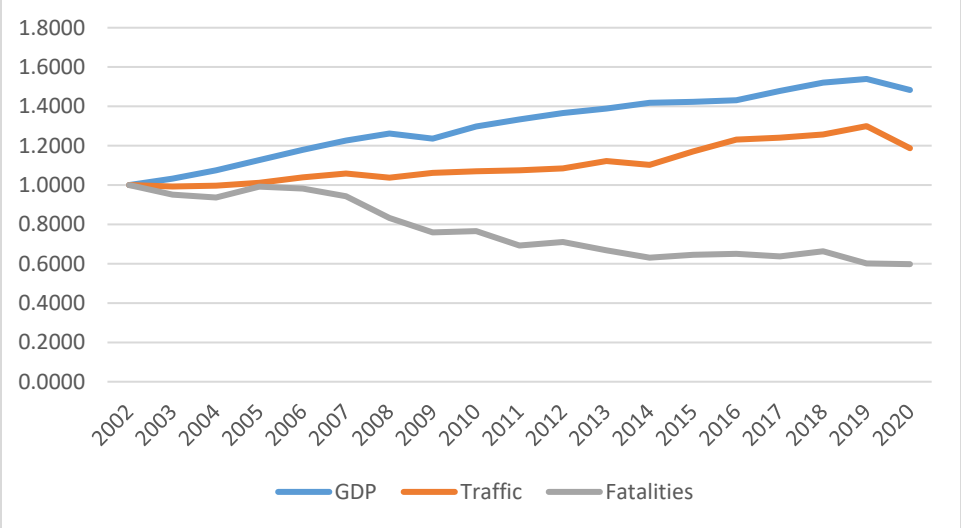

Figure 6: Fatalities v. traffic and gross domestic product, 2002-2020

Figure 7 shows that for the 2016-2020 period, general road user fatalities peaked in 2018 and then reached a low point in 2020, with the lower number recorded since the inception of the NCDB database in 1992. As illustrated in figure 3, this up and down pattern has been the norm for the past 20 years. Nevertheless, the key overarching trend is that there is a general decline in road fatalities, and this is also true for 2016-2020 period.

It is important to note that 2020 was the first year affected by the COVID-19 pandemic. Although the pandemic resulted in a massive economic downturn and a significant decrease in travel exposure, other risk factors such as populational increases in stress and anxiety, potential increase of alcohol and drug consumption and high-risk driving bring a complex picture that will need to be assessed in the coming years[7].

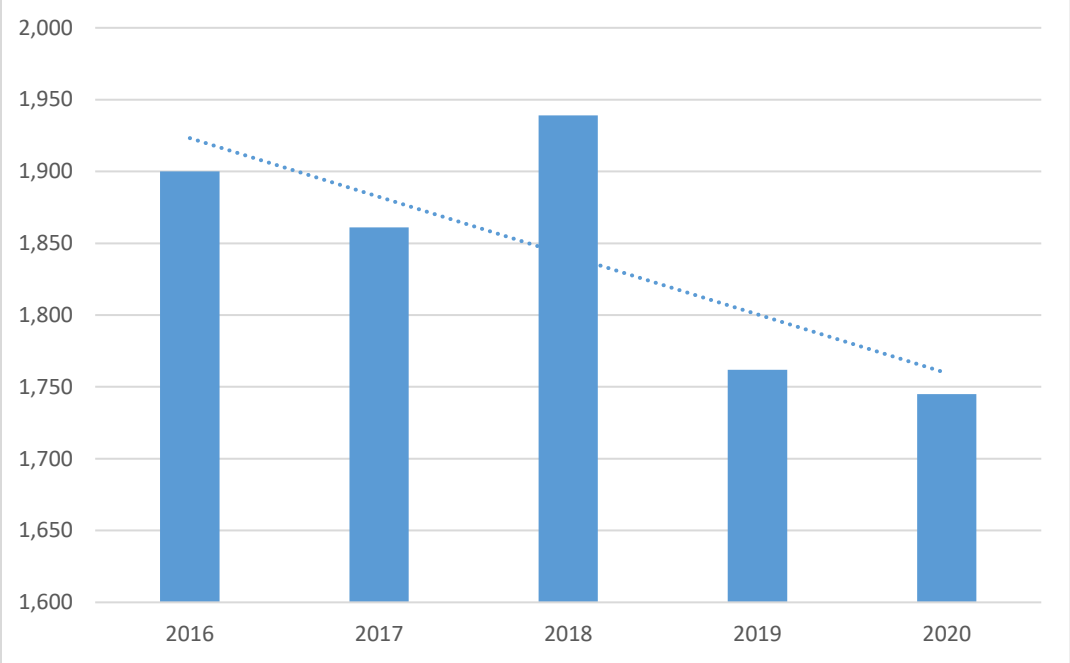

Figure 7: Road fatalities, 2016-2020

In sum, as per the trend since the inception of the NCDB in 1992, road casualties are overall decreasing, notwithstanding increased exposure. This trend is concurrent with incremental safety initiatives undertaken by governments and industry, on the basis of sound scientific research, policy and countermeasures development.

[7] Vingilis, Beirness, Boase, Byrne, Johnson, Jonah, Mann, Rapoport, Seeley and Wickens (2020). Coronavirus disease 2019: What could be the effects on road safety? *Accident Analysis and Prevention, 144.*

COMMERCIAL VEHICLE INVOLVEMENT IN TRAFFIC COLLISIONS

The next sections provide detailed information on commercial vehicle involvement in traffic collisions. The data is taken from the NCDB. The first section presents general collision trends involving commercial vehicles, together with an analysis of the evolution of heavy truck crashes based on exposure estimation derived from the Canadian Vehicle Survey (CVS).

The second section reviews NCDB data on commercial vehicle driver actions and conditions at the time of the crash as well as statistics related to single vehicle collisions, which have been linked to driver fatigue in the scientific literature. The final section provides information regarding the victims of collisions involving commercial vehicles.

COLLISIONS INVOLVING COMMERCIAL VEHICLES 2016-2020

Table 9 provides a summary of commercial vehicles and *all other vehicles* involved in collisions, by crash severity and vehicle category, for the 2016-2020 period. Figures 8, 10, 12 and 14 illustrate this information for the 2016-2020 period and figures 9, 11, 13 and 15 show the same variables, but over a wider 29-year window (1992-2020), covering the whole span of available NCDB data. The data reveal decreases in all categories of crashes, which can most likely be attributed, at least in part, to the COVID-19 pandemic.

In 2020 there were 319 commercial vehicles (including trucks and buses) involved in fatal collisions. As can be seen in figure 10, fatal CMV collisions fluctuated over the 2016-2020 period with a peak in 2017, nevertheless creating a general decreasing trend. The yearly average for the period was 378.6 commercial vehicles involved in fatal crashes, 7.3% less than the average for the previous five-year period (2011-2015), which was 408 vehicles involved. Figure 11 illustrates the fluctuation over the 1992-2020 period, again revealing a significant downward trend. In 1992, there were 525 commercial vehicles involved in fatal collisions, compared to 319 in 2020, a 39% reduction. The year 2020 saw the lowest number of heavy vehicles involved in fatal collisions for the 29-year period.

In 2020 there were 6,017 commercial vehicles involved in injury collisions. The average for the 2016-2020 period was 7,925 injury crashes, which is 14% less than the average for the previous five-year period (2011-2015) which was 9,217 vehicles. Figure 12 illustrates this downward trend in injury collisions for the 2016-2020 period. Table 9 data further reveal a decreasing trend in *property damage only* (PDO) collisions for the 2016-2020 period (see figures 14 and 15).

Table 9: Number of commercial vehicles and all other vehicles involved in reportable traffic collisions by vehicle type and severity, Canada, 2016–2020

		2016	2017	2018	2019	2020
Fatal	All Buses	31	28	33	14	21
	Straight Trucks > 4536 kg	122	140	135	128	119
	Tractor-Trailers	220	264	220	239	179
	Total Commercial Vehicles	373	432	388	381	319
	Non-Commercial Vehicles Involved With Commercial Vehicles	377	376	357	374	290
	Total Vehicles Involved in Collisions Involving Commercial Vehicles	750	808	745	755	609
	Total All Other Vehicles Involved	2,166	2,042	2,180	1,957	1,988
	Total All Vehicles Involved	2,916	2,850	2,925	2,712	2,597
Injury	All Buses	1,783	1,673	1,688	1,649	998
	Straight Trucks > 4536 kg	3,561	3,739	3,766	3,736	2,907
	Tractor-Trailers	2,988	3,181	3,044	2,803	2,112
	Total Commercial Vehicles	8,332	8,593	8,498	8,188	6,017
	Non-Commercial Vehicles Involved With Commercial Vehicles	7,394	7,612	7,527	7,695	5,043
	Total Vehicles Involved in Collisions Involving Commercial Vehicles	15,726	16,205	16,025	15,883	11,060
	Total All Other Vehicles Involved	194,929	187,357	181,709	171,093	127,026
	Total All Vehicles Involved	210,655	203,562	197,734	186,976	138,086
PDO	All Buses	6,012	6,190	6,526	6,487	3,553
	Straight Trucks > 4536 kg	19,676	20,535	21,247	20,859	16,346
	Tractor-Trailers	12,899	13,994	14,665	13,904	10,417
	Total Commercial Vehicles	38,587	40,719	42,438	41,250	30,316
	Non-Commercial Vehicles Involved With Commercial Vehicles	30,158	31,585	32,880	32,796	22,367
	Total Vehicles Involved in Collisions Involving Commercial Vehicles	68,745	72,304	75,318	74,046	52,683
	Total All Other Vehicles Involved	736,196	760,114	771,905	763,275	535,750
	Total All Vehicles Involved	804,941	832,418	847,223	837,321	588,433
Total	All Buses	7,826	7,891	8,247	8,150	4,572
	Straight Trucks > 4536 kg	23,359	24,414	25,148	24,723	19,372
	Tractor-Trailers	16,107	17,439	17,929	16,946	12,708
	Total Commercial Vehicles	47,292	49,744	51,324	49,819	36,652
	Non-Commercial Vehicles Involved With Commercial Vehicles	37,929	39,573	40,764	40,865	27,700
	Total Vehicles Involved in Collisions Involving Commercial Vehicles	85,221	89,317	92,088	90,684	64,352
	Total All Other Vehicles Involved	933,291	949,513	955,794	936,341	664,764
	Total All Vehicles Involved	1018512	1038830	1047882	1027025	729,116

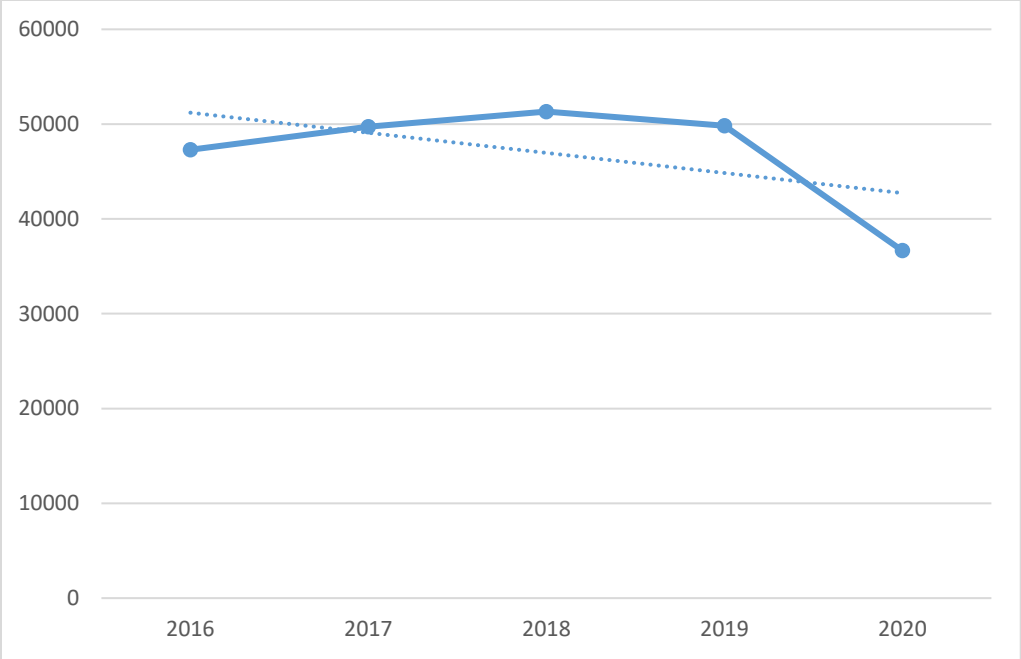

Figure 8: Number of commercial vehicles involved in reportable collisions, 2016-2020

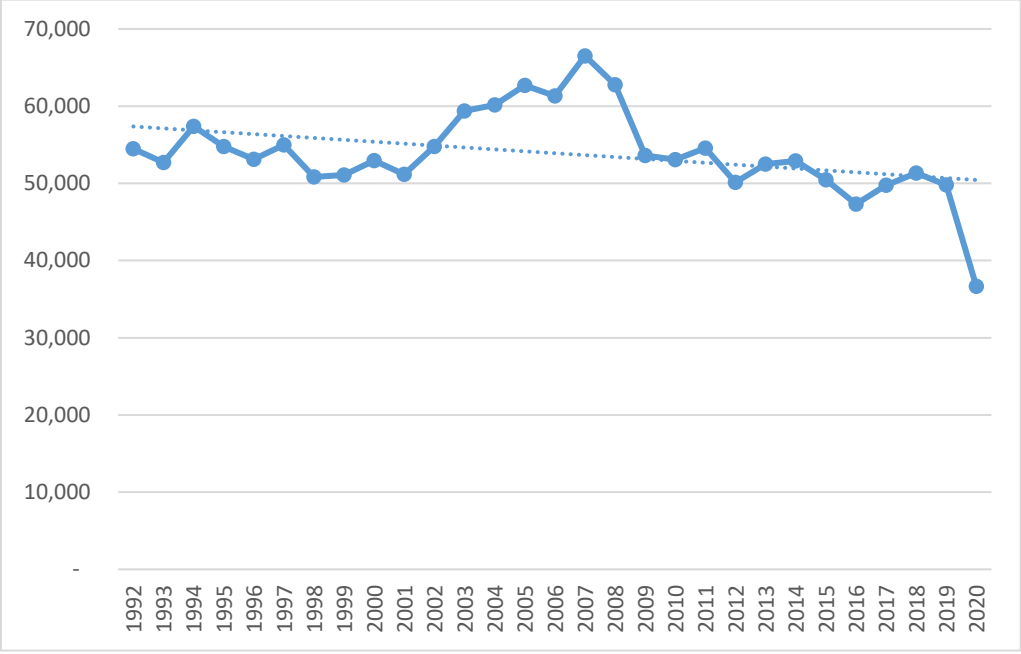

Figure 9: Number of commercial vehicles involved in reportable collisions, 1992-2020

