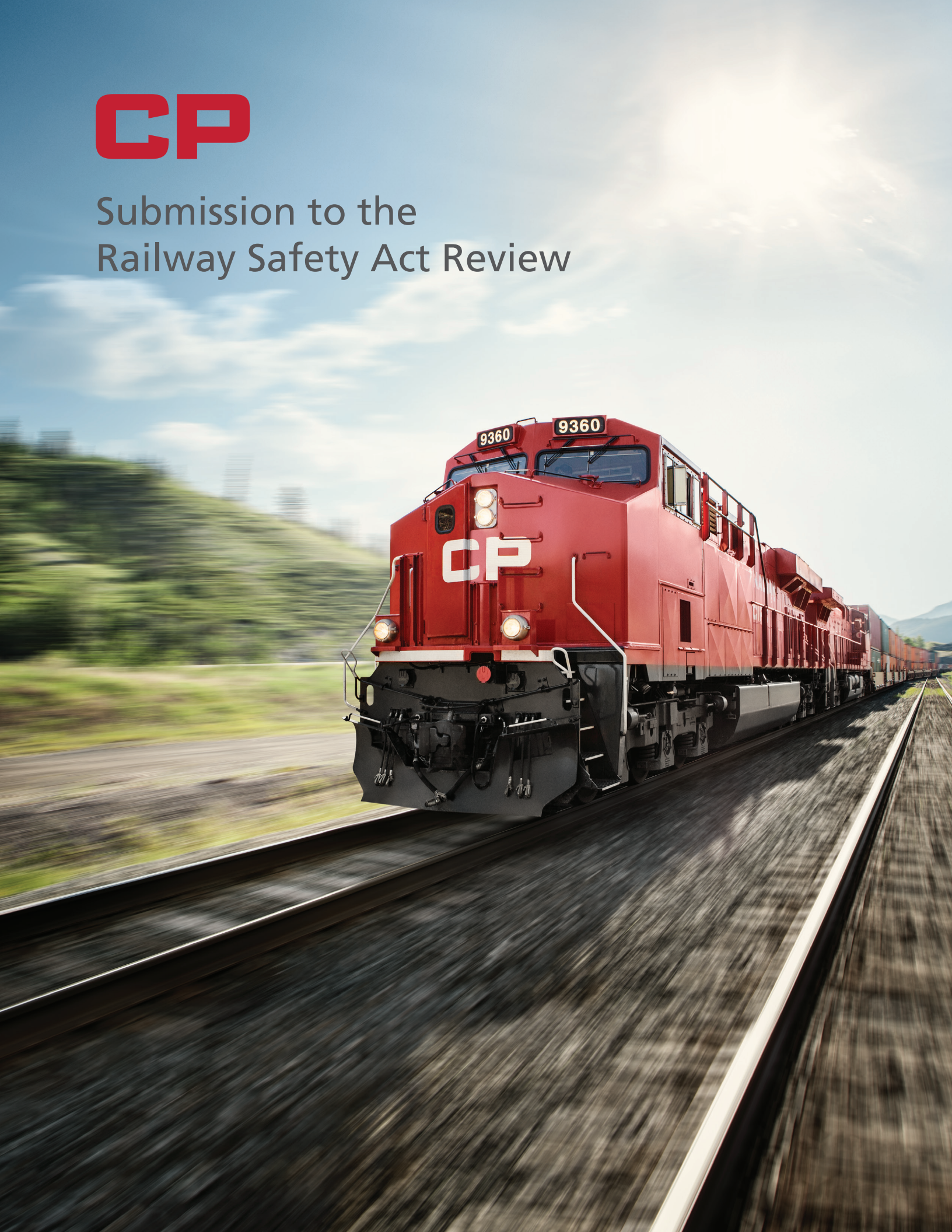
Submission to the Railway Safety Act Review



Submission to the Railway Safety Act Review

Contents

Table of Figures

1.0 EXECUTIVE SUMMARY

1.0 Executive Summary

Canadian Pacific (CP) is committed to being the safest railway in North America.

CP is pleased to participate in the Railway Safety Act (RSA) review, and views this process as an opportunity to continue to build upon its industry-leading safety performance and assist in further improving the safest rail system in North America. The underlying premise of the RSA is that it seeks to have railway companies and other responsible parties in Canada take responsibility for rail safety, while also providing a regulatory framework within which to manage railway safety and security, as well as the related public safety and environmental impacts that might accompany operations in the industry. CP has taken responsibility for safety in its operations by fostering a culture that integrates safety into all of its business processes.

From the creation of the rail industry until the 1980s, rail safety regulation in Canada was based on a reactive, post-incident, "blame and punish" compliance approach that proved ineffective in the modern era. Accordingly, in 1989, Parliament passed the RSA, with the objective of fostering a modern approach to safety management. This legislation encourages the collaboration and active participation of railway management, employees, unions, regulators and other relevant stakeholders. Since its passage, the RSA has been reviewed three times. The most recent review, conducted in 2007, resulted in a package of amendments passed under The Safer Railways Act of 2012. The RSA has proven itself to be an effective and flexible piece of legislation in ensuring railway safety in Canada.

Of particular note in the ongoing cycle of RSA improvements was the introduction of the Railway Safety Management System (SMS) Regulations in 2001. SMS is complimentary to the robust regulatory regime and remains at the core of the RSA. Among many other activities, SMS encourages a proactive approach to risk assessment and mitigation, employee involvement and flexibility to enable technological innovation. It fosters a culture of safety at all levels of CP, whereby safety becomes the first consideration in all activities and decision-making. Further, it encourages the development and implementation of new technologies and innovative practices.

Under this modern safety regime, which combines strong regulatory oversight with the benefits of SMS, Canada's railways – already the safest in North America, despite some unique challenges – continue to deliver positive safety results and trends.

CP is proud to be the safest railway in North America, having the lowest train accident frequency. This is a record that CP has enjoyed for the past eleven consecutive years, but this high level of performance can neither be taken for granted, nor did it come about without significant and on-going effort. In fact, one only has to look back to the performance in prior decades to see that the safety culture was not always what it is today.

The recipe for success in safety has many dimensions, but there are foundational requirements that must be present for any business to attain success in safety excellence. All levels of management need to have an unwavering dedication to safe operations. Commitment must be demonstrated through consistent and predictable actions. That's the way it is at CP. Safety is embedded in everything that CP does. Similarly, the regulatory framework in which CP works must consist of a balance of oversight and performance-based objectives that enables innovation without sacrificing standards. The RSA provides the right balance between prescriptive regulation and performance based Safety Management Systems.

The critical importance of operating safe railways cannot be overstated. The tragic derailment that occurred in Lac Mégantic, Québec, in July 2013 serves as a reminder to all of us in the rail industry that safe operations must be at the heart of everything that occurs on a railway. Safety must always be the No. 1 priority. Where opportunities exist to improve Canada's rail safety environment, industry and stakeholders must seize them.

CP recognizes that despite good performance, there is more that can be done to improve safety performance. Systemic problems remain unresolved in the areas of proximate land use, grade-level crossings, technology and innovation, Transport Canada internal oversight, data collection and analysis and random drug and alcohol testing. It is on these that CP has focused its attention in the pages that follow.

2.0 THE CANADIAN RAILWAY INDUSTRY

2.1 Historic Approach to Rail Safety in Canada

The 1989 Railway Safety Act reflected the government's desire to improve, modernize and simplify rail safety regulation in Canada. The fundamental principles of the RSA were originally outlined in its Section 3:

1. To promote and provide for the safety of the public and personnel, and the protection of property and the environment, in the operation of railways
2. To encourage the collaboration and participation of interested parties in improving railway safety
3. To recognize the responsibilities of railway companies in ensuring the safety of their operations
4. To facilitate a modern, flexible and efficient regulatory scheme that will ensure the continuing enhancement of railway safety.

One of the most important developments under the RSA was to allow railways to write rules for day to day operations, in consultation with their unions and subject to the approval of the Minister of Transport or delegate.

As shown in Figure 1, under the RSA, Canadian railway safety performance has improved with respect to accidents caused by equipment and track failure. Unfortunately, accidents caused by human actions have not decreased to the same degree.

Figure 1: Change In Cause Of Canadian Railway Incidents, 2007-2016

Source: TSB Data

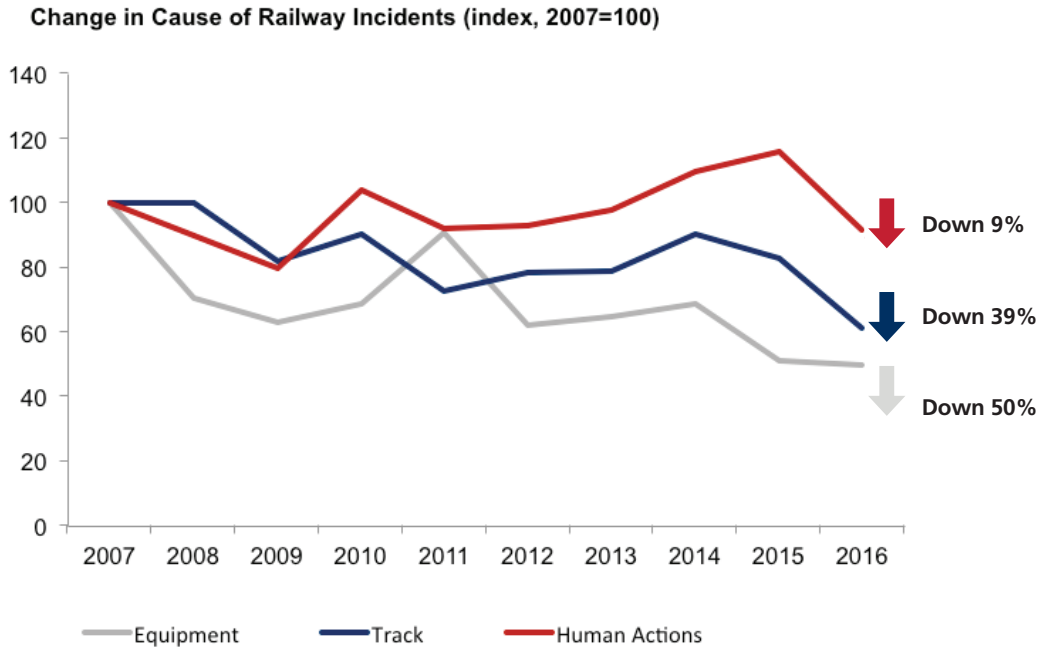
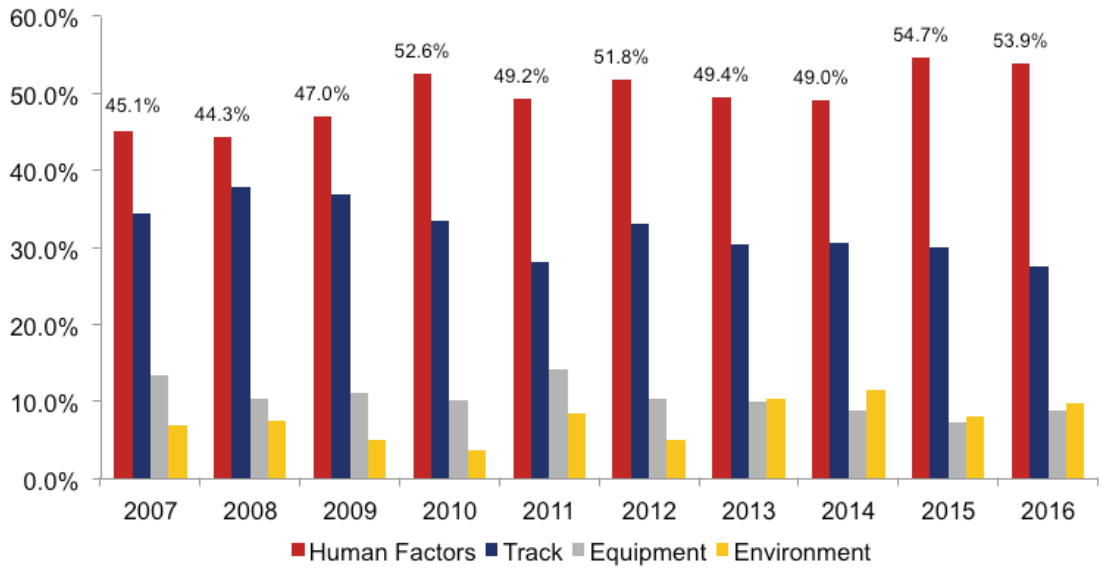


Figure 2: Distribution Of Cause Of Canadian Railway Incidents, 2008-2016

Source: TSB Data



There have been three major reviews of the RSA since its initial passage in 1989. All three have confirmed that Canada's rail safety regime and safety performance are among the best in the world. Nonetheless, in the relentless pursuit to continually improve rail safety, these reviews have resulted in many amendments that have further strengthened the RSA. A key change under the RSA was recognition of the role railway companies themselves must play in managing the safety of their operations. The introduction of the Safety Management System regulation in 2001 embodies this principle.

A number of important rules and standards have been developed by the rail industry under the RSA rulemaking process since 1989. These include, the Canadian Rail Operating Rules, the Track Safety Rules and the Medical Rule for Safety Critical Positions (see Appendix 3 for a complete list). Most of these have been further revised and improved over time, to enable the use of new technologies and innovative procedures. While all rules and revisions are subject to ministerial approval, the subject matter expertise required to develop the rules and conduct the necessary risk assessments are provided by the railway industry. The time to implement a new or revised rule is typically less than the time it takes to develop a regulation. This process is a key means to address the Transportation Safety Board's Watch List item pertaining to *"Slow progress addressing TSB recommendations"*.

Under the RSA, trespass prevention and grade-crossing safety have seen some improvement, but much more needs to be done. Some of this improvement is related to the collaboration between Transport Canada (TC), the railway industry, unions and other stakeholders in an educational program known as Operation Lifesaver (OL). TC has provided grants annually to OL, and the industry has provided matching funds. The industry and volunteers deliver the program to various audiences including school children and new drivers. The most recent RSA Review report was supportive of the OL program, and recommended it be maintained and enhanced.

The RSA has also promoted valuable partnerships and memoranda of understanding (MOUs) with various stakeholders. One notable partnership is with the Railway Research Advisory Board (RRAB), which has been in place for many years. This research program is managed by TC, with involvement by industry as well as academia and suppliers. Examples of the many RRAB-sponsored successes include projects on grade-crossing and trespass safety, suicide prevention, guidelines for land use in proximity to railway operations, and ground-hazard and slide protection. Research on LED lighting for wayside signals resulted in a new rulemaking that allowed quick implementation of this modern technology.

Another MOU developed under the RSA that demonstrates a successful alternative to regulation was done with TC-Intermodal Surface, Security and Emergency Preparedness to enhance Canada's rail security posture and mitigate terrorist risks. This MOU established commitments for railways to have security plans, risk assessments, exercises, reporting and training. The industry also works closely with TC on their cross-border harmonization working group and in other cross border initiatives, including the Regulatory Cooperation Council (RCC).

Most recently, the RSA Review of 2007 resulted in the passage of the Safer Railways Act in 2012. This package of legislative amendments further enhanced TC's powers for safety oversight, compliance monitoring and enforcement.

The RSA continues to meet its fundamental objective of improving railway safety. It remains a modern and flexible piece of legislation, which has withstood frequent reviews and is capable of integrating continual improvements. It has fostered a Canadian railway safety regime that combines robust regulatory oversight and enforcement with a modern SMS approach. The efficacy of the RSA was recognized during the 2007 review, as noted in the final report from the panel:

> *"Generally speaking, we found that the Railway Safety Act and its principles are fundamentally sound, but that a number of legislative improvements are needed."*

CP believes this still holds true today.

2.2 Safety Culture

Railways recognize that a strong safety culture is essential for their success because railroading is very much a "people" business: a railway's strength lies in its ability to attract, retain, train and develop the best people, at all levels of the organization. As well, railways are generally large, decentralized operations, where employees work mostly unsupervised, and must therefore be educated, committed and motivated to independently make the right decisions to protect safety.

The 2007 Report of the RSA Review Panel recognized these points:

"The cornerstone of a truly functioning SMS is an effective safety culture. The Panel views such a culture as one in which safety values are firmly entrenched in the minds of managers and employees at all operational levels, and respected on a daily basis in the performance of their duties. It is demonstrated by the decisions, actions and behaviour of individuals."

