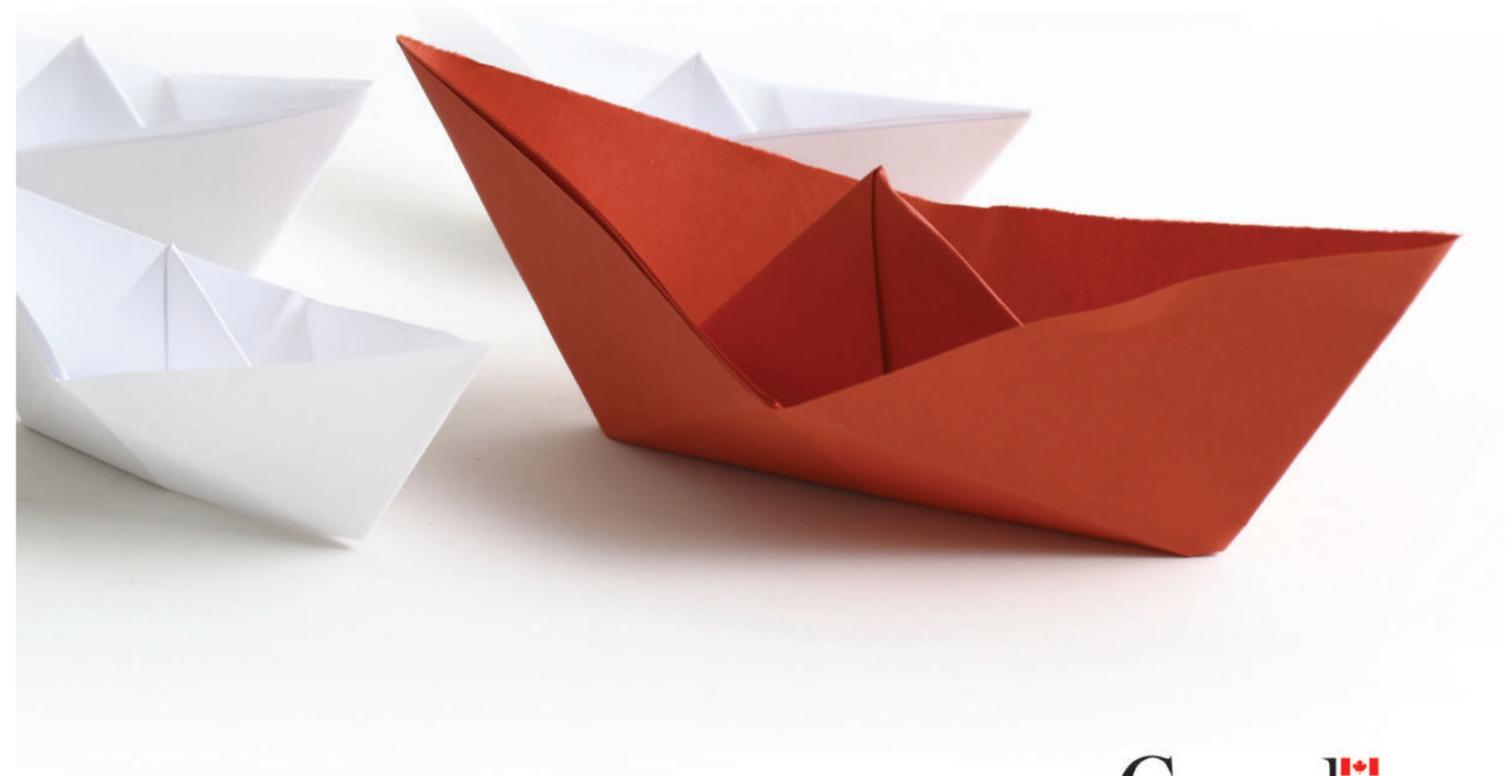




Pathways: Connecting Canada's Transportation System to the World

Volume 1



Canada 

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Volume 1

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Notes:

1. Appendices to Volume One of this Report are printed separately as Volume Two.
2. Unless otherwise indicated, all dollar figures cited in this Report are in nominal (current) Canadian dollars.

Letter to the Honourable Minister of Transport

Dear Minister,

I have the honour to submit *Pathways: Connecting Canada's Transportation System to the World*. The Report is the product of a review of the Canadian transportation system and the legal and regulatory frameworks which govern it, including the *Canada Transportation Act*. Consultations were held and advice received from a broad range of transportation interests, other governments, experts and members of the public.

A recurring theme in the Report is the inseparable relationship between Canada's international trade performance and the quality of the transportation and logistics systems. As a small, geographically dispersed trading economy, access to a globally competitive transportation system is vital to the prosperity of the country, the competitiveness of industry, the sustainability of communities and the ease with which Canadians can travel.

The advent of globalization has fundamentally altered the nature of industry and the evolving role of transportation and logistics in achieving competitive success. Not surprisingly, governments must also adapt policy and regulatory approaches to secure the competitive position of the country.

The Report makes significant recommendations on government decision-making and regulatory frameworks to reflect best practices in other jurisdictions. A swath of specific recommendations deal with the transport of grain, Canada's trade gateways and corridors, the north, climate change, technology and innovation, accessibility, as well as recommendations relating to each major mode of transport.

The Report is a collaborative effort that included invaluable contributions from a team of advisors: Marie-Lucie Morin, Murad Al-Katib, Duncan Dee, David Cardin and Marcella Szel. A Secretariat established independent of government, and headed by Randall Meades, worked tirelessly to make an enormous contribution. I owe all a huge vote of thanks.

Submitted respectfully,



David Emerson

Chapter 1: Points of Departure

A Review of Transportation in Canada

In a land like Canada, once described by author Pierre Burton as “a long, thin country shaped like a railway,” by former Prime Minister Mackenzie King as a country “with too much geography,” and by singer-songwriter Gilles Vigneault as “not a country, it’s winter,” transportation is key to prosperity. Our transportation system is the connective tissue that binds us together as a nation, enables us to participate in the global economy and helps to ensure our economic and social well-being. The features that define this country—a small population, separated by vast distances, spread over tough terrain, subject to the extremes of weather—create a difficult and costly operating environment for transport. The long, thin routes that connect us are at greater risk of disruption by natural, market, and other forces. The right policy and legislative frameworks, a competitive sector, a growing economy of producers and consumers, and the supply chain players that link them together—all have a part in ensuring the efficiency and integrity of the transport system.

On June 25, 2014, the federal Minister of Transport launched a review of the *Canada Transportation Act* (the Act). The Act is the federal framework legislation for our transportation system and for the Canadian Transportation Agency’s administrative role. The Act articulates a National Transportation Policy that contributes to economic growth and prosperity by giving primacy to transportation services based on competition and market forces. Government regulation and intervention are generally focussed on cases of market failure, such as abuse of market power—where a dominant company exploits its advantage in a way that restricts competition. They also come into play when competition and market forces are incapable of achieving desired economic, environmental, or social outcomes.

The mandate of the Canada Transportation Act Review (the Review) is far-reaching. It extends to other Acts of Parliament that relate to the national transportation system and explicitly recognizes the import of the Review to Canada’s economic health and competitiveness. It not only examines current issues in transportation, but looks at the kind of global environment in which Canada will find itself 30 years from now. It aims to provide both a navigational beacon for enlightened development of the transportation system and the critical actions required now to give Canadians the best possible shot at success. Given the breadth of the transport sector and vast number of issues touching on all aspects of the Canadian economy and society, the CTA Review has concentrated primarily on economic concerns. The Review has not examined security and safety on a systematic basis in deference to the important work already being done on these issues, for example at international fora like the International Civil Aviation Organization and, domestically, in response to specific reports like the Tanker Safety Expert Panel and the Transportation Safety Board investigation of the Lac-Mégantic disaster. Although the Review has considered only a few specific safety and security questions that have been raised during the course of the study, a number of recommendations have significant collateral safety benefits.

In a world of massive and complex webs of interconnectedness, the quality of transportation and logistics systems may be the single greatest contributor to a country’s economic performance. With rapid, often dramatic change as a modern constant, transportation investment is more complex and regulatory time frames longer and more demanding than

ever. Ten or twenty years from inception to operational conclusion is increasingly the norm for major infrastructure projects or major framework changes. Such undertakings often involve integration with a larger transportation system and require national or international collaboration.

The CTA Review has been informed by in-depth research and consultations conducted across Canada and overseas. A broad range of stakeholders contributed content, including users and providers from the transportation industry and related sectors; other levels of government; stakeholders in Canada's north; National Aboriginal Organizations; think tanks and academics; and members of the general public. In addition to a multitude of informal communications, we received 230 written submissions, held over 480 meetings and round-table discussions, and commissioned 36 targeted research projects.¹

The Act was last reviewed in 2001. There has been clear consensus among participants in the current Review that, given the global pace of change, 15 years is too long to wait for re-evaluation of the transportation landscape. In the intervening years, a significant number of problems have surfaced, giving rise to a series of reactive and impromptu policy responses. But transportation is increasingly a large, complex and finely tuned system that is not amenable to quick fixes, narrowly conceived. Looking forward, it will be important to develop a systemic framework that is adaptable, and enhances connectivity, competitive choice, and quality of service. In addition, it must provide for continuous investment in infrastructure that integrates and improves the overall transportation and logistics system. A new strategic framework will require a clear sense of future direction, updated governance structures, and renewed regulatory capacity.

Looking Back: Transformation in Transportation and Trade

In the past 30 years, the Canadian transportation system has been transformed by a series of decisions placing competition and market forces at the heart of transportation policy. In 1985, the national transportation system was defined by government ownership and operation of infrastructure and service providers. Government² was a pervasive regulator of who operated where, and even at what prices. Since then, governments have pursued commercialization, divestiture of assets, deregulation of markets, and liberalization of international trade and investment rules.³

The results have been impressive: renewed infrastructure, improved operational efficiency, greater profitability, more choice, and generally lower prices for users. The federal role has also changed to that of regulator, landlord, funding partner, and enabler for specific initiatives. The 2000–01 Review of the Act was an important catalyst for these improvements, and the findings of the current Review recommend continued emphasis on competition and market forces as primary drivers of decision-making in transportation.

Since the last Review, changes in global markets, technology, security threats, environmental vulnerabilities, and the patterns of economic growth and development within Canada have reinforced a reality of the twenty-first century: we live in an intensely interconnected world that is constantly rocked by change, much of it unanticipated. The BRIC⁴ superpowers of the day, while major players in the global economy, are now struggling to meet inflated

expectations of a decade ago. The commodities “super cycle” that was expected to redefine global terms of trade, geopolitical positioning, and the global distribution of wealth and opportunity, has been collateral damage of a weaker Chinese economy. The digital revolution has created, reshaped and in some cases destroyed companies and whole industries around the world. Within Canada, the resource riches of several regions created unprecedented shifts in the economic and political centre of gravity that few would have predicted 30 years ago, only to run up against today’s doubts about the sustainability of the shift. And while demographic and immigration patterns have redefined the Canadian mosaic, along with the needs and aspirations of Canadians, big cities—urban agglomerations—have become the critical repositories of innovation, creativity, and competitive advantage in the knowledge economy.

What has not changed over many decades, and will probably never change, is the fundamental reality of Canada as a large northern land mass with a comparatively small population. We are a nation dependent on international trade to support a uniquely attractive quality of life and standard of living. We share the North American continent with the world’s most dynamic economy, the United States, and with one of the more dynamic developing economies, Mexico. North American integration and collaboration is both a reality and a necessity, whether for economic, security, or environmental purposes.

While Canada’s 36 million people thrive from our interaction with the 7.3 billion people in the world, we are a modest global force, responding to, but largely unable to control global events. The fact that connectedness to the world economy provides life-giving oxygen to the Canadian economy has two critical implications. First, the role of transportation and logistics—the efficient movement of people and goods—has become increasingly critical to international competitiveness. In fact, transportation logistics and supply chain efficiency is now seen by various research organizations as more important to global competitiveness than duties and tariff rates. Second, turbulence and change beyond our borders permeate quickly and deeply into the economic life of Canadians. A major challenge, therefore, is to develop our capacity for rapid adaptation to natural disasters and other predictable disruptions, as well as to emerging trends and changes that are hard to foresee and largely beyond our control.

The 2015 Review of the *Canada Transportation Act* is largely about creating a transportation system that is among the best and most efficient in the world, but also one with superior shock-absorbing, adaptive capability.

A Glimpse into the Future

Analyses of the long-term trends, issues, and developments likely to shape the global environment to which Canada will have to adapt are numerous. While the Review has considered and documented much of the literature, the future will always remain somewhat speculative. Nevertheless, it is useful to project certain patterns that seem highly likely to occur and that have important consequences for the future of transportation policy and the transportation system.

There is, for example, consensus on demographic change. The population of most advanced economies is aging, with the median age reflecting longer life expectancy, lower birth rates, and baby boomers becoming seniors. This has major implications for markets and for the transportation system. In the coming decades, a larger percentage of the population will be out of the workforce. Most will continue to travel. Many will have disabilities requiring accommodation.

Urbanization will also continue to drive settlement patterns. Large cities are a natural medium for wealth creation in modern, knowledge-driven economies. Clusters of complementary businesses, skills, professions, research facilities, arts and entertainment entities, educational institutions, and other factors combine to make cities conduits for growth and innovation. Transportation and communications systems lend cohesion to the urban mix and provide the critical intercity and international linkages so essential to economic success.

Environmental limits are virtually certain to become more binding. More and better transportation infrastructure necessary to support the increased flow of people and goods will have environmental consequences such as pollution (air, water, soil, noise, and visual pollution), stressed ecosystems, fragmentation of wildlife habitat, loss of farmland, the introduction of invasive species, and the depletion of and damage to water resources. Public demand to address these environmental and climate change threats can be expected to persist.

As a northern country with a major Arctic presence, Canada will have unique challenges and responsibilities as a result of climate change. Economically dormant for most of Canada's history, the North is opening to navigation and development, generating a cluster of transportation-related issues, from security to the movement of people and goods in remote and extreme conditions.

Technology will continue to redefine the way we live and work. Transportation and logistics will be reshaped by digital technologies, the application of space-based technologies, nanotechnologies, the development of new materials and composites, green technologies, lasers, and a variety of sensor and monitoring technologies. Whether in relation to railroading, flying, driving, or designing and building infrastructure, adaptation to technological advances will have to be factored into planning many years in advance.

Geopolitical repositioning will likely continue apace. The "China factor" will be broadened to become the "Asia factor," to which will be added the "Africa factor," and the "Middle East factor," to name a few. A host of countries with massive populations are expected to achieve unprecedented levels of prosperity as their citizens aspire to global middle-class living standards. They will also become customers, suppliers, and relentless competitors, as new multilateral, regional, and bilateral trade and investment arrangements spur trade and flows of people. Converting these developments to opportunity and higher living standards for Canadians will require major improvements in transportation and logistical connections.

Global trade patterns are also shifting in ways that will have significant consequences for transportation. By 2050, international freight transport volumes are anticipated to increase fourfold, and the North Pacific will surpass the North Atlantic as the world's busiest trade corridor.⁵ By 2060, an expected 350 percent increase in world trade will tilt in favour of the emerging economies, and their exports will become more specialized, entailing higher value-added activities.⁶ It will be important to anticipate the demands on our transportation sector and develop policies and infrastructure to support these trends.

Global security issues will also continue to play a role in shaping transportation and trade linkages. Creeping military and nuclear capability, coupled with religious, ethnic, and territorial tensions, will limit flows with some countries and expand them with others. Adaptive transportation systems will require increasingly sophisticated security arrangements integrated into the chain of movements.

Finally, as unpleasant as the prospect may be, it is very likely that major natural disasters will occur over the next 30 years. Extreme weather events created disruption to the western rail system in 2013–14, but this could pale beside the chaos that will ensue if the West Coast experiences the major seismic event predicted to occur in the decades ahead. Similarly, drought, fires, floods, and other extreme events are inevitable—only the timing is uncertain.

The message is clear: anticipate what is likely to occur (and what is perhaps less likely, but game changing), and be prepared. As in a marathon, being first is the fruit of careful planning, preparation, and incredible discipline in execution.

What the Review Heard: Some Recurring Themes

Overall, the Review heard that while competition and market forces have served Canada well, particularly in complex and dynamic conditions, they function imperfectly. The Canadian transportation system continues to feature dominant players, captive markets, the legacy of state-owned operations, and critical infrastructure requirements unlikely to be met without government involvement. It is recognized among those who participated in the Review that transportation policy must be grounded in a clear and realistic sense of the future; an appreciation of what market forces can deliver; an understanding of what government action may be necessary; and consistent principles to guide government activity in the transportation and logistics space.

Transportation: A Centrepiece of Long-term Economic Policy

Unlike our competitors in Europe, the United Kingdom, and Australia, Canada lacks a comprehensive national framework or plan for transportation. Transportation cannot be separated from foreign affairs and trade, or from industrial and agricultural policy, or from aboriginal affairs, development, and infrastructure. When managing across an interconnected world, progress depends on systematically joining efforts across government. Although Transport Canada has primary sector responsibility, mechanisms to integrate across the federal government are wanting, making attempts to collaborate across provincial, territorial, and municipal levels of government even more difficult. Industry stakeholders feel that decision silos and fragmentation undermine Canada's ability to take full advantage of transport as a powerful economic enabler.