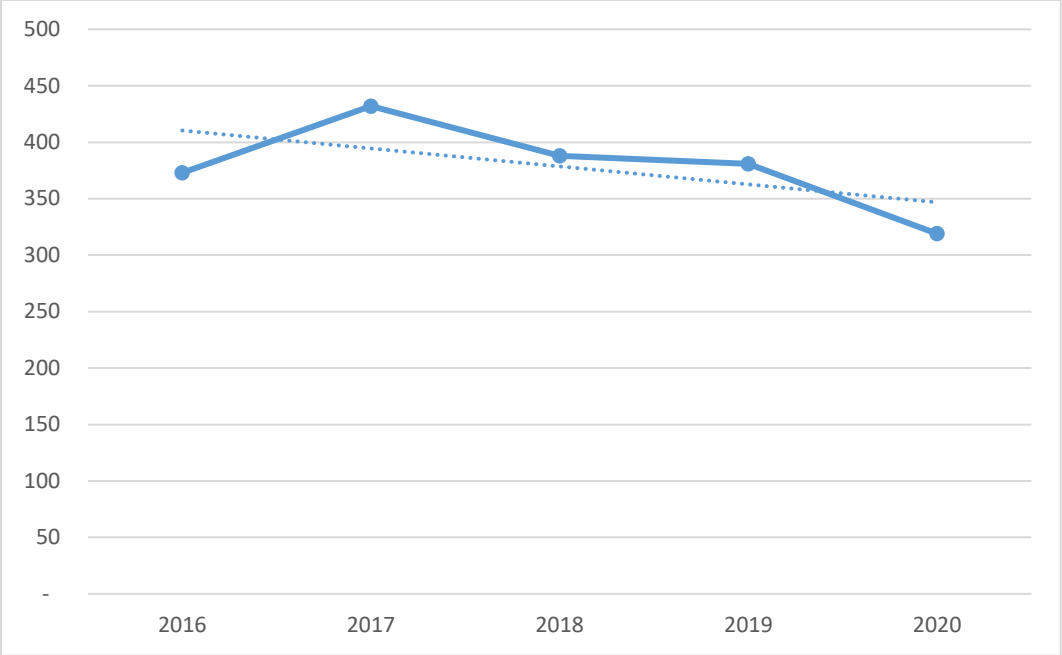

Figure 10: Number of commercial vehicles involved in fatal collisions, 2016-2020

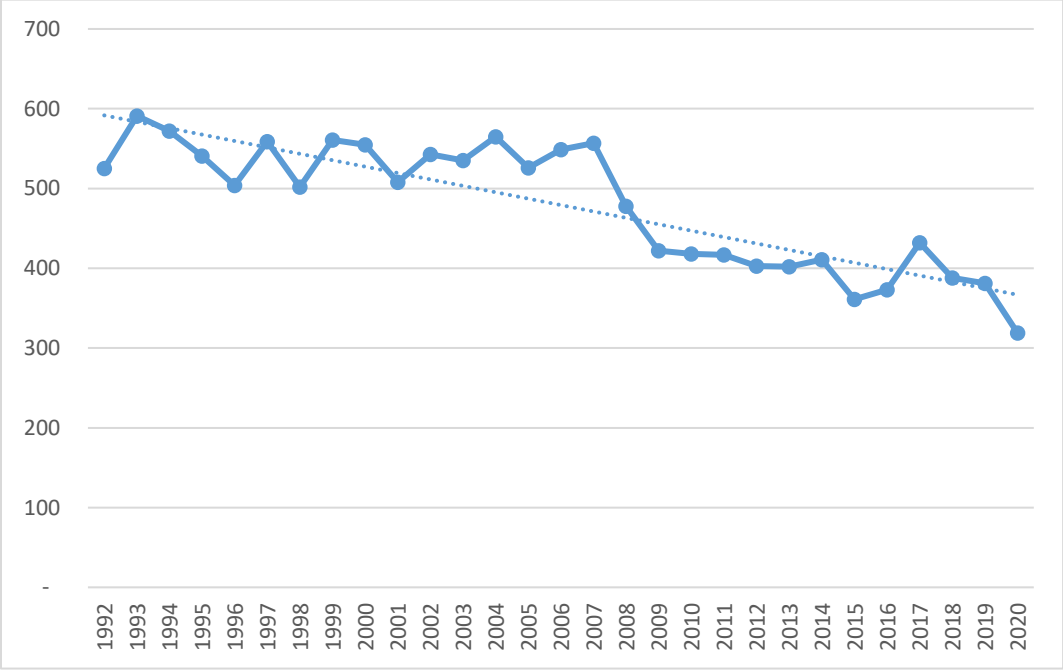

Figure 11: Number of commercial vehicles involved in fatal collisions, 1992-2020

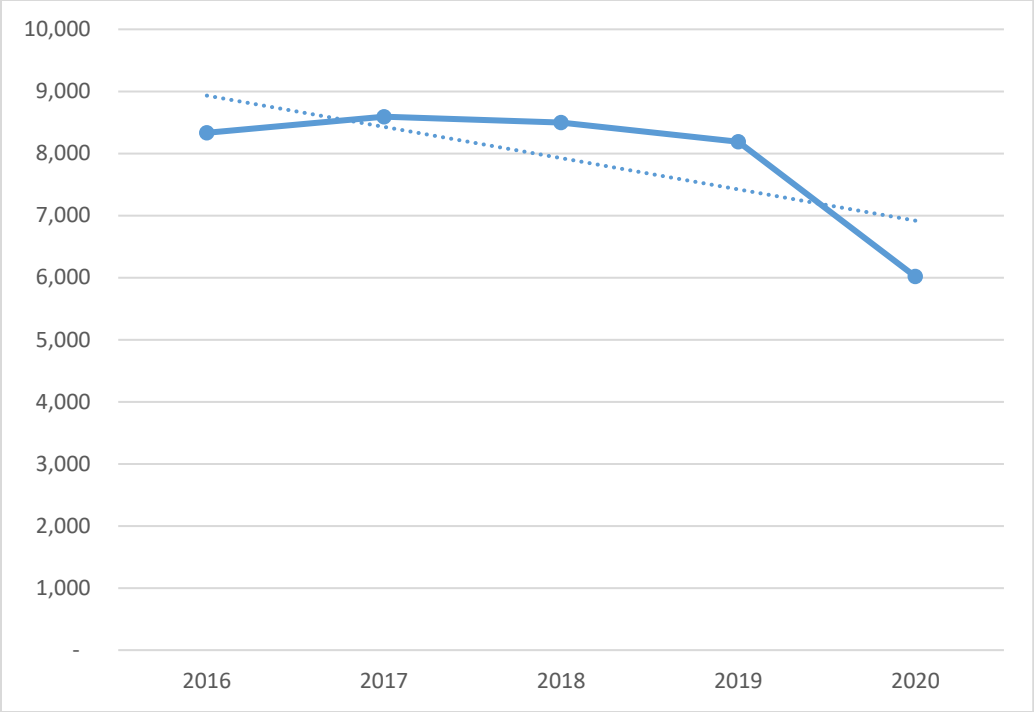

Figure 12: Number of commercial vehicles involved in injury collisions, 2016-2020

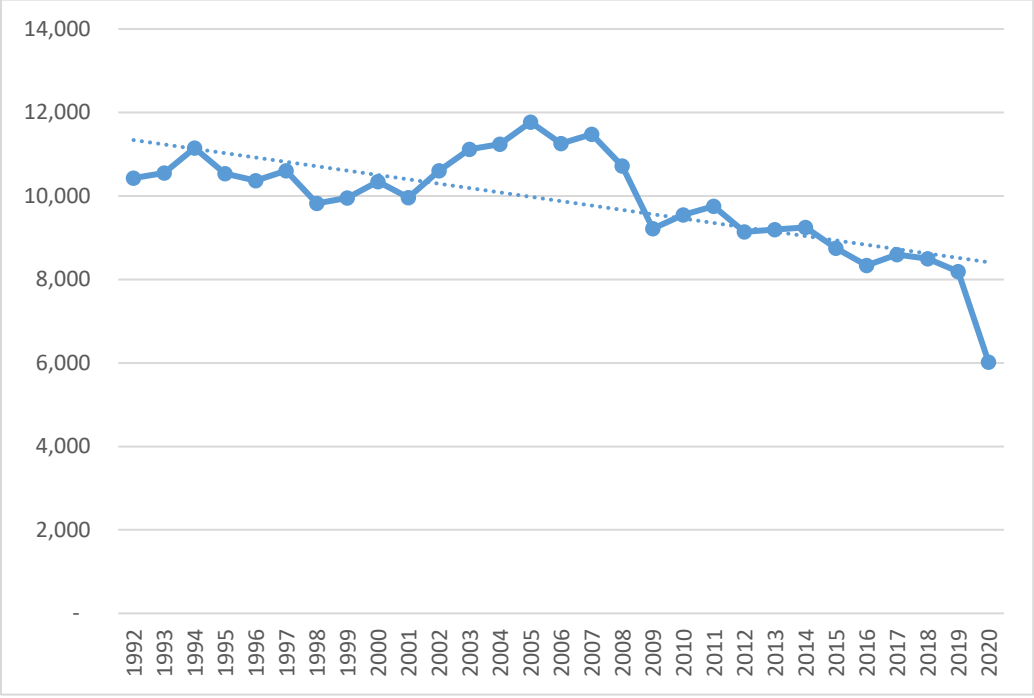

Figure 13: Number of commercial vehicles involved in injury collisions, 1992-2020

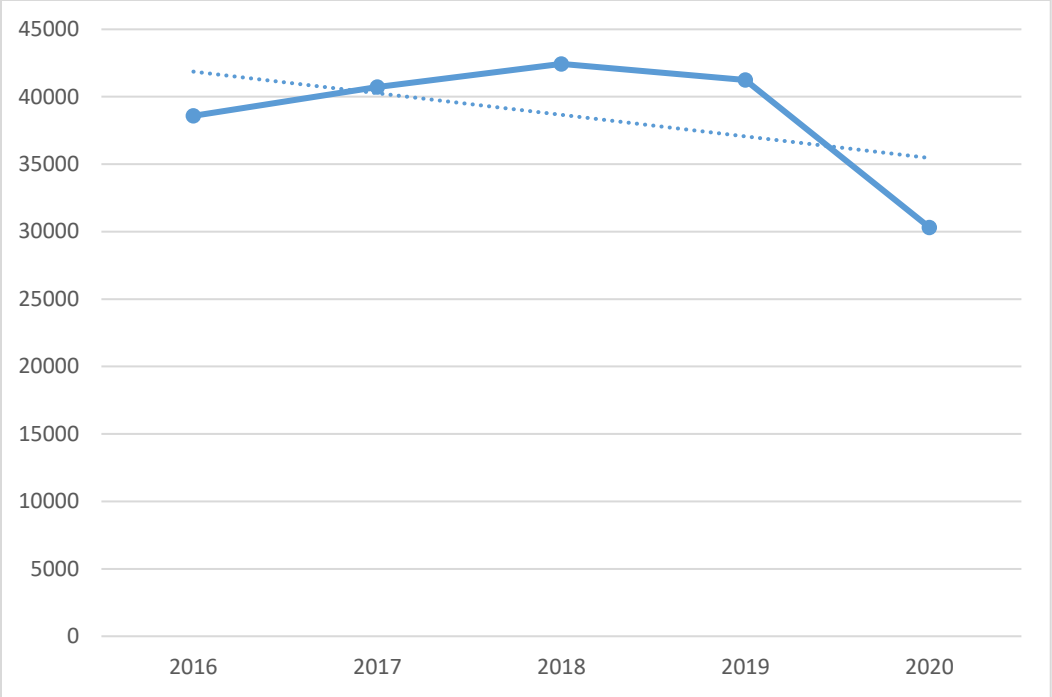

Figure 14: Number of commercial vehicles involved in property damage collisions, 2016-2020

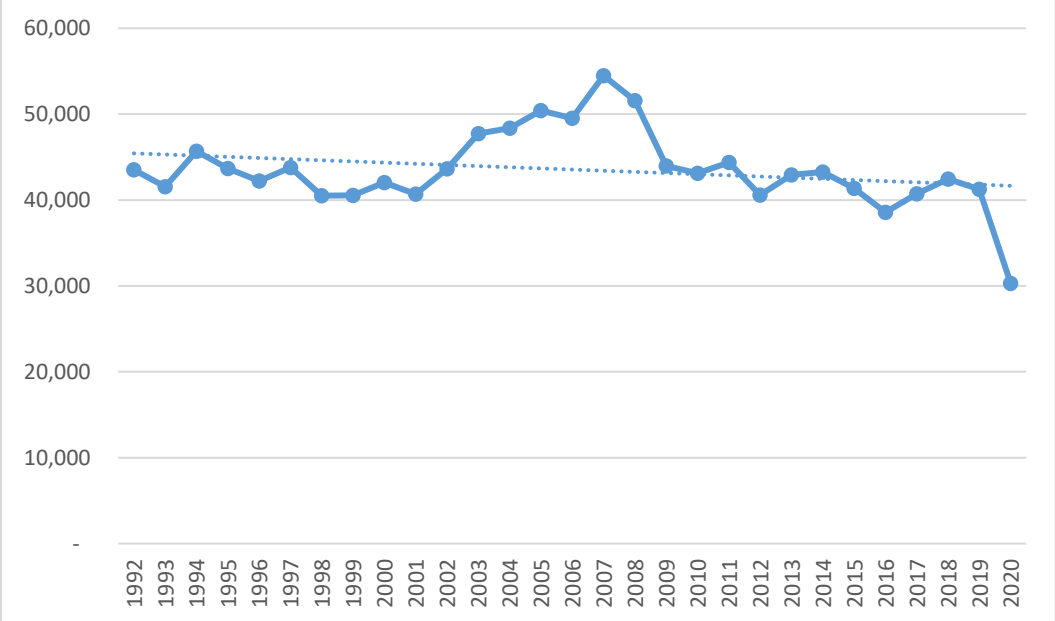

Figure 15: Number of commercial vehicles involved in property damage collisions, 1992-2020

Figure 16 illustrates the contribution of NCDB categories of heavy vehicles as well as light duty vehicles (cars, pick-up trucks, sport utility vehicles) to heavy vehicle fatal crashes from 1992 to 2020.