However, the Panel recognized that work was required to strengthen safety culture in Canada's railway industry, and made the following recommendation:

"Recommendation 18 - Transport Canada, Rail Safety Directorate, and the railway industry must take specific measures to attain an effective safety culture."

The railway industry, unions and TC acted on this recommendation and formed a work group to strengthen SMS. An important part of this collaborative effort was to develop practical elements to assist railways in strengthening their safety culture. This work group performed an extensive review of safety culture across industries in North America, Europe and Asia. This effort resulted in a formal definition for safety culture and the identification of five characteristic dimensions

1. Leadership and commitment to safety culture
2. Two-way communication
3. Stakeholder/employee/employee representative involvement
4. A learning culture
5. A just culture

To provide a practical roadmap to assess and strengthen safety culture, the work group further identified specific initiatives and characteristics that would be expected. As an example, the following initiatives were identified for the dimension of "Learning Culture":

- Continuous improvement through internal and external reviews.
- Processes for monitoring safety trends (e.g., trend analysis).
- Use of leading indicators (e.g., near-misses, audit results, rule violations, health and safety effectiveness).
- Systematic risk assessments.
- Systematic corrective actions following accident/incident investigations.
- SMS internal audits.
- Audit and quality assurance of accident/incident investigations, corrective actions, etc.
- Internal processes for sharing safety knowledge and best practices (e.g., website for health and safety committee minutes and action plans).

Railways have used this work to strengthen their culture and some have developed formal processes for measuring safety culture subjectively and objectively.

2.3 Safety Management Systems for Canadian Railways

A Safety Management System (SMS) is an explicit set of processes designed to integrate safety considerations into all decision-making, planning and operational activities with sufficient flexibility that it not only permits companies to determine how best to improve safety but encourages them to use innovative solutions that result in better safety records. SMS can be thought of as similar to an ISO 9000-series management system, which calls for a systemic approach to safety and risk management.

According to ISO, the benefits of an effective management system to an organization include improved risk management and protection of people and the environment, and increased capability to deliver consistent and improved services[1].

A benchmark study by the American Institute of Chemical Engineers, Center for Chemical Process Safety (CCPS) of CCPS member companies, combined with data from other sources, provided conclusive evidence that methodically implementing Safety Management Systems provide benefits essential to any healthy business These include significantly reducing the risk of catastrophic events and helping to prevent the likelihood of human injury, environmental damage and associated costs that arise from incidents[2].

For an SMS to be effective, it's important that regulations do not become overly prescriptive. Regulations should identify the basic elements of the framework with oversight ensuring that the elements are implemented and working as intended, but they should not prescribe how a company will define each process or what action it will take.

Federally regulated railways in Canada are required to have an SMS pursuant to regulations promulgated under the RSA. These "Railway Safety Management Systems Regulations" originally came into effect in 2001 and were replaced with new updated requirements in April 2015. The regulations set out requirements for 12 processes which every railway's SMS must contain. Critical among these are the requirements for employee and representative involvement in safety management and safety culture development; risk assessment, management and control; safety audit and evaluation; and accident and incident reporting, investigation, analysis and corrective action. Compliance is assessed through TC's oversight program. It's designed to verify that each railway is meeting these minimum regulatory requirements, that the railway is consistently being operated in accordance with its SMS and that the SMS is effective in improving railway safety. Practical elements of TC's oversight program include annual reviews and field and headquarters audits of each railway's performance. Under the SMS regulations, railways are required to make information available to TC on request.

As important as knowing what a railway SMS is, is an understanding of what it is not. The following myths are frequently perpetuated by SMS critics:

- *"Implementation of SMS was done to deregulate the railways and/or allow them to self-regulate."* This is clearly not the case, as can be seen by the wide range of railway safety regulations and rules in effect under the RSA, the Transportation of Dangerous Goods (TDG) Act and other legislation (see Appendix 3). SMS is a safety-enhancing set of processes that exist within this robust regulatory regime. Indeed, as mentioned above, the requirement for an SMS is itself a regulation under the RSA.
- *"Implementation of SMS was done to eliminate TC's inspection and enforcement regime."* Again, this is clearly not the case. For example, according to Transport Canada's rail safety website, every year, the agency's inspectors *"conduct approximately 33,000 audits and inspections of grade crossings, locomotives, freight and passenger cars, tracks, and train crews."* Appendix 4 provides a list of the compliance and enforcement tools available to TC.

[1] *https://www.iso.org/management-system-standards.html*

[2] *https://www.aiche.org/sites/default/files/docs/pages/ccpsbuscase2nded-1206041334l4-phpapp02.pdf*

SMS has been misconstrued as a form of deregulation or industry self-regulation. It is actually a rigorous and robust regulatory vehicle that imposes proactive safety-risk management objectives on railways that are subject to regulatory oversight, but recognizes that the industry has the best knowledge and expertise on what needs to be done to operate safely. As a result, it requires the industry to apply its practical expertise and resources to develop and implement solutions to meet those objectives. These two aspects are complementary and is SMS' strength, not a weakness. Moreover, the present balance between the roles of the regulator and the railway embedded in the present SMS framework is serving the regulatory and safety objectives well. Thus, the temptation to become overly prescriptive should be avoided so as not to disturb this delicate balance.

Safety professionals agree that an effective SMS is a foundational requirement for achieving continuous improvement in safety performance. The SMS approach establishes a framework and requires railways to move beyond minimum compliance with regulations, to instill a corporate culture that proactively identifies and mitigates risks from all sources, whether or not they are covered by RSA, rules, or regulations.

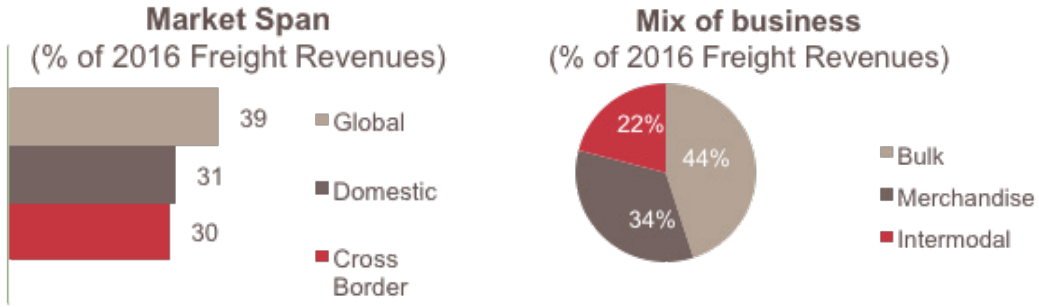
3.0 CP

3.1 CP's Role in the Canadian Economy

For more than 135 years, CP has served as an important artery, connecting Canada from east to west, and reaching into the United States. CP plays a significant role in the Canadian economy, moving approximately 243 billion gross ton-miles annually. CP is a Class 1 railway that operates on approximately 20,000 kilometres of track in Canada and the U.S., serving more than 10,000 customers and handling more than 6,900 tendered shipments daily. CP's current workforce of approximately 12,000 employees work to ensure that CP's operations continue to run smoothly and profitably, but most importantly, that those operations run safely[3].

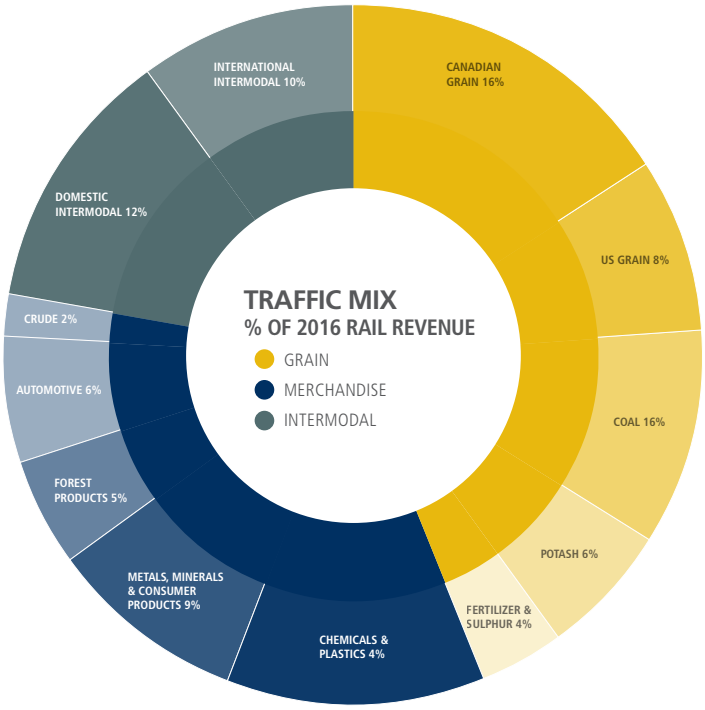
Figure 3: CP Network

Figure 4: CP Market Span and Mix of Business (2016)



[3] *Based on information in CP Annual Report 2016.*

Figure 5: CP Business By Segment (2016)



As shown in Figure 5, CP Business by Segment, CP carries a broad range of goods that reflect the overall Canadian economy. Railways must meet their common-carrier obligations, meaning that they must move all goods, including dangerous goods (DGs), that are tendered by a shipper upon reasonable terms and conditions. Data clearly shows that railways are the safest and most environmentally sustainable mode of surface transportation in Canada. In fact, railways move 70 percent of revenue tonne-miles while producing only 4 percent of transportation related greenhouse gas emissions (GHGs)[4].

[4] *Transport Canada Annual Report, Statistical Addendum and Environment Canada GHG Inventory.*

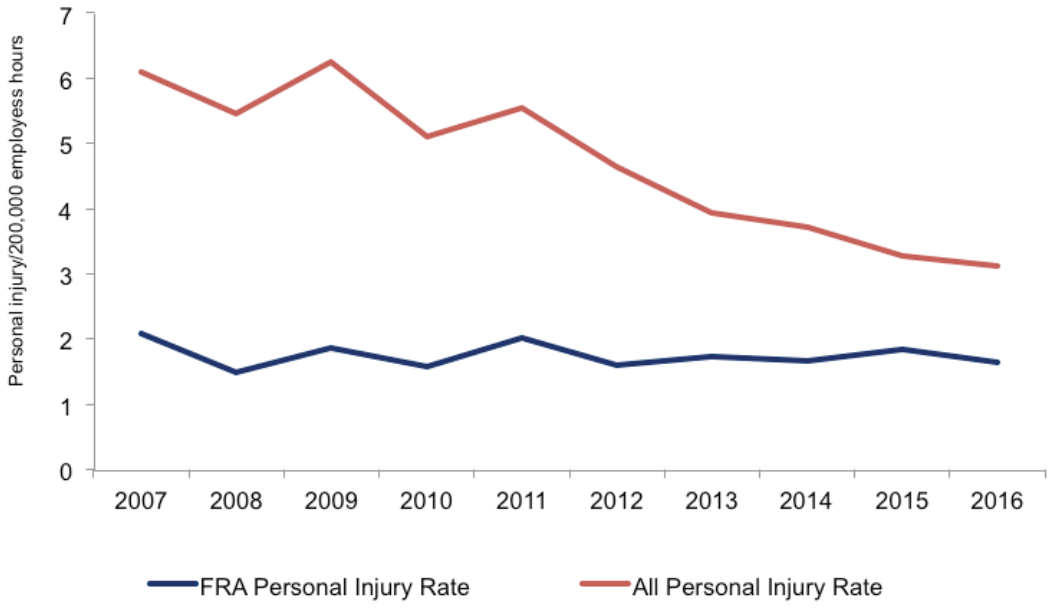
3.2 CP's Safety Performance
3.2.1 Employee Safety

Employee safety is of upmost importance to CP, and the company has taken meaningful steps to improve its employee safety performance over the past decade. CP tracks all work-related injuries, which are further classified as "Federal Railroad Administration (FRA)-reportable" and "non-FRA-reportable". An FRA-reportable personal injury is defined as an injury that results in any of the following circumstances: the employee loses time from work, the employee's duties are modified, or a medical prescription is prescribed. CP uses the FRA reporting criteria for two reasons: 1) The TSB does not track personal injuries other than those that are significant; and 2) The FRA system allows for direct comparison to the other Class 1 North American railroads.

In 2007, CP had 1,203 personal injuries occur while work duties were being performed. Of these injuries, 412 were FRA-reportable. In 2016, CP's personal injuries had been reduced to a total of 416. Of these injuries, 224 were FRA-reportable. This represents a 65 percent reduction in all personal injuries and 45 percent reduction in FRA-reportable injuries. CP is focused on ensuring that safety remains the top priority - in every aspect of company.

Figure 6: All CP Personal Injury Rate And Fra Personal Injury Rate, 2006-2016

Source: CP Data

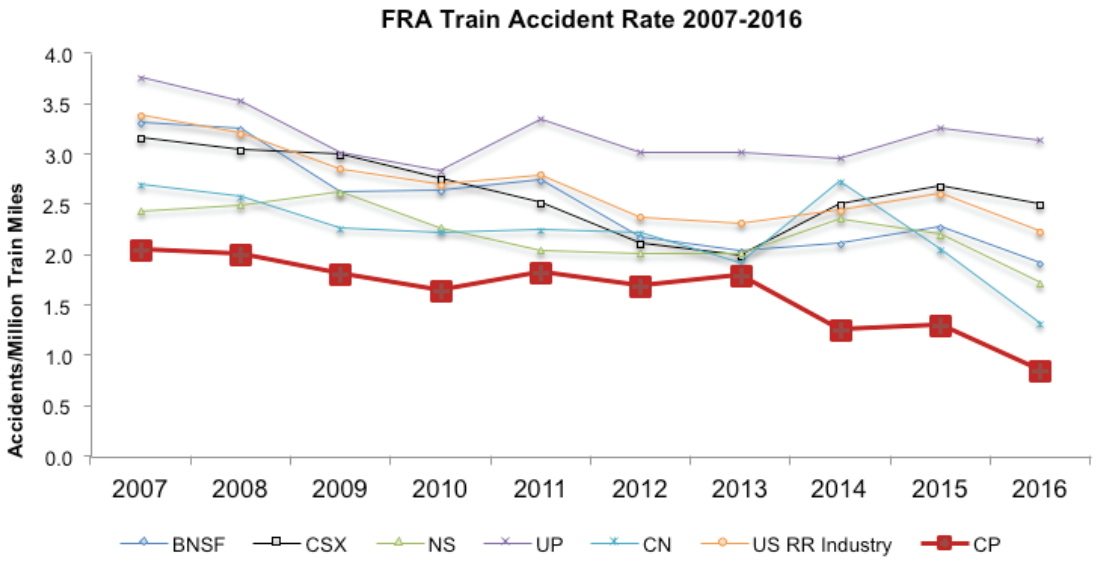


3.2.2 Railway Incidents

CP takes great pride in its SMS and safety performance that SMS helps to deliver. CP has been the safest railway in North America for the past 11 consecutive years and 15 out of the past 16 years. Since 2013, CP's FRA accident rate (accidents per million train-miles) decreased by 53 percent. In fact, 2016 was a safety record for CP, with an FRA accident rate of 0.97, which is 57 percent below the industry accident rate of 2.24.

Figure 7: FRA Train Accident Rate, 2007-2016

Source: Federal Railroad Administration



Excluding accidents related to trespassing or grade crossings, the majority of train accidents in the Canadian railway industry tend to be classified into three general cause categories: human factor, track and equipment. While both track- and equipment-related causes are trending down quite significantly (39 percent and 50 percent respectively since 2007), human factor-related incidents reflect the most common cause (53.9 percent in 2016) and are trending down at a slower pace (down 9 percent since 2007), as the root causes can be difficult to identify and address.

CP's safety performance results are similar to the industry trends as shown in Figure 1 and 2, in that human factor causes are the most common (66 percent in 2016), with track (15 percent in 2016) and equipment (9 percent in 2016) related causes representing a smaller percentage, with all categories continuing to trend down. While CP views any accident as one accident too many, the company believes that its continued improved safety performance is strong evidence that the current culture and framework for safety represents great strides in the right direction. However, CP will not be satisfied until it achieves zero accidents.