Gone are the days when transportation requirements can simply focus on the travel and shipping demands of the day. Today, the transportation and logistics system is acknowledged to play a major role in shaping the long-term pattern of travel, economic geography, competitiveness, and trade. Today's transportation decisions underpin tomorrow's economic structure, the survival and health of Canadian towns and, ultimately, the competitiveness of the Canadian economy.

Linking Trade and Transportation

It is widely understood that a very important factor in Canada's future competitive success will be how effectively Canadian transportation is integrated into international supply chains. The creation of the 2006 Asia-Pacific Gateway and Corridor Initiative marked the first time that Canada explicitly linked transportation and trade policy, bringing multiple levels of government and industry together to identify and resolve bottlenecks and impediments to trade. This approach was admired and respected by our competitors, and now they are building on the Canadian model. We have to stay ahead of the game. Getting too comfortable is a recipe for decline and ultimate failure, so Canada must continuously build on success and embrace new initiatives to avoid this fate.

The Review highlights those gateways, hubs, and corridors that will connect Canada to the global marketplace in the decades ahead. Because the transportation system and the supply chains it supports consist of a multitude of moving parts, there is a recognized need for better and timelier information to enhance efficient and resilient operations. Canada is lagging in developing accessible, and useful multimodal transportation statistics for effective analysis and decision-making. We collect a good deal of data by mode, but other jurisdictions such as Australia, the European Union, the Netherlands, the United States (U.S.), and the United Kingdom are increasingly using transparent data-sharing management solutions to foster collaboration and improved performance across their supply chains. Without having and using information more effectively, stakeholders felt, Canada will not be in a position to move its transportation system forward and maintain its competitive position internationally.

Access and Accessibility

According to the 2012 Canadian Survey on Disability, 14 percent of the Canadian population aged 15 years or older reported having a disability that limited them in their daily activities. Survey results confirm that the disability rate increases with age, rising from nearly 10 percent among adults aged 15 to 64 to more than 40 percent among persons aged 65 and over. As the population continues to age over the next 25 years, the number of people with disabilities is expected to double, equivalent to about one in four Canadians. Canada's legislative framework for accessibility in the federal transportation system is built on fundamental human rights principles. We have few regulations and rely heavily on codes of practice. The U.S. and European Union have established service, equipment, and facility standards in legislation. Canada's codes of practice cover similar ground, but are not as binding. While Canadian transportation providers meet foreign standards when serving those markets, they are not required to meet the higher standard when serving customers at home. With a surging older demographic, this double standard will attract justifiable criticism. A stronger approach is in order.

Climate Change

In the last 20 years, significant action has been taken to reduce air and water pollution. Today, the world is moving to address greenhouse gases and climate change. With the transportation sector accounting for some 23 percent of greenhouse gas emissions, it will feature prominently in climate change policies. It is clearly possible and necessary to both grow the transportation sector and protect the environment. Many European nations have proven this by implementing more stringent emission regulations than those mandated in the international arena.⁷ The challenge for Canada is to grow the economy and preserve market access while maintaining the support of trading partners who expect strong environmental stewardship. A harmonized approach in partnership with the U.S. and Mexico, while recognizing each country's unique challenges, is one that stakeholders endorse as a significant step in this direction.

The North

In many northern and remote parts of the country, providing mobility, connectivity, and vital goods and services poses serious challenges. Across over half of Canada's land mass, low and sporadic user volumes, harsh conditions, high costs for operators, and infrastructure gaps are all barriers to market-based transportation solutions. Input to the Review reflected support for a strong federal role in ensuring that northern and remote areas are connected to the national transportation system. International comparisons, however, indicate that Canada is a laggard in relation to other countries with a large presence in the North.

Established transportation operators are sophisticated, adaptable, and well accustomed to doing business in the North, but it is a constant challenge to sustain economically viable services. Year-round access to essential goods and services in many communities is only possible by air transport. And yet, deficient airport infrastructure, difficulties in navigating challenging weather conditions, and the weather systems themselves continue to constrain operations, threaten safety, and increase costs.

Lack of rail and road infrastructure is a clear constraint to northern development. Similarly, marine operations are challenged by inadequate charting and infrastructure in northern waters. Climate change impacts and the high cost of building and operating infrastructure add further risks and complications.

Notwithstanding the challenges, responsibly unlocking northern potential is important: transportation holds the key.

Urban Interfaces

In contrast to what happens in the North, the different modes of the transportation network generally come together in cities to provide mobility, connectivity, and economic opportunities. Urban areas develop in tandem with their ports, airports, rail yards, and other transportation infrastructure, although this convergence also gives rise to conflicts over congestion, land use, and environmental factors. Cities in Europe and Asia plan whole systems, often building multiple lines simultaneously to implant networks and shape development patterns which balance the positives and negatives of urban growth. Meanwhile, Canadian cities struggle to build consensus on a single line—a process that can take years, entailing costly delays, worsening congestion, and environmental degradation. Improved dialogue between the federal, provincial, and municipal governments would facilitate better understanding of the issues and long-term solutions.

Infrastructure

Estimates of the scale of Canada's transportation infrastructure deficit are many and varied, reflecting the multiple agencies and different levels of government involved as owners, operators, or regulators. There is not a single, robust database on the stock and state of Canadian infrastructure. Nevertheless, stakeholders at all levels spoke to the significant pressures for repair and expansion of the existing transportation network, and the need for higher levels of public investment. Recent funding programs, while improving various components of the transportation network, missed opportunities to target projects that could maximize the overall economic benefits to the country.

The Review has heard that Canada needs federal leadership to work with provinces, territories, and the private sector to establish priorities based on a transportation infrastructure strategy. Included would be systemically important capital investments to drive economic growth and produce returns that could in turn be used to fund local needs—for example, investments in critical trade corridors, northern development, and technology and innovation to improve productivity and safety of the network. Such a strategy should also encourage increased participation and investment in Canadian infrastructure by investors looking for long-term opportunities for capital deployment.

Innovation and Transport

Since the 2001 Review of the Act, the use of and reliance on technology has accelerated rapidly, and its importance to the transportation system has grown accordingly. There is access to better-designed and more consolidated data systems that build on technological advances and have the potential to improve decision making. Says economist, historian, and journalist Marc Levinson, "The key question asked today is no longer how much capital and labour an economy can amass, but how innovation helps employ those resources more effectively to produce more and better goods and services."⁸ The CTA Review has heard consistently from stakeholders about the benefits derived from the development and effective implementation of new technologies. Government is urged to act early to develop policy and regulatory approaches that will not only complement international directions and harmonize with the United States to form a seamless North America transportation network, but will also guide regulatory developments in provinces and territories. Innovation on this level could also allow Canada to be one of the leaders in setting standards for enabling technologies that are designed for transportation safety, security, and efficiency in collaboration with our trading partners.

Rail Transport: Freight

The railway landscape in Canada has changed significantly since the last Review. Financially stronger national railways are taking steps to improve their networks to haul historically high volumes of freight at high velocity, reduced cost, and with precise timing. While the focus of the improvements has been on the main corridors, the feeder system supporting communities and businesses off the mainline is facing difficult adjustments; service complaints abound. In many areas, shippers are captive to a single railway and often struggle with infrequent or unreliable service.

Short line rail and trucking are consequently of critical and growing importance in serving shippers and smaller centres, but they will need special attention if they are to become vibrant and durable businesses and a critical piece of Canada's rail system.

Although the number of accidents has decreased over the last decade (from 1,413 in 2004 to 1,090 in 2013, for example), high-profile rail disasters have brought environmental and safety concerns into sharper focus. Transport Canada is committed to addressing these emerging safety issues, most notably those related to flammable goods transport. For crude oil in particular, these issues are linked directly with the capacity and reach of Canada's pipeline network. Crude-by-rail transport has grown to become both a complement to, and substitute for, transport by pipeline. Pipeline project delays or cancellations will lead to more crude oil travelling by rail, the volumes of which will ultimately be determined by global market forces and access to tidewater.

While recognizing these and other advances in the rail sector, a significant number of railway customers, particularly those transporting bulk commodities, feel that service levels have fallen below those expected from railway "common carrier" obligations or competitive markets. There are also serious concerns about the time and expense involved in using current dispute resolution mechanisms, such as final offer arbitration (FOA). Many shippers expressed concern that the power of the railways makes them vulnerable to subtle forms of retribution, even if they get a favourable ruling in dispute resolution.

Rail Transport: The Movement of Grain

The Review heard widespread expressions of concern that imbalances in market power have led to grain shipments getting lower priority than higher-value freight. With Class 1 railways driving down costs and utilizing assets to the fullest, there is a further concern that carriers are unwilling to increase capacity to enable responses to surges in demand. At the same time, the forecasting of volumes for movement by rail is not well done, compromising the railways' abilities to respond appropriately. As noted regarding bulk cargo shippers, the remedies in the Act are seen by grain shippers as ineffective and costly, with the potential to harm relationships. There was also some disquiet that grain-specific components of the Act, such as the Maximum Revenue Entitlement (MRE) program, act as barriers to investment and productivity improvements in the broader rail system. Greater network transparency and real-time data on network fluidity is frequently cited as a key to resolving many of these issues.

Rail Transport: Passenger rail

VIA Rail provides transportation options in the Windsor–Quebec City corridor, from central to Western Canada, and on long-haul routes in Eastern Canada and access to some communities on regional and remote routes. The per-passenger subsidies range from fifty dollars on the busiest routes to more than ten times that amount on remote services. While commuter rail is increasingly important at the regional level, VIA faces declining or stagnant ridership, even on the most densely populated routes, due in part to low speeds, few frequencies, and unreliability related to sharing track with freight trains. Demographic changes, highway congestion, environmental considerations, and increasing time and cost of air travel offer opportunities for growth. However, the lack of federal policy and VIA Rail's lack of freedom to operate on a more commercial basis are said to be holding it back from pursuing increased speed, reliability, and frequency of service.

Air Transport

Overall, the policy governing air transport has yielded excellent airport facilities and air navigation systems; financially sound carriers; reasonable connectivity to our biggest trade and tourism markets; strong safety and security records; and highly sought-after aircraft and professional certification. But the system is also marked by weak accountability constraints on fees and charges; high costs for users and operators; aggressive capital expenditure programs at airports; modest traffic volumes; and limited competition. There is no room for complacency. The Review makes recommendations across a range of issues, including air policy, infrastructure, and governance, that require action from government and market participants to take the air transport system to the next level.

While Canada is geographically well positioned to serve as a North American gateway hub connecting markets in Europe, the Americas, and Asia, competing international jurisdictions are several steps ahead in a number of areas. High costs in Canada combine with superior connectivity through U.S. airports to produce “leakage” of passenger traffic to U.S. airports. While depreciation in the Canadian dollar has provided some short-term relief, the problem for the long haul remains. It’s not prudent to rely on a low Canadian dollar as a means of remaining competitive.

In smaller and more remote Canadian markets, low traffic volumes militate against self-sufficiency. Fees and charges under Canada’s user-pay system are also said to be a major reason why there is not a single ultra-low-cost carrier in Canada.

Passenger facilitation in airports was also seen as an area for improvement. Stakeholders urged reform of the Canadian Air Transport Security Authority (CATSA) to address challenges in a number of areas where performance falls below standard, such as wait times due to security line-ups. Cumbersome immigration and customs processes, while improving, must be further streamlined to make airports competitive, particularly for international passengers transiting Canada for other destinations. Finally, consumer protections were cited as dysfunctional from the perspective of users, industry, and the regulator.

Marine Transport

Like the air sector, marine transport is working well as a result of the shift toward greater commercialization in the 1990s and actions under the National Policy Framework for Strategic Gateways and Trade Corridors during the past decade. However, the governance of marine ports and pilotage services remains problematic. Underutilization of assets such as the Great Lakes–St Lawrence Seaway was a significant theme. Contributing factors included foreign ownership restrictions, lack of year-round service, and inadequacies in the governance and resourcing of the Coast Guard and other marine services, such as ice-breaking. The underfunding of the Coast Guard seriously hampers its ability to discharge its mandate, which adversely affects Canada’s international competitiveness and trade.

What does Canada Need for the Transportation System to get us there?

If there is one conclusion from this Review that should resonate for Canadians everywhere, it is that the performance of the transportation system underpins the country’s trade performance, the performance of the economy and the health and sustainability of communities. Fluidity and overall logistical efficiency is critical to the movement of people and the

distribution of goods and services across the country and around the world. The transportation system is, in fact, the supply chain upon which all other supply chains depend. Policy approaches should, above all, respect its far-reaching role as a key driver of the performance of all Canadian industries. Importantly, improving efficiency of the transportation system will also help to contain Canada's greenhouse gas emissions.

The balance of this report provides context and recommendations which, if prioritized as part of a long-term transportation strategy, will provide the basis for competitive success, employment opportunities and a high standard of living for Canadians in the years and decades ahead.

Notes

- ¹ For a complete list, see Volume Two, Appendices O and P. A number of stakeholders were engaged more than once.
- ² Guided by policies proposed in submissions such as the 1985 Mazankowski report, *Freedom to Move*.
- ³ Changes included the privatization of Air Canada (1986–89), CN Rail (1995), and Nav Canada (1996), the commercialization of large ports and airports and divestiture of smaller ones to local authorities (1992–2003), along with the deregulation of domestic carrier markets and progressive liberalization of international air access.
- ⁴ Brazil, Russia, India, and China.
- ⁵ OECD/ITF, 2015, *ITF Transport Outlook 2015*, (Paris: OECD Publishing/ITF, January 27, 2015), accessed on 15 July, 2015, online: <http://dx.doi.org/10.1787/9789282107782-en>.
- ⁶ Å. Johansson and E. Olaberria, *Long-term Patterns of Trade and Specialisation* (Paris: OECD Publishing, 2014) OECD Economics Department Working Papers, No. 1136, accessed on October 26, 2015, online: <http://dx.doi.org/10.1787/5jz158tbddbr-en>.
- ⁷ "A sustainable transport policy should tackle rising volumes of traffic and levels of congestion, noise and pollution . . . Action is needed to bring about a significant decoupling of transport growth and GDP growth, in particular by a shift from road to rail, water and public passenger transport," European Council, Gothenburg, (2001).
- ⁸ Marc Levinson, *The Box: How the Shipping Container Made the World Smaller and the World Economy Bigger*, (Princeton University Press, 2008), at 12.

Chapter 2: Governance

Governance is all about decision making: sound, timely, accountable, and often strategic decision making. It comprises the structures, processes, and relationships involved, as well as the culture that infuses those relationships. Our stakeholder consultations made it apparent that governance was at the heart of many of the issues raised, and key to resolving many of the problems that have plagued the transportation system for years. Prescriptive, detailed regulatory rule making is simply not practical for producing the right decisions in all contexts and circumstances. Good governance frameworks, guided by the vision and philosophy articulated in the *Canada Transportation Act*, are essential.

To discuss the governance of the Canadian transportation system and how it might evolve over the next 30 years is to enter into big country, literally and figuratively. It is a multimodal system that serves small, medium, and large urban centres, that stretches upward to remote northern communities, traverses a geography and climate both harsh and benign, and radiates outward, connecting us to the rest of the world by land, air and sea. That is the contextual basis for the governance challenge facing the national transportation system.

Each mode of transport has its unique history and features. Each is susceptible to sophisticated analysis to determine strengths and weaknesses. Each requires the collaboration of multiple levels of government and the private sector to function smoothly. And each prompts discussion of cross-sectoral issues to resolve differences, harmonize strategy, and maintain smooth operations.

Unlike jurisdictions such as Australia, the United Kingdom, and the European Union (see Volume Two, Appendix B, Figure 3), Canada does not have an ongoing private-public sector framework that considers the entire national system and is geared to strengthening its contribution to economic prosperity. Divergent but critical interests such as infrastructure investment, research, innovation, and the environment need to come together with a transportation focus. While Transport Canada is the main entity responsible for the sector, there is no mechanism to integrate the breadth of interest in transportation across departments, sectors, or in terms of federal-provincial dialogue.

At the federal level alone, there are multiple departments and agencies that flesh out the issues in transportation, identifying conflicting aims, working collaboratively to achieve mutual goals, and, inevitably, working at cross-purposes in the absence of an oversight mechanism. In particular, Transport Canada; Environment Canada (now Environment and Climate Change Canada); Industry Canada (now Innovation, Science and Economic Development); the Canada Border Services Agency; Public Safety Canada (now Public Safety and Emergency Preparedness); the Canadian Coast Guard; Foreign Affairs, Trade and Development Canada (now Global Affairs Canada), Agriculture and Agri-food Canada; and others—all have important interests in transportation policy. Nowhere is the proverbial “whole of government” approach more important than in forging a transportation narrative for Canada.