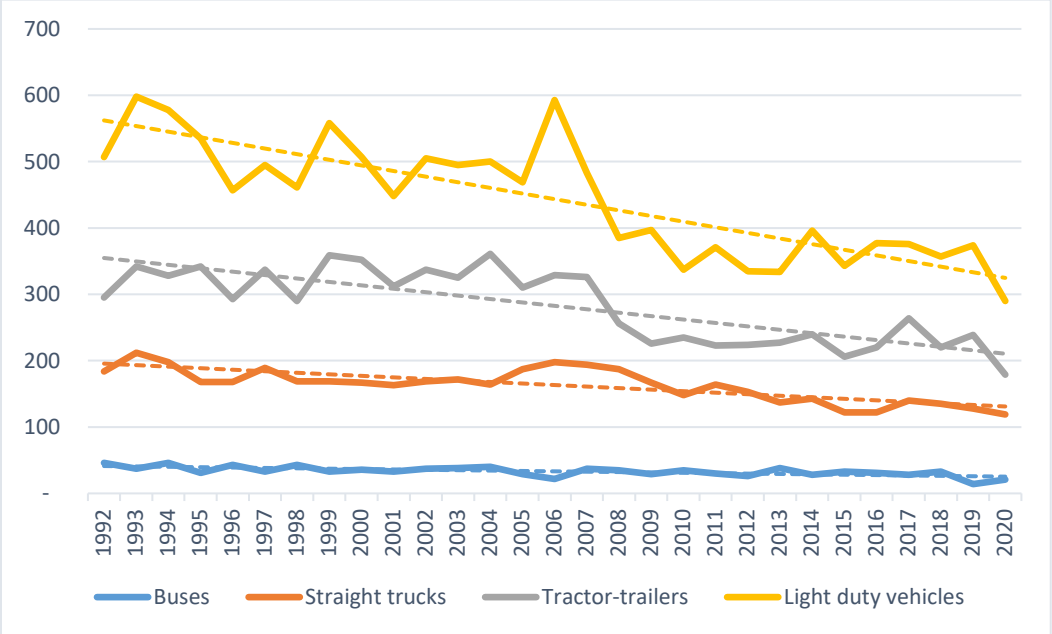

Figure 16: Number of vehicles involved in fatal heavy vehicle crashes by type of vehicle, 1992-2020

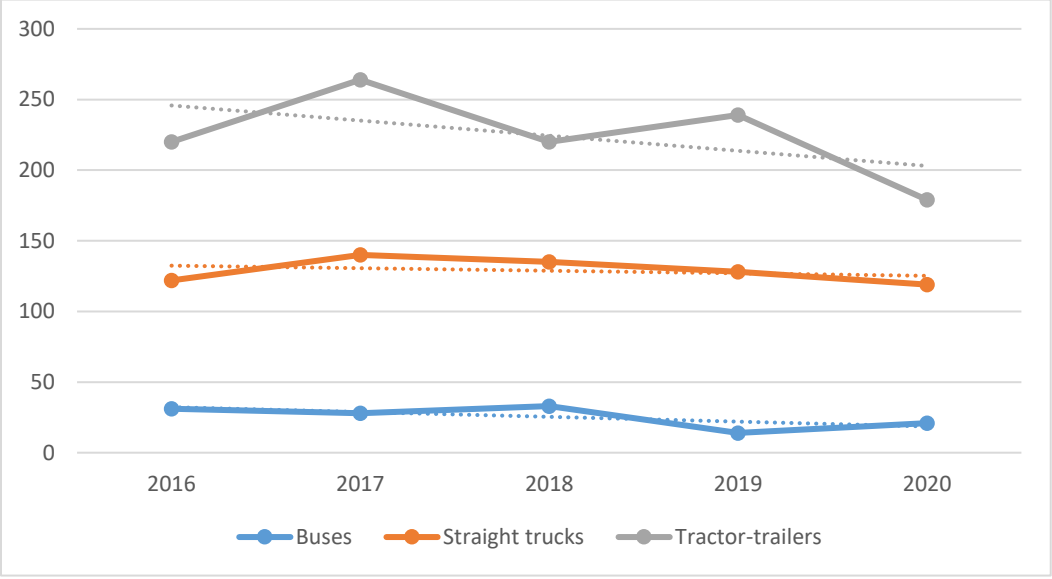

Figure 17: Commercial vehicles involved in fatal collisions by type of vehicle, 2016-2020

Figure 17 focuses on the contribution of specific categories of heavy vehicles to fatal crashes, excluding light duty vehicles (LDV), for the 2016-2020 period. As can be seen, tractor-trailers are over-represented compared to straight-trucks and buses. However, as shown further below in table 10 and figure 28, it is estimated that in the 2016-2020 period tractor-trailers covered more than three times more VKT than straight trucks, which suggests that exposure is a significant factor in their over-representation in fatal crashes. In terms of trends, figure 17 depicts a decrease for tractor-trailers and milder downward trending for straight trucks and buses.

Figure 18 illustrates the contribution of NCDB categories of heavy vehicles as well as LDVs to heavy vehicle injury crashes from 1992 to 2020. As it was the case for fatal crashes, LDVs are over-represented in commercial vehicle injury crashes.

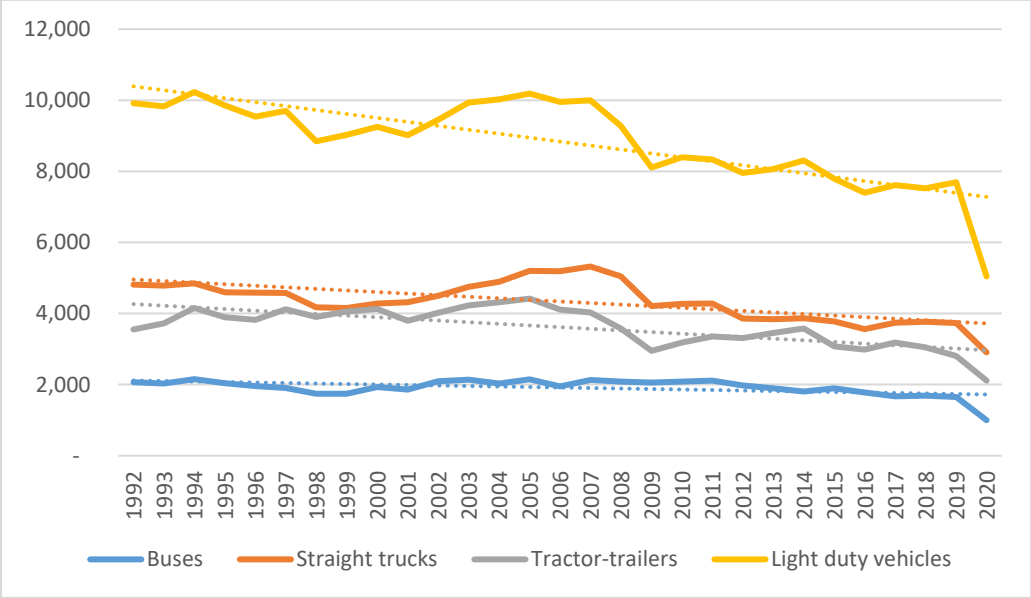

Figure 18: Number of vehicles involved in injury heavy vehicle crashes by type of vehicle, 1992-2020

Figure 19 illustrates the contribution of specific categories of heavy vehicles to injury crashes, excluding LDVs, for the 2016-2020 period. The situation depicted is different than the distribution of heavy trucks categories in the case of fatal crashes. Even though they have far less VKT exposure, straight trucks are more involved in injury collisions than tractor-trailers. In terms of trends, figure 19 reveals an overall decrease across the period for all three categories.

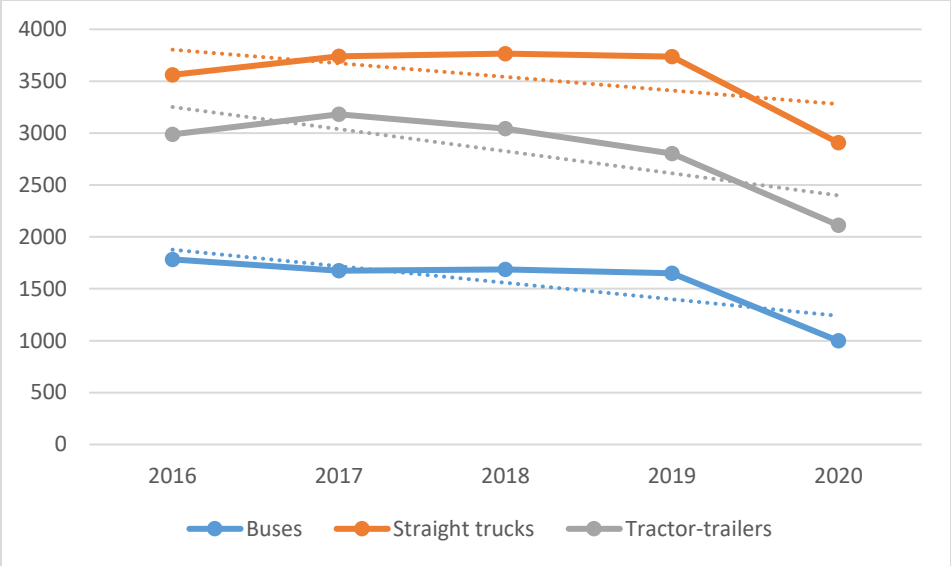

Figure 19: Commercial vehicles involved in injury collisions by types of vehicles, 2016-2020

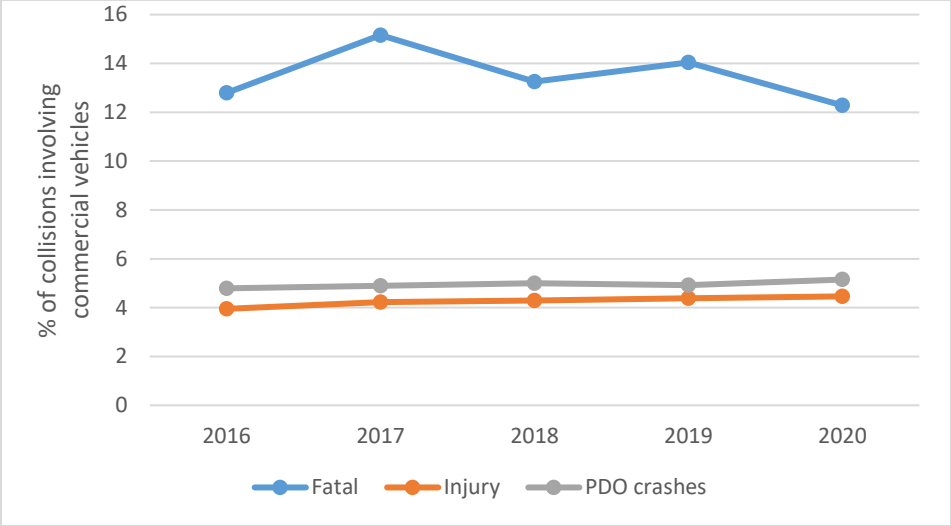

Figure 20: Commercial vehicles involvement rate by collision severity, 2016-2020

Figure 20 depicts the involvement rate of commercial vehicles by crash severity. As can be seen, CMVs are over-represented in fatal collisions. The resulting casualties are shown in figure 21. For the 2016-2020 period, while CMVs represented only 4.8% of total vehicles involved in road crashes, they were associated with 24.9% of road fatalities. This reality could be explained by CMVs' relative weight and mass compared to that of light-duty vehicles.

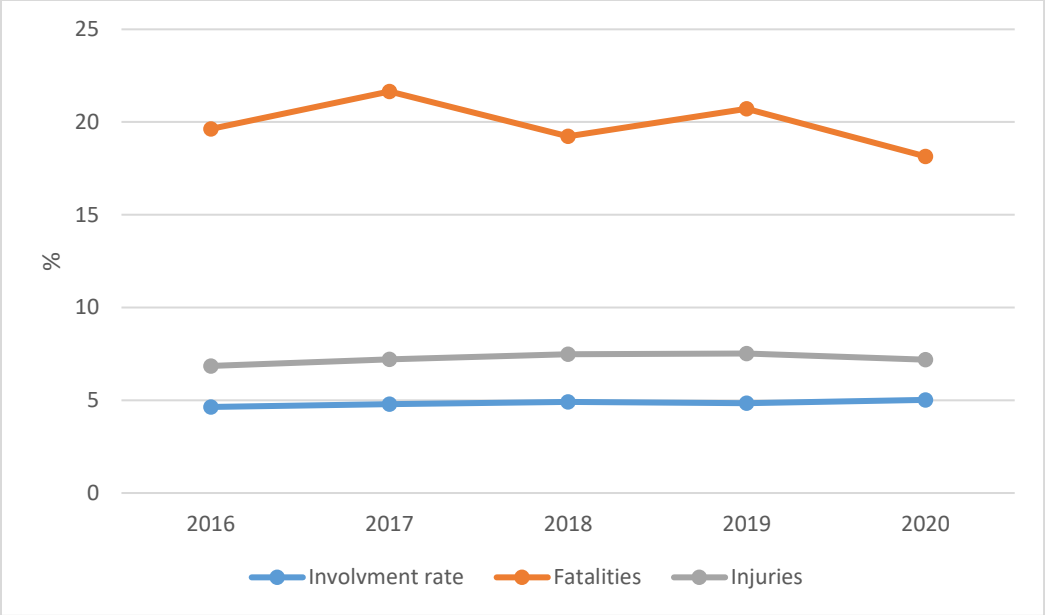

Figure 21: Commercial vehicles collision involvement rate and resulting road casualties, 2016-2020

Looking at crash contributing factors, figure 22 shows that vehicle defects are associated with less than 3.5% of fatal CMV crashes and that this situation appears to be improving over the 2016-2020 period.

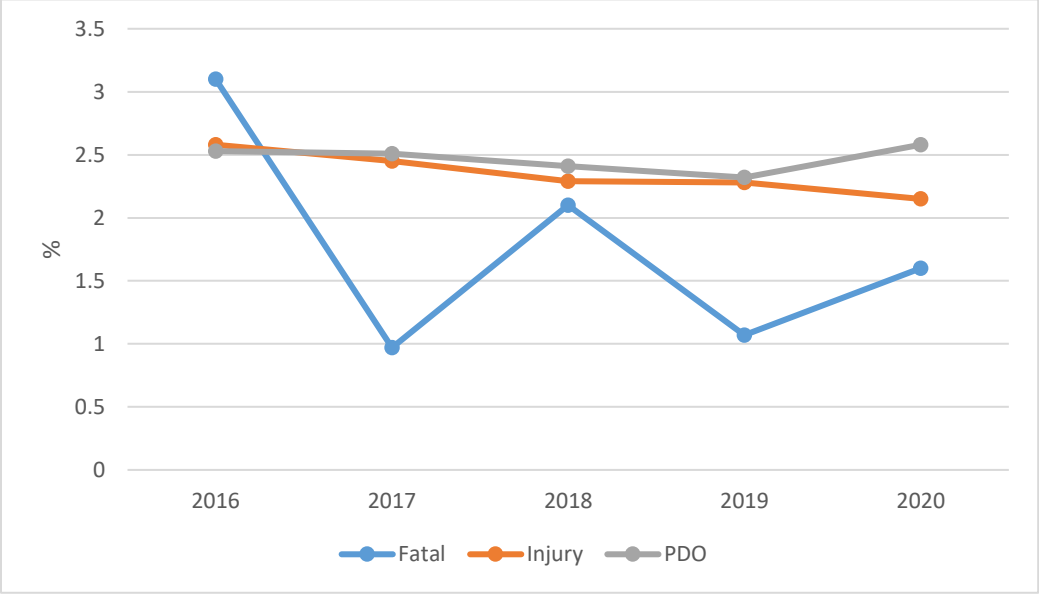

Figure 22: Collision involvement rate of commercial vehicles with defects, 2016-2020

Figure 23 reveals that CMV driver actions, and to a lesser extent driver condition, are both more significant contributing factors than vehicle defects. Note however that NCDB data stem from police reports and not from in-depth crash-causation analysis. Such data has documented limitations with regards to quantifying the prevalence of complex human factors issues such as inattention as it relates to distraction and/or fatigue. The data from crash-causation studies conducted in other contexts and using various methodologies estimate the contribution of driver-related factors to 80 to 90% of road crashes for both light duty vehicles and heavy vehicle crashes[8].