There is no single initiative that can be credited for CP's safety performance. It is the result of:

- A strong SMS that includes making improvements at every step, with a sustained focus on CP's employees, training, processes, capital investment, technology and culture;
- Including employees at all levels of the company in the planning process;
- Continually monitoring plans and results to ensure they are meeting the necessary objectives and timeframes. This includes a safety dashboard, which provides a rich source of data and analysis to every manager to track performance and continually improve safety in the field;

- Establishing and maintaining a culture of safety and rules compliance through a variety of initiatives including:
  - Efficiency Testing that provides immediate feedback to employees to ensure that rules and procedures are clearly understood and being followed
  - Safety Walkabouts which are discussions between managers from all levels of the company and employees to take a pulse on how employees think and feel about safety, as well as learn from each other about CP's business and agree on actions to positively impact individuals and CP.
  - Focused Coaching for Compliance where managers evaluate; mentor and guide employees, if required, to enable full compliance to rules and procedures. Examples of this include Train Rides; Footboard Safety Meetings; Safety Blitzes; Dynamic Safety Reviews; Employee Reviews; New Hire Mentoring program.
  - Workplace Inspections: Identifies and resolves hazards in the workplace.
  - Audits teams verifying field level testing and inspection results for consistency
- Targeting incident trends, such as human factor-related causes with initiatives like "Home Safe," an internal program that commits to every employee going home safely after each shift through a genuine commitment to people and continuous improvement in CP's processes and technology.
- Implementing programs like body mechanics training to increase awareness and understanding of how to perform tasks in a manner that will avoid injury
- Other initiatives detailed later in this document.

CP's safety program is expected to improve even further once locomotive voice and video recordings can be used proactively as part of SMS. This information will give CP a deeper understanding of root causes and thus help CP to develop effective solutions to reduce human factor-related incidents.

In short, CP believes that no job on its railway is so important that its officers and employees can't take the time to do it safely. CP supports a regulatory framework that will allow it to continue to maintain the safety culture that delivers record-low levels of accidents while breaking ground with new technology in areas where CP has been challenged in the past.

3.2.3 Accidents at Railway Crossings

Railway crossing accidents are typically caused by the actions of a third party and are one of the top causes of accidents representing the greatest risk to human life and serious injury. As such, they are discussed here separately from other causes of railway incidents already discussed above. Despite industry and government efforts to educate the public on the hazards associated with rail crossings, investments in rail crossings, and implementation of various safety- enhancing regulations, the number of crossing accidents rose in 2012 and 2013. This is shown in Figure 8. Further, as depicted in Figure 9, 27 percent of crossing accidents result in a fatality or serious injury. The increase in crossing accidents is primarily due to the proliferation of level crossings, combined with increases in road and rail traffic volumes.

Figure 8: Number of Crossing Accidents, 2007-2016

Source: Transportation Safety Board

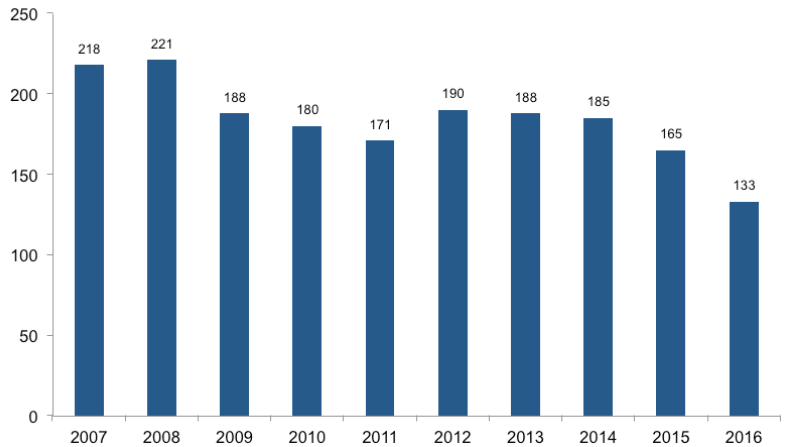
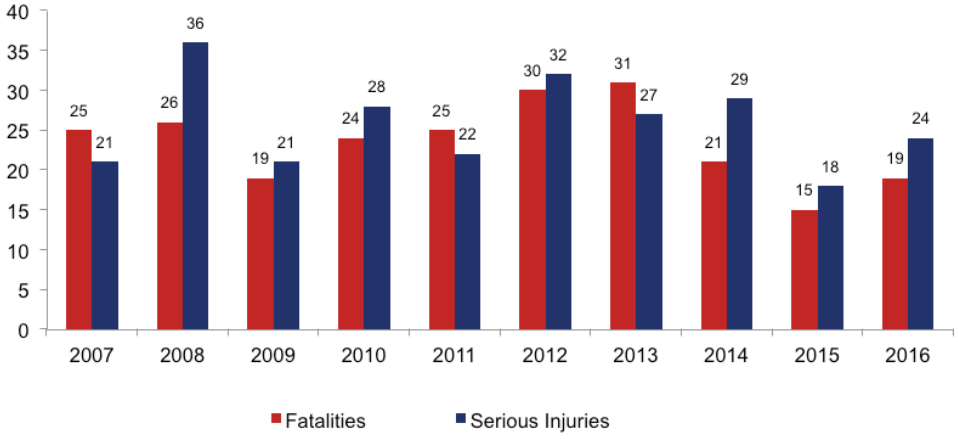


Figure 9: Number of Crossing Accidents and Serious Injuries, 2007-2016

Source: Transportation Safety Board



3.3 CP Programs & Initiatives

The following section is intended to give a high-level introduction to some of the key programs and initiatives that CP has in place to enhance the safety and security of its employees and the communities in which it operates, and which may be most relevant to the panel as part of their review. The programs, policies and procedures that CP has in place as part of its SMS to comply with regulatory requirements and advance safety are too numerous to include or provide comprehensive details on in this submission. However, additional information could be provided to the panel on request.

3.3.1 Capital Expenditures and the Impact on Safety Performance

Private infrastructure investment sets freight rail apart from most other industries. Railroads reinvest at six times the rate of the average manufacturer, building the rails that move the North American economy[5]. Privately owned freight railways invest in new equipment and improving rail lines and facilities. From upgrading signal control systems and replacing aging bridges to expanding the capacity of intermodal yards and launching new train control systems, freight railways pay for these initiatives with little to no taxpayer funds, unlike trucking companies, shipping companies and airlines. Regulatory agencies need to understand and be aware of this to avoid imposing additional costs on what is already a capital-intensive industry.

In order to serve its customers effectively in a safe and efficient manner, CP must continually invest in its assets and infrastructure. This includes maintenance and safety improvements to basic infrastructure, such as new rail, ties, ballast, bridges, track flaw detection technology and signals and communications technology, including additional installations of centralized train control (CTC).

[5] *https://www.aar.org/todays-railroads/our-network?t=railinvestment*

While safety is more than just capital investment, it is CP's view that there is a direct correlation between the financial health of a company and its safety performance. As shown in Figure 10, CP's annual capital investment averaged $925 million from 2007 to 2012. CP has significantly increased its capital investment, averaging $1.36 billion from 2012 to 2016, an increase of 47 percent as compared to the average annual capital expenditure between 2007 and 2012. Since 2007, CP has invested between 15 and 23 percent of its annual revenue back into its operations, as seen in Figure 11. Since 2011, capital investment has exceeded 20 percent of revenue. Between 2007 and 2016, CP invested $9.8 billion of its own capital.

Figure 10: CP Annual Capital Expenditure and Gross Ton Miles (GTMS)[6], 2007-2016

Source: CP Annual Reports

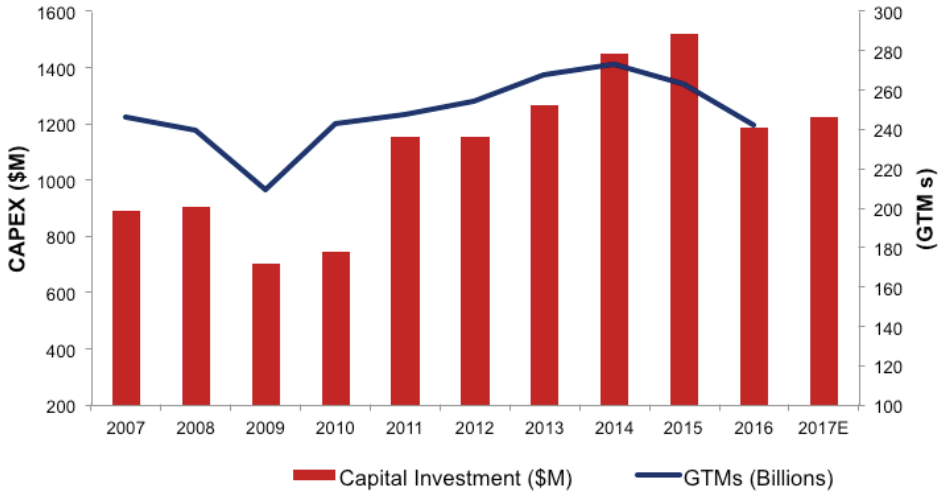
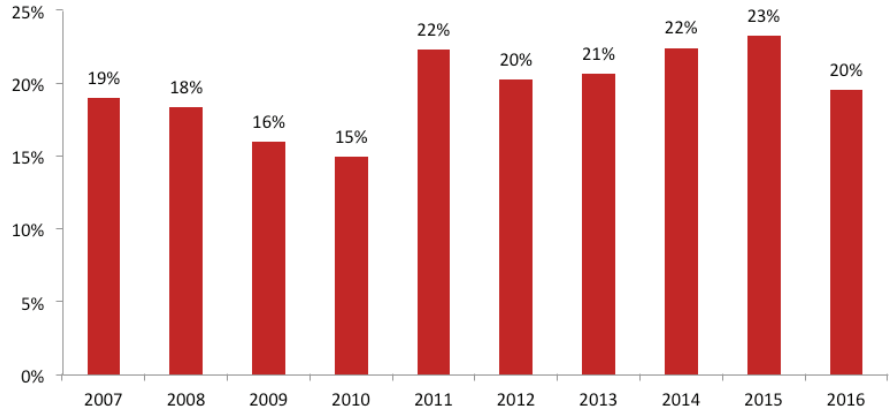


Figure 11: CP Capital Expenditures as a Percentage of Revenue

Source: CP Annual Reports



[6] *The GTM figure refers to gross ton-miles, as the quantity of freight CP moves annually directly affects its ability and need to make capital investments.*

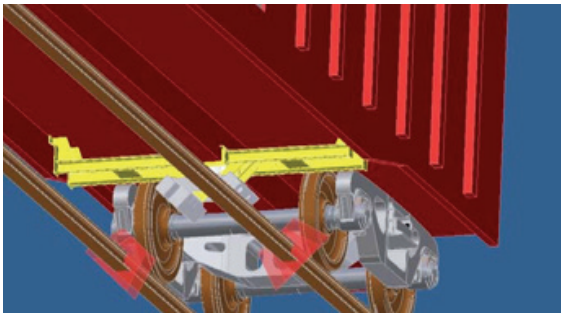
3.3.2 Technology

CP, as part of its Safety Management System, has invested heavily in innovative technologies that help to address the top causes of accidents. The development and implementation of these technologies exemplify the power of SMS, which requires railways to proactively identify, assess and mitigate risks from all sources. Unfortunately, current regulations do not provide relief from inefficient inspection processes that have been superseded by technology. As a result, opportunities to develop and adopt new technologies are in some cases being forgone.

The following are a few examples of technologies that address the risks posed by main track derailments:

- Rail Health Monitoring Systems: Historically, rail and track geometry defects have been the top causes of train derailments and sources of risk to train operations. CP's use of enhanced ultrasonic rail flaw detection, which scans the rail for internal defects that can lead to cracks or breaks in the rail; automated track geometry inspection vehicles, which test the fastening system of rails to ties; and joint bar imaging systems, which detect flaws and cracks that cannot be seen by the naked eye both exceed regulatory inspection requirements and have led to a safer operation. These technologies enable proactive detection, monitoring and elimination of defects before they pose safety risks. The use of these technologies has significantly reduced the risks presented by these causes. In fact, track-related derailments have declined by 39 percent in the past 10 years through the use of these technologies.

Track Evaluation Cars (TEC)

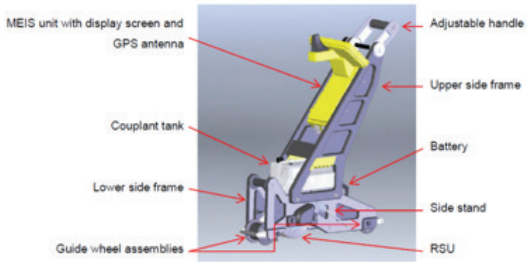


Autonomous unmanned geometry-measuring loaded boxcar

Hi-rail Track Geometry truck

Automated Tie Inspection

Rail Inspection Vehicle



Hand Operated B-Scan Rail Flaw Detector

- Equipment Health Monitoring System: Similarly, derailments caused by equipment (cars and locomotives) defects have been reduced by 50 percent over the past 10 years, largely as a result of the implementation of new technologies. Equipment defects, such as damaged wheels, ineffective brake systems and emerging wheel bearing issues, are known risks that have been dramatically reduced by the introduction of technology. Wayside systems that monitor wheel condition and profile, bearing heat and acoustic characteristics, and brake-system performance are linked across the North American railway network. This enables proactive identification of developing issues, and car set out and repair before operational safety is compromised.

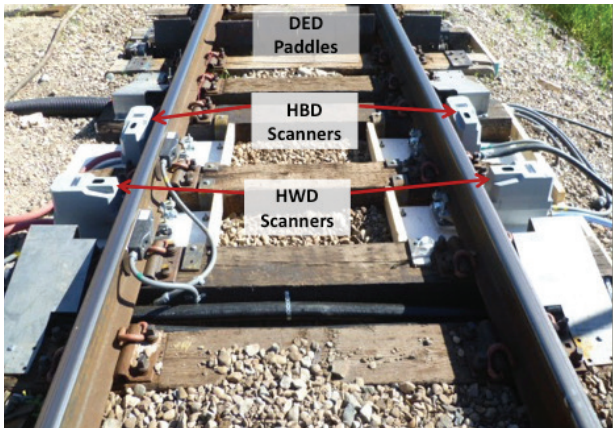
CP has the densest network of Wheel Impact Load Detectors of all the North American Class 1 railways. These detectors measure the impact of a wheel on the rail when a wheel has a flat spot on its circumference. Early detection and removal of wheels with this condition reduces the risk of both broken wheel and broken rail-caused derailments.

Wheel Impact Load Detector

CP has also started to implement Wheel Profile Detectors (WPDs) that are capable of processing and measuring various defects on each individual railcar wheel. WPD technology makes use of a high-speed machine vision system using structured laser-light sources to illuminate the flange and tread of a wheel, and high-resolution digital cameras to capture images. These images can then be used to determine if proactive action is required

Wheel Profile Detector

CP has also renewed its entire network of hot wheel bearing detectors. This system is comprised of approximately 300 wayside detectors that are all networked together. The detectors transmit detailed information on every wheel of every train as it passes. Using this information and sophisticated back-office computer algorithms, CP is able to accurately predict when a defect may require a more immediate action in order to prevent a potential safety issue.



Hot Bearing Detector / Hot Wheel Detector / Dragging Equipment Detector

Acoustic Bearing Detector

- Train Dynamics: In-train and track-train forces must be carefully managed to ensure safety. Canadian railways have deployed innovative technologies such as distributed power (radio-controlled locomotives positioned mid-train and/or end of train), computer-assisted throttle control and train marshaling software. These technologies are proven to reduce the forces trains exert on the track infrastructure. In fact, to help minimize and manage these forces, CP utilizes a state-of-the-art train marshalling program that was developed by CP with the assistance of Rail Sciences Inc. This industry-leading computer program is used every time a train is assembled to ensure that damaging in-train forces can be managed to a level that will not increase risk.

SMS, with its focus on risk identification and mitigation, accident and incident investigation, and trend analysis, has facilitated and encouraged the railways' adoption of these, and many other, innovative safety technologies. For example, U.S. railroads are using in-cab video and audio, or locomotive voice and video recorders (LVVR), as part of their safety programs, to alert them to behaviours, such as the use of smartphones and other devices, which can lead to accidents. The use of LVVR has been proven to reduce accidents in both public transit and trucking. San José State University's Mineta Transportation Institute followed some 20,000 transit buses equipped with audio-video equipment. The study found that the technology resulted in a 40 percent reduction in collisions per million miles travelled and a 30 percent reduction in passenger injuries. They also reported findings of up to a 50 percent reduction in unsafe driving events.