Industry stakeholders are quick to admit that the accumulation of discrete policies and priorities over time, and within different federal entities, has led to a fragmentation of roles and accountabilities that has undermined transportation objectives. Notwithstanding the good intentions that come with intensive statutory reviews every ten years or so, they are not an effective mechanism for ongoing adaptation of transportation policies in an era of rapid global change.

This chapter explores improvements in the governance of the transportation system. It proceeds from the assumption that Transport Canada should be a key enabler from a policy standpoint, bringing together the full range of stakeholders in an effort to better understand the issues, consider the options, and seek solutions to emerging challenges.

A National Framework on Transportation and Logistics

There is a strong desire among those consulted to work toward a global vision for the future of the Canadian transportation system—and for a formal mechanism that not only fosters ongoing national dialogue, but also encompasses the entirety of Canada’s multi-modal transportation system for the movement of people and freight. Stakeholders are calling for the federal government to provide leadership in bringing together all levels of government and industry to identify, promote, and harmonize transportation policies and initiatives. The goal should be to embed these policies in a national framework that builds and optimizes the transportation system over the next 20 to 30 years. The strategy would identify investment needs in trade-enabling infrastructure, describe the proper regulatory and policy environment, and provide long-term stability for investments and investors in the system.

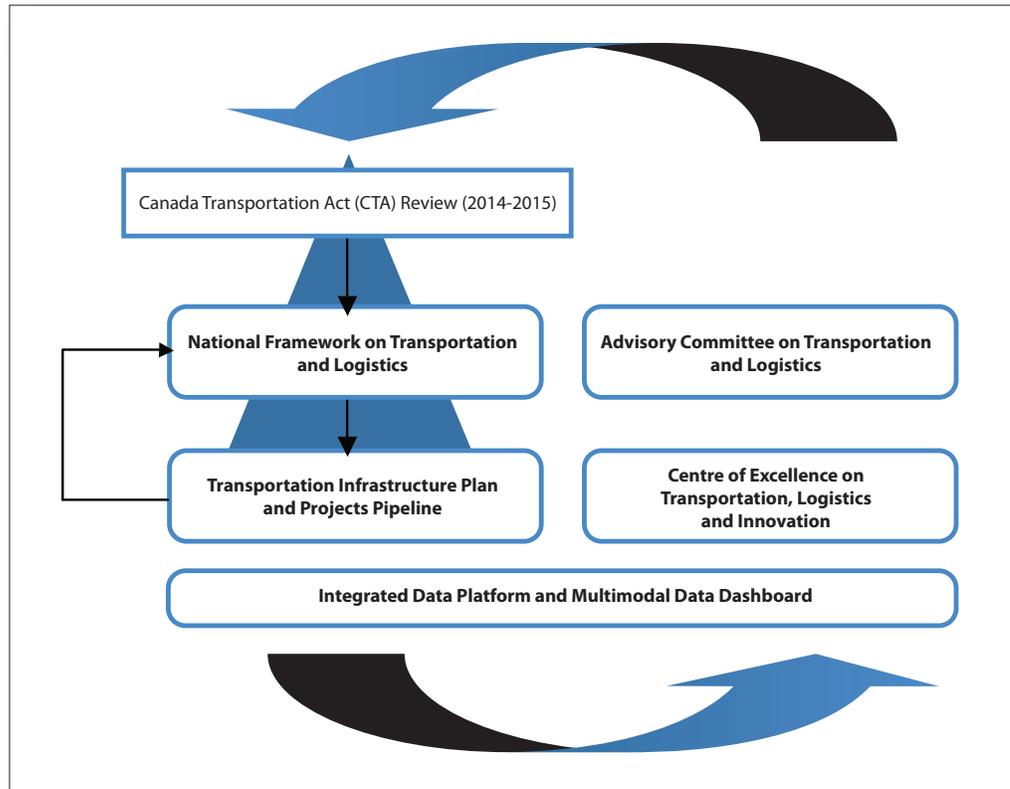
The submission from the Transportation Coalition expresses it this way:

What is required is a clear vision to guide federal leadership that establishes and supports transportation’s crucial economic role in international and interprovincial trade; identifies, encourages and monitors efficient, effective, reliable, safe, sustainable and commercially-based transportation networks; continues moving forward with commercialization and privatization; and creates the institutional structures to serve the future transportation system.¹

To accomplish this, Transport Canada will need to create new mechanisms whose goal is to provide advice and expertise in the different modes of transportation and from different aspects of the industry, and focus on the collection of the necessary data and research to inform decision making. One objective should be to eliminate the necessity to hold periodic major reviews of the Act, in favour of an evergreen process of consultation, dialogue, and adaptation.

1. The Review recommends that Transport Canada lead the development of a clear performance and evidence-based National Framework on Transportation and Logistics (see Figure 1), in collaboration with the provinces, territories and industry.

**FIGURE 1 —
TRANSPORTATION
DIALOGUE AND
COLLABORATIVE
APPROACH THAT
INCLUDES THE
ENTIRETY OF
CANADA'S
MULTIMODAL
SYSTEM:²**



A variety of measures will be required to implement this recommendation:

- a. The Report of the Canada Transportation Act Review should provide the starting point for the National Framework on Transportation and Logistics.
- b. The creation of the Framework should be enshrined in the Act, replacing the requirement to conduct a periodic statutory review of the Act.
- c. The National Framework on Transportation and Logistics should include inter-modal and sector-specific strategies and investment plans, as well as defined infrastructure projects for the next 10 to 30 years in a Transportation Infrastructure Plan and Projects Pipeline.
- d. The Framework should make provision, through the creation of an Advisory Committee on Transportation and Logistics, for an ongoing dialogue on transportation that includes representation from the entirety of Canada's multimodal transportation system.
- e. The Advisory Committee should be assisted in its work by a new Centre of Excellence in Transportation, Logistics and Innovation that provides expert policy advice aimed at enhancing the state of the transportation sector in Canada and marketing its position as an international hub.

- f. A new Integrated Data Platform and Multimodal Data Dashboard should be established, preferably within the Canadian Transportation Agency, to support evidence-based decision making, and a more efficient and responsive transportation network among public and private sector stakeholders.

Additional information on these proposed organizations follows later in this Chapter.

In Chapter 11 concerning the Canadian Transportation Agency, the Review proposes an additional measure that relates to the proposed new governance arrangements. Recommendation 1 (a) in that chapter holds that the Agency should be granted own motion powers— that is, the ability to investigate and issue orders that address systemic issues manifest from analysis of the data, without having to wait for a complaint to be filed. Under current legislation, it can only address issues that arise from specific complaints, and its decisions are binding only on the parties subject to those complaints. This case-by-case approach has led to a patchwork of remedies that fail to embrace all relevant players and therefore fail to serve as adequate consumer/shipper protection against problems that occur across the industry, such as barriers to accessibility.

As noted in 1(b) above, it is envisaged that the creation of the National Framework and implementation of proposed new governance arrangements based on a public-private sector collaborative approach, would obviate the need for the Minister to appoint a team to conduct an in-depth and extensive review of the Act every few years.

A Transportation Infrastructure Plan and Projects Pipeline

A well-functioning transportation system, delivering people and goods quickly, safely, and reliably to where they need to go, contributes immeasurably to our quality of life and economic well-being. However, most people don't think about the cost, logistics, or coordination required for everything to work seamlessly. That is, unless or until the system fails—they don't have access, they can't move their product to market quickly enough, there are blockages and delays, costs are prohibitive, or any number of factors combine to frustrate their plans.

Demand for transportation services for both personal and commercial purposes continues to grow, exerting pressure on existing transportation infrastructure and prompting more and louder calls for new and expanded facilities. We want greater capacity, higher speeds, and in regions like the North, improved access to communities and resources. Increased traffic compounds the problem, as do quick fixes that don't stand the test of time. What are needed are funding mechanisms to maintain, improve and, in some cases, replace Canada's aging capital stock of transportation infrastructure.

The terms of reference for the Review asked, "How can the quality and utilization of transportation infrastructure capacity be optimized through, for example, improved alignment of transportation policies and regulations and/or the use of innovative financing mechanisms?"

First, some history.

The Past 150 Years: From Early Nation Building to Keeping the Boat Afloat

The Government of Canada has a long history of investing in nation-building infrastructure. The National Railway System, the Trans-Canada Highway, and the St. Lawrence Seaway were massive undertakings that knitted the country together and, along with the major airports and ports systems, made it possible for us to thrive as a trading nation.

Historically, Canada relied on general tax revenues to fund transportation infrastructure. During the recessionary periods of the 1980s and 1990s, faced with massive public deficits, governments at all levels began to significantly cut spending. When the preponderance of existing infrastructure was built in the 1950s and 1960s, infrastructure spending represented between three and five percent of Gross Domestic Product (GDP), compared to one percent in 2013.³

In recent years, all levels of government in Canada have spent significant sums of public money to renew, maintain, and upgrade transportation infrastructure, either independently or through shared-cost programs. During the period 2000–06, the federal government expanded its commitments to address infrastructure shortfalls through the creation of a number of programs (see Volume Two, Appendix B). Some of these federal initiatives related to transportation infrastructure, including the *Infrastructure Canada Program*, the *Canada Strategic Infrastructure Program*, the *Border Infrastructure Program*, and the *Strategic Highway Infrastructure Program*.

The *Building Canada Plan* was launched in 2007 to consolidate and harmonize efforts, incorporating successful previous funds and creating new ones. The objective of the seven-year, \$33-billion plan focused on three themes: advancing Canada's economy, promoting a cleaner environment, and creating better communities. The Plan divided funding between transfer payments and projects that were deemed to be of national significance—projects that contributed to cleaner air and water, safer roads, shorter commutes, and better communities. One of the key objectives from the funding perspective was to provide stable, flexible, and predictable funding to municipalities, provinces, and territories.

Federal contributions specifically dedicated to transportation infrastructure between 2006 and 2015 are estimated at \$14.8 billion⁴ (see detailed tables in Volume Two, Appendix B, Figure 1).

In 2015, the federal government introduced the *New Building Canada Plan*, which will provide \$53 billion over the next ten years to fund roads, bridges, subways, and other public infrastructure in partnership with provinces, territories and municipalities.

Where we are today: Lagging behind our competitors

While the federal government has spent a significant amount of money on infrastructure projects over the last 15 years, the predominant goal has been to stimulate local economies and create jobs, not necessarily to address longer-term economic development requirements. Projects under the various funding categories were often approved on the basis of “shovel-readiness,” rather than on the basis of an economic cost-benefit analysis, or an identified link to national transportation or trade priorities. A key consideration was to ensure that funds were dispersed on a “fair share” basis across Canada. The bottom-up approach to project identification left little room for the selection of projects of national scope and strategic importance.

“Enhancements of trade-enabling infrastructure are absolutely vital not only to keep pace with current demand, but to ensure that Canada’s transportation sector retains high levels of productivity.”

— *Canadian Chamber of Commerce Submission to the CTA Review*
December 2014

There is still a real need to focus on Canada’s longer-term transportation needs. Our global infrastructure and related rankings have been declining and Canada continues to compare less favourably to other developed nations on a number of measures—a disturbing trend for a small, open economy in which prosperity depends on success in global trade.

Canada’s rankings on World Economic Forum Global Competitiveness Index⁵

| | 2010 | 2014 |
|---|------|------|
| Overall Competitiveness | 12 | 13 |
| Quality of Transport Infrastructure | 11 | 14 |
| Quality of Roads | 14 | 26 |
| Quality of Railroad Infrastructure* | 15 | 19 |
| Quality of Port Infrastructure | 14 | 21 |
| Quality of Air Transport Infrastructure | 22 | 16 |

* Includes passenger rail and short line rail; freight rail infrastructure not separated.

In 2014, Canada ranked 14th out of 140 countries for the quality of its transportation infrastructure; the rankings for quality of roads, railroads, and port infrastructure are also declining, signalling a general deterioration of the system relative to those of important trading partners and competitors. In comparison, the following countries obtained the top three rankings:

| Ranking | Quality of Infrastructure (Basic Requirements) | Quality of Roads | Quality of Railroad Infrastructure | Quality of Port Infrastructure | Quality of Air Transport Infrastructure |
|---------|--|----------------------|------------------------------------|--------------------------------|---|
| 1 | Hong Kong SAR | United Arab Emirates | Japan | Netherlands | Singapore |
| 2 | Singapore | Netherlands | Switzerland | Singapore | United Arab Emirates |
| 3 | Netherlands | Singapore | Hong Kong SAR | United Arab Emirates | Hong Kong SAR |

For its part, the World Bank ranks Canada 12th out of 160 countries for trade logistics performance, based on six key dimensions: customs and border clearance efficiency; infrastructure quality; ease of international shipments; logistics competence and quality; ability to track and trace shipments; and timeliness.⁶ The Bank ranked Canada 10th regarding quality of trade and transport-related infrastructure, such as roads, rail, ports, and information technology, and only 20th on the efficiency of the border- and customs-clearance processes.

Several prominent industry organizations, think tanks, and universities have, for a number of years, stressed the need for federal leadership on transportation to ensure sufficient and reliable transportation services to support Canada’s long-term economic growth, including, in particular, “trade-enabling” infrastructure. In January 2015, provincial premiers called for increased federal investment in trade infrastructure and gateways to support greater international trade in key markets.⁷

Where we need to be in 20 to 30 years: Infrastructure that enables Canada to benefit from global trade and economic opportunities

In the decades ahead, the quality of Canada’s transportation infrastructure (including supporting assets such as logistics data, information and communications technology, and innovation), as well as the system’s ability to support the efficient movement of people and goods, will be key determinants of Canada’s long-term economic performance.

Planning, approval and execution lead times for major projects in Canada can easily exceed a decade and the time to start is now. With federal leadership, the measures included in this chapter would not only strengthen the guardianship of the most important components of Canada’s transportation system, but would also create an environment more attractive to private sector investment in critical transportation infrastructure.

“Trade-related infrastructure is one of the areas within our control where Canada has the potential to dominate . . . Canada could regain advantage in key markets by anticipating and responding to opportunities early. Trade-related infrastructure can help offset the distance disadvantage.”

— John Law and Carlo Dade, *Building on Advantage: Improving Canada’s Trade Infrastructure*.

Canada West Foundation

November 2014

Faced with similar challenges, other jurisdictions have implemented various national infrastructure plans in an attempt to contribute more effectively to economic growth and attract private sector financing. Australia and the United Kingdom are considered to be leaders when it comes to infrastructure investing, as they were among the first to carry out privatization programs directed at utilities and airports.

For example, in 2008, the creation of Infrastructure Australia aimed to improve national productivity through a coordinated approach to planning, funding, and implementing long-term infrastructure priorities and needs. Australia’s *National Infrastructure Plan* identifies the government’s strategic objectives and infrastructure priorities for the next 50 years; provides a pipeline of “nationally significant” infrastructure projects; includes a plan for applying wider user-pay systems and selling, or long-term leasing, of government infrastructure assets in order to re-invest in new infrastructure; and actively pursues private institutional financing to address the infrastructure backlog.

Introduced in 2010, the United Kingdom’s *National Infrastructure Plan* sets out a rolling 10-year plan in line with the government’s long-term economic plan. It also identifies the government’s strategic objectives and the top 40 investments considered vital for economic growth. The British plan includes a pipeline of planned public and private projects and identifies various initiatives to attract more private sector investment.

Further information on the approaches adopted by the United Kingdom, the European Union, and Australia are provided in Volume Two, Appendix B, Figure 3. In addition to these, emerging economies such as China, Turkey, and India are also pursuing strategic approaches at the national level to build and attract investment for key transportation infrastructure requirements.

The Forward Plan: A Collaborative Approach to Transportation Infrastructure

The Organization for Economic Co-operation and Development (OECD) and other global organizations advise that, to invest efficiently in transport infrastructure, policy and decision makers need to have, among other things, key information on the existing inventory of transportation infrastructure assets (including physical condition and capacity); the current and projected demands on existing infrastructure; and the factors that will affect the current and long-term performance of this infrastructure, including aging, maintenance, and changing uses.

It is good advice, but following it requires a single, designated body to track and collect concrete information on the existing value, usage, performance, investments, and real and future needs for Canada's transportation network. Canada currently has limited capacity to assess the effectiveness of recent investments, to accurately measure the infrastructure gap, or to weigh future priorities.

A more robust and timely assessment of the current position and emerging demands and trends for the transportation system would permit governments at all levels to respond more quickly to changing conditions. It would enable the authorities to identify bottlenecks before there are significant trade impacts, and to anticipate the need for new infrastructure before the pressure builds to crisis levels. In addition, the creation and maintenance of good baseline data on Canada's infrastructure situation would improve costing, risk analysis and long-term planning.

2. The Review recommends that Transport Canada (through the proposed Advisory Committee on Transportation and Logistics) establish a mechanism to determine, on an ongoing basis and in collaboration with the provinces, territories, and the private sector, the state of Canada's transportation infrastructure, including gaps in Canada's long-term requirements. This new mechanism would be responsible for the following:

- a. Developing and implementing methods to track public and private maintenance spending and investments in new infrastructure;
- b. Assessing the current state, deficiencies, risks, and required investments in the transportation system, with particular emphasis on changes in demand and pressures on the logistics supply chain;
- c. Evaluating opportunities and options for improving essential trade-related infrastructure.