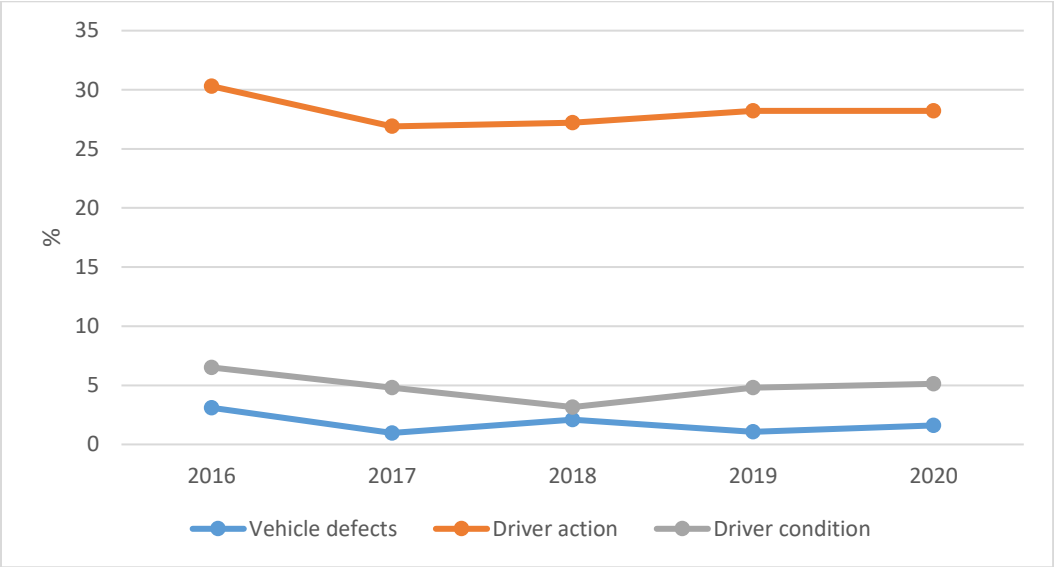

Figure 23: Contributing factors in commercial vehicle fatal collisions, 2016-2020

Figure 24 presents NCDB data on CMV driver condition, when it was identified as being *other than normal*, in fatal CMV crashes for the 2016-2020 period. Note that the numbers are small and that overall CMV driver condition was considered as *normal* in 95.2% of fatal crashes. Nevertheless, for the remaining 4.8%, when driver condition is identified as *other than normal*, other (34%), fatigue/falling asleep (30%) and driving under the influence of alcohol (22%) were the most frequently identified contributors in the dataset. Note however that it is widely accepted and documented that datasets based on police reports tend to seriously underestimate the contribution of fatigue and fatigue-related inattention to crashes.

[8] Thiffault, P. (2011). *Addressing human factors in the motor carrier industry in Canada (https://www.ccmta.ca/web/default/files/PDF/human-factors_report_May_2011.pdf)*.

For comparison purposes, figure 25 illustrates the condition of LDV drivers in overall fatal crashes, when the condition was considered as *other than normal* for the same period. Of importance is the notion that LDV driver condition was identified as *other than normal* in 22.4% of overall fatal crashes, which is over four times what it was for CMV drivers (4.86%). In terms of key differences in the profile of condition-related crash contributors, it is worth noting that the rate of alcohol is much higher for LDV drivers and that the rate of fatigue in the NCDB is three times higher for CMV drivers.

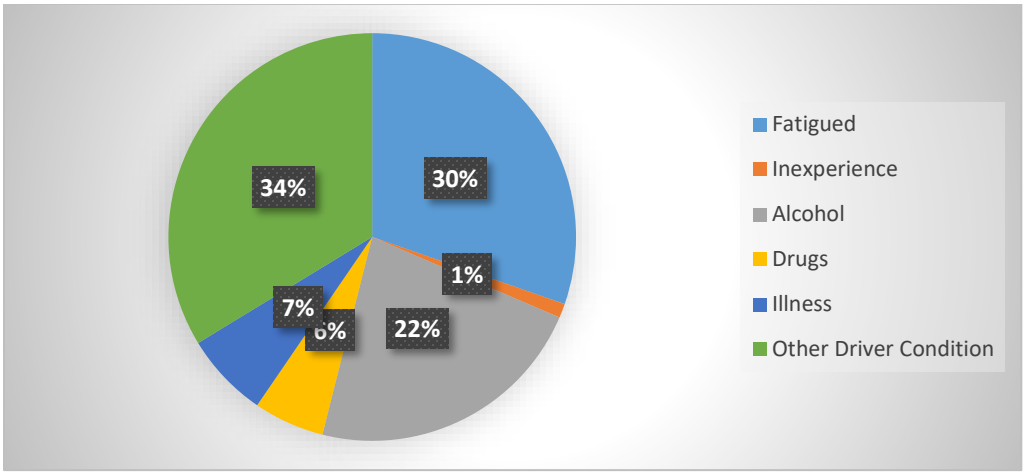

Figure 24: CMV driver condition, when condition is considered as "other than normal", in 4.86% of CMV fatal crashes, for the 2016-2020 period – NCDB

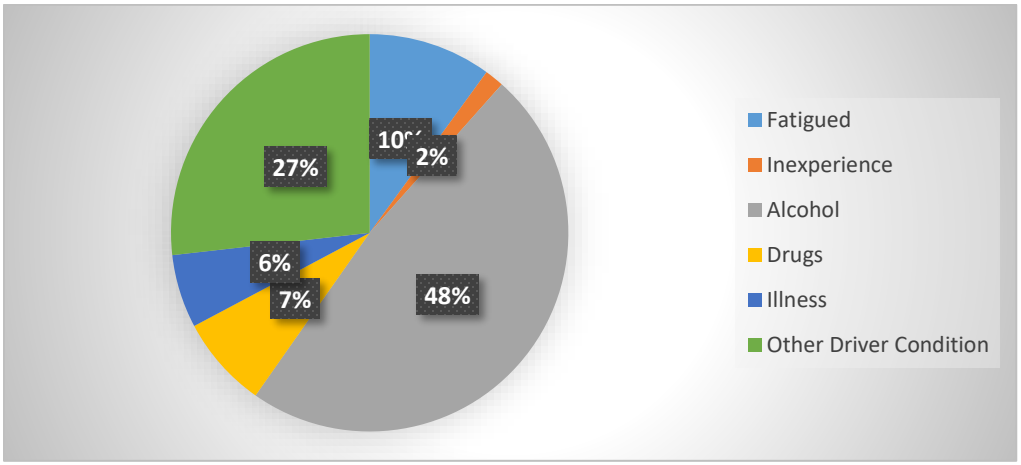

Figure 25: LDV driver condition, when condition is considered as "other than normal", in 22.37% of overall fatal crashes, for the 2016-2020 period – NCDB

Figure 26 provides NCDB data on CMV driver actions when they were identified as *not driving properly* in fatal CMV crashes for the 2016-2020 period, which was the case in 28.1% of fatal crashes. Among these, the categories *inattention* (26%), *other driving action* (21.5%) and *driving too fast* (14.7%) were the most commonly identified driver behaviors.

It could however be debated whether *inattention* should also be related to the *driver condition* category, since it is well documented that a significant portion of inattention problems are related to hypovigilance, the early signs of fatigue. As can be seen in figure 26, inattention, which also includes distracted driving, is the most significant crash contributing factor for fatal CMV crashes.

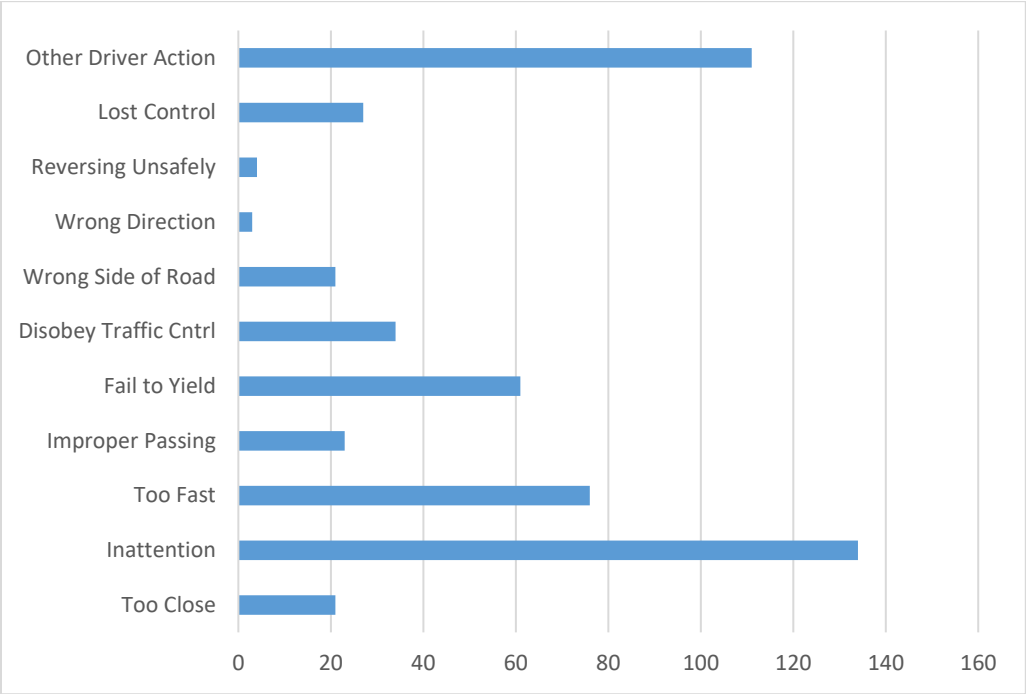

Figure 26: CMV driver actions, when considered as "not driving properly", in 28.1% of fatal CMV crashes, for the 2016-2020 period – NCDB

Again, for comparison purposes, figure 27 illustrates the actions of LDV drivers in overall fatal crashes for the same period, when driver actions were considered as *not driving properly*, which was the case for 49.7% of these crashes, 45% more than the rate for CMV drivers (28%). In terms of key differences, speeding was the top contributing factor with 22.5% of cases, compared to 14.7% for CMV drivers, followed by inattention with an 18.9% contribution, which is less than the 26% observed with CMV drivers.

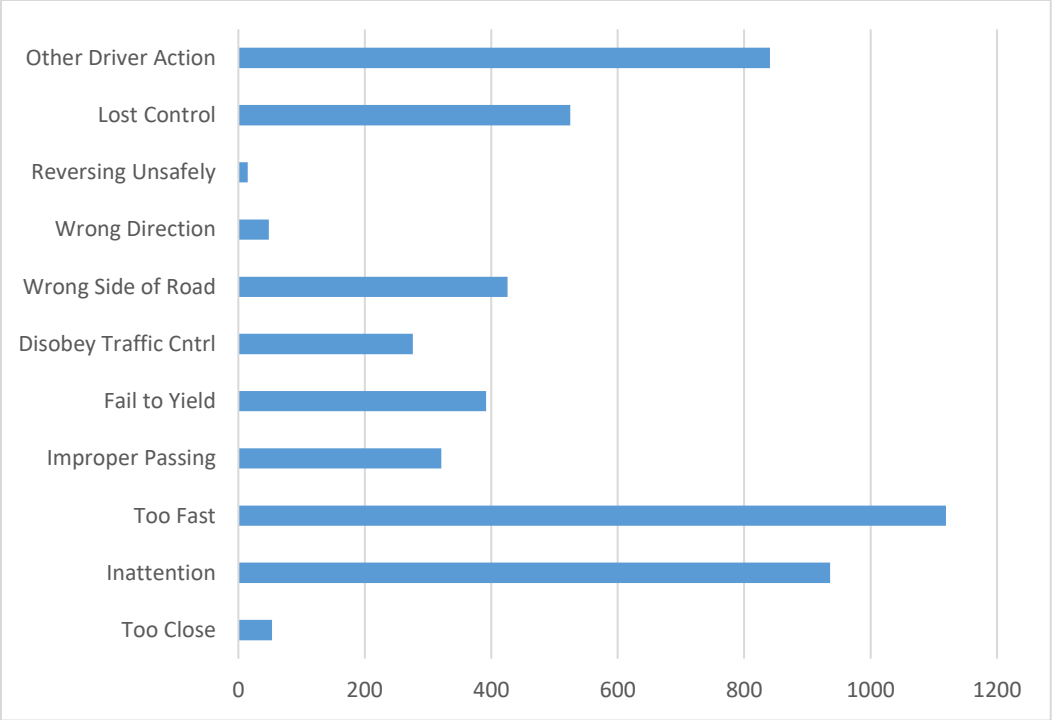

Figure 27: LDV driver actions, when considered as "not driving properly", in 49.72% of overall fatal crashes, for the 2016-2020 period – NCDB

In sum, NCDB data for the 2016-2020 period emphasize that inattention (relates to both ***fatigue*** and ***distraction*****)** and driving too fast (relates to ***high-risk driving***) are key driver-related crash contributing factors for fatal heavy vehicle crashes. This is consistent with the assessment conducted by the CCMTA *Human Factors and Motor Carrier Safety Task Force*. The presence of alcohol as a contributing factor also needs to be noted: on average for the period there were 4 fatal CMV crashes associated with alcohol per year in Canada.

Given the importance of inattention as a crash contributor for heavy vehicle crashes, in 2020 Transport Canada continued work on a project with a team of human factors experts to develop training material to help mitigate driver distraction in the motor carrier industry. The material is to include driver training modules and a set of guidelines for fleets to implement a comprehensive driver distraction mitigation program. The deliverables will be made available in both official languages, free of charge, to the motor carrier industry.

HEAVY TRUCK EXPOSURE AND COLLISION INVOLVEMENT RATES

The concept of exposure to collision risk considers data on the amount of travel when accounting for differing collision rates, for example between heavy trucks and LDVs. It therefore represents a better indicator of commercial vehicle safety than simple comparisons of absolute raw collision data that do not account for exposure.

This section provides an estimate of exposure produced using an econometric forecasting model based on data from the *Canadian Vehicle Survey* (CVS), the *Canadian Vehicle Use Survey* (CVUS) and Statistics Canada data tables. The estimate covers VKTs by straight trucks > 4,500 kg, tractor-trailers > than 15,000 kg and all heavy trucks (a combination of both categories). It is understood that VKT data is considered to represent a better exposure indicator than other measures such as heavy truck registrations, which have gone up significantly in recent years. Estimates of VKTs are not available for buses.