Further, a Virginia Tech Transportation Institute study shows use of in-cab voice and video recording reduce commercial motor vehicle crashes by as much as a third annually. Fatality reductions, the study concluded, might be on the order of 801 avoided, or 20 percent of fatalities resulting from truck crashes averaged over years 2010-12.

CP is pleased to see Canada follow suit with the recent proposal of legislative amendments that will require installation and use of LVVR.

3.3.3 Policing

The CP Police Service (CPPS) works closely with communities, other law enforcement and government agencies to promote railway safety and infrastructure security. CPPS is a railway law enforcement agency headquartered in Calgary, with police officers assigned to more than 25 field offices responsible for railway police operations in six Canadian provinces and 14 U.S. states. CPPS operates on the CP rail network, as well as in areas where CP has non-railway operations.

CPPS provides proactive directed patrols of company property with uniformed and plainclothes officers, enhances public safety through enforcement of trespass and traffic regulations and conducts criminal investigations. Members of the CPPS work with internal and external stakeholders to increase security awareness and reduce opportunities for crime and terrorist activities taking place within the CP network.

CPPS also has an intelligence unit that develops and disseminates relevant information about criminal activities and groups. This includes working closely with other intelligence services and agencies such as the Royal Canadian Mounted Police (RCMP), Transport Canada Security & Intelligence, the Federal Bureau of Investigation (FBI), the National Joint Terrorism Task Force (NJTTF) and Customs in both Canada and U.S. Through information sharing, the Intelligence Unit reviews current crime trends and projects future trends. It also provides recommendations relating to counteractions and proactive enforcement.

Through its Police Communications Centre, CPPS provides a 24/7 centralized complaint and emergency handling function that's available to employees and the public through a toll-free number. Depending upon the nature of a call, as well as the location, CPPS officers may be dispatched to respond, and/or the local police having jurisdiction may also be notified to provide assistance. The communications centre maintains an emergency contact list for all police, fire and emergency medical services agencies in communities through which CP operates, and acts as a central contact to notify internal and external parties when needed.

3.3.4 Security

Since CP's inception, it has voluntarily had a security program in place which has continued to evolve. CP is currently a voluntary participant in a TC/RAC Security MOU (originally signed in 1997) and the Chemical Industry's Responsible Care Program. To strengthen the overall supply chain and border security, CP is a certified carrier in voluntary customs programs, the U.S. Customs Trade Partners Against Terrorism (C-TPAT) and Canada's Partnerships In Protection (PIP). Through the Association of American Railroads (AAR), CP has also partnered with other railways in Canada and the U.S. to develop and implement an industry-wide security plan for North America that addresses physical and cyber security. This joint plan has been in place since 2002.

CP's security program is based on security risk assessments that take into consideration current intelligence from government security agencies in Canada and the U.S., as well as other sources. The program includes security plans with measures designed to prevent, mitigate, respond to and recover from potential security threats/incidents; training and awareness for employees; regular exercises; incident reporting; and intelligence-sharing. The plans are reviewed at least annually and updated as needed. The rail industry in general and CP in particular are very well prepared to prevent, mitigate, respond to and recover from security threats to the rail transportation system.

However, in order to ensure the strength of railway security, it must be recognized that security plans and information, such as the routing and volumes of dangerous goods, are "security-sensitive." CP believes access to this information must be limited to those with a need to know, and railways must be able to retain the ability to protect this sensitive information. It is important for regulatory agencies and other parties to understand this fundamental security principle and work collaboratively with railways to protect the existing security posture. For example, where information must be shared outside the railways, options should first be considered that will offer the best protection for the information. For example, regulatory agencies should consider conducting on-site reviews of information in lieu of requiring documents be filed, and by extension risk them being made public. Where this is not an option, adequate controls must be put in place to guarantee the protection of any information from unintended disclosure to other parties, including those that may have unlawful and/or malicious motives. This includes Access to Information Act requests where it is unknown who may be receiving the information. If this principle is not respected, the information can be used to help plan a potential attack against railways, as demonstrated in the recent Al Qaeda "Inspire" publication, version 17, which specifically cites using publicly available railway related information, such as Amtrak train schedules, for this specific purpose. While there is some statutory recognition and protection of security-sensitive information, that framework needs to be further clarified and strengthened so that such information is not inadvertently disclosed.

3.3.5 Access Control and Trespassing

Due to the geographical extent of CP's rail network and the nature of railway operations, controlling access to CP's railway infrastructure is challenging. CP's property must be accessible to various third parties, such as contractors providing services to CP, third parties having co-located infrastructures on CP's property (such as utility companies),and trucking companies delivering or picking up intermodal containers on behalf of shippers, to name a few. CP employs a risk-based approach with access control measures at specific locations on its property to ensure that access is restricted to authorized people, and only for authorized purposes. For example, identity cards are issued to employees and contractors who are working at specific locations on CP's property, each of whom must undergo a personal background check. Additionally, "No Trespassing" signage is used broadly across the CP network, and fencing is used where practical. Unfortunately, preventing illegal trespassing activity and incidents is often beyond CP's control.

To address access control issues more proactively, CP works to reduce trespasser activity and incidents on its property through education, enforcement and engineering. CP participates in a wide number of activities to try to reduce trespassing. These include education (to the public and CP employees), partnering with other law enforcement agencies, conducting directed patrols and joint forces operations projects with local police and conducting various enforcement activities, including blitzes in higher-risk areas. Examples of CP efforts to reduce trespass activity include security awareness training and procedures on reporting and dealing with trespassers; CP community relationship development strategy and programs (e.g. Operation Lifesaver; working with individual communities; the Federation of Canadian Municipalities and the Canadian Association of Municipal Administrators regarding the need to consult with railways regarding design, zoning and planning of communities near railways.

3.3.6 Employee Qualifications and Training

CP has all the right reasons to ensure that its operation is safe. Safety is a hallmark of good corporate citizenship. It is also good business, as safety yields productivity and reduces costs.

As such, CP offers state-of-the-art training to all of its operations employees. The training programs are continuously being refined to ensure content is current and the best training delivery vehicle is employed to assure complete understanding. CP has recently invested in state-of-the-art simulation technology that enables scenario-based learning for its train operations employees. Simulation provides a means to enhance the learning experience by challenging students with scenarios that are seldom experienced in the field, yet when they do occur, employees need to have the skill to react appropriately. CP's training programs are submitted to TC and reviewed on a regular frequency.

On Board Crew (Engineers and Conductors) Training

Locomotive engineer and conductor training is comprised of comprehensive programs involving a blended environment of classroom and on job training (OJT) under the supervision of qualified experts. The classroom training program has been improved considerably in recent years, and CP has invested significant capital in state-of-the-art simulators at its training centre in Calgary, where the locomotive engineer training program is centralized. These changes and improvements have been purposefully designed to better equip students with the knowledge they will need to succeed before they embark on OJT in the field. In addition to the practical OJT experience, the final qualification procedures incorporate rigorous skill testing that a student must successfully pass before being qualified. Management employees are subjected to the same curriculum with the same rigour and high standards as unionized employees.

It is in CP's best interest to ensure that there is a safe operating environment by qualifying employees only when they have demonstrated that they are competent. Notably, CP takes the time it needs to put employees through the qualification process and judiciously ensures that the required competencies are displayed by each individual employee. CP emphasizes that students will not be qualified before they can demonstrate the skills required. CP's field qualifying managers are highly versed in the challenges of local operations and will not qualify a student until all requisite testing can be performed. The rate at which students learn varies by the individual; i.e. some have natural competence and learn very quickly, while others take longer. CP's competency-based processes are designed to take that variability into consideration.

3.3.7 Work, Rest and Fatigue

CP has systems in place that ensure that its employees have sufficient opportunity to come to work rested. CP also recognizes that humans are not machines, and can therefore be subjected to a myriad of issues that could disrupt their rest. It is for this reason that CP has defenses in place and continues to seek new ways to improve quality of life while reducing the risk of fatigue. This will not only make its railway more productive, but also safer. Accordingly, CP is a strong advocate for a scheduling system where all conductors and engineers would have scheduled time off, predictable work patterns, and as a result, a more consistent work/life balance.

TC prescribes maximum work hours and minimum rest periods along with a requirement to monitor and manage employee fatigue within its Safety Management System. CP has been a proponent of revisions to the current regulatory requirements, most notably requesting to reduce the permissible hours worked in a day by one-third.

Fatigue

Fatigue is a multi-factorial problem and must be addressed through a holistic program that strives to identify and take into consideration all potential contributing factors. It is well recognized that fatigue management is a shared responsibility between employees and employers. Employers are responsible for providing a work environment where sufficient rest opportunities are available, and employees are accountable for using those opportunities in a responsible manner. CP recognizes that a comprehensive fatigue management program is essential to safe rail operations. CP has devoted an extensive amount of time and resources to review, update, monitor and expand its fatigue management program in conjunction with its fitness to work program.

CP has engaged multiple stakeholders regarding the issue of fatigue. These stakeholders include, but are not limited to, CP's Health Services department, CP's chief medical officer, the Medical Advisory Group of the Railway Association of Canada, external medical consultant specialists, TC and labour unions to establish a program that addresses the multiple factors that may contribute to fatigue and mitigate the associated risks for its operations employees.

CP's fatigue management program begins at the point of hire. New employees are subject to a comprehensive medical assessment that includes an assessment of established medical conditions including mental health disorders, sleep disorders (including sleep apnea), metabolic disorders, substance use disorders and cardiovascular disorders (which are often associated with poor physical conditioning). All of these factors can contribute to reduced fatigue tolerance. In addition, the comprehensive medical assessment incorporates screening tools to help identify employees at increased risk of sleep apnea or related medical conditions, which have yet to be addressed. If the initial medical assessment identifies areas of concern, further medical assessments and/or monitoring is initiated in accordance with established standards of practice.

This comprehensive medical assessment is industry-leading. For safety-critical position employees, CP's policy dictates that the medical assessment must be repeated every five years until the employee reaches age 40 and every three years thereafter. Employees identified with at-risk medical conditions are not permitted to operate in a safety critical position until these conditions have been addressed by a medical practitioner, reviewed by CP's Health Services department and determined to be appropriately treated. A process of ongoing medical monitoring is then implemented to ensure that the medical conditions remain stable and are well controlled.

To complement the above, CP has a number of programs in place to identify and address medical conditions, manage medical fitness for duty requirements and to educate employees on fatigue management. The education program includes content on exercise, nutrition, and good sleep hygiene practices, both in the work and home environments. The education program also contains content on how to cope with shift work, which is a reality of the railway business. CP also provides sufficient opportunities for employees to rest when not working. These measures are contained in negotiated collective bargaining agreements between CP and the relevant labour organizations. The employee's role in the system is to responsibly manage their rest and personal condition to ensure that they are able to safely perform the duties expected of them and, most importantly, to report and seek appropriate assistance if they have concerns about their ability to work safely. This comprehensive and responsible approach addresses the multiple factors that may contribute to fatigue, thus mitigating the associated risks for operations employees.

Finally, CP has an employee and family assistance program that is available at any time to its employees and to their families should they experience problems that may impact either their personal or work life. CP's employee and family assistance program includes an abundance of information with respect to health and wellness programs at no direct cost to the employee or to the family. The program is an example of a well-used resource that was recently reviewed, updated and expanded to the benefit of CP employees.

But the most important point is that no employee ever has to work if they believe that they are too tired to function safely. All conductors and engineers are allowed to book off duty "unfit" without giving a reason, and without fear of discipline. The last thing CP wants is for an employee to jeopardize safety – their own, that of their fellow employees, the public and/or the environment – because they are too tired.

However, fatigue management is a shared responsibility between the company and employees. Employees must take personal responsibility to manage their time to ensure that they are well-rested and prepared for work in a job that demands the highest safety standards.

It is the company's responsibility to ensure that there are ample opportunities for rest built into an employee's work schedule and that there are always options available to employees if they are too fatigued to work safely. At CP, those options are available, and the evidence demonstrates that its employees have ample opportunities for rest.

That being said, there is certainly room for improvement. More predictable work schedules would enhance fatigue management and improve safety. But, to the dismay of some, it would limit the ability of employees to compress work schedules to create multiple consecutive days off every month.

Improving the predictability of work schedules is an important safety issue that CP has been pursuing with its unions through good-faith collective bargaining for years. Unfortunately, the company has not yet been successful in incorporating provisions in the collective agreements for more predictable work schedules and a stronger fatigue management regime. This will continue to be a priority for CP that it will pursue with its unions, always through good-faith collective bargaining, because it's something that can be done to improve safety on its railways.

Regrettably, some myths have been circulated with respect to fatigued railway crews. The myths hold that railway employees have long working hours, no opportunities for rest in between shifts and unpredictable schedules.

Facts and Myths

THE MYTH is that employees:

- Must work long shifts
- Lack rest opportunities
- Must work unpredictable schedules

Fact: CP is a strong advocate for a scheduling system where all locomotive engineers and conductors would have scheduled time off and predictable work patterns. This would enhance predictability for all employees in road service who don't have assigned work and rest days.

CP has compiled the following facts in response to inaccuracies that may be out there about work and rest.

FIVE ESSENTIAL FACTS ABOUT REST AND PREDICTABLE WORK TIME (2016 data)

1) Rest after every run: Engineers and conductors can schedule eight hours of rest (plus a two-hour call) after every train run to an away-from-home terminal. When at their home location, they can schedule up to 24 hours of rest (plus two-hour call). At certain mileage periods, they can also schedule up to 48 hours rest (plus two-hour call). Employees who work in yard operations typically work eight-hour shifts with scheduled rest days.
2) Additional ways to take time off: 40 percent of the time, road conductors and engineers do not, by choice, take all the rest time available after each shift. However, there are many other ways to take time off, including earned days off, personal leave and vacation. Typically, they have many hours or days between shifts.
3) No more than 12-hour days: 91 percent of the time, road engineers and conductors are on duty between 0 and 10 hours. For anything beyond 10 hours, CP pays a monetary premium in accordance with the collective agreement provisions.
4) No scheduled days: Road engineers and conductors do not have a scheduled shift length. By the five-hour mark of their shift, they may choose to inform the company if they are unwilling to work past 10 hours. This can make start times unpredictable for other employees when estimating when they will go to work.
5) Expect the unexpected: Anyone who has taken a commercial flight knows that weather happens. So do mechanical issues. The railway faces many of the same inevitabilities. Nevertheless, only 1.48 percent of employee shifts exceeded 12 hours.

Time Off

The rail industry is a 24/7/365 business aimed at moving the nation's commerce. Operations do not take the weekend off, and because of this, conductors and engineers have benefits and challenges in their work. In recognition of the 24/7/365 operational demands, conductors and engineers are compensated with commensurate salary, robust health benefits and prime opportunities to grow within the company. The challenges include working on call with a two-hour call window and potentially working on holidays or during events.

The following is a summary of rest provisions for locomotive engineers and conductors:

- Home terminal rest: Upon arrival at their home terminal, employees can schedule up to 24 hours rest (plus two-hour call).
- Away from home rest: An employee may schedule up to eight-hours rest (plus two-hour call) upon arrival at an away-from-home terminal.
- Penalty rest: Should an employee work more than 10 consecutive hours, he or she can take extra time off at a rate of 3 to 1 for each minute worked over 10 hours, with a minimum of one hour of additional rest opportunity.
- Rest after engine service brakemen is held to work as engineer is not used: An employee may schedule up to 10 hours of rest (plus two-hour call) after being held for longer than 18 hours then released.
- Rules qualification rest: After qualifying for rules, an employee may schedule up to 12 hours rest (plus two-hour call).
- Rest after annual vacation: Following an annual vacation, employees may schedule up to six hours rest (plus two-hour call) before starting work.
- No employee is required to work if they are too tired: All conductors and engineers are allowed to advise CP they are unfit to report for work without giving a reason.
- Earned days off (EDO): Employees can earn up to 12 additional days off each year. These can be taken three per month or banked. Access to EDO cannot be denied.
- Bridge to earned days off: Employees may request additional time off to bridge to their EDO so they do not have to work if their rest expires beforehand.
- Leave of absence/personal leave: Employees may request an extended leave of absence or personal leave.
- Off for miles: At certain mileage periods, employees can schedule up to 48 hours rest (plus two-hour call) twice per month. Additionally, after accruing the maximum monthly mileage amount, they can take the rest of the month off.
- Rest after being off for miles: Following their return from being off for miles, employees may schedule up to six hours rest (plus two-hour call) before starting work.