Determining priorities, targeting investment

Transportation infrastructure requirements going forward will certainly be huge. The next component of the action plan must address where scarce funding for investment in transportation infrastructure should be targeted to generate the greatest economic benefits for Canada as a whole. This would require that the federal government, in collaboration with provinces, territories and the private sector, determine, based on quantitative data and analysis, the priority investments and time lines to address infrastructure needs.

A study completed by the McKinsey Global Institute in 2013⁸ reported that, based on global best practices, one of the most powerful ways to reduce the overall cost of infrastructure is to optimize infrastructure portfolios by selecting the right combination of projects. The development of a transportation infrastructure plan based on macro-analyses of Canada's evolving and future needs would create the critical framework needed for more strategic planning and investment to optimize project selection. At the same time, it would afford the flexibility to react quickly to changing logistical requirements and new technology developments. Viewing Canada's transportation assets as part of a package in which investments are evaluated and prioritized could also lead to greater efficiencies and returns on investment.

This approach would also better align infrastructure spending with other national macroeconomic policies, such as the *Global Markets Action Plan*, and encourage greater inter-jurisdictional co-operation. Including the private sector in priority setting as a key source of knowledge and expertise would also improve outcomes. Important investment decisions would be evidence-based, transparent and intended to maximize results.

If implemented, the plan should improve Canada's global ranking for quality of trade infrastructure, making Canada more attractive for trade-related investments and private sector investment in transportation infrastructure.

3. The Review recommends that the Government of Canada, with input from provinces, territories, and the private sector, develop a comprehensive long-term transportation infrastructure plan, by:

- a. articulating a strategic outlook, direction, and goals that would be used to set priorities for investment in existing and new transportation infrastructure;
- b. establishing a "projects pipeline," comprising a continuously updated list of high-priority infrastructure needs over the next 20 to 30 years, selected on the basis of a factual analysis of the contribution to Canada's long-term economic development and productivity. The list would highlight assets that support international trade and competitiveness, such as Canada's trade corridors, as discussed in Chapter 3;
- c. providing targeted funding to support the economic development potential of Canada's three northern territories;
- d. obligating project proponents, whether government or private sector, to pay particular attention in their funding applications to the opportunity to introduce user charges to encourage more productive use of existing infrastructure stock; incorporate innovative technology; ensure national and global inter-operability; introduce performance measurement and productivity targets; and assess environmental impacts and labour market risks.

Given persistent government debt levels and the growing infrastructure gap, direct public funding will remain scarce and it alone will not suffice to meet requirements. The role of the private sector in providing infrastructure is becoming more widely accepted. According to various international financial organizations, there are substantial funds available globally to invest in infrastructure, although competition for these funds is intense. Large institutional investors, such as finance companies, insurance companies, labour union funds, First Nations' trusts, mutual funds, pension funds, and sovereign wealth funds are seeking long-term, consistent, and reliable cash flows, rather than rapid equity-value appreciation. Canada's pension funds are held up as some of the world's leading infrastructure investors, especially for their model of direct investing. The country's top 100 pension plans currently manage assets worth \$1.1 trillion.⁹ Further details on Canada's largest pension funds are provided in Volume Two, Appendix B, Figure 4.)

On June 12, 2015, the Government of Quebec formalized an agreement that will give the province’s pension fund manager, the Caisse de dépôt et placement du Québec, the right to build and operate shared transportation infrastructure in the province. The Government will define the needs and public interest objectives to be met by the projects, and will select from among solutions proposed by the Fund. The Fund will be able to retain controlling interest in the infrastructure assets.

On average, Canadian pension funds have allocated about four to five percent of their funds to infrastructure. Although the large pension funds are major infrastructure investors in the global context most of the capital goes overseas, given the slower pace of privatization of public sector assets in Canada.¹⁰ In addition, notwithstanding a well-functioning P3 model, Canadian projects are often ignored by the pension funds because they are too small, or because they offer equity shares of less than 20 percent.

Currently, Canada’s pension plans are subject to regulations which restrict them to holding no more than 30 percent of the shares eligible to elect the board of directors of a corporation. Representatives of large plans, such as the Ontario Municipal Employees Retirement System (OMERS), have expressed the view that these rules are outdated and put Canadian pension funds at a competitive disadvantage. In 2015, the federal government proposed to undertake a public consultation on the usefulness of the rule in order to “reduce red tape and improve the investment climate in Canada”¹¹ and Ontario has indicated its intention to amend the restriction for provincially regulated funds.

In a 2014 study of investor financing in infrastructure, the World Economic Forum identified three key actions that governments could take to enhance the viability of infrastructure projects and attract private capital.¹² These included developing a strategic vision and project pipeline for infrastructure; adopting supportive policy and regulatory enablers; and creating an investor value proposition, with benefits for government and competitive returns for investors (see Volume Two, Appendix B, Figure 5).

The investment vehicles that make up the global institutional infrastructure market are made possible principally by governments that have adopted privatization or public-private partnerships policies.

— *Rajiv Sharma*, The Potential of Private Institutional Investors for Financing Transport Infrastructure
International Transport Forum
May 2013

Canadian policy has favoured commercialization over privatization, which has resulted in a lack of significant infrastructure available for private sector investment. Governments in the U.S., United Kingdom, and Australia are using a practice of “asset recycling” to dispose of outdated or legacy assets in order to generate the capital needed to invest in new public projects, or refurbish existing infrastructure. Canada could do the same: certain federal assets with potential for privatization (based on recommendations made elsewhere in this report) include various ports, and small and large airports. Privatizing would

not result in the loss of transportation assets, but rather, become a source of new funding required for strategic investment in the system. This would require that the proceeds from disposition of crown held assets be redeployed for new critical transportation initiatives that improve the performance of the network, i.e. as identified on the transportation projects pipeline.

4. The Review recommends that the Government of Canada act to attract increased private sector financing for transportation infrastructure projects by:

- a. using the Transportation Infrastructure Plan and Projects Pipeline (as per Recommendation 3 in this Chapter) to identify national priorities (and assets that could be considered for privatization) and to highlight those projects and initiatives that may be of interest to private sector investors;
- b. working with institutional investors and pension funds to consider additional tools or mechanisms to attract and leverage private investment in transportation infrastructure. This will involve:
 - i. ensuring existing financial, policy and regulatory frameworks do not unnecessarily discourage private sector investment in Canadian transportation projects;
 - ii. legislative amendments to remove any barriers, such as the restrictive investment regulations on pension funds;
 - iii. encouraging and assisting private financial institutions to establish managed transportation infrastructure investment funds in which private investors (small and large) could reduce risk by pooling funds and investments;
 - iv. adopting policies and stable, predictable regulatory frameworks that de-risk investor cash flows and inspire greater confidence among institutional investors in P3 and private infrastructure projects.

Advisory Committee on Transportation and Logistics

In 2014, in response to the 2011 grain shipping dilemma, Transport Canada established a Commodity Supply Chain Table (CSCT) to provide a forum for shippers, railways, ports, terminals, and other partners to work together on ways to improve the performance of the rail-based supply chain. The CSCT aims to promote exchanges on logistical issues and to provide a forum for service providers and shippers to share information on overall trends and expected future traffic in commodity movements, to explore and assess potential solutions to these challenges, and to develop supply chain performance metrics to increase the visibility of the overall performance of the system.¹³ The Minister of Transport chairs the Table, and the Minister of Agriculture is an observer.¹⁴

CSCT's mandate, membership, and its focus on rail and bulk commodities are too narrow to address systemic issues affecting Canada's transportation network and, particularly, impediments in national and international transportation flows. A bigger, more expansive view of the national transportation system is required to fully integrate all players that have a direct impact on the effectiveness and efficiency of goods moving on Canada's transportation network.

Other countries have experienced a similar need to study their transportation system from a broader perspective. In the United States, the U.S. Federal Maritime Commission is calling for the establishment of a National Council on Intermodal Supply Chain Efficiency that could help to facilitate discussion and resolution of issues of national importance that are affecting, or promise to affect, the U.S. intermodal system. This would likely be done in conformity with the *Federal Advisory Committee Act*, which governs the behaviour of federal advisory committees and places special emphasis on open meetings, chartering, public involvement, and reporting.¹⁵

In Canada, stakeholders consulted for the purposes of this Review have underscored the need for a more representative forum that draws on existing expertise in the sector and is able to consider the transportation system as a whole. A newly configured and more broadly based forum would be better equipped to deal with rapidly shifting market conditions driven by international influences, technological innovations, and policy shifts. It would also provide a foundation to reviewing or initiating future industry overviews.

With respect to freight rail infrastructure in particular, this forum would provide a venue to identify where railway, shipper and public authority interests converge, where coordinated action may be possible, and ways of addressing funding issues. Adopting a more strategic approach should help strengthen the impact of infrastructure expenditures, improve the economies of scale of individual projects, and mitigate financial risks associated with individual action.

Finally, it would foster a healthy exchange of ideas and expertise: members could participate in bilateral fora, such as the Canada–United States Regulatory Cooperation Council, which was created to increase regulatory transparency and coordination between the two countries.¹⁶

5. The Review recommends that Transport Canada incorporate the Commodity Supply Chain Table into the proposed Advisory Committee on Transportation and Logistics, chaired by the Minister of Transport and vice-chaired by the Minister of International Trade. This new Committee should have:

- a. the mandate to consider and provide advice on all modes of transport, with a view to, among other purposes:
 - i. addressing the systemic issues affecting Canada’s transportation network;
 - ii. developing a long-term vision for transportation in Canada;
 - iii. advancing Canada’s corridors and critical trade-enabling infrastructure through partnerships with the industry and other levels of government;
 - iv. further integrating Canada’s corridors in a North American and international approach.
- b. membership representative of federal, provincial, and municipal governments, as well as key stakeholders.

A visual of the proposed Committee Structure is provided in Volume Two, Appendix B, Figure 7.

Centre of Excellence in Transportation, Logistics and Innovation

There was strong consensus among those research and innovation institutions consulted by the Review that, to be globally competitive, Canada's transportation sector requires significant investments in policy research and technological and logistical innovation. Such investments would be more effective if they were systematic, ongoing, and coordinated among key actors in federal and provincial governments, industry, and the post-secondary sector.

However, Canada has not yet developed a mechanism to spur innovation across the transportation system and across technology, logistics, and policy realms. Building and fostering innovation through a Centre of Excellence in Transportation, Logistics and Innovation independent from government would centralize Canada's human capital expertise in one single-window platform.

Other countries are unifying their transportation, logistics and industrial engineering under overarching Centres or Institutes geared at strengthening and increasing human capital through teaching, research and provision of advice in most or all areas of transport management. As examples, Australia has the Commonwealth Key Centre of Teaching and Research in Transport Management, a joint venture between the Institute of Transport and Logistics Studies in the University of Sydney Business School and the Institute of Transport Studies in the Department of Civil Engineering at Monash University, Melbourne. Established in 1995, the Centre is recognized by the Australian federal government as a centre of excellence in teaching and research in all areas of transport management including supply chain management, transport economics, transport engineering, transport planning, and transport modelling. The U.S. Department of Transportation administers the University Transportation Centers Program which awards grants to universities across the United States to advance the state-of-the-art in transportation research and develop the next generation of transportation professionals through the mechanisms of education, research and technology transfer at university-based centers of excellence. In Mumbai, India, the Government established the National Institute of Industrial Engineering, an autonomous body governed by a Board of Governors from the government, industry and academia. The Institute has strong linkage with private and public sectors, national research institutes, other academic institutions, universities, government organizations, and communities.¹⁷ Canada already boasts some of the key building blocks to unlock its competitive potential; Canadian universities, firms, and government agencies are home to leading experts and innovators in transportation.

Cross-cutting research and innovation supported by empirical data is essential to the growth of an efficient, reliable, and safe transportation system. The federal government could significantly leverage Canada's performance in this domain if it were to provide a coordinating focus for the work undertaken by multiple academic actors across Canada—a gathering place that harnesses the power of many in the interests of the sector as a whole. This would resemble other initiatives undertaken by the Government of Canada to encourage synergy, engagement, and concerting efforts, such as the Canadian International Resources and Development Institute, a coalition between the University of British Columbia, Simon Fraser University, and École Polytechnique de Montréal.¹⁸ The Centre of Excellence could eventually link to complementary initiatives like the Institute, resulting in a collective, integrative, and interdisciplinary platform across the Government of Canada to enrich the transportation network.

The Centre of Excellence in Transportation, Logistics and Innovation would benefit from the enhancement of the data collection and analysis envisaged through an Integrated Data Platform and Multimodal Data Dashboard. These three entities, the Advisory Committee on Transportation and Logistics, Centre of Excellence in Transportation, Logistics and Innovation, and Integrated Data Platform and Multimodal Dashboard would fit together, lending consistency and coherence to transportation policy and ensuring that decision making is informed by a continuous flow of cutting-edge research and innovation, supported by solid data and designed to address the most critical transportation challenges and opportunities of the day.

6. The Review recommends the establishment of an independent Centre of Excellence in Transportation, Logistics, and Innovation.

Integrated Data Platform and Multimodal Data Dashboard

Just as we require a mechanism to pull together all the research, technology and logistical innovation critical to the transportation sector, so too we require a means of gathering supply chain data to support evidence-based decision making. If one message was clear during this review, it is that all stakeholders across Canada want better access to transportation data. Supply chain stakeholders must continually innovate and improve so Canada can compete globally; but to do so, the provision and exchange of information is critical, and reliable statistics are required by all levels of government and the public to support sound policy and decision making. Currently, most data collection occurs within individual transportation modes and is not shared among supply chain stakeholders who could benefit from access to it. Accessible, accurate, and real-time data exchanges across the supply chain would improve the flow of imports and exports and help to position Canada to further develop an integrated North American approach to transportation management. Canada should at a minimum collect the same transportation data that is available in the United States (see Volume Two, Appendix B, Figure 9). The creation of this Integrated Data Platform and Multimodal Data Dashboard would support the G8 Open Data Charter adopted in June 2013. The key challenge for governments will be to shift to an environment where data and information are released openly to the public by default while still respecting privacy, security, and confidentiality restrictions.¹⁹

A recent initiative led by Transport Canada's Commodity Supply Chain Table, through its Performance Metrics Working Group, is developing the Commodity Flow Survey with producers, shippers, railways, ports, and terminal operators in Canada. It is a step in the right direction. However the speed with which this survey is being developed and the time taken for implementation (planned for 2018 and beyond) is too great. Given all the technology now available to quickly compute readily accessible data,²⁰ this time frame should be shorter.

As well, further efforts to leverage and integrate qualitative and quantitative statistical work, such as the Canada Border Services Single Window Initiative, should be encouraged. As it is, the current data governance arrangement is not conducive to creating a true multimodal data dashboard that accounts for Canada's supply chain elements.

Consideration should be given to housing this Integrated Data Platform and Multimodal Data Dashboard within the Canadian Transportation Agency and giving it a mandate to carry out a detailed assessment of what information is required to enhance performance by mode and across the supply chain. The Agency would consider to what extent the information already exists, how readily it can be accessed, what data are missing and what the priorities should be for collecting them. This change would provide the Agency with ready access to more information about the transportation system—information that could also provide critical support to the Agency in relation to its other decision-making roles.

The Review also heard concerns from shippers about covert retribution if they were to pursue a complaint through the dispute resolution process. If the Agency can get ahead of a number of issues and resolve them proactively and systemically the number of disputes could decline and those that proceed could be dealt with more effectively.

With the ability to collect and process additional information, the Agency would be in a better position to determine whether and when it should exercise its own motion powers, as proposed in Chapter 11: The Canadian Transportation Agency, Recommendation 1(a). The access to additional information may also assist in the investigation of cases before the Agency; assuming the usual rules of procedural fairness apply, relevant information could be provided at the investigation stage.

The creation of an Integrated Data Platform and Multimodal Data Dashboard, including new powers applicable industry-wide to better protect shippers and consumers, would enhance performance and collaboration by mode and across the supply chain, resulting in a more efficient and responsive transportation network for Canada. Its location within the Agency would complement and support the Agency's role as an independent, quasi-judicial body. Needless to say, the Agency would draw heavily on its ability to liaise with Transport Canada expertise and purchase services from Statistics Canada, as it currently lacks in-house methodological and statistical expertise.

7. The Review recommends that the Government of Canada create an Integrated Data Platform and Multimodal Data Dashboard to facilitate enhanced transportation data collection and processing. Consideration should be given to housing this new entity within the Canadian Transportation Agency.