As can be seen in table 10 and figure 28, the model estimates an overall increase in heavy trucks VKT for the 2014-2020 period. Figure 29 illustrates that this increase occurred after the economic downturn of 2008 and 2009, and that it would be mainly related to tractor-trailer transportation activities. A note that the decrease in traffic that was observed for general road users in 2020 as a consequence of the COVID-19 pandemic does not seem to have had the same effect on CMV traffic, according to this estimation model. This appears reasonable given the motor carrier industry had to keep a significant level of service in support of a struggling Canadian population. The issue will be monitored in subsequent annual reports covering the affected years.

As can be seen in figures 30 and 31 which illustrate heavy truck fatal and injury crash rates per 100 million VKT (calculated based on econometric model estimation and NCDB data), the increase in exposure did not translate into a deterioration of safety performance. In fact, fatal and injury crash rates have both been decreasing between 2005 and 2020 for heavy trucks (69.6% for fatal crashes and 74% for injury crashes). Overall, according to this model, the significant increase in exposure for tractor-trailers after 2009 correlates with a *decrease* in crash rate. Also of interest is the notion that the decrease in heavy vehicle crash rate takes place after the 2007 implementation of the new *Commercial Vehicle Drivers Hours of Service Regulations*. Figures 11, 13 and 15 shown previously also illustrates a break in the trend lines for raw numbers of heavy vehicle fatal, injury and PDO crashes after the year 2007. While is not possible to establish causality with descriptive statistics such as these, this information is not insignificant.

Globally, the econometric forecasting model estimates that during the 2016-2020 timeframe, heavy trucks (including both straight trucks and tractor-trailers) travelled an annual average of about 50.8 billion kilometres (11.2 billion for straight trucks and 39.5 billion for tractor-trailers).

Table 10: Estimate of vehicle kilometers travelled, 2014-2020

	2014	2015	2016	2017	2018	2019	2020
	(millions)						
Straight trucks	10,408.0	10,592.0	10,795.5	11,032.5	11,248.9	11,476.7	11,713.3
Tractor trailers	32,621.7	34,203.5	35,898.0	37,651.3	39,494.7	41,434.4	43,463.5
Total	**43,030**	**44,795**	**46,694**	**48,684**	**50,744**	**52,911**	**55,177**

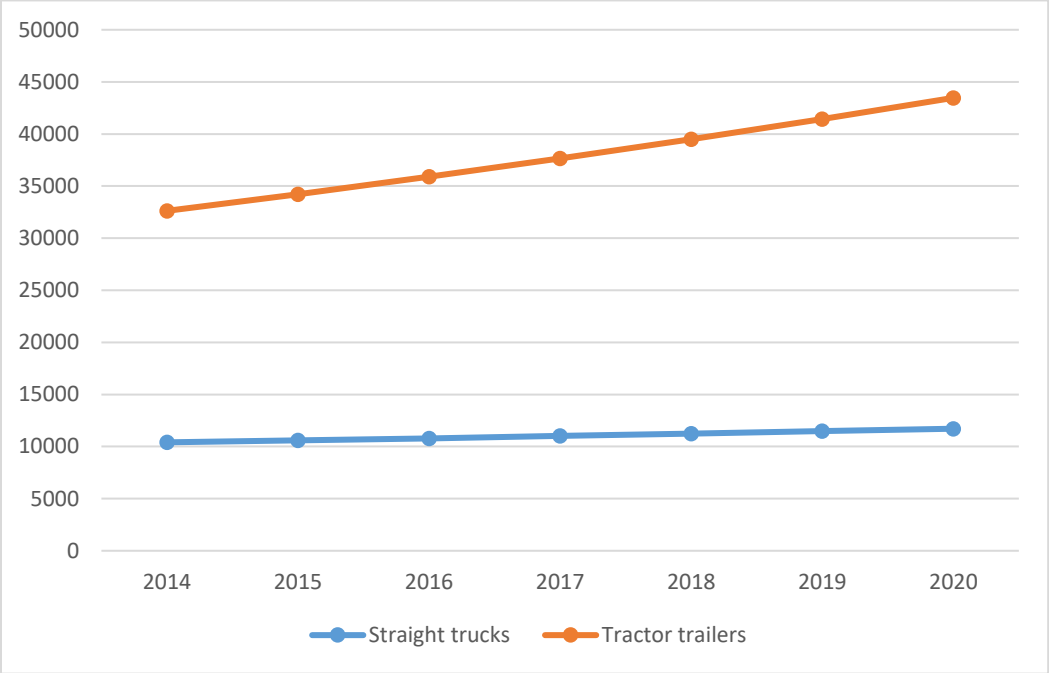

Figure 28: Estimate of vehicle kilometers travelled (millions) by category of heavy truck, 2014-2020

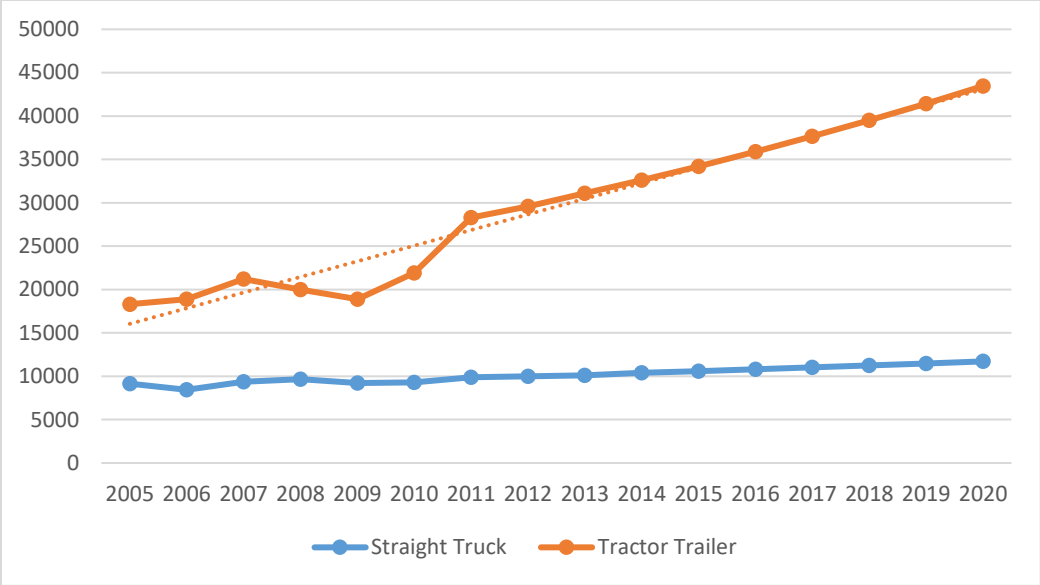

Figure 29: Estimate of vehicle kilometers travelled (millions) by category of heavy truck, 2005-2020

It is interesting to note further that according to the model, tractor-trailers generally have lower collision involvement rates than straight trucks, despite travelling more than three times the distance. As shown in figures 30 and 31, straight trucks have higher collision rates than tractor-trailers for both fatal and injury collisions. The dense urban setting where straight trucks are more likely to operate is one plausible contributor.

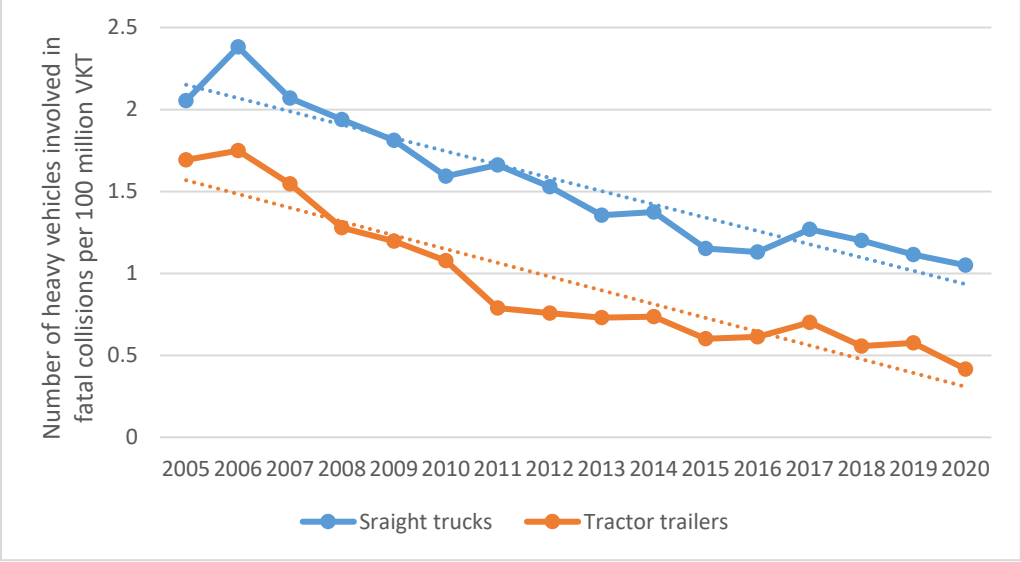

Figure 30: Estimated involvement rate of heavy trucks in fatal collisions per 100 million VKT, 2005-2020

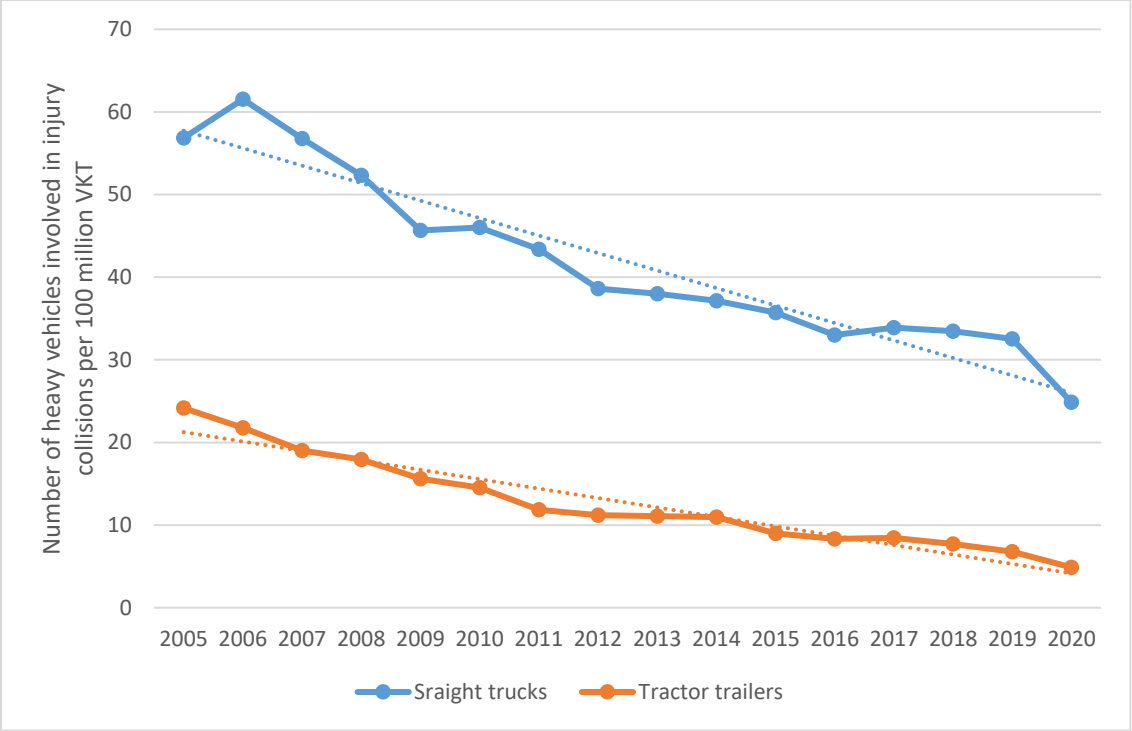

Figure 31: Estimated involvement rate of heavy trucks in injury collisions per 100 million VKT, 2005-2020

COMMERCIAL VEHICLES INVOLVED IN SINGLE-VEHICLE COLLISIONS

Table 11 presents NCDB data relative to single-vehicle CMV crashes. This crash category is often associated with the presence of fatigue, given that fatigue-related crashes tend to be single vehicle run-off-the-road incidents. However, using single-vehicle crashes as a sole indicator for the presence of fatigue has clear limitations. The problem of fatigue is complex and difficult to quantify, and as such it should be assessed with methodologies using multiple criteria. Single-vehicle crashes are nevertheless linked to fatigue in the literature and a trend assessment is certainly relevant in any discussion on the potential impacts of HoS regulations on driver fatigue.

Figure 32 reveals a significant decrease in overall single-vehicle CMV crashes from 2007 to 2009, following a steady increasing trend that was initiated around 2000. Looking back at figure 9, we however see that there was an overall drop in reportable collisions involving commercial vehicles for the same period. Nevertheless, as shown in figure 33, the ratio of single vehicle CMV crashes to overall CMV crashes also dropped around the same period, coinciding in time with the publication of the 2007 HoS regulations. These new regulations, providing drivers with 25% more time to sleep and rest compared to the old regime, could have contributed to this improvement. Of note that there is a spike in 2020 resulting from ratio calculation. This is most likely explained by a significant drop in overall CMV crashes for that year, but with a less significant drop in single vehicle crashes.