CP is committed to operating safely and a well-rested workforce is an important part of that. CP's engineers and conductors have many rest opportunities to ensure that they get the time off they need between shifts. Unfortunately, they do not take all of the rest they are entitled to 40 percent of the time.

For real change to occur in Canada, collective agreements need to be more progressive and forward-looking to address the needs of today's employee. CP has tried to address this issue through collective bargaining.

In an arbitral decision, dated August 3, 2016, dealing with the issue of mandatory time off between trips, Arbitrator John Stout stated *"I acknowledge that fatigue is a matter of safety that affects both the company, the Union's members and the general public. Addressing fatigue is in the best interests of both parties to this proceeding. The issue should be addressed in collective bargaining either by agreement or in an interest arbitration award. It is not the role of a rights arbitrator to set public policy or rewrite the parties' collective agreement."*

In the United States, CP has been able to improve the quality of life of its engineers and conductors, while at the same time reducing the risk of fatigue. The Soo Line and the Dakota, Minnesota & Eastern (subsidiaries of CP) are moving to an age where employees can have more predictable work patterns, and in the process deliver better, more reliable service to customers.

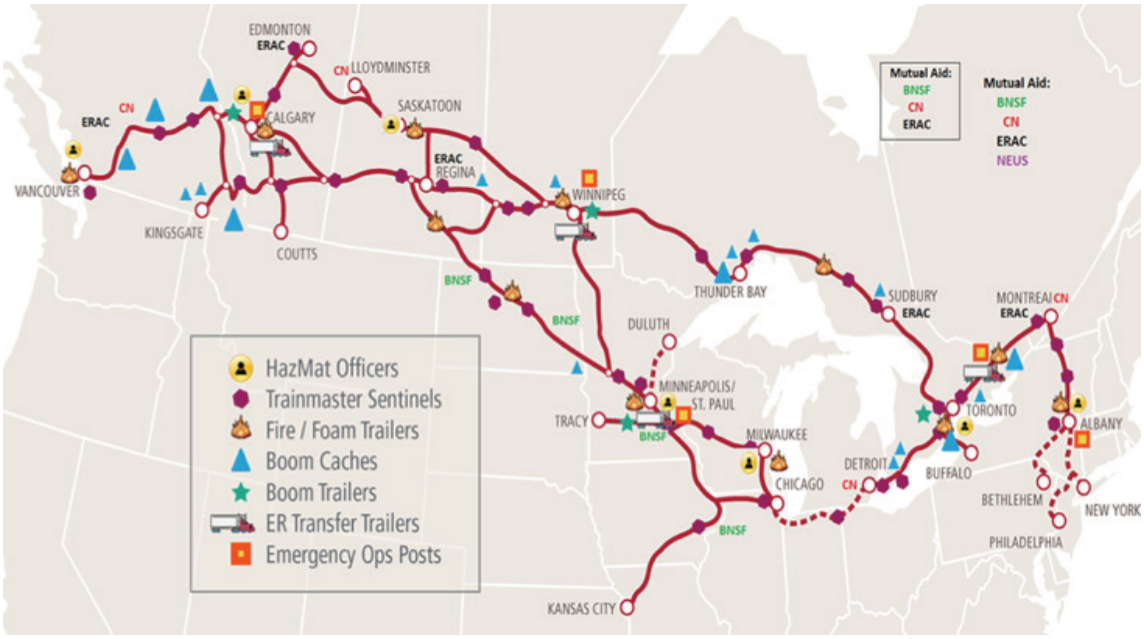
In Canada, CP has just recently been able to engage with the TCRC-T&E in meaningful conversation on this important topic. At the beginning of September, 2017, CP and the Teamsters Canada Rail Conference – Train & Engine announced a one-year renewal of the existing agreement, subject to ratification.

3.3.8 Emergency Preparedness and Response

CP has well developed emergency preparedness and response plans. The planning and successful execution of CP's emergency preparedness and response plan is based on the following five core principles:

1. Expertise: An essential part of CP's commitment to safety includes being ready to respond quickly and effectively to those rare times when incidents may occur. CP has invested broadly in a network of experts, equipment and contractor resources that ensure a highly effective response. These resources frequently deploy to training and exercises with first responders across CP's network to ensure efficient integration between local first responders; other agencies and CP's experts.
2. Equipment: Figure 12 provides an overview of the emergency response equipment that is strategically located across the network.

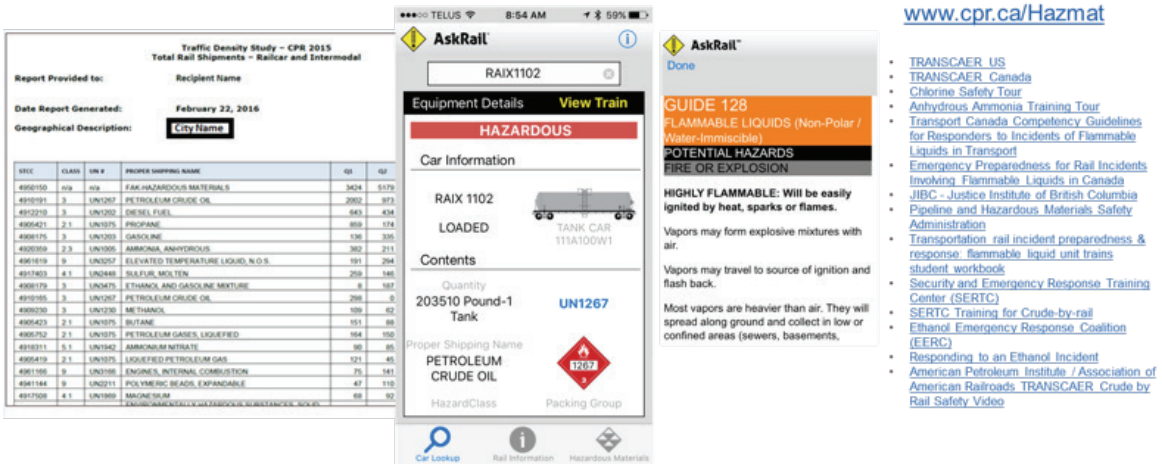
Figure 12: CP Emergency Response Equipment



3. Planning: In 2017, CP completed a top-to-bottom modernization of its response plans. This included improvements to an integrated contingency plan (an all-encompassing emergency response plan utilized as a single source document to be used by all for any emergency situation); written facility emergency plans for each major yard that communicates policies and procedures for employees to follow in emergencies. In order to help managers responding to incidents, the implementation of these updated plans were supported by the development and rollout of mandatory training for managers on the Incident Command System (ICS), and a new "Emergency Response Red Book," a logbook developed to assist supervisors in responding effectively to emergencies in the field and to standardize documentation. The Emergency Response Red Book is also designed to assist in organizing activities, keeping records of notes and tracking actions taken throughout the emergency response.

   Finally, CP developed a community emergency planning guide that is designed to supplement local emergency plans. It covers key information needed by community planners and emergency responders should an incident take place involving CP. The guide is available in both English and French on CP's public website

4. Information Sharing and Communications: CP provides information to communities and various levels of government on the types and volumes of hazardous materials that CP transports. This is valuable for local emergency planners and responders to better understand the scale and level of risk they should plan for, in case of a rail-related incident in their community. Real-time information about the contents of any tank car is available to authorized first responders through AskRail, a rail-industry mobile smartphone application.



5. Training and Exercises: CP's Emergency Response Training Program: The CP dangerous goods team consists of highly trained experts strategically positioned across the CP network. CP also provides training to its regional contractors and ensures it has quick access to experts in any field that could be required for an incident response. Further, 133 CP managers and CP police employees have completed a one-week emergency awareness and response training program at the Transportation Technology Center Inc. (TTCI) in Pueblo, CO. The Security and Emergency Response Training Center (SERTC) located within the TTCI facility provides students with an understanding of basic emergency response, integrated command and preliminary scene assessments.

   CP has a tank car, CP 911, which has been converted into a training car for first responders to allow hands-on experience working with a tank car. Training trailers are used by CP's dangerous goods team with local emergency responders and fire departments. Having mobile training equipment enables the CP team to take the training to the fire departments, thus giving more firefighters access to hands-on training.

Figure 13: Firefighters Trained at Sertc on CP's Network

Table 1: Summary of the Number of Firefighters Trained, 2014-2016

Year	Canada	US	Total
2014	90	99	**189**
2015	81	36	**117**
2016	93	26	**119**
Total	**264**	**161**	**425**

Despite its low train accident frequency, CP recognizes that it must still be prepared to respond effectively for those rare times when train accidents do occur.

4.0 OPPORTUNITIES TO IMPROVE RAIL SAFETY

4.1 Trespassing, Grade-Crossing Accidents and Encroachment

There have been numerous reports and recommendations identifying a need to deal with municipal planning and encroachment, trespassing and grade-crossing accidents, all of which, if addressed appropriately, will significantly improve rail and public safety.

CP has and will continue to work with municipal leaders to improve public safety. However, all levels of governments and the public at large have to recognize that this is not an issue that the railways can solve alone.

4.1.1 Grade Crossing Safety

Transportation Safety Board (TSB) data clearly demonstrates that the number of fatalities and injuries at grade crossings is unacceptably high. Grade crossings are where railway operations and the public intersect. Therefore, provinces and municipalities should be required to take more responsibility to address grade crossings with a more holistic and strategic approach in order to improve safety. As a comparison, U.S. legislation requires most states to develop a "State Action Plan" (SAP) for highway-rail grade crossing safety. The action plan is considered an important part of the grade crossing program management process, as it requires the implementation of an organizational strategy, with goals and objectives to improve safety. As part of this plan, states are expected to address grade crossing elimination (closure, relocation, consolidation, grade separation construction/reconstruction), innovative technologies, education and awareness efforts; and communication efforts.

This revised approach must be done in conjunction with authority and process improvements at the federal level. As it stands, the Canada Transportation Agency (Agency) is responsible for approving the opening and closing of crossings, while TC is responsible for the overall safety of crossings. The Agency grants the construction of crossings based on private, provincial, or municipal transit interests without due consideration to either the impact on public safety or railway capacity and without sufficient consideration for safety. While TC is on record encouraging the closure of rail crossings and discouraging new ones, the Agency is in the business of doing just the opposite. The Agency's regulated approach is to grant all private crossing requests (s. 102 of the Canada Transportation Act – often referred to as 'farm crossings'), even though the resultant crossings are not private at all. Rather, they are de facto public crossings. These crossings are public due to ongoing transit by vehicles for various public uses; e.g., cottages and cottage associations, shopping complexes and industrial parks.

An example of this is the 2013 case[7] regarding an application by a developer to construct a crossing in an important corridor in Ontario where the Agency ruled that CP must construct and pay for a farm crossing, but had to make it suitable for land development purposes. In its decision, the Agency first determined that the construction of a crossing at this location is necessary for the owners' enjoyment of their land, and only then did it consider safety. It did this by requiring a "suitable crossing," stating,

> *"This term, by definition, includes an element of safety. A suitable crossing is a crossing that is adequate and appropriate for the purposes for which it was intended and installed…"*

It further cites an excerpt from a decision related to CN in Order No. 1998-R-307 (*"The Agency is of the opinion that a suitable crossing at this location will consist of a crossing which provides access to the public road when required, and which is not blocked for excessive periods of time."*) to support their conclusion as "suitability" is not defined in the Canada Transportation Act. This is an extremely narrow focus on safety that erroneously assumes a "suitable crossing" offers no safety risk simply because it will be designed for its intended use. Safety statistics do not support this type of conclusion. In another case, the Agency ordered CP to open a crossing just after TC had ordered it permanently closed for safety reasons.

[7] *Decision No. 80-R-2013 March 7, 2013 APPLICATION by Benninger Holdings Inc. and 575482 Ontario Limited, pursuant to section 102 of the Canada Transportation Act, S.C., 1996, c. 10, as amended. File No.: R8050/291-007.40*

CP has long advocated for one regulatory authority to both approve the opening of new crossings and oversee crossing safety. That authority must be given a mandate to only consider new crossings where no other viable alternative exists, as there is an inherent safety risk associated with any level crossing that increases the opportunity for the public to interact with a train. Public convenience should not come at the expense of safety. Fundamentally, the safety objective should be an overall reduction of level crossings: taking a corridor approach of upgrading certain crossings, closing others in close proximity and diverting traffic to the safest crossings. TC's new Grade Crossing Regulation and Standards, issued in 2014, did not address the fundamental question of whether or not the crossing is required in the first place, the inconsistent regulatory regime that exists in Canada, nor quell the Agency's predisposition to grant all crossing applications. Canada needs a reinvigorated approach to consolidate and reduce the number of crossings, then apply appropriate protection to those that remain.

Additionally, while TC supports and helps fund the closing of crossings, there is a significant lack of public funding available for road authorities or railways to make meaningful improvements to grade crossing safety. In 2016, TC discontinued the individual funding programs for the Grade Crossing Improvement Program, the Grade Crossing Closure Program, and Operation Lifesaver. As a replacement, TC launched the Rail Safety Improvement Program (RSIP) which broadens the scope of funding for projects and initiatives that improve rail safety beyond crossing safety to include research and new technology. This means that programs like Operation Lifesaver and those targeting Grade Crossing safety, must compete against other initiatives for limited funds making it more difficult for funding to be secured specifically for crossing safety. The maximum available funds available under the RSIP for 2017/18 are $20 million per year.

As a comparison, in fiscal year 2016, the U.S. Federal Highway Administration (FHWA) was allocated $350 million to eliminate grade crossing hazards, most notably through the Railway-Highway Crossings Program, also known as the Section 130 program[8]. The Section 130 program has been correlated with a significant decrease in fatalities at railway-highway grade crossings. From the program's inception in 1987 until 2014, fatalities have decreased to 267 from 624, a 57 percent reduction. This is a continuation of the trend from 1975, when there were 888 fatalities at railway-highway grade crossings. The overall reductions in fatalities came despite an increase in the vehicle-miles traveled on roadways and an increase in the passenger and freight traffic on the railways[9].

As a further comparison, under Infrastructure Canada's "Investing in Canada Plan", TC has the responsibility to manage an initiative called "Investing in Trade and Transportation Infrastructure," which commits to investing $10.1 billion over 11 years (average of $918 million per year) in order to "prioritize investments that address congestion and bottlenecks along vital corridors, and around transportation hubs and ports providing access to world markets." As a new program, it is unclear if improvements to crossings for safety reasons would be eligible for funding under this program.

Recommendation #1: Provinces and municipalities should be required to take more responsibility to address grade crossing with a more holistic and strategic approach in order to improve safety similar to "State Action Plan" (SAP) for highway-rail grade crossing safety that are required for most U.S. States. As part of this plan, states are expected to address grade crossing elimination (closure, relocation, consolidation, grade-separation construction/ reconstruction), innovative technologies, education and awareness efforts and communication efforts.

Recommendation #2: The Minister of Transport should have the sole authority to approve new crossings, and should only do so as an option of last resort upon evidence of clear need and adequate safety, and after having considered alternatives such as grade crossing elimination/closure, relocation, consolidation, or grade separation construction/ reconstruction. In the event of a new crossing opening, an existing crossing should be closed so that there is no net increase in the number of crossing. The overall goal should be to reduce the number of crossings, which will benefit overall public safety.

Recommendation #3: Additional public funding should be made available to improve the safety of at-grade crossings, including a review of existing funding criteria for programs such as "Investing in Trade and Transportation Infrastructure" to encourage grade crossing closures or grade separation crossings. This would not only improve safety, but help address congestion and bottlenecks on roads and railways.

[8] *US Senate Committee on Commerce, Science and Transportation, July 17, 2017 Letter to the Honorable Gene L. Dodaro; Comptroller General of the Government Accountability Office (GAO).*

[9] *Railway-Highway Crossings Program 2016 Biennial Report to Congress*

4.1.2 Proximity and Trespassing

Given the vastness of Canada's railway system, railways are limited in their ability to reduce trespasser-related incidents. The annual number of fatalities and injuries associated with trespassing in Canada is unacceptable and is unfortunately on the rise despite railways' continued and extensive efforts to work with communities to reduce trespassing. Approximately 90 percent of rail-related fatalities and injuries occur at crossings or because of trespassing. Initiatives to reduce trespasser activity must be collaborative, including participation from all levels of government, railways, communities and citizens. This is particularly true as communities continue to expand, moving closer to railway operations.