Notes

- ¹ P. Guimond and B. Lacombe, "Transportation: The Key to Trade," Masthead Public Affairs Inc. Submission to CTA Review on behalf of the Transportation Coalition (March 6, 2015).
- ² Source: Canada Transportation Act Review 2014-2015.
- ³ International Transport Forum, *ITF Transport Outlook 2015* (OECD Publishing/ITF, 2015), accessed on November 12, 2015, online: <http://www.oecd.org/environment/itf-transport-outlook-2015-9789282107782-en.htm>.
- ⁴ Source: Transport Canada and Infrastructure Canada internal data bases.
- ⁵ World Economic Forum, *The Global Competitiveness Report 2015-2016* (Geneva: September 2015), accessed on October 21, 2015, online: <http://reports.weforum.org/global-competitiveness-report-2015-2016>.
- ⁶ World Bank, *Connecting to Compete: Trade Logistics in the Global Economy*, World Bank, Logistics Performance Index (Washington: 2014), accessed on 12 November 2015, online: <http://unohrlls.org/custom-content/uploads/2013/09/Connecting-to-Compete-2014-Trade-Logistics-in-the-Global-Economy.pdf>.
- ⁷ The Council of the Federation, Press Release (Ottawa: January 30, 2015), accessed on November 12, 2015, online: <http://canadaspremiers.ca/en/latest-news/79-2015/434-canada-s-premiers-collaborate-on-the-economy-and-call-for-a-better-partnership->.
- ⁸ McKinsey Global Institute, "Infrastructure productivity: How to Save \$1 trillion a year," McKinsey & Company, (January 2013), p. 5., accessed on November 23, 2013, online: http://www.mckinsey.com/insights/engineering_construction/infrastructure_productivity.
- ⁹ Benefits Canada, *2014 Canadian Institutional Investment Network Pension Fund Survey*, accessed on November 23, 2013, online: <http://www.benefitscanada.com/wp-content/uploads/2015/06/Top-100-Pension-Plans.pdf>.
Note: The Boston Consulting Group, "Measuring Impact Of Canadian Pension Funds" (October 2015; Released December 2015) indicated that the 10 largest Canadian public pension funds have current combined assets of more than C\$1.1 trillion, which equals 45% of Canada's gross domestic product. Seven of these plans rank among the top 30 global infrastructure investors. Accessed December 10, 2015 at http://files.newswire.ca/29/ENG_Top_Ten_Report.pdf
- ¹⁰ Georg Inderst and Raffael Della Croce, "Pension Fund Investment in Infrastructure: A comparison between Australia and Canada," *OECD Working Papers on Finance, Insurance and Private Pensions*, No. 32, (Paris: OECD Publishing, July 2013), at 34-35, accessed on November 23, 2013, online: <http://www.oecd.org/pensions/pensionfundinfrastructureaustraliacanada2013.pdf>.
- ¹¹ Government of Canada, *Budget 2015*, Chapter 3.4, "Investing in Infrastructure," accessed on November 23, 2013, online: http://www.budget.gc.ca/2015/docs/plan/ch3-4-eng.html#Simplifying_Federal_Pension_Fund_Investment__in%26nbsp%3BCanada.

- ¹² World Economic Forum (Prepared in collaboration with Oliver Wyman), *Infrastructure Investment Policy Blueprint*. (February 2014), accessed on November 10, 2015, online: http://www3.weforum.org/docs/WEF_II_InfrastructureInvestmentPolicyBlueprint_Report_2014.pdf.
- ¹³ Source: Archives - Transport Canada, "Minister Raitt discusses Canada's rail-based supply chain," (News Release) (Ottawa: June 26, 2014), accessed on October 28, 2015, online: <http://news.gc.ca/web/article-en.do?nid=862989>.
- ¹⁴ Source: Terms of reference and Membership for the CSCT are attached in Appendix B.
- ¹⁵ Source: Joseph Bonney, *U.S. Federal Maritime Commission (FMC) suggests industry advisory council on US port congestion*, (July 14, 2015), accessed on September 18, 2015, online: http://www.joc.com/regulation-policy/transportation-regulations/us-transportation-regulations/fmc-suggests-industry-advisory-council-us-port-congestion_20150714.html.
- ¹⁶ Government of Canada, *Joint Action Plan for the Canada-United States Regulatory Cooperation Council*, accessed on October 28, 2015, online: <http://actionplan.gc.ca/page/rcc-ccr/joint-action-plan-canada-united-states-regulatory#sthash.VVQIVZdz.dpuf>.
- ¹⁷ United States: United States Department of Transportation, "University Transportation Centers," accessed on November 17, 2015, online: <http://www.rita.dot.gov/utc/> ; India: National Institute of Industrial Engineering; accessed on November 17, 2015, online: https://www.nitie.edu/index.php?option=com_content&task=view&id=21&Itemid=75&lang=en; Australia: Institute of Transport and Logistics Studies (The University of Sydney); accessed on November 17, 2015, online: http://sydney.edu.au/business/itls/news_and_events/news/2014/key_centre_2013_annual_report_now_available.
- ¹⁸ "In November 2012 the Department of Foreign Affairs, Trade and Development (then CIDA) announced the award of \$25 million to a coalition of the three academic institutions to form the Institute," University of British Columbia News, International sustainable mining institute (January 29, 2014), accessed on October 28, 2015, online: <http://news.ubc.ca/2014/01/29/international-sustainable-mining/>.
- ¹⁹ "Canada and all other G8 members agreed to implement a set of open data principles and best practices that will lay the foundation for the release and reuse of government data." Source: Government of Canada, *Canada's Action Plan on Open Government 2014-16* (2014), accessed on October 28, 2015, online: <http://open.canada.ca/en/content/canadas-action-plan-open-government-2014-16#ch4-2>
- ²⁰ "Use of Canadian space technologies, capacities and services as competitive levers for the transportation industry (i.e. satellite communications, remote sensing, accurate positioning and timing available from global navigation satellite systems)." Source: The Canadian Space Agency submission to the Canada Transportation Act Review (July 21, 2015); "Satellite based technology and applications are already playing a critical role. Satellite technology is intricately woven into the socio-economic infrastructure of the nation, providing essential communications systems, air and ship traffic management, weather analysis, resource management, search and rescue, environmental monitoring, and security and intelligence services." Source: Telesat, *Submission to the Canada Transportation Act Review*, (May 12, 2015).

Chapter 3: Linking Trade and Transportation

Canadians have long supported and encouraged government investment in transportation infrastructure; the building of the transcontinental railway (1885), the St. Lawrence Seaway (1959) and the Trans-Canada Highway (opened in 1962) were transformative projects that enabled Canadians to connect with the world and each other. These nation-building investments not only stimulated economic activities during planning and construction, they have supported and will continue to foster international and domestic trade for generations. Our trade and transport corridors are now powerful economic assets that enable trade and economic progress by facilitating the movement of goods, people, and services.

The key question asked of the CTA Review regarding this aspect of our transportation system is, “How can strategic transportation gateways and corridors be developed and leveraged to support Canadian prosperity through linkages to global markets?”

This chapter deals with Canada’s surface transportation initiatives related to global trade and commerce. It provides a snapshot of such initiatives over the past 30 years, an assessment of where we are today, what opportunities lie ahead, and what recommendations for change will best position Canada to take full advantage of them.

Surface transportation gateways frequently go hand-in-hand with their aviation counterparts, as discussed in Chapter 9: Air Transport.

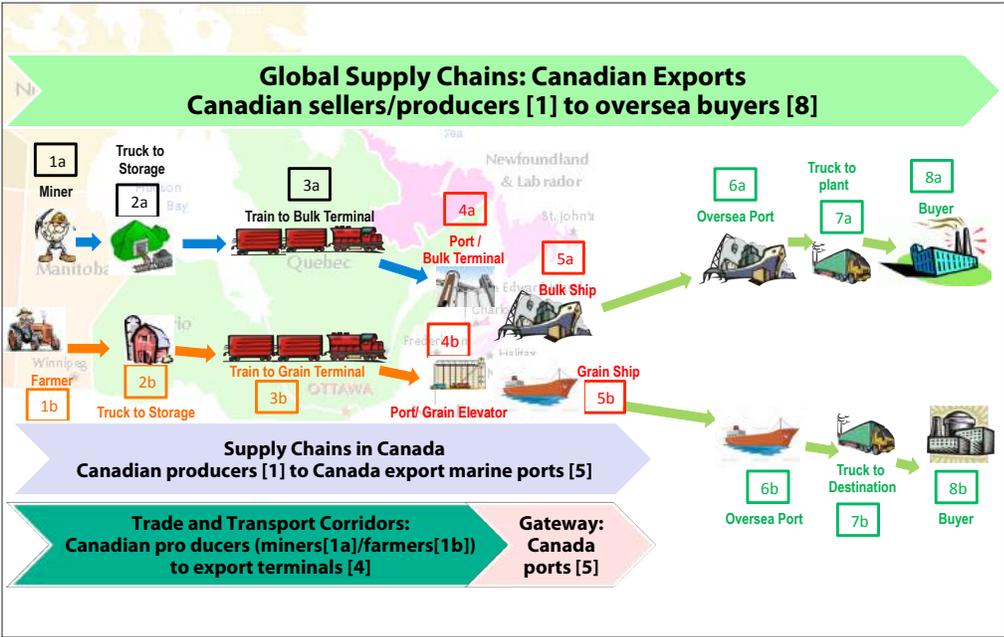


FIGURE 1 — GLOBAL SUPPLY CHAINS TERMINOLOGIES FOR CANADA EXPORT TRADE FLOWS¹

“Gateways” are major convergence points for the international flow of people and cargo. They are the marine ports, airports, and Canada-U.S. border crossings (by land, international bridges, or waters) that serve as points of entry to and exit from Canada. A “trade and transport corridor,” according to the World Bank, is a coordinated bundle of transport and logistics infrastructure and services that facilitates trade and transport flows between major centers of economic activity.² A trade and transport corridor may include transfer points, such as intermodal and distribution centres, where goods are changing hands or being transferred from one transport mode to another.

The past 30 years: All about trade

A More Open Trade and Investment Landscape

In 1980, the G-7 nations collectively accounted for 50 percent of global GDP (adjusted for Purchasing Power Parity).³ Today, their share is closer to 33 percent, and is forecast to decline further as emerging economies (notably, China and India) continue to grow and mature. This shift illustrates how the poles of global economic growth have changed over the last 30 years; it provides context for corresponding shifts that have taken place in global trading patterns. Recognizing these trends and being responsive to them is crucial for helping countries adapt to ever intensifying global competition.

Canada has long had an interest in pursuing more open trade and investment arrangements with its trading partners. Conclusion of the North American Free Trade Agreement (NAFTA) in 1994 transformed the Canadian economy and led to deeper economic integration with the U.S. Over the next 20 years, Canada went on to implement free trade agreements with 13 more countries and is now close to bringing into force three more: the Canada–Ukraine Free Trade Agreement, the Canada-European Union Comprehensive Economic and Trade Agreement, and the Trans-Pacific Partnership (TPP)⁴. Canada also remains committed to advancing free trade talks with India, and continues to grow bilateral relationships with China and the Association of Southeast Asian Nations (ASEAN), among others.

Such initiatives, along with continued globalization, will change the economic landscape for Canadian businesses, their employees, and Canadian consumers. How transportation and logistical linkages adapt to this new landscape will in part determine the benefits that Canadians are able to realize.

Globalization

In the last two to three decades, global commerce has undergone a significant transformation. Thanks to changes such as the advent of shipping containers—or the phenomenon of “containerization,” as it is known—companies can now locate plants and source parts and inputs wherever in the world they can be delivered and assembled most efficiently. Globalization has prompted nothing short of a revolution in global value chains.

Transportation costs have continued to decrease. Today’s ocean freight costs, for example (nominal, not adjusted for inflation), are only a fraction of what they were a century ago.⁵ This trend can be attributed to technology and innovation in global logistics, to the increasing sophistication of planes, ships, trains, and trucks, and to the simplification of handling cargo in containers. The process of change is ongoing: firms continue to outsource to overseas manufacturers, partner with third-party logistics companies on supply chain management, and form strategic alliances and joint ventures around the world.

International trade has always accounted for a significant share of Canada’s GDP. Today, for example, it represents more than 60 percent⁶ and has been critical for growth of the economy. Seizing new opportunities, however, requires leadership and policies that support effective gateways and efficient multimodal transport operations. Businesses look to

their supply chain operations as a potential source of competitive advantage. They seek trade and transport corridors that can move goods efficiently, reliably and seamlessly between production and distribution facilities and end markets. International trade agreements open the borders, but transportation is critical to delivering products and prosperity, and to realizing the opportunities.

Transportation Investment and Competitiveness Strategies

Since transportation is essential to the realization of Canada's goals in the realm of international trade, investment in transportation infrastructure is crucial. Traditionally, the Government of Canada has responded to bottom-up requests for assistance from other levels of government to improve infrastructure through various funding programs. With the 2006 Asia-Pacific Gateway and Corridor Initiative, however, Canada created a dedicated infrastructure program that explicitly linked transportation and trade policy, bringing together multiple levels of government and industry to identify and resolve bottlenecks and impediments for trade.

The Asia-Pacific Gateway and Corridor Initiative built on a multimodal trade and transportation concept outlined in draft legislation in the 2005 *Pacific Gateway Act*.⁷ The legislative approach was followed by an over-arching National Policy Framework on Strategic Gateways and Trade Corridors to guide investments and competitiveness initiatives. A core objective of this Policy Framework and its components was to enhance the integration of marine, road, rail, and air transportation systems, as well as their efficiency, safety, security and sustainability. Leadership and responsibility for each component was vested in three separate federal cabinet ministers.

The Policy Framework built upon Canada's geographic advantages and fostered partnerships between the public and private sectors. The Government of Canada made investments of \$3.5 billion in transportation infrastructure, which leveraged additional direct investments of \$2.7 billion from provincial, municipal, and private sector funding partners.⁸ By 2014, a total of 94 transportation infrastructure projects had been undertaken as part of Canada's Gateway initiatives, based on investments of over \$14.5 billion by the Government of Canada and its public and private sector partners.⁹ Over the course of the Review, the gateway approach of linking trade and transportation together in an integrated, multimodal, and public-private strategy was widely recognized as a Canadian best practice.

The three individual gateway and corridor strategies each had distinct geographical boundaries, linked in part with the regional markets they targeted. During the period in which they were implemented, rapid economic growth in China was among the most noticeable global trends; consequently, the Asia-Pacific Gateway and Corridor Initiative was the first to be launched. At that time, rapid growth in containerized imports arriving from Asia (principally China) had begun to cause severe congestion in British Columbia's Lower Mainland, creating an urgent need for action and helping to build consensus among affected parties. The reach and speed of the Gateway's inland connections—particularly for Prince Rupert's Fairview container, which opened in 2007—helped to reinforce the value of using Canadian west coast ports to reach domestic and U.S. markets.

Beyond infrastructure investment, the Asia-Pacific Gateway and Corridor Initiative also introduced a range of non-infrastructure competitiveness measures—touching on gateway performance, skills and labour supply, systems analysis, customs, and international marketing—to deepen and broaden the gateway concept. However, as the Review heard during its consultations, where the Initiative and the Policy Framework fell short was in being able to coordinate and connect all service providers within one over-arching governance and performance framework. Looking ahead, continued enhancement of the Asia-Pacific Gateway and Trade Corridor will be vital for Canadian growth and trade diversification.

“Recommendation: Develop a national transportation plan that includes the entirety of Canada’s multimodal transportation system . . . It must recognize Canada’s potential as an international hub and that the Canadian border must function as a piece of the supply chain.”

— *Canadian Chamber of Commerce Submission to the CTA Review*
January 2015

Federal trade-related transportation investments were also made in partnership with provinces and transportation service providers within the context of an Atlantic Gateway and Trade Corridor Strategy (launched in 2011) and an Ontario-Quebec Continental Gateway and Trade Corridor.¹⁰ Although they didn't include the same number of competitiveness measures as the Asia-Pacific Gateway and Corridor Initiative, both focused on multimodal transportation and served as platforms for international marketing and promotion of their performance and geographic attributes. Serving as an entry point into the North American market, the Atlantic Gateway and Trade Corridor strategy included a focus on attracting a greater share of European and, via the Suez Canal, Indian and Chinese trade. Although a strategy for it was not formally released, the Ontario-Quebec Continental Gateway and Trade Corridor was clearly positioned to enable more efficient trade with the United States and, via the St. Lawrence Seaway, with other Atlantic and Pacific markets.

“The federal government should recognize the importance of the Ontario-Québec Continental Gateway and Trade Corridor in international exchange and recommend resuming the work and update the analyses and the Strategy . . . to ensure its implementation.”

— *Transports Québec Submission to the CTA Review*
July 2015

Collectively, the three strategies represented a significant effort to strengthen Canada's competitiveness in global trade. Though each gateway and trade corridor initiative made progress in its own right, they all had a prominent focus on the inflow of containerized goods. Should any or all of the strategies be renewed in the future, Canada and its partners must consider how to also incorporate bulk commodities and an outward focus in their planning, investment, and execution, particularly in Western Canada. As a presenter at

the 2010 Second International Conference on Gateways and Corridors put it, “[e]nhancement of the outbound supply chain must not be overlooked if we are to truly develop an Asian-Pacific Gateway economy in Canada.”¹¹

Where we are today: Challenged to keep pace

According to the WTO, the dollar value of world merchandise trade exports was US\$19.0 trillion in 2014; the value of Canada’s share of this commerce represented 5 percent of the total, split evenly between exports (US\$475 billion in 2014) and imports (US\$475 billion in 2014).¹² Canada’s trade activity has grown steadily since the 2008–09 global recession, but in real terms has not grown substantially since the last CTA Review.¹³ Recent data is promising, however, with more than 9 percent growth in overall trade value from 2013 to 2014. Canada’s trade with the U.S. and China grew 12.4 and 6.5 percent, respectively, over the same period. Though much of Canada’s trade travels north-south, the share of Canada’s trade via our Atlantic and, particularly, our Pacific coasts has grown since the last Review of the Act in 2001.