Table 11: Number of commercial vehicles involved in single-vehicle collisions

		2012	2013	2014	2015	2016	2017	2018	2019	2020
Fatal	All buses	12	13	15	13	10	10	10	8	4
	Straight Trucks > 4536 kg	38	35	21	25	27	28	34	28	27
	Tractor-Trailers	25	25	28	28	30	36	25	36	28
	Total Commercial Vehicles	**75**	**73**	**64**	**66**	**67**	**74**	**69**	**72**	**59**
Injury	All Buses	693	648	533	622	585	544	585	532	349
	Straight Trucks > 4536 kg	711	649	619	639	559	610	630	624	547
	Tractor-Trailers	684	685	685	658	623	631	625	554	437
	Total Commercial Vehicles	**2,088**	**1,982**	**1,837**	**1,919**	**1,767**	**1,785**	**1,840**	**1,710**	**1,333**
PDO	All Buses	382	415	398	364	359	395	428	380	244
	Straight Trucks > 4536 kg	3,582	3,579	3,508	3,709	3,786	4,022	4,044	3,862	3,736
	Tractor-Trailers	3,611	3,690	3,642	3,256	3,158	3,385	3,479	3,334	2,903
	Total Commercial Vehicles	**7,575**	**7,684**	**7,548**	**7,329**	**7,303**	**7,802**	**7,951**	**7,576**	**6,883**
Total	All Buses	1,087	1,076	946	999	954	949	1,023	920	597
	Straight Trucks > 4536 kg	4,331	4,263	4,148	4,373	4,372	4,660	4,708	4,514	4,310
	Tractor-Trailers	4,320	4,400	4,355	3,942	3,811	4,052	4,129	3,924	3,368
	Total Commercial Vehicles	**9,738**	**9,739**	**9,449**	**9,314**	**9,137**	**9,661**	**9,860**	**9,358**	**8,275**

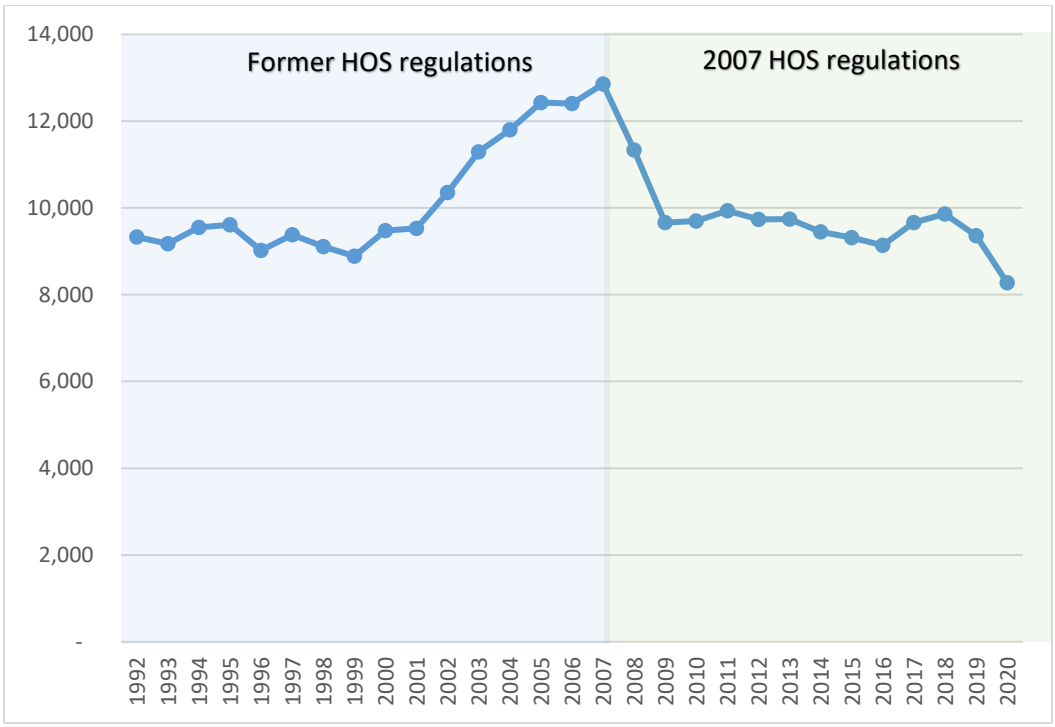

Figure 32: Number of single CMV crashes (all crashes), 1992-2020

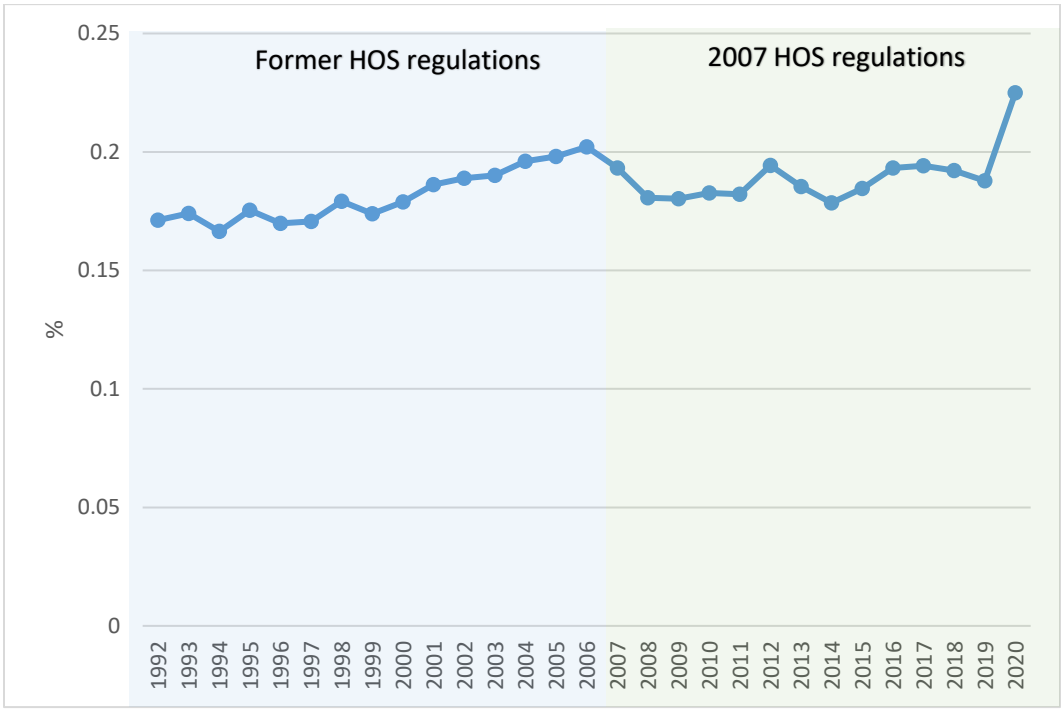

Figure 33: Rate of single-vehicle CMV crashes to overall CMV crashes, 1992-2020

CASUALTIES RESULTING FROM COLLISIONS INVOLVING COMMERCIAL VEHICLES

Table 12, as well as figures 34 to 47, present information on casualties resulting from collisions involving commercial vehicles by injury severity, road user category and commercial vehicle type, for the 2016-2020 period.

Table 12: Road users casualties in collisions involving commercial vehicles and all other vehicles by injury severity and vehicle type, Canada, 2016–2020

		2016	2017	2018	2019	2020
Fatalities	All Buses	5	5	20	0	0
	Straight Trucks > 4536 kg	15	19	23	16	17
	Tractor-Trailers	36	43	30	30	30
	Commercial Vehicle Occupant total	56	67	73	46	47
	Occupants of Other Vehicles Inv. With Commercial Vehicles	253	276	236	257	211
	Cyclists	13	11	10	10	11
	Pedestrians	50	48	53	50	47
	Total Victims of Collisions Involving Commercial Vehicles	**373**	**403**	**373**	**364**	**317**
	Victims of All Other Collisions	1,527	1,458	1,566	1,392	1,429
	Total	1,900	1,861	1,939	1,756	1,746
Injuries	All Buses	1,358	1,219	1,302	1,148	730
	Straight Trucks > 4536 kg	1,198	1,222	1,268	1,221	1,040
	Tractor-Trailers	1,000	1,118	1,111	948	758
	Commercial Vehicle Occupant Total	3,556	3,559	3,681	3,317	2,528
	Occupants Of Other Vehicles Inv. With Commercial Vehicles	6,657	6,794	6,870	6,544	4,509
	Cyclists	172	175	143	138	137
	Pedestrians	473	450	440	421	286
	Total Victims Of Collisions Involving Commercial Vehicles	**10,891**	**11,006**	**11,164**	**10,462**	**7,496**
	Victims Of All Other Collisions	147,963	141,767	137,901	128,622	96,790
	Total	158,854	152,773	149,065	139,084	104,286
Total	All Buses	1,363	1,224	1,322	1,148	730
	Straight Trucks > 4536 kg	1,213	1,241	1,291	1,237	1,057
	Tractor-Trailers	1,036	1,161	1,141	978	788
	Commercial Vehicle Occupant Total	3,612	3,626	3,754	3,363	2,575
	Occupants Of Other Vehicles Inv. With Commercial Vehicles	6,910	7,070	7,106	6,801	4,720
	Cyclists	185	186	153	148	148
	Pedestrians	523	498	493	471	333
	Total Victims Of Collisions Involving Commercial Vehicles	**11,264**	**11,409**	**11,537**	**10,826**	**7,813**
	Victims Of All Other Collisions	149,490	143,225	139,467	130,014	98,219
	Total	160,754	154,634	151,004	140,840	106,032

Figure 34 reveals a downward trend in overall casualties (fatalities and serious injuries) resulting from CMV crashes from 1992 to 2020. The 1998-2007 period reveals an increasing trend, but this was followed by a significant drop between 2007 and 2009. Figure 35, focussed on the 2016-2020 period, shows mild increases in 2017 and 2018, a decrease in 2019 and a more significant drop in 2020, with the lowest count since 1992, when we started gathering this data.

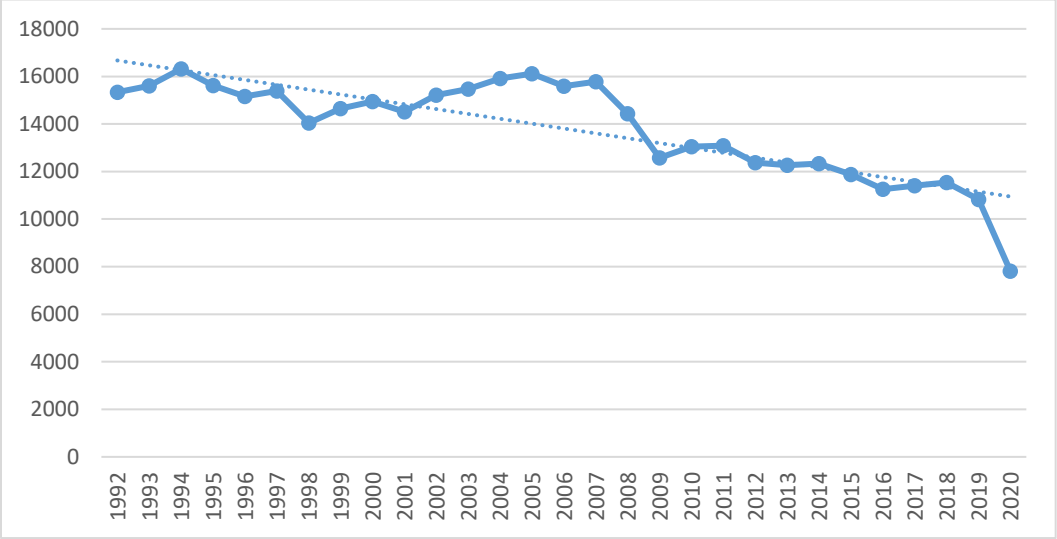

Figure 34: Total casualties in collisions involving commercial vehicles, 1992-2020

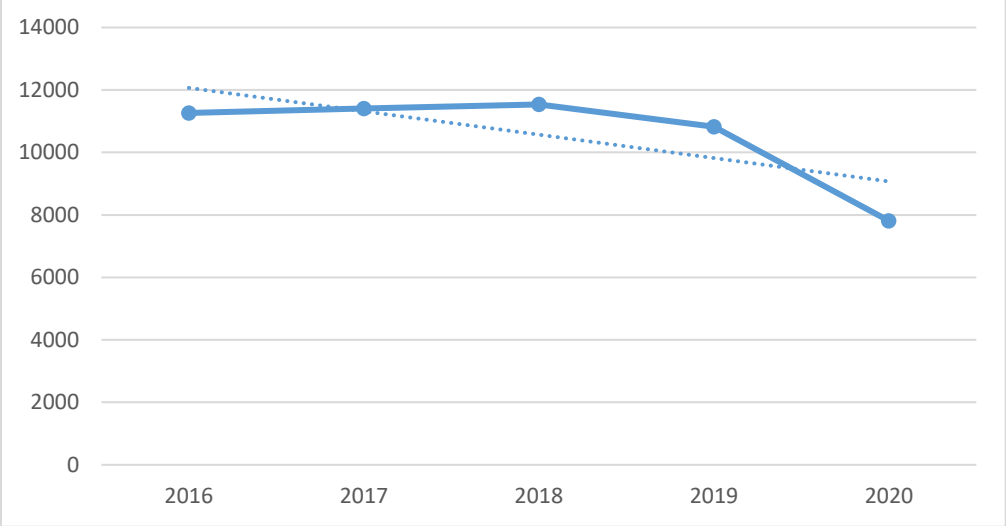

Figure 35: Total casualties in collisions involving commercial vehicles, 2016-2020

Figures 36 indicates a downward trend in fatalities resulting from CMV crashes from 1992 to 2020, with a significant drop between 2007 and 2010. With regards to the 2016-2020 period, figure 37 shows an increase in 2017 and decreases in 2018, 2019 and 2020 creating a global downward trend. Fatalities related to CMV crashes went from 403 in 2017 to 317 in 2020, a 21% decrease and also the lowest count since the inception of the database in 1992.

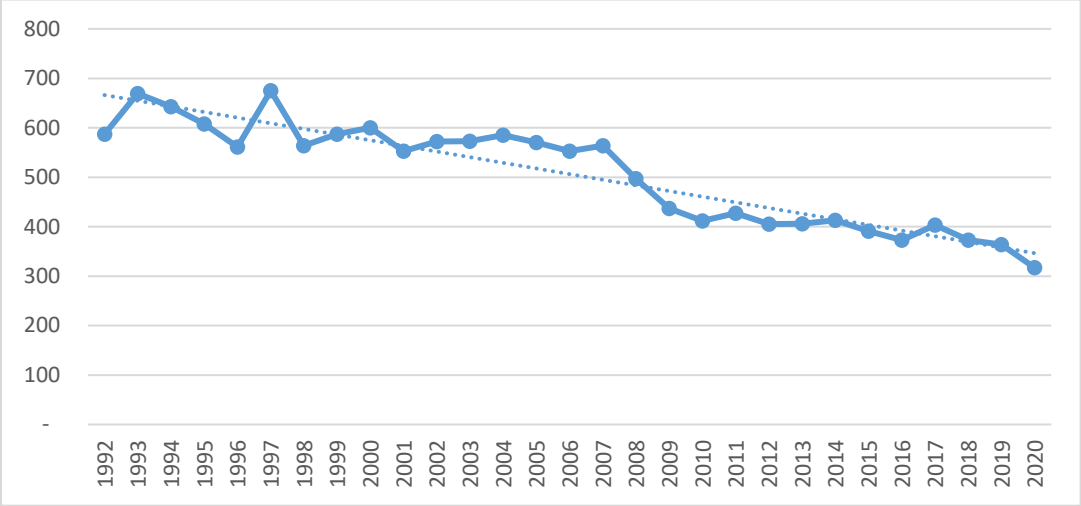

Figure 36: Fatalities in collisions involving commercial vehicles, 1992-2020

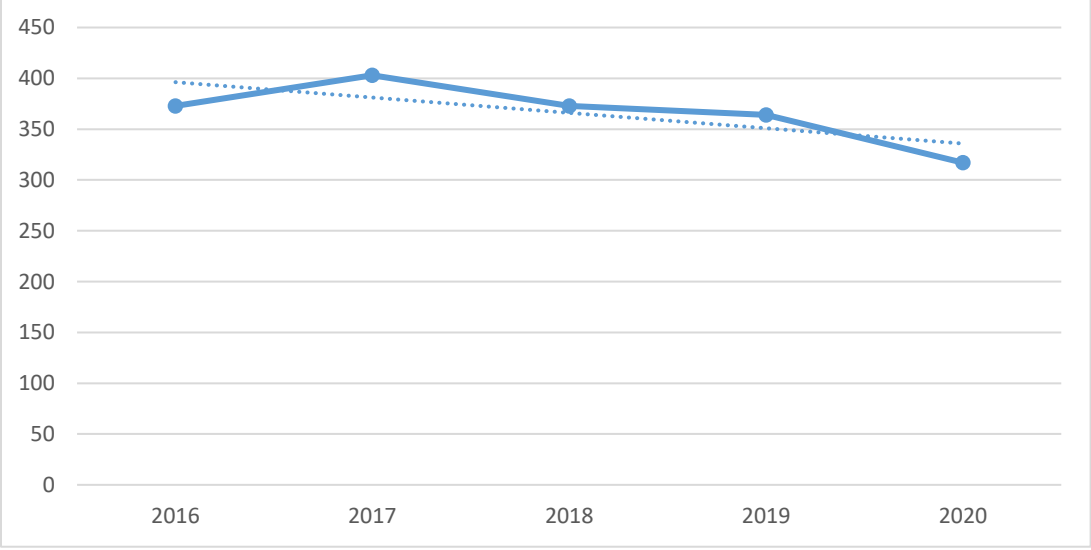

Figure 37: Fatalities in collisions involving commercial vehicles, 2016-2020

Figure 38 shows that for the 2016-2020 period, the vast majority (66.78%) of fatalities resulting from CMV crashes were the occupants of LDVs involved in these collisions. CMV occupants represented 15.8% of the fatalities, pedestrians 13.6% and cyclists 3%. The figure however reveals that there was an 18% reduction in LDV fatalities resulting from CMV crashes in 2020, another potential sign of the COVID-19 pandemic, which produced a sharp decrease of LDV traffic.