A common theme throughout the public consultations organized by the RSA Review Panel during the 2006/2007 RSA review was public and railway concern over proximity issues arising as a result of increasingly persistent urban development near railway property, and the railways' continued ability to operate safely in the face of such developments. Grave concerns continue to exist about the prevalence of developments near railway yards and corridors.

The review panel summarized the issue succinctly in the 2007 Report to the Minister, at page 104:

> *"The issue of new development near railways is a multi-jurisdictional challenge, since land-use planning and development is both a provincial and a municipal responsibility, while the major railways and their rights-of-way are federally regulated. There are no consistent consultation protocols or land-use appeal mechanisms across the country, and provincial and municipal land zoning and permit procedures vary widely."*

While some communities and developers consult railways before engaging in any development next to railway lands, most, unfortunately, do not. In such cases, railways have no opportunity to voice concerns until the project has been approved, and it has become too late to amend the municipal or development plans.

The review panel recognized the serious nature of this discrepancy and its direct relationship with railway safety. Recommendation 34 of the report reads as follows:

> *34. The Railway Safety Act should be amended to require the developer and municipalities to engage in a process of consultation with railway companies prior to any decision respecting land use that may affect railway safety.*

Through the previous RSA review and the legislative changes under Bill S-4 Safer Railways Act, CP actively advocated for regulatory changes that would have required developers and municipalities to engage in a process of consultation with railway companies prior to any decision respecting land use that could affect railway and public safety. This would have enabled CP to proactively provide input on engineering solutions that could mitigate risks to the public. Unfortunately, the government and TC did not act on the panel's recommendation and thus did not make the necessary changes under bill S-4. As a result, proximate land use issues persist.

Recommendation #4: CP believes the federal government should work with provinces and municipalities to put strong standards in place with respect to land use in close proximity to railway operations, similar to the way federal airport zoning regulations restrict land use in close proximity to federally regulated aviation operations.

4.2 Transport Canada Oversight and the Transportation Appeals Tribunal Process

CP understands and supports TC's need to have a strong oversight regime. Section 31 of the RSA gives broad power to individual railway safety inspectors by providing unfettered discretion in their ability to order a company to amend or cease a work practice when certain conditions exists. This is an extraordinary power that needs to be exercised with a high degree of temperance, based on extensive expertise and with regards to the full implications of such order. CP understands that there are certain occasions that give rise to the need to issue orders for immediate actions, but the order should be restricted to the immediate threat to safety and only to the specific situation giving rise to such threat. Unfortunately, orders are often overly broad, changing industry-accepted rules having system wide applications. If left unchecked, the overuse or the overbroad nature of the orders issued will lead to the subversion of the legitimate rulemaking process that involves consultation with and collaboration of all of the stakeholders.

Generally, TC's inspectors use this power in a responsible manner. However, CP has also been faced with decisions that have either been without sufficient supporting evidence and expertise, or are inconsistent with longstanding interpretations and industry standards, including at times, inconsistencies with TC's own positions. It has been observed that inspectors lack guidance, training, tools and resources in order to ensure that their assessment of any given situation properly requires such a drastic measure, and that the remedial order is an appropriate one. In some cases, the inspectors' order betrays certain biases or other improper motivations or influences. When such problems occur, a railway's only means to have the matter corrected is to seek a review before the Transportation Appeals Tribunal, which can be a long, drawn-out process.

Even if successful, the railway is still left without an effective resolution, as the matter needs to be referred back to the minister for reconsideration. In CP's experience, the review and appeal process is a rigorous one, as it should be. Much time and effort is devoted to a thorough testing of the evidence and reasoning behind the order under review. Credibility is assessed and full opportunity is provided to present legal arguments. Unfortunately, much of the benefit of what is learned through the process is forgone, as the tribunal's only ultimate choice is to either affirm the order or send it back to the minister for reconsideration. Presently, there is no process in place governing the reconsideration by the minister.

In order to bring balance to these issues, CP believes that two changes are required. First, the RSA needs to give TC headquarters the ability to provide internal direction and oversight to its inspectors, to require inspectors to be better trained and equipped to exercise such discretion and to require inspectors to provide full disclosure of the supporting evidence for its decision when an order is issued, or as soon as practicable. Second, the appeal process to the Transportation Appeals Tribunal needs to be amended. At present, the tribunal only has authority to refer an order back to the minister for review.

Recommendation #5: The RSA needs to impose greater oversight of railway safety inspectors and require railway safety inspectors to be better trained. Additionally, TC must support those inspectors with effective tools and resources to ensure that their discretion is exercised with proper care and attention.

Recommendation #6: That the Transportation Appeals Tribunal should be granted authority to confirm, revoke, or alter an order and only refer the matter back to the minister when necessary. In fact, the 2007 RSA review contained this recommendation. See the 2007 report, "Stronger Ties: A Shared Commitment to Railway Safety," recommendation 14.

4.3 Drug and Alcohol Testing

There is no room in safety-critical industries, including railway operations, for impairment from drug or alcohol use. CP adopts very strict standards respecting alcohol and drug use, particularly in relation to employees occupying safety-sensitive and safety-critical positions and does not tolerate deviations from this policy. In accordance with CP's policy, all employees must report to work in a condition that enables them to safely and effectively perform their duties. As a condition of qualification for a safety-critical or safety-sensitive position at CP, candidates are required to undergo a drug test. CP's policy also incorporates by reference the Canadian Rail Operating Rules (CROR) Rule G, which prohibits the use or possession of intoxicants, narcotics, or other mood-altering agents by all rules-qualified operating employees while on duty. Despite CP's policies and all of the programs and support systems that are in place, the risk of employees being under the influence of drugs or alcohol that impairs their ability to work safely remains.

Currently, CP employees can only be tested for drug and alcohol use in limited circumstances, such as following an accident, for cause, or by agreement. This restriction inhibits railways from a more proactive detection of alcohol and drug use where such use could pose a safety threat to the employees, their co-workers and the general public. In order to ensure its employees are fit to operate, CP supports random drug and alcohol testing of safety-critical employees in Canada, similar to what is currently in place in the United States. CP believes the anticipated legalization of marijuana will normalize the use of this drug and provide new challenges associated with the detection of alcohol and drug use, and the enforcement of our policy.

While legalization of marijuana will be a new phenomenon, the need for a more proactive drug and alcohol testing regime has already been part of the dialogue for many industries for many years in Canada. Much debate has been had in different forums and more recently, a steady stream of legal challenges have forced the Canadian courts to grapple with these emerging issues. At the heart of the issue is a conflict between the desire of certain employers to use all available tools to proactively foster a safe environment, and the criticism that random drug testing invades an employee's reasonable expectation of privacy, and can be a form of discrimination on a prohibited ground under human rights legislation.

What is unfortunate is that the solution is slow in coming, reactionary and fragmented, as can be seen in the case with the Toronto Transit Commission (TTC) and its continuing legal challenge with the Amalgamated Transit Union Local 113 (ATU). Almost 10 years ago, in 2008, TTC approved implementation of what it called a "Fitness for Duty Policy," which did not come into effect until October 2010. TTC's policy did not initially provide for random drug and alcohol testing, though TTC did advise ATU that it reserved its right to implement random testing. Random drug and alcohol testing was ultimately added to TTC's policy in October 2011, but the implementation was delayed until March 2016. Prior to the policy coming into effect, ATU filed a grievance which, after six years, when the court was asked to rule on an injunction application filed by ATU, the arbitration was not yet completed. When TTC decided in March 2016 to implement the random testing, TTC sought an injunction in the Ontario Superior Courts. In the intervening years, a tragic accident occurred in August 2011 where a passenger was killed, and the TTC bus driver was found to be in possession of illegal drugs.

Also in the intervening years, the Supreme Court of Canada had occasion to address the issue in the case of Communications, Energy, and Paperworkers Union of Canada, Local 30, v Irving Pulp & Paper Ltd., 2013 SCC 34. In that case, the Supreme Court of Canada held that employers in a safety-sensitive unionized workplace must demonstrate a general drug or alcohol problem in the workplace to justify random drug and alcohol testing policies. Guidance on what constitutes a general problem with substance abuse in the workplace is currently working its way through the courts in Alberta in the case of Suncor Energy Inc. v. Unifor, Local 707A, 2016, ABQB 269.

The Ontario Superior Court followed the settled three-part test for an injunction application and ultimately dismissed ATU's request. Notably, the court ruled that, based on the evidence, there is a "demonstrated workplace drug and alcohol problem at the TTC, which is currently hard to detect and verify". What is also notable is that the Ontario Superior Court went to great lengths to discuss the science and methodology behind the testing protocol and the safeguards TTC had in place to ensure that privacy is protected to the extent possible. The court also noted testing was not only performed on employees in safety-sensitive positions, but also on specified management, senior management, and designated executive positions, including that of the chief executive officer of TTC. At the writing of this submission, TTC has begun random drug and alcohol testing, and the status of the arbitration between TTC and ATU is unknown.

Despite these positive developments in the case laws, the issue is far from settled. What is preferable is to have a unified and clear statutory authority for random testing of drug and alcohol use, with standardized processes and limits, so that all employees in safety-critical positions are aware of their obligations and the importance of being, and remaining, fit to work at all times.

Recommendation #7: The panel should consider whether the government has adequately identified the increased safety risks for railway operations related to the proposed legalization of marijuana, and if there are sufficient plans to address concerns such the lack of effective testing methods and "legal" thresholds if not addressed prior to the legalization of marijuana.

Recommendation #8: The panel should consider the need for random drug and alcohol testing of safety-critical employees in Canada, similar to what is currently in place in the United States.

4.4 Technology and Innovation

In CP's experience, TC has been hesitant to support technologies, even those that have demonstrated value, in the improvement of railway safety, especially if the long-term intent would be to replace existing regulatory requirements that are less effective. This often appears to be driven by concerns with public perception about safety rather than facts. At best, TC has been slow to implement necessary regulatory changes to allow for the use of safety technologies in lieu of manual inspection procedures and at worst the department has been a barrier to technological innovation. The result is deterring railways from investing in technology to improve safety. CP believes TC must allow and support the use of technologies that are proven to be superior to antiquated, manual inspection processes.

Recommendation #9: The panel should consider the need for TC to address this by finding ways to work collaboratively with the railways to both remove the impediments that limit investment and accelerate the implementation of safety technology. This would need to be done with full consideration for cost and efficiency benefits that would help justify the investment to accomplish the safety benefits.

4.5 Safety Data – Reporting, Analysis and Publication of Performance Statistics

Railway safety records are continuously improving. In order to improve, and as part of SMS, railways must analyze their performance on an ongoing basis to determine where to focus safety initiatives and programs. The fact that railways are able to successfully do this indicates that they have and are effectively using performance information. However, as part of the 2007 RSA review, TC made recommendations to improve safety data, but these were not properly addressed. For example, incident information gathered by the TSB is grouped in overly broad categories and does not differentiate between severity levels. There appears to be little analysis of the data that is gathered or feedback outside of information provided in individual TSB accident investigation reports. This information is also not fully shared with TC, which results in duplicative requests by both agencies to the railways of the same information.

First, there needs to be a clearer definition and consensus on what data needs to be gathered, what its intended use is and where is should be sourced. This should include an analysis of the information that is already being provided to see if it is still required, and whether the data is being captured in a way to allow for meaningful analysis and publication of performance statistics. Examples include incident severity and cause categories that accurately reflect root cause. Railways already provide a lot of information that is available to TC, including incident information reported to the TSB, data provided by railways under the transportation information regulations, and information gathered through TC oversight activities and inquiries, which often includes a duplicative effort of sending incident information that is already reported to the TSB. CP believes that railways currently provide sufficient information and no additional requirements should be added without performing a cost / benefit analysis for providing that information. This is especially true as TC is not publishing any systemic statistics or key performance indicators related to railway safety performance that provide feedback regarding risk management, or the root causes of potential trends in order to work with railways to identify ways to proactively improve safety.

Second, there needs to be a single agency responsible for the collection of railway related safety information with agreements in place for other agencies that have a need to know being able to access this information. The agency responsible for collection of the information should also be responsible for the analysis and publication of appropriate railway related safety performance statistics. This would reduce duplicative requests from multiple agencies and create a more robust central system of data to improve safety performance measures.

Recommendation #10: Existing data requirements and reporting should be reviewed to ensure only the relevant information is being collected, and information that it is being collected is capturing the details that will allow for meaningful safety analysis to identify trends in order to improve safety, if needed.

Recommendation #11: Responsibility for the collection and analysis of railway data should be centralized under a single agency, with information being shared with other agencies on a need-to-know basis, to avoid duplication of information requests.

APPENDIX 1: CP RESPONSE TO RSA REVIEW CONSULTATION DOCUMENT QUESTIONS

Key Questions

1. Do the various components of the Railway Safety Act (e.g. regulations, rules, Safety Management Systems, the compliance and enforcement regime) work as intended? What could be improved?

Response: Generally, these components work as intended but as with all processes, there is always opportunity for improvement. Following are examples of potential improvements:

Rules

Similar to SMS principles, the intended benefit of rules is to allow a more nimble and efficient process so that the regulator and the industry can better respond to developing situations while actively engaging the safety expertise of the railway companies and their employees. In order for this to be effective:

- The Minister's review and approval process should be faster than what is currently in practice.
- Rules should not be used as a means to simply prescribe requirements onto the railway industry without sufficient consideration for the cost/benefit impacts of the requirement as would be required when developing a regulation.
- Ordered rule-writing should continue to define the problem or issue, and should be supported by facts and data without prescribing the final solution. Railway companies have the most technical and safety expertise in how railways should operate, and are best positioned to recommend how to address identified issues.
- Rules should be performance-based instead of prescriptive. Railway safety is continually evolving through the implementation of improved processes and technology and rules should retain sufficient flexibility to ensure that safety improvements can be implemented quickly to maximize benefits.

Compliance & Enforcement

It has been demonstrated that TC has sufficient legal authority and regulatory instruments to take the necessary action to address potential rail safety issues. However, there are opportunities to improve the consistency and appropriate application of these instruments. For example:

- TC should be using information gathered through inspections and audits to identify potential root causes and trends in order to work with railways to identify ways to proactively improve safety. This should recognize that safety is about continuous improvement and 100 percent perfection is an aspirational target, but not realistic.
- The RSA and its instruments should be modified to ensure that decisions can be reviewed and modified or reversed in a timely manner, if necessary. The entire appeal process should be more consistent with common legal practices. While it is recognized that inspectors require a certain amount of autonomy to perform their responsibilities, no human is infallible or all-knowing and the current process does not adequately recognize this potential issue. This concern includes the ability to issue orders based on the opinion of a single individual, the length of time required to have a hearing scheduled with the tribunal, the limitation that the tribunal can only refer its decision back to the Minister for consideration, and the limitation that the minister can only recommend that the inspector reverse the original decision.
- Enforcement actions must always be supported by facts and data and be applied consistently. Enforcement actions should be undertaken and communicated in a manner that the safety improvement objective is clear to all, including the regulated party.

Also see Section 4.2, Transport Canada Oversight and the Transportation Appeals Tribunal Process recommendations 5 and 6.

2. Have the changes made over the past five years been effective in addressing some of the major issues that have emerged regarding rail safety?

Response: While the critical importance of operating safe railways cannot be overstated, and the derailment that occurred in Lac Mégantic, Québec, in July 2013 was truly tragic, Canada's railways are among the safest in North America. Canada's freight railways have reduced their accident rate by more than 36 percent in the past decade, despite moving more goods than ever.[10] To characterize the overall state of safety in the rail industry as having "major issues" is a misrepresentation of the industry and its safety record. While there have been some improvements in the past five years, unfortunately, this inaccurate perception that all railways are the same and that the regulatory framework itself was not sufficient has driven a number of regulatory changes that were unnecessary, provide little to no safety improvement, or were implemented too quickly. This has resulted in the need to rewrite some rules multiple times, e.g. securement rules, or for TC to issue complex guidance material to explain regulations, such as, a handbook, already 218 pages and expected to grow, to explain the Grade Crossing Regulation and Standard issued in 2014, which totaled less than a 100 pages.