FIGURE 2 — STATISTICS CANADA INTERNATIONAL TRADE DATA (2013 AND 2014)¹⁴

| Rank | Total Canadian Trade | 2013 Trade with Principal Trading Partners | | | |
|------|------------------------|--|------------------|------------------|-------------|
| | | Imports (\$M) | Exports (\$M) | Total (\$M) | % of Total |
| | all merchandise | \$475,630 | \$471,948 | \$947,578 | 100% |
| 1 | United States | \$247,808 | \$358,068 | \$605,876 | 64% |
| 2 | China | \$52,731 | \$20,498 | \$73,228 | 7.7% |
| 3 | Mexico | \$26,728 | \$5,385 | \$32,113 | 3.4% |
| 4 | Japan | \$13,733 | \$10,632 | \$24,365 | 2.6% |
| 5 | United Kingdom | \$8,427 | \$13,963 | \$22,390 | 2.4% |
| 6 | Germany | \$15,400 | \$3,456 | \$18,857 | 2.0% |
| 7 | South Korea | \$7,338 | \$3,501 | \$10,838 | 1.1% |
| 8 | France | \$5,385 | \$3,144 | \$8,529 | 0.9% |
| 9 | Italy | \$5,830 | \$1,953 | \$7,782 | 0.8% |
| 10 | Netherlands | \$3,381 | \$3,566 | \$6,947 | 0.7% |
| 14 | India | \$2,977 | \$2,801 | \$5,777 | 0.6% |
| 23 | Indonesia | \$1,374 | \$1,909 | \$3,283 | 0.3% |

| Rank | Total Canadian Trade | 2014 Trade with Principal Trading Partners | | | |
|------|------------------------|--|------------------|--------------------|-------------|
| | | Imports (\$M) | Exports (\$M) | Total (\$M) | % of Total |
| | all merchandise | \$511,482 | \$524,923 | \$1,036,405 | 100% |
| 1 | United States | \$247,808 | \$403,099 | \$681,060 | 66% |
| 2 | China | \$58,640 | \$19,361 | \$78,001 | 7.5% |
| 3 | Mexico | \$28,830 | \$5,493 | \$34,323 | 3.3% |
| 4 | United Kingdom | \$9,173 | \$15,224 | \$24,397 | 2.4% |
| 5 | Japan | \$13,295 | \$10,734 | \$24,029 | 2.3% |
| 6 | Germany | \$15,968 | \$3,141 | \$19,110 | 1.8% |
| 7 | South Korea | \$7,338 | \$4,178 | \$11,441 | 1.1% |
| 8 | Italy | \$6,418 | \$4,171 | \$10,589 | 1.0% |
| 9 | France | \$5,922 | \$3,312 | \$9,233 | 0.9% |
| 10 | Netherlands | \$3,673 | \$3,844 | \$7,518 | 0.7% |
| 11 | India | \$3,174 | \$3,199 | \$6,373 | 0.6% |
| 23 | Indonesia | \$1,511 | \$2,028 | \$3,540 | 0.3% |

Canada-U.S. Border Facilitation and Trade Diversification

The United States has been, and will continue to be, the single most important trading partner for Canada, and work is ongoing to improve the flow of goods and people across the border. In recognition of our close economic, social, and security relationships, the Prime Minister of Canada and the President of the United States signed a joint Declaration entitled *Beyond the Border: A Shared Vision for Perimeter Security and Economic Competitiveness* in February 2011.

The Declaration identified four key areas of cooperation,¹⁵ and a subsequent action plan outlined priority actions under each area. They include significant enhancements to security, especially in the area of information sharing, and a common approach to cross-border law enforcement operations. The plan also facilitates bi-national trade flows by enhancing the benefits of trusted-trader programs, investing in shared border infrastructure, and developing new initiatives to expedite legitimate cargo. For example, the “inspected once, accept twice” model was agreed to by both countries through a pilot project called the Integrated Cargo Strategy. While further work is necessary to develop and implement the strategy, the objective is for cargo to be inspected at its port of arrival without re-inspection at the inland border crossing. On the passenger front, Canadians travelling from major Canadian airports with connecting flights in the United States would no longer need to have their checked baggage re-inspected.

Under the Beyond the Border Action Plan, Canada and the U.S. have been expanding the use of pre-clearance by developing a comprehensive framework across all transportation modes. But despite making progress in removing undue obstacles along the border, many of the big ideas embedded in these initiatives remain incomplete. Dawson Strategic, in a 2014 study¹⁶ commissioned by the CTA Review, emphasized that the Beyond the Border Action Plan holds the potential to enable a more efficient and integrated North American transportation system so desperately needed, since NAFTA did not address transportation in a systemic fashion. If meaningful progress is not achieved, however, disparate security measures and trade facilitation services will remain in place, leaving bumps and impediments at the Canada–U.S. border.

Where this action plan aimed to enhance security and economic competitiveness through measures taken at our shared perimeter and border, a separate Canada–U.S. Regulatory Cooperation Council (RCC) was also created to better align our regulatory tools in order to support growth, investment, innovation, and market openness. In 2014, the Regulatory Cooperation Council took an important step forward by reaching agreement on a Joint Forward Plan.¹⁷ Under this plan, regulators in both countries agreed to coordinate future regulatory actions across an array of areas, including transportation. While the mechanics of joint planning will be refined over time, it is a crucial recognition that the Canadian and U.S. economies and transportation systems are integrated and co-dependent.

Transport Canada will continue to play an integral and important role in transportation policies associated with cross-border services and infrastructure. Mexico and the U.S. are advancing faster than Canada in their activities to facilitate legitimate cross-border trade. Canada needs to pick up the pace and capitalize on the momentum gained between the three countries over the past five years. If not, we risk missing out on economic opportunities and being left behind.

Although the United States is a key partner, Canada also has long-standing and important trade relationships with other Atlantic and Pacific nations. Economic growth in Asia-Pacific countries, for example, has triggered increased demand for Canadian products and the natural resources needed as primary inputs for manufacturing, and to support urbanization and increasingly affluent populations. This in turn has placed new demands on Canada’s transportation systems and service providers to improve the outflow and inflow of goods from and into Canada.

International Benchmarking

The World Bank has developed a methodology for assessing trade-logistics performance at a national level, measured by a Logistics Performance Index (LPI). Under the title *Connecting to Compete*, four editions have been released covering the years 2007, 2010, 2012, and 2014. Based on a survey of users of logistics systems across the world, individual LPI scores are calculated that allow a country's logistics performance to be ranked against its competitors. Canada's global ranking has slipped from ninth in 2007 to twelfth in 2014. Though useful in terms of understanding user perceptions and experiences of Canada's logistics systems, the methodology does not provide enough detail or empirical evidence on which to base future plans and/or corrective action.

Since 2008, the World Economic Forum has been publishing the *Global Enabling Trade Report* as an assessment tool for WTO members to monitor progress on implementing trade facilitation measures. Four key areas are examined: market access, border administration, transport, and communications infrastructure. In the 2014 Report, Canada ranked 14th overall on the Enabling Trade Index, but ranked conspicuously low in some indicators (see Volume Two, Appendix C for more details).

Looking ahead: Trade will be the driver

Canada is comparatively small in population, but large in land mass, and well positioned to take advantage of increasing opportunities for trade and travel, both within North America and with markets in Asia, Latin America, and the European Union. Currently, Canada's trade is heavily weighted toward its continental partners. In 2014, for example, combined trade with the U.S. and Mexico equalled approximately 70 percent of the value of Canada's overall international trade. Other trading partners are likely to grow in importance as emerging economies and global trading patterns continue to evolve. Canada must continue to build ties with new markets to fulfill national trade objectives, grow the economy, and offer Canadians more and better employment opportunities.

To meet the needs of growing trade volumes and complex global supply chains, additional transportation capacity (gained, for example, through an expanded physical footprint, more productive capital and/or labour, or better optimized operations) will also be needed. However, moving forward with some capacity improvements will be a challenge. Marine ports, for example, may be physically constrained due to the growth of cities around them. This is not the case for uncongested ports such as Prince Rupert and Halifax, where there is ample long-term expansion potential, but it is very much the situation for Port Metro Vancouver. In this context, the Port of Prince Rupert assumes great importance and could be the key to much needed gateway expansion on the West coast. Optimization of existing corridors and consideration of a single governance structure for the two ports would be an effective and prudent way of achieving the necessary expansion in response to increased trade flows, and would avoid the need to finance a completely separate new facility.

Meeting the challenge through immediate action and long-term vision

Over the next 30 years, the Government of Canada should continue to build on past successes in infrastructure investment and multimodal competitiveness strategies to position Canada to benefit from growth in global trade. Expanding existing trade and transport corridors and enhancing the efficiency and reliability of the current system should be a top priority in the short to medium term. In the longer term, the focus should be on creating new trade and transport corridors that feature high-speed, high-volume systems to support international trade activities. In light of advances such as autonomous trucks and truck-platooning technology (positioning vehicles in close proximity to one another, as a kind of “road train,” to reduce drag and fuel consumption), it will be important to provide an innovation and technology lens on future infrastructure investment decisions.

Canada’s international trade agenda should be an important guide to the Government of Canada’s transportation policy decisions. Improvements in trade gateways and corridors should complement trade objectives and public investment decisions should concentrate less on single modes of transport and more on multimodal transport systems. Priority should be given to integrated freight corridors that encompass both road and rail and provide for their seamless integration with border crossings, marine ports, and airports.

Pathways to the Global Economy

CTA Review submissions and consultations have generated similar feedback. Stakeholders are calling for a new federal mandate to further Canadian participation in global trade and build on past successes. There is broad agreement with five key directions:

- A renewed focus on gateways and corridors, including the development of a national Canadian intermodal transportation strategy;
- Federal leadership in creating a transportation policy framework to support trade;
- Long-term funding to build capacity and invest in transportation infrastructure;
- Partnership and collaboration on infrastructure and competitiveness investments with all levels of government and with industry;
- Strong and continuous promotion of Canada overseas, drawing attention to the excellence of its transportation systems.

“Canada’s overall economy is directly dependent on the transportation systems in its largest cities. Canadians count on modern, efficient transportation networks. They count on high-quality roads to get to and from work. Businesses count on these same systems to link their goods and services to domestic and international markets.”

— *Federation of Canadian Municipalities Submission to the CTA Review*
December 2014

Canada's future economic prosperity depends on its ability to support trade activities. Global supply chains are dynamic and constantly changing in response to global events. Containerization, globalization, and China trade policy reform have completely altered where goods are manufactured and how they are being shipped to and from North America. As global supply chains continue to evolve, Canada must be nimble: it must anticipate, adjust and adapt to new opportunities and new challenges. Federal leadership in transportation will be important.

Global Affairs Canada (until recently the Department of Foreign Affairs, Trade and Development Canada) leads on promoting Canada overseas and resolving trade-related issues with our trading partners. Canada's trade commissioners overseas are in the best position to market Canada, given their contacts and established relationships with foreign companies and corporations. By putting a focus on the capacity and adaptability of our transportation system, they will do much to position Canada for continued growth in trade.

1. The Review recommends that the Government of Canada renew the Ministerial mandate for Gateway and Corridor strategies in order to provide leadership on efforts to link trade and transportation and consider budgetary allocations to support investment in transport corridors. This includes:

- a. mandating the Minister of Transport to work closely with the Minister of International Trade to strengthen the alignment of trade-related activities;
- b. amending the *Canada Transportation Act*, s. 5, to recognize trade and transport corridor strategies as an ongoing priority to be regularly reviewed and updated.

Nation Building and Trade and Transport Corridors

In 2013, ten Canadian ports processed more than 5 million tonnes each of cargo; combined, these same ten ports handled nearly 284 million tonnes of domestic and international cargo, or nearly 60 percent of the total volume of trade handled by Canadian ports (479.2 million tonnes in 2013). On the West Coast, the ports of Port Metro Vancouver and the Port of Prince Rupert jointly handled nearly 30 percent of this total, while the ports in Saint John, Halifax, Belledune and St. John's in Eastern Canada together handled 8.3 percent of the total, and the Ontario and Quebec ports in Montréal, Sept-Îles, Québec City, Hamilton, Thunder Bay, Windsor, Trois-Rivières, Toronto, Saguenay and Oshawa collectively accounted for 23 percent of total Canadian port tonnage. Port Metro Vancouver recently commissioned a rail network study to predict volumes on the rail network in Metro Vancouver over the next 20–25 years. The long-term forecast is based on the assumption that all planned terminal expansions, including Terminal 2 in Delta, B.C., will be operational within this time frame. In this scenario, the existing rail network capacity on B.C.'s Lower Mainland will need to double to accommodate the anticipated level of growth. These findings suggest that rail-based trade and transportation corridors leading to West Coast ports should continue to be a high priority.

**FIGURE 3 —
2013 CANADA
INTERNATIONAL
TRADE BY MODE¹⁸**

| Ranking | Canadian Exports | | | |
|--------------|------------------|--------------------------|---------------------|--------------|
| | Transborder (\$) | Other International (\$) | Total (\$ millions) | Share (%) |
| Air | 14,387 | 35,052 | 49,439 | 10.5 |
| Rail | 75,094 | 2,132 | 77,226 | 16.4 |
| Other | 87,171 | 643 | 87,814 | 18.6 |
| Marine | 23,573 | 71,338 | 94,911 | 20.1 |
| Road | 157,249 | 4,790 | 162,039 | 34.4 |
| Total | 357,474 | 113,955 | 471,429 | 100.0 |

| Ranking | Canadian Imports | | | |
|--------------|------------------|--------------------------|---------------------|--------------|
| | Transborder (\$) | Other International (\$) | Total (\$ millions) | Share (%) |
| Other | 8,650 | 3,128 | 11,778 | 2.5 |
| Rail | 32,910 | 7,570 | 40,480 | 8.5 |
| Air | 15,044 | 46,834 | 61,878 | 13.0 |
| Marine | 13,190 | 97,051 | 110,241 | 23.2 |
| Road | 177,655 | 72,943 | 250,598 | 52.8 |
| Total | 247,449 | 227,526 | 474,975 | 100.0 |

| Ranking | Exports + Imports | | | |
|--------------|-------------------|--------------------------|---------------------|------------|
| | Transborder (\$) | Other International (\$) | Total (\$ millions) | Share (%) |
| Other | 95,821 | 3,771 | 99,592 | 10.5 |
| Air | 29,431 | 81,886 | 111,317 | 11.8 |
| Rail | 108,004 | 9,702 | 117,706 | 12.4 |
| Marine | 36,763 | 168,389 | 205,152 | 21.7 |
| Road | 334,904 | 77,733 | 412,637 | 43.6 |
| Total | 604,923 | 341,481 | 946,404 | 100 |

There are ways to increase rail capacity for international trade—through marine ports or across the Canada–U.S. border—within the rail networks’ existing physical footprint. The busiest rail crossings into the U.S., for example, are located in Ontario, and in 2014, approximately 780,000 empty rail containers left Canada for the U.S., equivalent to one empty container for every three loaded containers that crossed the border that year. Adopting strategies to make use of unallocated container capacity would free up significant cross-border rail capacity for loaded containers and support additional growth in Canada–U.S. trade.

Building new corridor capacity would also support additional trade growth. A new transportation corridor, however, takes years to plan, design, and build. The federal government should continue the conversation with industry that was initiated by the CTA Review, and further examine how the alignment of potential new corridors, including rights-of-way and needed rail and road crossings, can be protected and improved. They should consider a range of land acquisition options, such as purchasing, covenants, and statutory rights-

of-way to allow for the productive use of land until the corridors are needed. In addition, the federal government should continue to examine ways in which the capacity of existing corridors can be optimized. This could include, for example, the use of Intelligent Transportation Systems (ITS) to better connect and coordinate transportation operations. Optimization would likely entail the deployment of autonomous and/or semi-autonomous trucks, which already exist and are being tested.

In addition to preserving land for future trade corridor development, thought should be given to protecting scarce waterfront and industrial land surrounding ports and airports for future expansion of gateway facilities and other trade-related uses. Port Metro Vancouver, for example, anticipates that the industrial land inventory in the Metro Vancouver area will be exhausted by 2020. The Port of Montréal is in a similar situation. As CTA Review submissions indicated, port authorities need the tools to respond to the local real estate market in order to protect gateway growth potential in the future. Stakeholders indicated that amending the *Canada Marine Act* to allow Ports to purchase land outside of their current boundaries, through amendments to their respective letters patent for example, would help to address this issue.