Figure 39 plots the data on pedestrians and cyclists (vulnerable road users - or VRUs) fatally injured in CMV crashes. The figure shows that the situation remained rather stable for the period, with pedestrians about five times more at risk than cyclists. Overall, the number of pedestrians fatally injured in heavy vehicle crashes in any given year in Canada is almost equal to the number of CMV occupants.

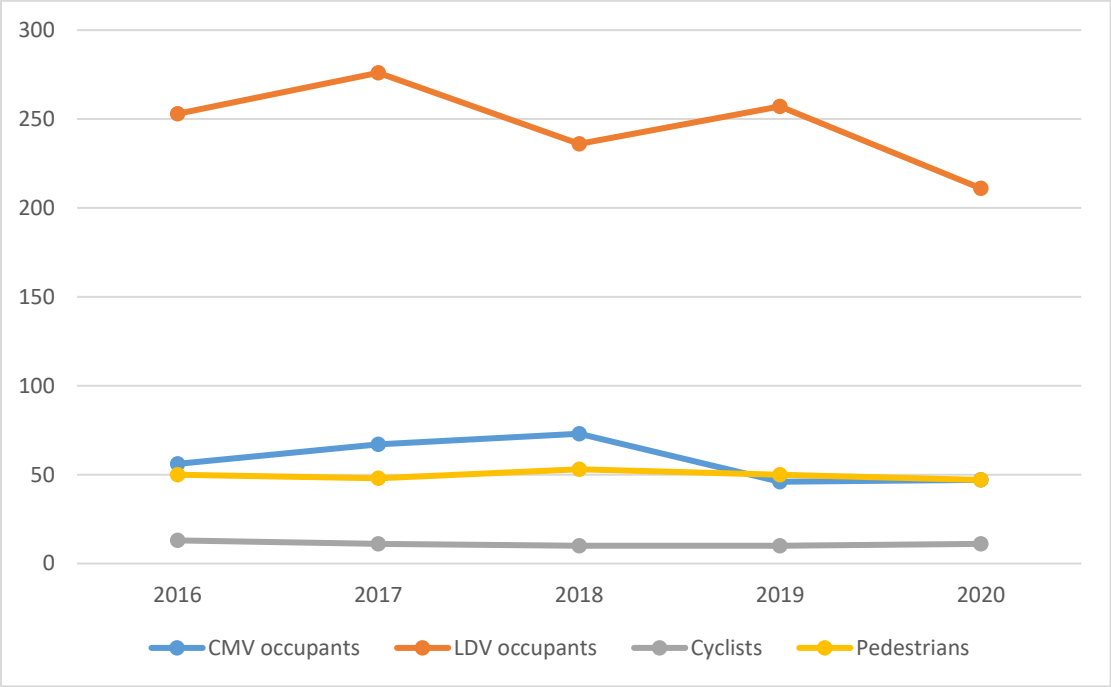

Figure 38: Fatalities of CMV occupants and other road users involved in CMV collisions, 2016-2020

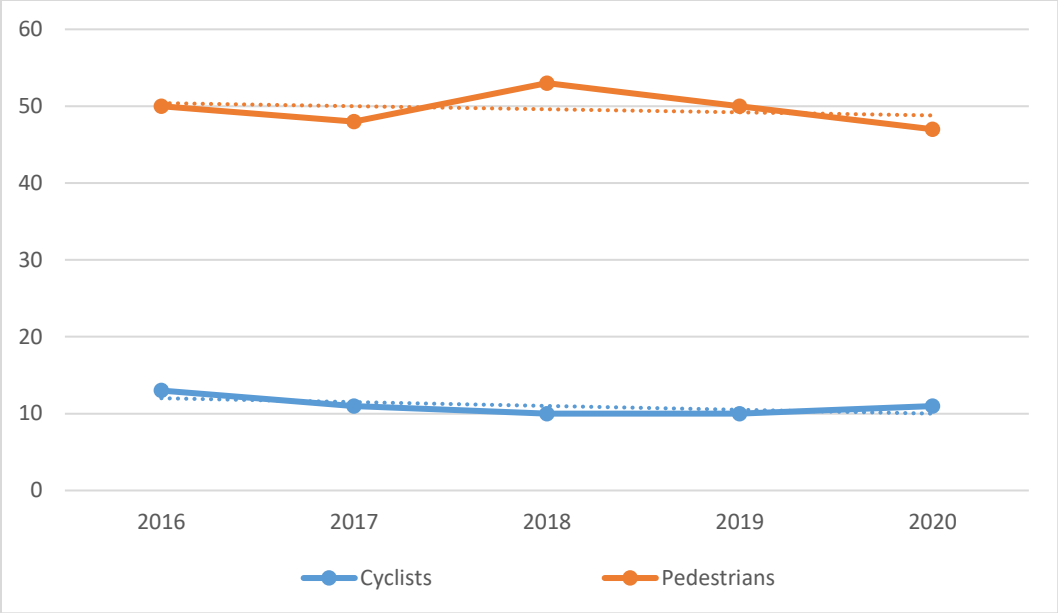

Figure 39: Fatalities of vulnerable road users involved in CMV collisions, 2016-2020

In terms of CMV occupant fatalities, figure 40 depicts increases 2016 and 2017 followed by a significant decrease in 2019 and a stable situation in 2020, resulting in an overall decreasing trend for the period. Looking at CMV occupant fatalities per category of heavy vehicles for the same period, figure 41 indicates a downward trend for tractor-trailers, a mild increasing trend for straight trucks occupants and a decreasing trend for buses. Of note, the year 2018 was marked by a tragedy, when a charter bus carrying the Humboldt junior hockey team collided with a tractor-trailer, killing 16 occupants, and injuring 13.

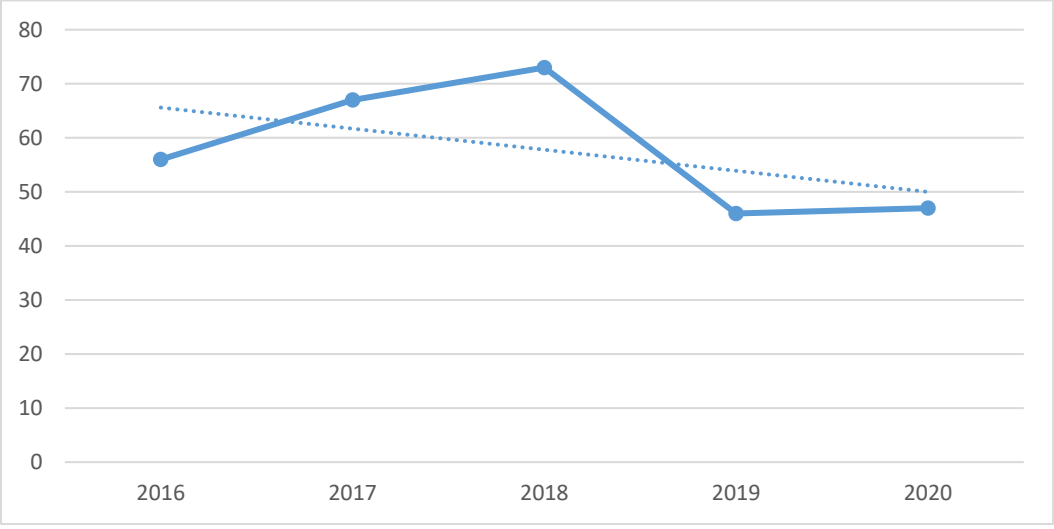

Figure 40: CMV occupants' fatalities in road crashes, 2016-2020

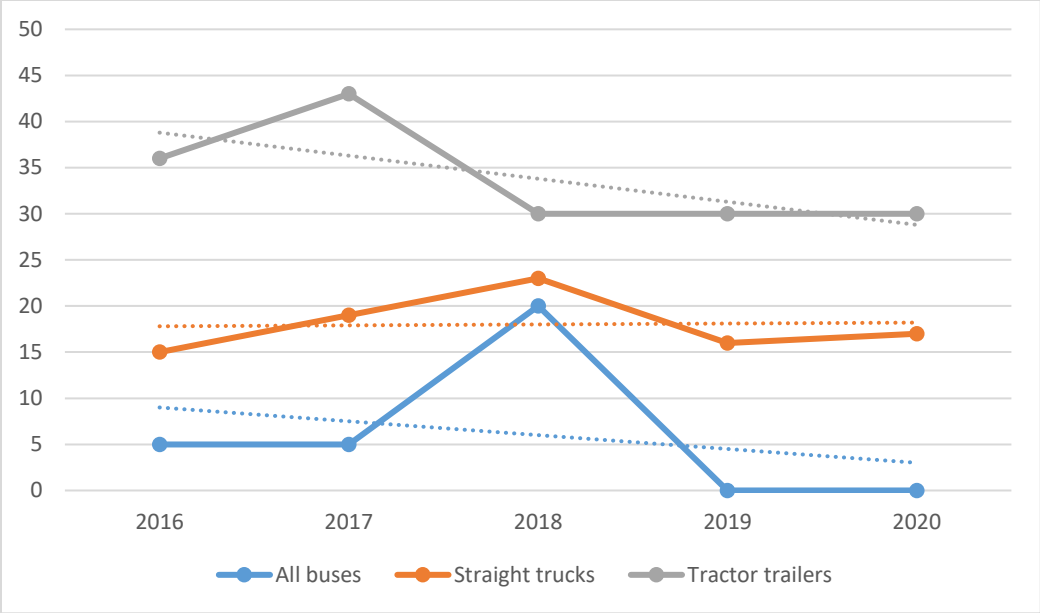

Figure 41: CMV occupant fatalities by categories of CMV, 2016-2020

With regard to injuries resulting from CMV crashes, figure 42 also reveals a downward trend between 1992 and 2020, again with a significant drop from 2007 to 2009. For the 2016-2020 period, figure 43 shows a significant decrease in 2020, with the lowest number since 1992. The overall result for the period is a downward trend, with a 32.9% reduction between 2018 and 2020.

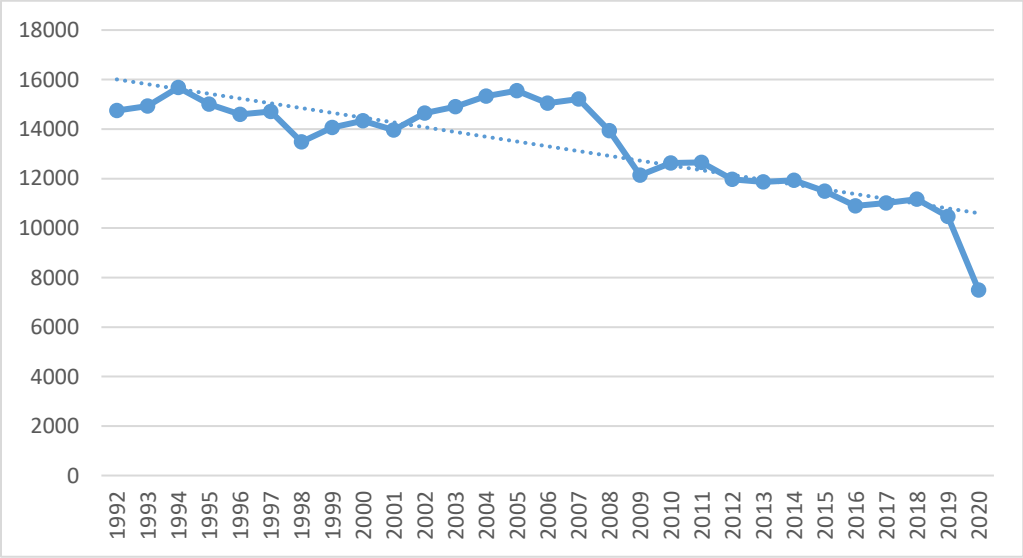

Figure 42: Injuries in collisions involving commercial vehicles, 1992-2020

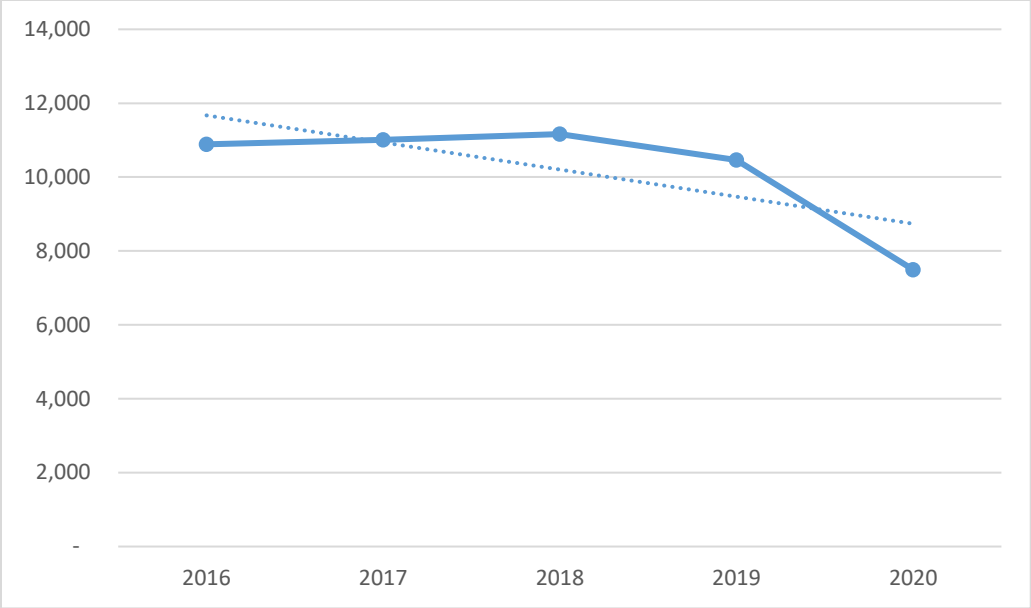

Figure 43: Injuries in collisions involving commercial vehicles, 2016-2020

Figure 44 indicates that for the 2016-2020 period, the majority (61.5%) of injuries resulting from CMV crashes were to the occupants of LDVs involved in these collisions. Injuries to CMV occupants represented 32.6% of cases, to pedestrians 4% and to cyclists 1.5%.