Railways like CP that have implemented a strong Safety Management System and comply with the dozens of regulations and hundreds of safety rules have demonstrated through their safety records that, while there is always room for improvement, rail safety and the regulatory framework do not have major issues.

Changes made over the past five years would've been more effective if there had been greater focus on:

- Making changes based on facts, not on perceptions.
- Using existing data and information gathered through oversight activities to identify:
  - trends that could be raised with railways to consider for systemic safety improvements.
  - railways with lower safety records, and focus oversight on them.
- Improving the application of existing oversight authority to ensure a more risk based and Safety Management System approach.
- Identifying ways to remove regulatory barriers to encourage railways to implement technology.

3. Does the Railway Safety Act put the government in a good position to address current and future security threats to the rail transportation system?

Response: The railway industry has had security programs in place for many decades, including participating in a voluntary memorandum of understanding on security with TC since 1997. These industry programs are interconnected, flexible and adaptable to different threats to ensure quick and effective response. They are tested at least annually at an industry level with external parties, including Canadian and U.S. government agencies, demonstrating that they are effective. There is no need for the government to address current or future security threats through regulation.

However, in the event that this changes in the future, the RSA and the TDG Act provide sufficient legal authority and regulatory instruments to take action, as demonstrated during various high-profile events. These include the 2010 Vancouver Olympics and in the rulemaking that TC is currently undertaking for freight and passenger railways.

4. What key issues remain which, if successfully addressed, would result in a further strengthening of the railway safety and security regime?

Response: See comments under "OPPORTUNITIES TO IMPROVE RAIL SAFETY"

5. What recommendations do you have that will ensure progress on these residual issues?

Response: See comments under "OPPORTUNITIES TO IMPROVE RAIL SAFETY". For ease of reference, recommendations have been summarized in "Appendix 2, Summary of Recommendations".

6. Are the current roles played by Transport Canada, the railways, provinces, municipalities and other stakeholders in keeping the railway transportation system safe and secure sufficient? Should changes be made?

Response: See comments under "OPPORTUNITIES TO IMPROVE RAIL SAFETY". For ease of reference, recommendations have been summarized in "Appendix 2 Summary of CP Recommendations".

[10] *https://www.railcan.ca/101/safety-always-boards-first-on-canadas-railways/*

Topics to be Explored

1. Overall Provisions of the Railway Safety Act, including roles and responsibilities

1.1 Are the roles, responsibilities and authorities for railway safety in Canada clear? Is the current structure appropriate? To what extent should the responsibilities of railways be reflected in the Act? Are all the participants fulfilling their roles and responsibilities?

Response: CP believes that the roles, responsibilities and authorities for railway safety are clearly set out in the RSA, although CP does believe that there needs to be oversight within TC for the inspectors (see discussion under Section 4.2 – TC Oversight and Transportation Appeals Tribunal), as well as a need for consolidation of authority over railway crossings. This would most suitably occur under the RSA, as opposed to the current bifurcation between TC and the agency under the Canada Transportation Act (see discussion under Section 4.1.1). Railway responsibilities are reflected in the Safety Management System regulation, which includes a requirement to name an executive responsible for operations as the executive accountable for safety within the organization.

1.2 How effective is the rule-making process? Are there particular aspects of this process that might benefit from a closer examination?

Response: The rule-making process is very efficient and effective, provided that the stakeholders in the process adhere to the roles and responsibilities that have been set out for them in guidance material. CP sees this from time to time when TC attempts to prescribe the solution, i.e. essentially writes the rule for industry. This is an inappropriate use of the process and should not be permitted. Instead, TC needs to define the specific problem, supported with data and facts and allow the industry experts sufficient latitude to propose a rule that will address the problem.

The rulemaking process can and should be utilized to accelerate the adoption of technologies that will result in safety improvements. As technologies that are superior to current, dated processes are implemented, rules can be quickly developed to both recognize new processes and ensure that the necessary controls are in place to confirm that the expected safety benefits are realized.

It must also be noted that there are circumstances that should preclude TC from using the rulemaking process. Essentially, these would be the situations where a change is likely to be costly for the industry to implement. In these cases, it is likely more appropriate to follow the regulation-making process, with its inherent cost/benefit analysis requirement.

Finally, it's important to remember why the rulemaking process is there in the first place. The alternative, regulation, is not a nimble process. It takes a significant amount of time and effort to craft a regulation, and while there are situations where a regulation is necessary, there are many where it is not. The rulemaking process allows industry to respond to a concern raised by the regulator in a quick and efficient manner. It's also important to recognize that draft rules receive full input from relevant stakeholders, including TC, before being submitted to the minister for approval. Once approved, the rules are fully enforceable by TC and thus take the same form as a regulation.

2. Adoption of Safety Management Systems and Safety Culture

2.1 Since the last review, have there been advances with integrating safety into day-to-day railway operations?

Response: For CP, the integration of safety into its business has been at the forefront of operations since well before the initial SMS regulation came into effect (2001). For example, CP was performing structured risk assessments long before they were required by regulation. CP, as a responsible publicly traded corporation, has responsibilities to its employees, the communities it operates in and its shareholders. As such, it is well motivated to operate safely. While there have been improvements to rail safety, they did not necessarily come as a result of the last review of the act. In fact, the last review panel identified some of the more problematic areas (crossings, proximate land use, technology, data capture and analysis and governance within TC) and made recommendations, but little meaningful change came as a result.

2.2 Is the current SMS approach to managing risks working for the owners and employees of railway companies? For their customers (shippers and travelers)? For those who live near railway lines? For Canadians?

Response: In short, yes. It is CP's view that safety is best managed through a balanced combination of a robust, performance-based management system and inspection-based oversight (validation). Safety will not be effectively managed with only one of these two components present. As identified in the response to 2.1, modern corporations recognize the benefits that emanate from strong safety performance and all stakeholders benefit when the system delivers to expectations.

2.3 What role should Transport Canada and railway companies play in reinforcing Safety Management Systems?

Response: TC's role in Safety Management Systems is to provide effective oversight of the processes required. This is typically accomplished through focused audit, and while the audit procedures within TC have improved over time, there is still opportunity for improvement. TC should not lose sight of the fact that SMS is a performance-based system. TC's data analysis should lead it to the areas and companies that require in-depth oversight. There is little evidence to support that this type of a process is in place.

2.4 Do railway employees have the training and support they need to properly implement SMS and integrate safety culture into their day-to-day activities? Do Transport Canada employees have the training they need to evaluate whether a company's SMS is effective? What kind of training would be helpful?

Response: CP employs safety professionals within its safety function. These managers are educated in safety management, and they are adept at implementing programs that enhance safety. Frontline management employees are trained, monitored and incented to follow the safety processes that are developed. Senior leadership within the company has the resources it needs to provide effective oversight of the health of the system in general.

TC has taken steps to improve its audit processes, yet the procedures that have recently been put into place have proven to be both onerous and without benefit. More needs to be done to improve the quality of the audit processes within TC. TC should be trained to analyze and interpret data, then use the result to guide their activities.

3. Quality and Use of Performance Data for Risk Management

3.1 Does the current risk management framework adequately address safety issues relating to current and future traffic volumes and types of goods being carried?

Response: Yes.

3.2 Does Transport Canada have sufficient data to carry out robust risk analysis in order to address the challenges of the railway safety mandate?

Response: TC could make better use of information gathered through inspections and audits to identify potential root causes and trends in order to work with railways to identify ways to proactively improve safety. TC could also work with TSB to improve information-sharing between these two agencies as recommended in the 2007 RSA review.

Railways already provide sufficient information and no additional requirements should be added without performing a cost/benefit analysis for providing that information.

For additional information, see Section 4.5 Safety Data – Reporting, Analysis and Publication of Performance Statistics

3.3 What is the current quality and availability of performance information? Is it contributing to establishing key performance indicators regarding the state of railway safety?

Response: Railway safety records are continuously improving. In order to improve, railways must analyze their performance on an ongoing basis to determine where to focus safety initiatives and programs. The fact that railways are able to successfully do this indicates that they have and are effectively using performance information.

For additional information, see Section 4.5 Safety Data – Reporting, Analysis and Publication of Performance Statistics

3.4 Is performance information being analyzed and disseminated? To what extent is it contributing to a feedback loop regarding risk management and learning?

Response: The TSB publishes rail incident statistics on its website. Incident information gathered by the TSB is grouped in overly broad categories and does not differentiate between severity levels. There appears to be little analysis of the data that is gathered or feedback outside of information provided in individual TSB accident investigation reports.

TC performance information sources include incident information reported to the TSB, data provided by railways under the transportation information regulations and information gathered through their oversight activities and inquiries. TC is not publishing any systemic statistics or key performance indicators related to railway safety performance that provide feedback regarding risk management or learning.

For additional information, see Section 4.5 Safety Data – Reporting, Analysis and Publication of Performance Statistics

4. Ability to Respond to Industry Trends

4.1 Economic

4.1.1 Will trade patterns and population growth affect route planning and traffic through major urban centres and further exacerbate proximity issues?

Response: Population growth will exacerbate proximity issues if society does not find a way to prescribe reasonable land-use guidelines. The railways in Canada are generally made up of single-route corridors that present virtually no ability to reroute traffic. Collectively, the railroads need to focus their attention on the best opportunities to coexist. Practically speaking, the notion of relocating rail corridors out of the major urban centres that they serve is both unlikely to occur and not in the best interest of the general public. Furthermore, as history has shown, relocation is only a temporary solution. Urban sprawl soon catches up through organic growth, as well as through services and employees relocating to be in close relative proximity to the railway.

4.1.2 Will there be an increase in congestion due to passenger and freight trains operating on shared tracks? What would be the safety impact should alternative routes or trade corridors be implemented?

Response: Congestion will most certainly occur as both freight and passenger operations grow within the same footprint. This reality, however, does not pose a safety impact, but instead becomes one of convenience and efficiency. Normal economic forces should be allowed to prevail in discussions related to congestion arising from expected growth.

4.2 Infrastructure

4.2.1 How can Canada ensure the required investments in infrastructure to accommodate future traffic patterns, train lengths and train volumes?

Response: Canadians can be assured that railway companies will invest when there is a demonstrated economic benefit to be derived from the investment. Normal market forces will spur railway companies to invest appropriately. That has been the case since the U.S. Staggers Act of 1980 was brought into force, and there is no reason to expect that will change unless the industry sees a return to the stifling regulation that preceded Staggers.

Canadians also need to be assured that the Government of Canada will not only invest in non-rail infrastructure, e.g. grade separations, but will also foster a regulatory approach that stimulates business growth and viability. The government can do that by implementing programs that support the business needs of both the railways and the businesses that they serve.

4.2.2 Can infrastructure funds and programs (beyond the existing Rail Safety Improvement Program) be leveraged to fund projects that would increase safety around rail lines (e.g., grade crossings)?

Response: As a new program, it is unclear if improvements to crossings for safety reasons would be eligible for funding under Infrastructure Canada's "Investing in Canada Plan," or its sub-initiative, "Investing in Trade and Transportation Infrastructure," which commits to investing $10.1 billion over 11 years (average of $918 million per year) in order to "prioritize investments that address congestion and bottlenecks along vital corridors, and around transportation hubs and ports providing access to world markets." But CP believes that grade-crossing improvements should be considered for funding under this program, as grade-crossing closures or grade-crossing separations would not only improve safety, but help address congestion and bottlenecks on roads and railways.

In summary, additional public funding should be made available to improve the safety at-grade crossings, but CP is not aware of other programs that are currently available. Canada is lacking a holistic, corridor-based approach to transportation that is needed to benefit both the safety of the Canadian public and the business needs of the shipping community. The current Rail Safety Improvement Program, while well intended, lacks an overarching program to guide investment and sufficient funding to make a meaningful improvement. A program should set out objectives that will benefit the general public, the shipping community and the railway companies. Reference the discussion under section 4.1 related to grade crossings and proximate land use.

4.3 Technological

4.3.1 Is the RSA framework properly positioned to address industry advances in technology and innovation?

Response: No. Reference the discussion on technology under section 3.3.2. The current RSA framework provides no incentive for railway companies to invest in technology. TC must develop a means to incent investment by recognizing that technology can and should replace antiquated manual inspection processes. Too much time is expended searching equipment and infrastructure for defects. This is not only inefficient, but ineffective.

4.3.2 There is potential that new technology will increase safety, for example through assisting with the identification of risks or the causes of accidents. Are there any barriers preventing the rail industry from investing in these technologies? Can the Government of Canada assist in their adoption?

Response: Yes, as described in the answer to 4.3.1, TC must find a way to allow technology to replace manual inspection. A good example of how this can work can be found in the technology that has been employed to perform brake tests on the coal trains that operate in British Columbia. Through an exemption to the train brake rules, for the past six years, CP has been using technology as the primary means to inspect and verify the condition of the brakes on the coal trains in this service. Through that experience, CP has found that the technology is far more effective than the manual inspection process that it replaced. Surprisingly, TC has not advocated expansion of the process to other fleets or locations.

4.3.3 Does the adoption of new technologies impact the skill set required of railway employees?

Response: Yes, to a certain extent, but railways are prepared to provide the necessary training to their employees as new technologies are implemented. This is occurring today. Take for example the advances made in locomotive onboard technology over the past decade. CP's main-line fleet of locomotives have as many as three onboard microprocessors, along with a wide array of electronic sensors and monitors. As these new technologies were implemented, training programs for both our operators and maintenance forces have been delivered. This is normal process and will continue as technologies evolve.

4.4 Labour

4.4.1 Do employee fatigue, hours of service and overtime remain concerns for railway safety?

Response: There has been significant attention cast on this issue in recent years and CP has reacted to the concerns expressed by its employees and their labour representatives. Reference the discussion on this topic under Section 3.3.7, Work, Rest and Fatigue. Unfortunately, there are no objective data available to definitively quantify the magnitude of the problem. In the absence of data, emotion and alternate agendas have entered into the discussion. It's important to understand that this topic is complex and requires the cooperative action of the company, its employees and TC.

CP has developed a deep dataset on the work and time-off patterns of its locomotive engineers and conductors. These data have been shared with Transport Canada and CP has consulted with fatigue professionals in an effort to develop a new model for work scheduling. This work is ongoing.

CP has also been a proponent of change to the regulatory framework that governs the maximum hours worked and the minimum rest period required. Essentially, CP has advocated for a shorter maximum day.

4.4.2 Are there best practices to be gained from work-rest requirements in other modes of transportation or employment sectors?

Response: The rail industry can always learn from what is done in other modes of transportation, as the issues are generally the same. CP has benchmarked other operations that require around-the-clock coverage, such as aviation, policing and medicine. CP has learned that each has similar challenges and employ similar strategies to mitigate the risks. CP continues to work collaboratively with all stakeholders to ensure that the risk of fatigue is managed to lowest level possible.

4.4.3 Is there a need to regulate testing for use of substances like alcohol and drugs?

Response: Reference the discussion on this topic under section 4.3, Drug and Alcohol Testing. CP is concerned that the impending legalization of marijuana in Canada will increase the risk of incident. There is no room in safety-critical operating environment for any form of intoxicant. At the very least, CP is concerned that legalization of marijuana will lead some to believe that it is permissible to work under its influence. Random testing is a powerful deterrent that has proven effective in the U.S. It is CP's recommendation that a random testing regime be implemented in Canada for those employees who occupy safety-critical positions.

5. Relationship Building and Coordination

5.1 Federal – Provincial Interface

5.1.1 Are the roles and responsibilities of the provinces and municipalities clear and adequate?

Response: Currently, the provinces and municipalities have no formal role in administering the Railway Safety Act and the enforcement of industry rules and regulations for federally regulated railways. However, many provinces apply the federal rules and regulations to the short-line railways that they regulate. Further, many provinces have agreements in place with TC to have inspectors to oversee the operations of provincially regulated railways. This arrangement is effective and practical given that the provinces have limited resources and expertise in matters related to rail safety. Harmonization also provides a safety benefit with local railway companies that are operating under consistent rules and regulations whether they're on provincially or federally regulated railway lines.