If planned expansion is essential to continued growth in trade, so too is greater utilization of existing infrastructure. With population growth and increased trading activity, Canadians will be more and more affected by some of the less pleasant consequences of busy transport corridors, such as urban encroachment, noise, and vibration. Federal and provincial governments must work together with all affected parties to arrive at a balanced approach to growth that addresses local concerns.

2. The Review recommends that the Government of Canada establish a National Corridor Protection Program within the next five years, with Transport Canada, Public Works and Government Services Canada, and provincial governments as partners. The purpose of this program would be to:

- a. protect trade and transport corridors. Efforts should include, but not be limited to, identification of potential corridor alignments and rights-of-way requirements, consultation with stakeholders and the public, and acquisition of required land along the corridor;
- b. protect critical industrial land parcels for gateway facility expansion, with the aim of creating an inventory of, and preserving, port-related industrial areas that could be used to accommodate future trade growth.

The Review also recommends close collaboration with the provinces and territories to:

- c. add to the registered titles on the parcels of land that are located in close proximity to an existing or an established future trade and transport corridor;
- d. partner with municipal governments and the private sector to improve sound-barrier and anti-vibration standards in building bylaws for residential developments in neighbourhoods adjacent to an existing or future trade and transport corridor.

Fluid and Reliable, with Visibility

The deployment of new technology offers tremendous potential to help ports meet projected freight transportation demands. PBX Engineering Ltd., in a 2015 study¹⁹ commissioned by the CTA Review, investigated current and emerging technologies that could help improve the efficiency, interoperability, and security of intermodal supply chains. The study identified the following three technology-driven approaches as holding the greatest potential to improve supply chain performance and the movement of intermodal containers:

- improving the tracking and traceability of assets and cargo;
- enhancing the capability of transportation modes (i.e. truck, rail, marine);
- making better use of existing corridors and improving their efficiency with the application of technologies.

The rapid development and use of low-powered smart devices that can be attached to any asset and connected automatically with the Internet is creating new opportunities to improve the tracking and tracing of cargo and assets. These devices can be embedded with powerful and sophisticated computing capabilities in very small packages, and over the long term their deployment will enable end-to-end tracking and traceability of assets and cargo. Faster computer processing will also mean that the data generated by these smart devices can be more easily analyzed to generate meaningful, real-time results for supply chain management.

How transportation assets are controlled is also evolving quickly. Real time intelligent control systems— combining computing systems and sensor technology—are helping to unlock new capabilities from existing transportation assets, through the use of vehicle automation, Smart Corridors, and connected vehicles. These developments give rise to new legislative and regulatory issues, however, such as who should bear the liability associated with an autonomous vehicle accident, or what safety standards should apply to autonomous vehicles.

The development of Smart Corridors offers a means of leveraging these new technological capabilities to better utilize existing transportation facilities. The so-called Smart Corridors are roadways in which multiple transportation networks are operationally coordinated. Successful Smart Corridors exist worldwide, and Transport Canada is currently working with the Ministry of Transportation of Ontario and le ministère des Transports du Québec to develop a Smart Corridor Concept of Operations for Ontario and Quebec.

The greatest challenges with the deployment of these and other new technologies will be in achieving an agreeable standard to be used by all supply chain partners, and in persuading industry, invested as it is in various legacy systems, to make the switch. Federal leadership and intervention will be required to enable harmonization as capital and technology are renewed.

3. The Review recommends that the Government of Canada promote innovative supply chain technologies by:

- a. leading the development of national standards on technologies designed to improve the efficiency of supply chains along trade and transport corridors; creating standards to improve tracking and traceability of transportation assets and cargo; addressing interoperability issues that prevent the efficiency of containerized cargo flow along supply chains and at transfer points;
- b. establishing partnerships to deploy technologies along trade and transport corridors; this could include encouraging the private sector to implement real-time connectivity at various facilities along the supply chain;
- c. designing a Smart Corridor within three years to facilitate north-south goods movement in Western Canada in partnership with appropriate agencies. The design should incorporate Intelligent Transportation Systems and established best practices.. It should be accompanied by an implementation plan with 10 to 15 years as the construction target. After the proof of concept, the design and implementation plan should serve as a model for other locations in Canada.

Efficient Corridors with High Speed and High Volumes

The 2013 opinion survey in the *2014 Global Enabling Trade Report*²⁰ highlighted the most problematic factors for trading in each country. Among the eight most problematic factors for importing trade, “High cost or delays caused by international transportation” and “High cost or delays caused by domestic transportation” both made it to the top of the list. Similarly, both factors made it to the list of problematic factors for exporting trade.

There are a number of changes that, with stakeholder agreement, would improve the overall efficiency of the supply chains. One such change would be to remove bylaw restrictions on operating hours affecting transfer facilities and distribution centres, so as to enable a 24-7 end-to-end supply chain.

In addition to trade growth, the trend toward mega-ships is creating a demand for increased processing speed at marine terminals. Shipbuilders are constructing bigger ocean vessels, and marine carriers are continuously upgrading to larger ships, achieving these economies of scale on their largest trades through strategic alliances. The displacement of these large vessel classes to Pacific and Atlantic routes will result in congestion due to surges of arriving cargo, even if overall volumes follow forecast trends. Like the U.S., Canada must determine the respective roles of government and private industry in responding to these cargo surges.

As noted in *The Impact of Mega-Ships*,²¹ the ITF suggests that countries “Provide policy support to ports to enhance supply chain productivity and innovation.” More specifically, it suggests making best use of the assets and enhancing productivity, through the following measures:

- Optimize the use of infrastructure capacity, e.g. by truck-appointment systems and incentives for port truck moves during nights or at weekends.

- Relieve peaks at port terminals via dry ports, where space in ports is constrained.
- Consider upsizing of hinterland transport modes, such as allowing for larger trains, double stacking and larger trucks.
- Innovation, technical development, workforce training, and skills upgrading. Where possible, public policies could reform labour practices and procedures to enhance workforce flexibility.

4. The Review recommends that the Government of Canada act to improve velocity and cost competitiveness along trade and transport corridors by:

- a. supporting technological innovations at key facilities—for example, automation at marine terminals and intermodal yards;
- b. working with industry and local governments to create capacity -- for example, modification of local by-laws so as to lift all current restrictions on hours of operation. The goal should be to achieve a 24/7 integrated supply chain system within 10 years. This recommendation is particularly crucial to transfer facilities, often the only missing piece in achieving full 24/7 end-to-end supply chain operations, or where physical expansion is limited.

Regulatory Harmonization

Trucking plays a major role in the global supply chains and in relation to movement of goods within the country, particularly during the first or last segments of their supply chain journeys. It has a significant impact on the daily life of Canadians and will remain the dominant and fastest growing freight transportation mode for the foreseeable future. Within Canada, however, interprovincial truckers are subject to an assortment of regulatory regimes.

Interprovincial and cross-border trucking is the responsibility of the federal government. However, regulation of this sector has largely been delegated to the provinces. While this approach was adopted for practical reasons, consultations indicate that it has resulted in regulatory inconsistencies across provinces. This can complicate long-haul truck operations and can also have broader economic implications. A 2015 report²² by the Van Horne Institute suggests, for example, that the absence of common vehicle size and weight standards within Canada can act to constrain manufacturing output. The report cites the example of Eastern or Central Canadian manufacturers of large, heavy industrial components, who cannot competitively ship their products by road for Western Canadian destinations and use in major resource projects. Delivery of these components by roadway is stymied by the lack of designated heavy-cargo routes across the country. Failing to resolve this shortcoming will likely carry with it a high price tag in terms of foregone Canadian manufacturing activity, as some or all of these large industrial components will need to be sourced from outside of the country.

The Review also heard that Canada lacks a strong, unified voice for the trucking industry at the federal government level. Due to the volume of truck-borne trade with our neighbours to the south, U.S. standards and regulations hold more sway in Canada than Canadian ones. Harmonizing government policies and regulations with the U.S. to support the seamless movement of goods across the border, therefore, would help improve the efficiency of cross-border truck movements. To this end, the Canadian Trucking Alliance calls for Transport Canada's participation in the Canada–U.S. Regulatory Cooperation Council to serve as the public sector voice of the Canadian industry.²³

“It is time for the three countries to come together in a fresh drive to sharpen North America’s international competitiveness.”

— Eric Miller, John Dillon and Colin Robertson

Made in America: A New Agenda to Sharpen Our Competitive Edge

Canadian Council of Chief Executives

December 2014

Driver shortage is another concern in this industry. The Canadian Trucking Alliance noted in its submission to the Review that, nationally, the shortage will amount to 33,000 drivers by 2020 in the for-hire sector alone, representing a gap of at least 17 percent of the driving labour force. A challenge for governments at all levels will be to ensure that regulatory frameworks remain current with industry developments, while enabling more productive, safe, and environmentally friendly innovation. Addressing the shortage of qualified drivers will also require multi-party effort from trucking companies, shippers, and provincial and federal authorities.

5. **The Review recommends that the Government of Canada continue to work with provincial leaders to harmonize regulatory standards for trucking in order to ensure the ongoing fluid movement of interprovincial and international trade.**

Canpotex Ltd.: A Global Industry Leader and Transportation Success Story



The Canpotex story is about potash exports and the development of a forward-looking, fully integrated marketing and logistics network built through investments in infrastructure and equipment, for both “the first and last mile.” Headquartered in Saskatoon, Canpotex is a joint venture of Saskatchewan’s three main potash producers: Agrium, Mosaic, and PotashCorp. As the world’s premier potash exporter, it markets potash from 10 Saskatchewan mines to roughly 35 countries, and has sales averaging about 10 million tonnes per year, internationally representing approximately \$3 billion in annual exports.

Canpotex’s success is tied to its recognition of the importance of creating a seamless logistical supply chain. The company began assembling its own custom-designed rail cars in the late 1990s and now boasts a fleet of 5,700 specialized cars in dedicated potash service at any given time; these cars are built to optimize the volume of potash per car and maximize the number of railcars per unit train. Its Railcar Maintenance Facility is another essential part of its logistics strategy that assures its railcars are well-maintained to efficiently and safely transport product to Canpotex’s terminal facilities at Port Metro Vancouver and the Port of Portland. Canpotex manages its own vessel chartering and scheduling (from its Saskatoon headquarters) and its vessels have the lowest wait time in the Vancouver Harbour (2.5 days on average) as a result.

Today, its system can handle 14 Million Tonnes of potash, growing to 17 million tonnes through an expansion underway at the Port of Portland. Storage capacity at its port terminals and at warehouse facilities worldwide allows it to maintain an inventory of various grades of potash to almost guarantee that deliveries to its customers are never delayed, especially in peak periods of demand. Looking to the future, Canpotex is working to remain innovative and is making strategic investments to increase the capacity of its logistics network.

Notes

- ¹ Source: CTA Review 2014-15.
- ² Charles Kunaka, Robin Carruthers, World Bank, *Trade and Transport Corridor Management Toolkit* (Washington, D.C.: World Bank ISBN 978-1-4648-0143-3-ISBN 978-1-4648-0144-0, 2014), at 1, accessed on October 23, 2015, online: http://www.wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2014/05/13/000442464_20140513113453/Rendered/PDF/879490PUB0Trad00Box385214B00PUBLIC0.pdf
- ³ Source: OECD Economic Outlook No. 98, November 2015, see Volume Two, Appendix A, Figure 6.
- ⁴ Foreign Affairs, Trade and Development Canada, *Trans-Pacific Partnership (TPP)* (Ottawa: Foreign Affairs, Trade and Development Canada, October 2015), accessed on October 23, 2015, online: <http://www.international.gc.ca/trade-agreements-accords-commerciaux/agr-acc/tpp-ptp/index.aspx?lang=eng>.
- ⁵ Lloyd's Register Marine, *Lloyd's List – The future of shipping since 1734* at 14 Fig. 3: Freight Index. (Lloyd's List, 2013, Informa UK Ltd.) Note: freight index was 1150 in 1914 versus 270 in 2013, nominal, not adjusted for inflation, estimated to be a quarter. Accessed on October 23, 2015, online: http://www.lloydslist.com/ll/incoming/article437078.ece/BINARY/LL_Com_Book_LR.pdf.
- ⁶ Foreign Affairs, Trade and Development Canada, *Canada's State of Trade: Trade and Investment Update – 2014* (Ottawa: Foreign Affairs, Trade and Development Canada, modified 2014-10-08), accessed on October 23, 2015, online: http://www.international.gc.ca/economist-economiste/performance/state-point/state_2014_point/index.aspx?lang=eng#l.
- ⁷ This draft legislation was introduced in the House of Commons on October 20, 2005 as Bill C-68, but did not receive Royal Assent.
- ⁸ Source: Transport Canada.
- ⁹ Minister of Transport, *Strategic Gateway Investments*, TP 15266 T, Catalogue No. T42-11/2014.
- ¹⁰ Canada, Quebec and Ontario signed a "Memorandum of Understanding on the development of the Ontario-Quebec Continental Gateway and Corridor in June 2007," but a formalized strategy has not been released publicly.
- ¹¹ Edy Wong, University of Alberta, School of Business, *Gateway Development and the need for an Outward-oriented Supply Chain* (Conference Papers, November 30, 2010), available online: www.gateway-corridor.com
- ¹² World Trade Organization, *International Trade Statistics 2015*, Table I.7 Leading exporters and importers in world merchandise trade, 2014 (World Trade Organization: April 14, 2015), accessed on October 30, 2015, online: https://www.wto.org/english/res_e/statis_e/its2015_e/its2015_e.pdf.

- ¹³ The value of Canadian imports in real terms grew by 14.2 percent between 2001 and 2014, and exports grew by 1.5 percent.
- ¹⁴ Statistics Canada, *Merchandise imports, exports and trade balance, customs and balance of payments basis for all countries, by seasonal adjustment and principal trading partners* (Ottawa: Statistics Canada, Table 228-0069) Note: table derived from Statistics Canada database in dollar value. Seasonal adjustment has been applied to the data, which is consistent with normal statistical practices. Accessed on October 23, 2015, online: <http://www5.statcan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=2280069&tabMode=dataTable&srchLan=-1&p1=-1&p2=9>.
- ¹⁵ The four key areas include: addressing threats early; trade facilitation, economic growth and jobs; cross-border law enforcement; and critical infrastructure and cyber-security.
- ¹⁶ Dawson Strategic, *United States' Transportation Supply Chain Barriers: Issues for Consideration by the Canada Transportation Act Review Panel*, prepared for the CTA Review, (February 4, 2015).
- ¹⁷ Government of Canada, *Perimeter Security and Economic Competitiveness – Regulatory Cooperation Council: Joint Action Plan for the Canada-United States Regulatory Cooperation Council* (Ottawa: Public Works and Government Services Canada, cat. No.: BT22-123/2011E-PDF) at 3 para 3, accessed on October 23, 2015, online: http://actionplan.gc.ca/sites/eap/files/japlan_eng.pdf.
- ¹⁸ IBI Group, *Canada's Transportation System: Identification of 'Critical Trade-Related' Infrastructure and Approaches to Funding*, prepared for the CTA Review, (June 2015).
- ¹⁹ PBX Engineering Ltd., *Supply Chain Technological Innovation Report*, prepared for the CTA Review, (September 15, 2015).
- ²⁰ World Economic Forum, *The Global Enabling Trade Report 2014*, Hanouz, Geiger, Doherty, eds (Geneva: World Economic Forum, 2014), accessed on November 2, 2015, online: http://www3.weforum.org/docs/WEF_GlobalEnablingTrade_Report_2014.pdf. Note: problematic factors were generated by survey, where respondents were asked to select the five most problematic for trading in their country.
- ²¹ ITF, *The Impact of Mega-Ships – Case-Specific Policy Analysis* (Paris: OECD/ITF, May 2015), at 11, accessed on October 25, 2015, online: http://internationaltransportforum.org/Pub/pdf/15CSPA_Mega-Ships.pdf.
- ²² The Van Horne Institute, PROLOG Canada Inc., JRSB Logistics Consulting Ltd, *Over-dimensional Loads – a Canadian Solution* at 21, 22 (Prepared for the *Canada Transportation Act Review*, July 2015).
- ²³ Canadian Trucking Alliance, *Submission to the Canada Transportation Act Review* (Fall 2014) at 5, accessed on October 23, 2015 online: <http://www.saskwheatcommission.com/newspost/submission-to-the-cta-review-panel>.

Chapter 4: The North

Canadians recognize our shared heritage and destiny as a northern nation, yet most of us have never travelled north of 60° to experience the harsh beauty of the landscape, along with the unique challenges of living in and travelling to and from that environment. In his introduction to The Globe and Mail's 2014 series of articles on "unprecedented changes to the climate, culture and politics of Canada's last frontier," former editor-in-chief John Stackhouse alludes to the complexity that will inevitably attend further development of the North:¹

We're a southern people, for the most part, huddled along and near the U.S. border, oblivious to the Far North and its quiet magnetic pull on the Canadian soul. And yet, our great northern span, through the territories and Arctic, is in the midst of an epochal shift.

Climatically, economically, socially and culturally – our North is being redefined in ways that will shape Canada for the century ahead.