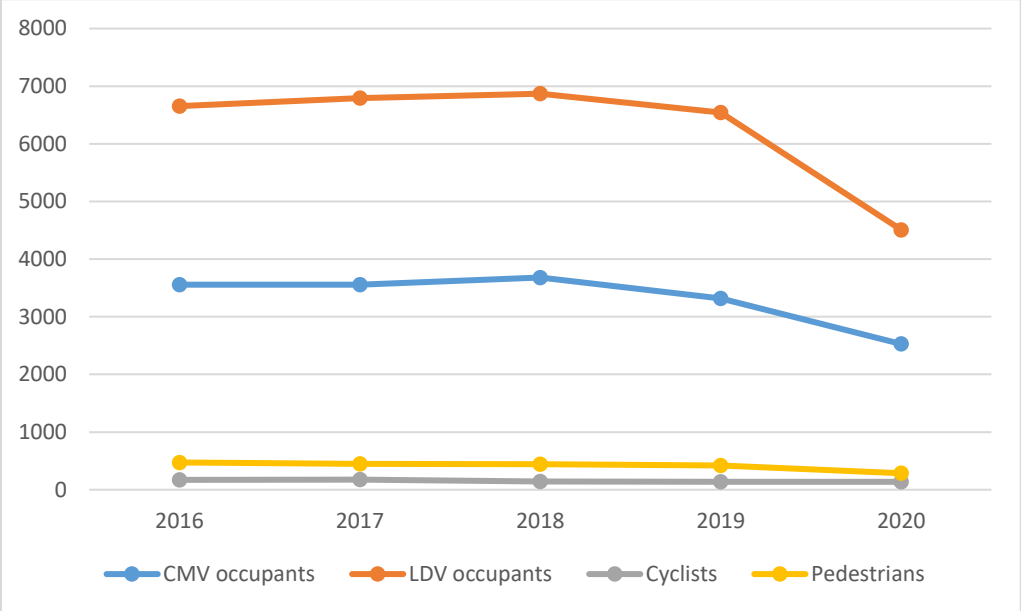

Figure 44: Injuries of CMV occupants and other road users involved in CMV collisions, 2016-2020

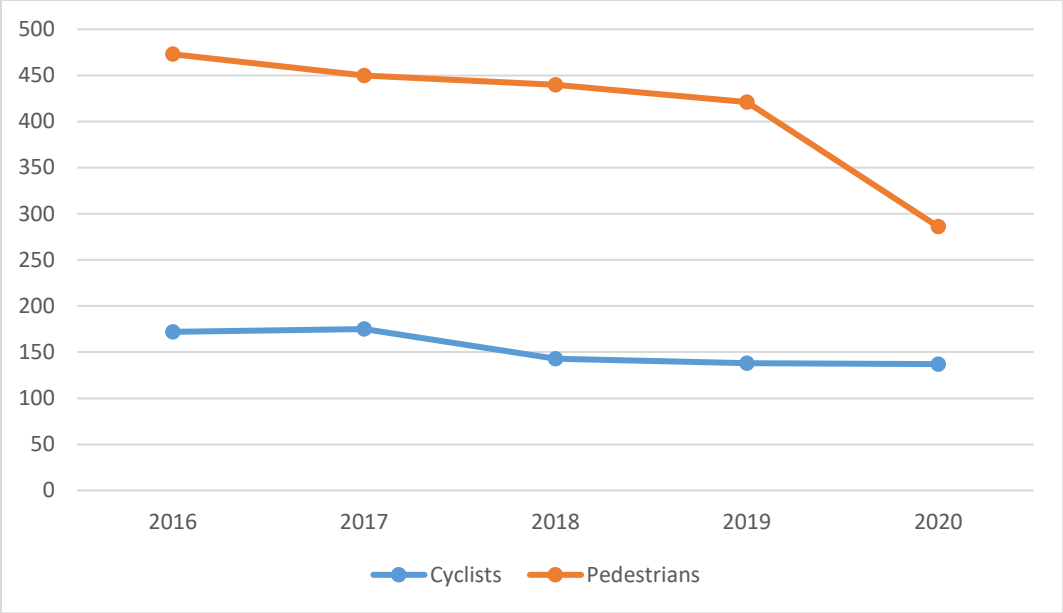

Figure 45: Injuries of vulnerable road users involved in CMV collisions, 2016-2020

Figure 45 shows that pedestrians are more at risk of being injured in a collision involving heavy vehicles than cyclists. Like it was regarding VRUs fatalities, there is a decreasing trend for injuries over the 2016-2020 period for both pedestrians and cyclists, with a significant drop for pedestrians in 2020.

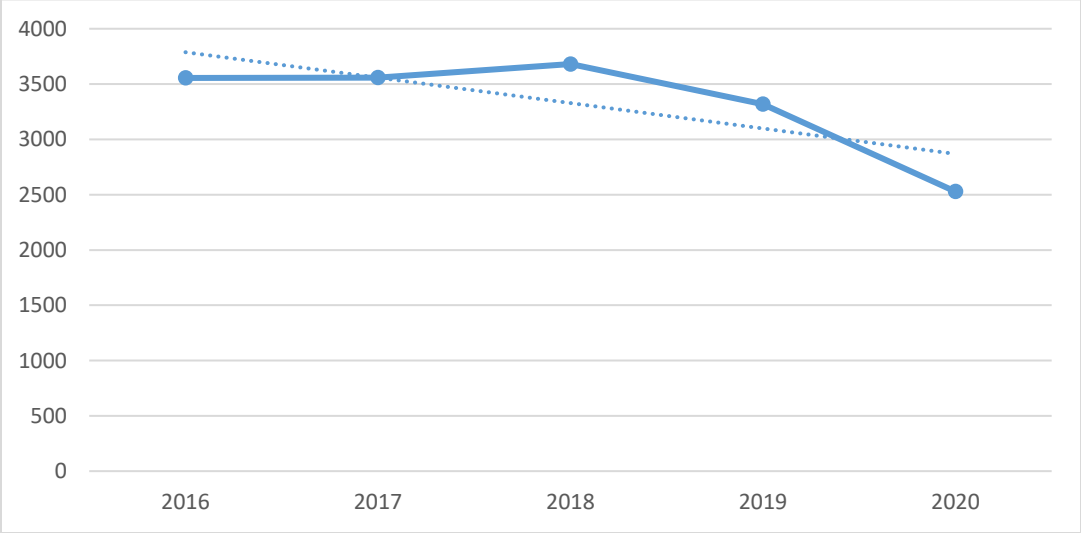

Figure 46: CMV occupants' injuries resulting from road crashes, 2016-2020

Regarding CMV occupant injuries, figure 46 reveals an increase in 2018 - which is in part explained by the Humbolt bus crash - and decreases in 2019 and 2020, creating an overall downward trend for the period, with 28.9% fewer injuries in 2020 than in 2016. Looking at heavy vehicle categories, figure 47 indicates that on average for the 2016-2020 period, bus occupants (including passengers) represent 34.6% of injuries, straight truck occupants 35.7% and occupants of tractor trailers 29.6%.

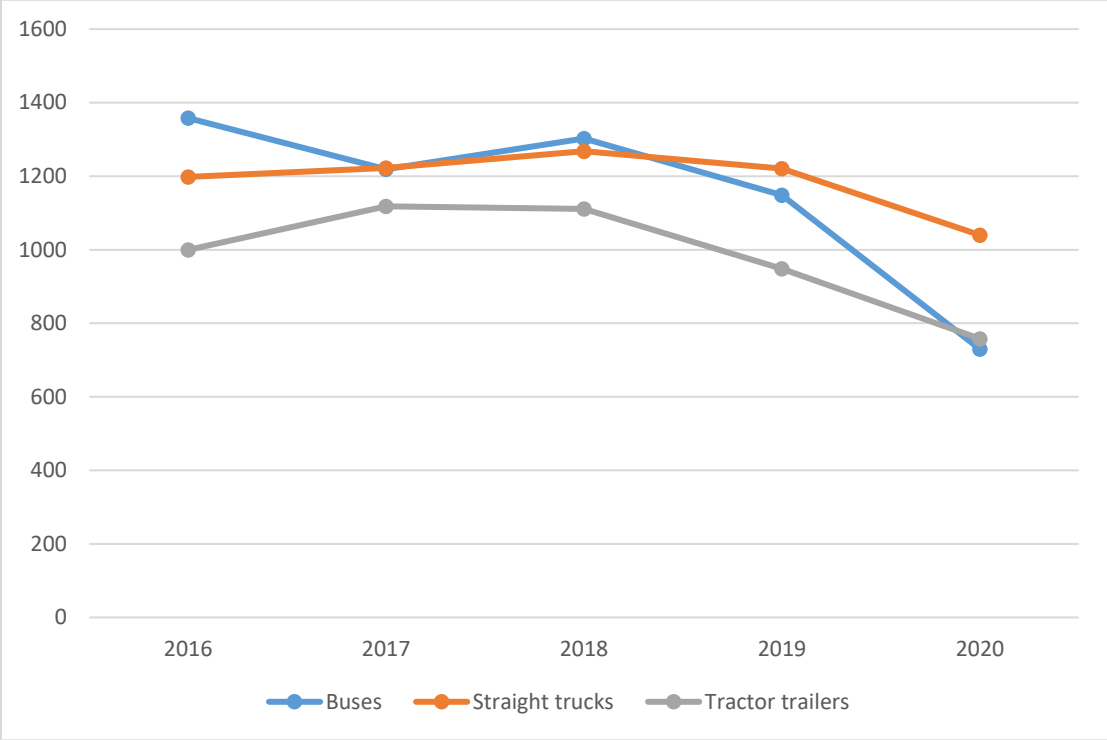

Figure 47: CMV occupant injuries resulting from road crashes by category of CMV, 2016-2020

PART II SUMMARY

The safety assessment presented in Part II of this report paints a picture where most road safety indicators show improving trends. Some of the data presented look back as far as 1992, the year of the inception of the database, enabling a wider overview of the situation, and the positive trend is very significant over the long term. Looking at the 2016-2020 period, and more specifically at the year 2020, comprehensive assessments also reveal positive trends, although with more variability, depending on which outcome is assessed.

Of note that 2020 marks the first year of the COVID-19 pandemic, which is associated with a significant drop in general road user's traffic and exposure. This drop in exposure, substantial for general road users, is however not expected to have impacted CMV traffic the same way, as heavy vehicles evidently had to maintain a significant level of effort in support of a struggling Canadian population.

Data related to general road user casualties reveal a steadily improving situation since 1992, even in the presence of increasing exposure and a rising number of all classes of vehicles on Canadian roads. Prior to the pandemic, the year 2019 showed the lowest road fatality rate in the NCDB database. The situation improved again significantly in 2020, however this is most likely explained, at least in part, by a drop in exposure. Apart from the pandemic effect, this progress is most likely related to incremental safety initiatives undertaken by governments and industry, based on sound scientific research, policy and countermeasures development. Nevertheless, with a remaining 1745 road fatalities in 2020, efforts to lower these numbers further need to remain significant, focussed, data driven and innovative.

The positive trending is also apparent when looking at the safety performance of the Canadian motor carrier industry. Even in the presence of increasing traffic and growing economic activity, the number of fatalities and injuries related to heavy vehicle crashes is decreasing over time. The lowest number of fatalities since 1992 was recorded in 2020 with a count of 317, which is 53% less than the highest count of 675 observed in 1997. Looking at the 2016-2020 period, there is a general decreasing trend, although the number of fatalities rose in 2017. With regards to injuries, there is again a significant positive trend since 1992. For the 2016-2020 period, there were two consecutive years of mild increases in 2017 and 2018, followed by significant drops in 2019 and 2020, with a total 7,496 injured, by far the lowest count since 1992. Of note that there was a 28,3% decrease in 2020 compared to 2019.

Looking more closely at CMV crashes, the data indicates that heavy vehicles are over-represented in fatal collisions compared to other classes of vehicles. For the 2016-2020

period, while CMVs represented only 4.8% of total vehicles involved in road crashes, they were associated with 24.9% of road fatalities. This reality is mainly explained by CMVs' relative weight and mass compared to that of light-duty vehicles. Consequently, for the period, 66.8% of the fatalities resulting from CMV crashes occurred in light duty vehicles involved in those crashes. CMV occupants represented 15.8% of fatalities, pedestrians 13.6% and cyclists 3%. Tractor-trailers were over-represented in fatal crashes and straight trucks in injury crashes.

The safety assessment also leveraged an econometric forecasting model based on data from the *Canadian Vehicle Survey* (CVS), the *Canadian Vehicle Use Survey* (CVUS) and Statistics Canada data tables to estimate exposure trends and crash rates for straight trucks > 4,500 kg, tractor-trailers > than 15,000 kg and all heavy trucks (a combination of both categories). The model estimates an overall increase in heavy trucks VKT for the 2014-2020 period. The model further suggests that this increase in exposure did not translate into a deterioration of safety performance. In fact, fatal and injury crash rates calculated based on the model and NCDB data have both been decreasing between 2005 and 2020 (69.6% for fatal crashes and 74% for injury crashes).

With regards to crash contributing factors as assessed by police officers at crash scenes, NCDB data reveal that for the 2016-2020 period vehicle defects were associated with less than 3.5% of crashes. Factors related to driver actions, and to a lesser extent to driver conditions, were identified as more significant crash contributors. While the numbers are low and driver conditions was considered as "not normal" in only 5% of fatal CMV crashes, fatigue and alcohol were identified as key contributing factors for those crashes. With regards to driver actions, when drivers were considered as "not driving properly", in 28.1% of fatal CMV crashes, inattention and speeding were the top contributors.

In sum, NCDB data for the 2016-2020 period reveal that inattention and driving too fast are key crash contributing factors for heavy vehicle fatal crashes in Canada. This is consistent with the comprehensive assessment detailed in the final report of CCMTA's *Human Factors and Motor Carrier Safety Task Force*[9].

[9] Thiffault, P. (2011). *Addressing human factors in the motor carrier industry in Canada (https://www.ccmta.ca/web/default/files/PDF/human-factors_report_May_2011.pdf)*.

ANNEX 1 - ABBREVIATIONS FOR PROVINCES AND TERRITORIES

Alberta	AB
British Columbia	BC
Manitoba	MB
New Brunswick	NB
Newfoundland and Labrador	NL
Northwest Territories	NT
Nova Scotia	NS
Nunavut	NU
Ontario	ON
Prince Edward Island	PE
Quebec	QC
Saskatchewan	SK
Yukon	YT