5.1.2 Should the provinces be consulted on the drafting of rules and regulations? To what extent?

Response: In order to ensure system efficiency and continual improvement in safety performance, federally regulated railways must operate under a single common set of rules and regulations for all of Canada. Allowing the provinces to be consulted on the drafting of rules and regulations could lead to a situation where each province may request specific rules and regulations for their own jurisdiction, which is neither practical nor desirable. Formalizing a consultative process for levels of government that do not have jurisdiction could raise expectation of outcome and create confusion and additional administrative complexity. This could also significantly increase the length of time required to complete rule changes, inhibiting one of the key benefits of rulemaking: being able to quickly address changes to improve safety. Therefore, CP recommends that TC continue to assert its proper role as regulator.

5.1.3 Should smaller railways that mostly operate on provincial track be subject to the same requirements as larger national railways?

Response: Smaller railways that operate on track owned by federally regulated railways should always meet or exceed the minimum of all federal operating rules and regulations. All railways in Canada, whether federal or provincially regulated, have a responsibility to operate in the safest manner possible to ensure the safety of their employees, the environment and the communities in which they operate. As such, provincially regulated railways should, at a minimum, operate under rules and regulations that are in effect to ensure safety, such as the federal regulations.

5.1.4 Are the current federal-provincial agreements an effective approach to safety oversight?

Response: CP is of the view that the current federal-provincial agreements are effective.

5.1.5 Is there sufficient harmonization with provincial jurisdictions? To what extent is alignment still required and in what areas?

Response: There is one area where there is not significant alignment between provincial jurisdictions is in the area of the environment: locomotive emissions and the various provincial carbon pricing mechanisms. In terms of locomotive emissions, they are regulated under the RSA, but provinces and municipalities have attempted to regulate locomotive emissions. For example, Metro Vancouver had attempted to apply their non-road diesel emissions bylaw to CP's yard and road switchers operating in the Metro Vancouver region. Clearly, CP operates under federal jurisdiction and this was an attempt to infringe on the federal jurisdiction. Addressing these jurisdiction issues uses CP resources that could be better applied to other aspects of its business.

With regard to the various provincial carbon pricing schemes, CP must adhere to each one that is currently in place, including British Columbia, Alberta, Ontario and Quebec. Ontario and Quebec have implemented a cap-and-trade program to manage carbon emissions. Given that CP positions its own fuel between provincial jurisdictions to meet its own operating requirements, the company is considering a fuel supply program, under both the Ontario and Quebec cap-and-trade programs, and must register and participate in each of

the programs. This is a significant administrative burden to the companies, the cost of which will be passed onto rail customers. CP would prefer a single federal carbon pricing program that is easily administered and transparent, that would apply to federally regulated railways, railways that operate in more than one provincial jurisdiction.

5.2 Proximity/Railway – Municipality Interface

5.2.1 Is there sufficient dialogue between railway companies and communities/municipalities? What can be done to ensure that railway companies and communities/municipalities work together to advance railway safety?

Response: CP dedicates a tremendous amount of resources to ensure continued and open dialogue with officials in all the communities in which it operates. CP meets or exceeds all statutory requirements to provide notification to municipalities, including any changes to track speeds. The company is proactive in communicating changes to its operations and/or the goods travelling through communities. For example, CP supported the development of an industry app (AskRail) for first responders so that they can look up what cargo is on board a particular railcar prior to responding to an incident.

Beyond the statutory requirements to communicate with communities, CP is proactive in engaging communities/municipalities on all matters that may affect them. CP has dedicated staff in both its government affairs and community affairs departments to receive concerns from municipalities as well as its "Community Connect" hotline that members of the public can use to communicate concerns that they may have with its operations.

5.2.2 Are there barriers to collaboration between companies and communities/municipalities? What are they? Can they be addressed?

Response: CP is of the opinion that there are no inherent barriers between the company and the communities/municipalities in which it operates. CP undertakes significant efforts to communicate with community/municipal officials to educate them on rail operations and to notify them of any material changes to those operations.

5.2.3 What incentives are available at the various levels of government to reduce or eliminate trespassing?

Response: Trespassing on railway property is a serious safety risk, not only to the public but also to railway operations. Currently there is very little in the way of incentives to reduce or prevent trespassing. There have been efforts between the railways, TC and other partners to educate the public of the risks of trespassing on railway property. These efforts need to be enhanced and sustained to resonate with the public. Public education and awareness can be effective in reducing trespassing.

Some have called for more physical barriers, such as fencing, to be installed around railway property to prevent trespassing. This is cost–prohibitive and has proven to be ineffective in preventing trespassing, as people simply cut the fence to gain access to railway property. Repairs to the fence are made, the fence gets cut again, and this cycle repeats itself over and over with little to no impact on preventing trespassing.

CP continues to get requests from municipalities for new level crossings, which is clearly counterproductive to safe railways. The proximity guidelines direct municipalities to look at all possible alternatives before requesting a new crossing.

5.2.4 Are the "Guideline for New Development in Proximity to Railway Operations" a useful tool? Do they go far enough? What more could be done?

Response: These guidelines are useful, and CP is both supportive of them and appreciative of the effort that went into their development, as well as the effort put forth to secure the support of the communities that have adopted them. The guidelines, however, neither go far enough in terms of the setback limits described, nor have the force of law behind them to mandate their adoption universally by all communities.

5.3 Consultation with Stakeholders

5.3.1 Is there adequate information sharing and transparency between Transport Canada, railway companies and stakeholders? Can this be improved?

Response: CP is of the opinion that there is sufficient information and transparency with TC.

5.3.2 Are there stakeholders that should be consulted on rail safety matters that are not currently consulted?

Response: CP is of the opinion that there is sufficient consultation with stakeholders who either are directly affected by a proposed change or have the subject matter expertise to offer meaningful input into the process.

5.3.3 Does the current rule-making process allow for sufficient consultation with stakeholders?

Response: For S.19 and S.20 rulemaking, CP believes that there is sufficient consultation with relevant stakeholders.

5.4 Canada and USA Coordination

5.4.1 Is there sufficient harmonization with the USA? To what extent is alignment still required and in what areas?

Response: As is the case with the North American economy, the railway system in North America is highly integrated. Over 33 percent of CP's traffic crosses the Canada/U.S. border. Assets such as locomotives and freight cars need to seamlessly transit the border. Any additional regulation should take this situation into account and determine if it will have a negative impact on cross-border movements.

CP supports efforts being taken by the U.S. federal government and the Government of Canada, through the Beyond the Border Initiative and the Regulatory Cooperation Council, to further improve border processes and harmonize regulations, to improve the competitiveness of the North American economy.

CP has extensive operations in Canada and the U.S., and interchanges traffic with all other North American Class 1 railways and numerous short-line railways on a daily basis. Given the highly integrated nature of the railway industry, regulations related to equipment and operating practices should be harmonized while ensuring a high level of safety standards.

A good example of where both Canada and U.S. governments worked together in cooperation with industry is in the development of new tank car standards for the movement of dangerous goods. The rail industry fully supports new standards that will improve the overall integrity of the tank car and will mitigate the risk to public and the environment in the event of an accident. Given that tank cars move between Canada and the U.S., having in place different tank car standards will not optimize the use of tank cars, thus increasing the cost to shippers that require tank cars to deliver their product to market.

6. Promoting Railway Security

6.1 Are the roles, responsibilities and authorities for the security of rail transportation in Canada clear? Should any changes to the authorities be considered to further improve the security of rail transportation in Canada?

Response: TC-Intermodal Surface, Security and Emergency Preparedness is still a relatively new department that is continuing to evolve and define its security mandate. To date, roles, responsibilities and authorities have been clearly understood through ongoing interaction and cooperation with the railway industry. As security moves from a voluntary MOU with the industry to one governed by regulations under at least two separate acts (TDG and RSA), roles and responsibilities will need to be revisited and clarified. There will be a need to clearly define TC's ultimate mandate and role going forward and ensure that it is not overlapping with security activities and requirements that are already being done by other government agencies e.g. public safety, RCMP, or best handled by the companies that would be responsible for security. CP strongly encourages TC to continue to actively engage members of the railway industry as they work through this transition.

6.2 Does the RSA position the government well to address future threats to the security of rail transportation?

Response: See Appendix 1: CP Response to RSA Review Consultation Document Questions - Key Question No. 2.

6.3 Can Transport Canada advance its degree of preparation for rail security threats?

Response: It is unclear what role TC can or should play in preparing for rail security threats, as it is not typically a response agency. The best benefit TC can offer rail security is to continue to improve its intelligence-gathering and sharing with the rail industry so that railways can be prepared for potential threats. This includes continuing to work with the rail industry to improve the sharing of intelligence domestically and across borders, and ensure recognition of Canadian security clearances by foreign agencies.

APPENDIX 2: SUMMARY OF CP RECOMMENDATIONS

Appendix 2: Summary of CP Recommendations

4.1.1 Grade Crossing Safety

Recommendation #1: Provinces and municipalities should be required to take more responsibility to address grade crossing with a more holistic and strategic approach in order to improve safety similar to "State Action Plan" (SAP) for highway-rail grade crossing safety that are required for most U.S. States. As part of this plan, states are expected to address grade crossing elimination (closure, relocation, consolidation, grade-separation construction/reconstruction), innovative technologies, education and awareness efforts and communication efforts.

Recommendation #2: The Minister of Transport should have the sole authority to approve new crossings, and should only do so as an option of last resort upon evidence of clear need and adequate safety, and after having considered alternatives such as grade crossing elimination/closure, relocation, consolidation, or grade separation construction/reconstruction. In the event of a new crossing opening, an existing crossing should be closed so that there is no net increase in the number of crossing. The overall goal should be to reduce the number of crossings, which will benefit overall public safety.

Recommendation #3: Additional public funding should be made available to improve the safety of at-grade crossings, including a review of existing funding criteria for programs such as "Investing in Trade and Transportation Infrastructure" to encourage grade crossing closures or grade separation crossings. This would not only improve safety, but help address congestion and bottlenecks on roads and railways.

4.1.2 Proximity and Trespassing

Recommendation #4: CP believes the federal government should work with provinces and municipalities to put strong standards in place with respect to land use in close proximity to railway operations, similar to the way federal airport zoning regulations restrict land use in close proximity to federally regulated aviation operations.

4.2 Transport Canada Oversight and the Transportation Appeals Tribunal Process

Recommendation #5: The RSA needs to impose greater oversight of railway safety inspectors and require railway safety inspectors to be better trained. Additionally, TC must support those inspectors with effective tools and resources to ensure that their discretion is exercised with proper care and attention.

Recommendation #6: That the Transportation Appeals Tribunal should be granted authority to confirm, revoke, or alter an order and only refer the matter back to the minister when necessary. In fact, the 2007 RSA review contained this recommendation. See the 2007 report, "Stronger Ties: A Shared Commitment to Railway Safety," recommendation 14.

4.3 Drug and Alcohol Testing

Recommendation #7: The panel should consider whether the government has adequately identified the increased safety risks for railway operations related to the proposed legalization of marijuana, and if there are sufficient plans to address concerns such the lack of effective testing methods and "legal" thresholds if not addressed prior to the legalization of marijuana.

Recommendation #8: The panel should consider the need for random drug and alcohol testing of safety-critical employees in Canada, similar to what is currently in place in the United States.

4.4 Technology and Innovation

Recommendation #9: The panel should consider the need for TC to address this by finding ways to work collaboratively with the railways to both remove the impediments that limit investment and accelerate the implementation of safety technology. This would need to be done with full consideration for cost and efficiency benefits that would help justify the investment to accomplish the safety benefits.

4.5 Safety Data – Reporting, Analysis and Publication of Performance Statistics

Recommendation #10: Existing data requirements and reporting should be reviewed to ensure only the relevant information is being collected, and information that it is being collected is capturing the details that will allow for meaningful safety analysis to identify trends in order to improve safety, if needed.

Recommendation #11: Responsibility for the collection and analysis of railway data should be centralized under a single agency, with information being shared with other agencies on a need-to-know basis, to avoid duplication of information requests.

APPENDIX 3: RAIL SAFETY REGULATIONS, STANDARDS, AND RULES CURRENTLY IN EFFECT

Appendix 3: Rail Safety Regulations, Standards, and Rules Currently in Effect

Rules:

- Railway Freight and Passenger Train Brake Inspection Safety Rules
- Canadian Railway Operating Rules (includes 80 definitions and 271 rules, not including subparts)
- Rules Respecting Track Safety
- Railway Equipment Reflectorization Rule
- Rules respecting Minimum Qualification Standards for Railway Employees
- Work/Rest Rules for Operating Employees
- Railway Locomotive Inspection and Safety Rules
- Railway Passenger Car Inspection Car and Safety Rules
- Railway Passenger Handling Safety Rules
- Rules for the control and prevention of Fires on Railway Right of Ways
- Railway Freight Car Inspection and Safety Rules
- Rules for the Inspection, Installation and Testing of Air Reservoirs
- Railway Rules Governing Safety Critical Positions
- Railway Medical Rules for Positions Critical to Safe Railway Operations
- Rules Respecting Key Trains and Key Routes

Standards:

- Standards Respecting Railway Clearances
- Railway Signals and Traffic Control Systems Standards
- Standards Respecting Pipelines Under Railways
- Standards for LED Signal Modules at Highway/Railway Grade Crossing
- Grade Crossing Standards

Railway Safety Act and TDG Act Regulations:

- Grade Crossing Regulations
- Prevention and Control of Fires on Line Works Regulations
- Railway Operating Certificate Regulations
- Railway Safety Administrative Monetary Penalties Regulations
- Safety and Health Committees and Representatives Regulation
- Railway Safety Management System Regulation
- Notice of Railway Works Regulation
- Transportation of Dangerous Goods Regulation
- Mining Near Lines Railway Regulation

Canada Transportation Act Regulations and Orders

- Ammonium Nitrate Storage Facilities Regulation – General Order O-36
- Anhydrous Ammonia Bulk Storage Regulation – General Order O-33
- Carriers and Transportation and Grain Handling Undertakings Information Regulations
- Chlorine Tank Car Unloading Facilities Regulations
- Flammable Liquids Bulk Storage Regulations – General Order O-32
- Handling of Carloads of Explosives on Railway Trackage Regulations
- Joint Use of Poles Regulations – General Order E- 12
- Liquefied Petroleum Gases Bulk Storage Regulations – General Order O-31
- Railway Company Pay Out of Excess Revenue for the Movement of Grain Regulations
- Railway Costing Regulations
- Railway Employee Qualification Standards Regulations
- Railway Interswitching Regulations
- Railway Prevention of Electric Sparks Regulations
- Railway Safety Appliance Standards Regulations
- Railway Third Party Liability Insurance Coverage Regulations
- Railway Traffic and Passenger Tariffs Regulations
- Railway Traffic Liability Regulations Wire Crossings and Proximities Regulations

Other Legislation Affecting Canadian Railway Safety

- Canada Labour Code
- Canadian Transportation Accident Investigation and Safety Board Act
- Canadian Environmental Protection Act
- Railway Relocation and Crossing Act

APPENDIX 4: RAILWAY SAFETY ACT - COMPLIANCE AND ENFORCEMENT MECHANISMS

Appendix 4: Railway Safety Act - Compliance and Enforcement Mechanisms

Includes Revisions Adopted Under S-4 "Safer Railways Act"

- Broad Ministerial powers to promote safety, and collect and publish information
- Suspension or Cancellation of a Railway Operating Certificate
- Ministerial Orders requiring railways to file engineering standards and rules
- Ministerial Emergency Directives
- Broad powers of Railway Safety Inspectors
- Enter any place
- Demand that any responsible person provide documents
- Seize property relating to an offence under the Act
- Require attendance of persons
- Railway Safety Inspectors – Notices and Orders (immediate threats to rail safety)
- Railway Safety Inspectors – Notices
- Broad powers of Enforcement Officers
- Enter any place
- Demand that any responsible person provide documents, data
- Issue a notice of violation
- Administrative Monetary Penalties for violation of Act, Regulations, Rules etc.
- Maximum $50,000 for an individual
- Maximum $250,000 for a corporation
- Penalties accumulate each day the violation continues
- SMS Audits
- Field inspections of operations, trackage, and equipment
- Prosecution of offences for contravention of the Act and designated regulations and rules
- Increased judicial penalties
    - Maximum $1,000,000 for a Corporation
    - Maximum $50,000 for an individual