Our energy ambitions and resulting carbon emissions are disrupting the northern landscape, its very foundation. Our neighbours are showing territorial interests that seek to alter our sovereignty. Our investments in mines, oil fields, roads and ports are changing the northern economy, for good and bad. Even the North Pole is in question.

The Government of Canada has a continuing obligation to support northern development and facilitate the region's continued participation in the Canadian federation. Federal leadership is required to ensure that, as the resource potential of the North is further unlocked, development occurs in such a way as to respect and benefit Northerners, while minimizing environmental impacts. Transportation will continue to be a major development catalyst, and because many of the decisions that affect northern transportation systems are made in the South, it is of utmost importance that these decisions be informed by northern realities and made in partnership with Northerners.

Canada's diverse northern territories, home to just 0.3 percent of Canadians, comprise the Northwest Territories (NWT), Nunavut, and Yukon. Together, they cover 3.5 million square km, or 40 percent of Canada's landmass. Because the population is so small, transportation routes are neither as heavily used nor as developed as those in the South, but the traffic is critically important to the quality of life of Northerners as well as the economic future of the territories.

While our focus is on Canada's northern territories, the northern parts of provinces experience many of the same challenges in respect of the establishment of transportation routes considered in this chapter. These routes are essential to enabling contact with remote communities and resource deposits and developmental projects.

The terms of reference for the Review ask "how to address rapid changes in the North and associated challenges for the continued safety, security, and sustainability of the northern transportation system, and specifically, the federal role in supporting the northern transportation system."

In this Chapter, we address the most significant transportation-related challenges for northern Canada. To gain a better grasp of the issues, CTA Review Advisors and members of the Secretariat travelled to the three territories on a number of occasions to meet with stakeholders and territorial government officials; they also visited various transportation infrastructure sites. Our recommendations are informed by these visits, and by the representations made to us in writing and in person. They focus on delivering significant improvements in northern infrastructure for multimodal corridors and the aviation and marine modes; they also aim to strengthen transportation policy and regulatory frameworks.

History: Setting the Stage for Canada's Northern Destiny

Historically, Northerners have been highly dependent on transportation to move goods and people across huge distances and harsh environments. However, the Canadian government had no development strategy or strategic transportation vision for Canada's North until the second half of the 20th Century. That said, transportation in the period since then has been of critical importance to northern society and to the economy of the North, providing a vital lifeline to remote communities. And there have been some significant successes in the development of Canada's northern transportation networks, particularly when they have been planned and built through partnership, in line with a shared vision.

For the most part, however, northern infrastructure projects have been built on an ad hoc basis without a long-term cohesive plan or links to trade and travel corridors (see Volume Two, Appendix D for more information on northern infrastructure projects). With the creation of more permanent settlements and the migration of outsiders to the North during the 19th and first half of the 20th century, the limited transportation systems then in existence grew incrementally. Significant development occurred during World War II and in the decades that followed, as health and other social services were introduced to communities and infrastructure was put in place for resource development and defense purposes. By the 1970s, progress on major infrastructure projects had slowed and, until recently, there has been relatively little activity.

In the last few decades, the federal government has devolved authority to the territories for education, health care, and social services. Responsibility for lands and resource management was devolved to the Yukon in 2003 and to the NWT in 2014; negotiations with Nunavut are currently underway. Numerous comprehensive land claims have been negotiated, and self-government agreements have enabled a higher degree of involvement of northern Indigenous communities in resource exploration.

Interest in the North has intensified due to the potential for resource development, geopolitical developments, and the opening of new transportation routes. The federal government's 2009 Northern Strategy, 2013 Arctic Foreign Policy, and other initiatives illustrate this renewed interest, with the latter policy recognizing the urgent need for infrastructure. The lack of infrastructure, including transportation infrastructure to enable economic development and assert Canada's sovereignty, has historically been a major challenge.

The initial transportation routes in the development of the North were shipping routes that supported the fur trade (Hudson’s Bay Company ships served the eastern Arctic and smaller vessels plied the western Arctic).² Rail technology followed and had a more limited, albeit important impact on northern development. Highways and road access in the North have developed somewhat haphazardly, with some of the highways following the ancient routes of dog sled and other trails. The advent of air travel in the early 20th century brought important advances in terms of accessing remote communities and shortening travel time in the North. As transportation-related technologies have advanced through the years, businesses, communities, and governments have adapted to take advantage of safer, more efficient methods.

Where we are today: The largely untapped North gaining in importance

Notwithstanding devolution of certain powers, the federal government retains important responsibilities and ultimate accountability for development in the North. While many of the historical and geographical challenges remain, new and emerging issues present further challenges and opportunities in relation to transportation. Most traffic and corresponding transportation routes and corridors are North-South, as is the typical flow of goods and people. There continues to be more travel to and from the North than within it.

The northern transportation network is patchy. Aviation is heavily relied upon to move people and goods, as well as to address medical needs, especially in remote communities. Rail is currently limited to the lines that reach Hay River in the Northwest Territories; to a number of lines in the northern regions of provinces that move goods and connect to natural resource projects; and the isolated line between Skagway, Alaska and the Yukon. In terms of road travel, all-weather roads are essential for year-round access. However, only the Yukon is well served in this regard; the Northwest Territories is only partially connected by all-weather roads and Nunavut has no highways. Both the northern part of the Northwest Territories and all of Nunavut rely primarily on marine transport and aviation. Figure 1 below displays data on the total movement of inbound and outbound freight from 2009.

| Total Freight in 2009 in Tonnes (estimated) | | | | |
|---|------------------------------------|-----------------------------------|------------------|---------------|
| Transportation System | Community Resupply General Freight | Resource Projects General Freight | Bulk Fuel Supply | Total Inbound |
| Eastern Sealift | 54,500 | 39,100 | 139,900 | 233,500 |
| Western Sealift | 3,750 | 3,850 | 58,900 | 66,500 |
| Hudson Bay | 4,300 | 27,300 | 38,500 | 70,100 |
| Mackenzie River | 8,900 | 3,900 | 26,000 | 39,000 |
| Inside Passage * | 59,400 | 24,100 | 64,000 | 147,500 |
| Mackenzie Rail * | 8,500 | 1,700 | 201,300 | 211,500 |
| NWT Highways | 163,000 | 48,000 | 300,000 | 511,000 |
| Yukon Highways | 371,000 | 143,900 | 121,900 | 636,800 |

FIGURE 1 — FREIGHT FLOWS IN THE NORTH

| | | | | |
|------------------------|----------------|----------------|----------------|------------------|
| Total Inbound * | 605,350 | 266,050 | 685,400 | 1,556,900 |
| Air Freight | | | | 20,000 |
| Mineral Exports | | | | 54,000 |
| Total | | | | 1,630,000 |

* Mackenzie Rail and Inside Passage Tonnes included in Highway and River Tonnes, and excluded from Total Tonnes.³

Infrastructure Gaps

Infrastructure needs in the North, of which transportation is only one component, are varied and widespread. The Yukon government states that it “ . . . appreciates the fiscal reality that all public governments need to deal with and recognizes that transportation is not the only sector that places demands on limited budgets.”⁴ The *New Building Canada Fund*, a 10-year federal infrastructure investment program launched in 2014, provides allocations to each territory (\$250 million base funding plus a per-capita adjustment) and eligibility to submit proposals for nationally significant projects under an un-allocated National Infrastructure Component. In the context of current funding mechanisms, the federal government will contribute up to 75 percent of project costs, while territories are expected to cover the remaining 25 percent. In addition to these mechanisms, projects can sometimes benefit from other targeted contributions, such as the funding set aside for the construction of the Inuvik to Tuktoyaktuk Highway in the 2011 federal budget.

There are innumerable challenges inherent in planning and building transportation infrastructure in the North. For one thing, it takes a very long time due to the challenging climatic conditions and thus relies on infrastructure funding mechanisms that remain in place over a long period. For another, there are competing priorities, such as water, waste water, solid waste, and energy, all of which require infrastructure to respond to current and future needs.⁵ Long-term transportation projects may be less likely to receive funding than projects addressing immediate needs relating to health, safety and education.

Cost is another major challenge. Operating and infrastructure construction costs in the North and remote areas are higher than elsewhere in the country. Two resource development sectors combined— mining and quarrying, and oil and gas extraction—represent about 40 percent of the North’s GDP.⁶ Long-standing advocacy efforts by the mining industry, particularly focusing on infrastructure, seek to lower the cost of doing business in the North. The Mining Association of Canada states that there is a “ . . . cost premium for both exploration and mining linked to the transportation infrastructure deficit in remote and northern Canada.”⁷

Transportation of Food

Currently, almost all food and consumer goods are transported to the North from the South. This translates into exceedingly high prices for everyday items that are readily accessible to southern Canadians and, in particular, sky-high food prices. The Review heard about the challenges associated with the federal government's Nutrition North Canada program, which offers full or partial subsidies to assist residents in isolated communities to purchase perishable nutritious food and traditional or country food. It also heard from a small business owner frustrated by discrepancies in shipping costs: large companies with high volumes receive lower prices from airlines, whereas small companies bear the full cost burden.

In comparison with other Arctic countries, Canada's northern infrastructure is much more limited. For example, Russia is advancing economic development by subsidizing resource projects and investing in military and other infrastructure, such as deep-water sea ports along the Northern Sea Route.⁸ More information on northern infrastructure in other Arctic countries is included in Appendix D.

Strengths

In spite of the challenges, there are significant successes and strengths upon which to build:

- Yukon's well developed road network, which consists of 4,820 km of highway, with access points to British Columbia, international border crossings with Alaska, and the only all-season highway to cross the Arctic Circle.⁹
- Transport Canada's Northern Transportation Adaptation Initiative, an \$11-million program whose objective is to support the design, development and adoption of new technologies, enhance knowledge of the effects of climate change on the northern transportation system, and make northern transportation infrastructure and operations more resilient and adaptable to climate change.¹⁰ A recently conducted evaluation of the Initiative affirms, "support for northern transportation adaptation continues to address an ongoing need, as all modes of the northern transportation system require adaptive measures in the face of climate change, and knowledge of effective adaptive practices remains limited."¹¹ The Yukon Government has requested the program's extension beyond the appointed termination date of March 2016.
- The 137 km Inuvik–Tuktoyaktuk component of the Mackenzie Valley and Dempster corridors built under the most challenging winter conditions and designed to tackle permafrost. It will be the first Canadian highway to connect with the Arctic Ocean and is a strong enabler for local communities with respect to employment, training, and resource development.¹²

Indigenous Partnerships

Indigenous land claims and self-government agreements are crucial to development in the North, including the development of transportation systems. Indigenous people and communities have been in northern Canada for millennia and are playing a progressively greater role in its development. Increasingly, they are the owners, operators, and decision-makers for marine, air, and surface transportation companies and projects, though capacity limitations are still a concern. For example, a recent news article describes how an Inuit-owned entity, the Nunavut Resource Corporation, is working with Transition Metals Corporation and has been successful in exploring and finding gold and base metal deposits in the Izok Corridor, between Izok Lake and the Coronation Gulf.¹³

Climate Change

The effects of climate change are more visible and dramatic in the North than in the rest of Canada. Global warming and fluctuating climatic conditions are causing the premature deterioration of transportation infrastructure.¹⁴ For example, more pronounced freeze-thaw cycles are causing airport tarmacs to buckle and dip. Permafrost degradation due to warming temperatures poses challenges for road construction and maintenance, since it is increasingly difficult to ensure stability. Melting ice and the resulting mobile ice are having a significant impact on marine transportation and related infrastructure planning. Warming temperatures also encourage a longer navigation season for commercial ships. In this context, the aforementioned Transport Canada Northern Transportation Adaptation Initiative is sponsoring important research and development.

Technological Innovation

Satellite technology is playing an important role in facilitating transportation and other economic activities in the North, as well as maintaining safety and security. The October 6, 2011 loss of satellite services and the resulting disruption to communications and air travel demonstrated just how reliant Northerners have become on this technology. The Canadian Space Agency's submission to the Review outlined how space-based satellite technology currently supports transportation in the North through communications, weather reporting, navigation, surveillance, and search and rescue activities.¹⁵ Its importance to northern transportation and the economy of the North is undeniable.

Marine

Recent developments in northern marine transportation include increases in marine traffic, and those vessels that are traversing Canada's Northwest Passage. The increased traffic reflects the important demand for goods and freight as well as increasing tourism and small craft traffic. These developments have led stakeholders to call for improved infrastructure and updated policies and regulations to meet the challenges.

“Lack of marine infrastructure in the Canadian Arctic is an acute social challenge as many small communities rely for the most part on seasonal marine transportation. Deficient marine infrastructure also seriously limits important economic activities such as resource project development, fishing and tourism, activities which could contribute greatly to the development of a prosperous Canadian Arctic and Canada as a whole. Lack of adequately equipped ports, places of refuge and refueling facilities as well as oil spill prevention and mitigation equipment limits significantly the ability to protect the fragile Arctic environment and address potential resource extraction, shipping or other polluting accidents in a timely and effective manner.”

— John Higginbotham

Canadian Arctic Marine Transportation: Long-Term Challenges and Opportunities, Unlocking Economic and Natural Resource Development
March 31, 2015

Port operations in the eastern Arctic are characterized by rudimentary methods of bringing goods onto shore. Even Iqaluit, the largest community served by sealift vessels, lacks basic infrastructure to enable safe and efficient sealift operations. Infrastructure improvements for ports and harbours in the North would improve the fluidity of sealift activities, as well as the safety of the operations. The federal government formerly funded the maintenance and good repair of Northern landings, docks, and harbours, but in recent years has played a diminished role. The Government of Nunavut notes that, in March 2013, the Department of Fisheries and Oceans discontinued its program for sealift and resupply support (that covered items such as boulder removal and shore infrastructure); the program previously provided some \$500,000 a year under the terms of an annual memorandum of understanding.¹⁶ Similarly, the federal government formerly provided dredging services, including for areas of the North, such as on the Hay River, which is a key hub for the transportation of goods into the high Arctic. Instead of operating with water drafts of metres, operators on the Hay River are dealing with centimetres. Understandably, this has a negative effect on the fluidity of goods movement, adding to their cost. While aboard a small vessel, representatives of the Review experienced firsthand the extremely shallow water on the Hay River—an additional example of the need for federal leadership to improve northern transportation networks.

Canada’s regulatory oversight and cooperation efforts have a significant impact on safe marine transportation in the North. While melting sea ice is lengthening shipping seasons in the Arctic, there is a greater danger to ships, their crews, and the marine environment from mobile, multi-year ice—ice that contains more brine and is stiffer and more difficult to navigate.

The vast majority of marine shipping companies operating in the North are doing so in a safe and responsible manner. However, the increased activity and vessel traffic means that there are likely to be new and inexperienced operators that could pose challenges. The increased numbers of small craft operating in northern waters is concerning, because they are not required to report to the Canadian Coast Guard as part of the Northern Canada

Vessel Traffic Services Zone (NORDREG regulations apply to vessels of 300 gross tonnage or more, as well as vessels carrying a pollutant or dangerous goods).¹⁷ The Review heard that many operators of these types of small craft may be adventurers and tourists that might be inadequately prepared for the hazards of operating in an Arctic environment.

There are no authorities for pilotage in the Arctic, as there are in the South. Concerns have been expressed about the lack of marine ice pilots with adequate experience in Canadian Arctic shipping. This is a serious safety and efficiency issue. Some private sector experts claim that Canadian ice pilotage standards are lower than Russian standards, for example. In Russia, ice navigators have to have at least three years of navigating experience in ice waters. In Canada the requirement is 30 days, as set out in the Arctic Ice Regime Shipping System.¹⁸

In the fall of 2014, the Commissioner of the Environment and Sustainable Development found that there are many “higher-risk” areas in the Canadian Arctic that are inadequately surveyed and charted and that the capacity for such work is limited. Further, hydrographic coverage is about 30 percent in the Arctic marine corridors used for marine shipping and other kinds of vessels. The Commissioner also found that the Canadian Coast Guard’s icebreaking presence is decreasing, while vessel traffic is increasing. The Canadian Coast Guard, Transport Canada, and the Canadian Hydrographic Service are currently advancing the Northern Marine Transportation Corridors Initiative to enhance marine navigation safety and as a guide for future Arctic investments. The 2014 Tanker Safety Expert Panel Phase II Report on the Arctic recommended that, as a matter of priority, hydrographers be stationed aboard vessels in the Arctic to accelerate data collection. The Report also noted the inadequate coverage of charting.¹⁹

“The primary impediments to northern and remote aviation in Canada are currently infrastructure-related. There are issues with runway lengths and surfaces. Too many short runways and too many gravel runways limit aircraft choices for operators. A lack of 24-hour weather information in many locations creates delays and cancellations. Older instrument approach procedures and lack of approach lighting keep limits high and cause missed approaches and cancellations. Inadequate fuel supply in some locations limits loads and drives up cost. Virtually all of these issues are beyond the financial capability of the smaller communities to deal with . . . What is needed is a program to foster the improvement of these northern and remote locations, not limit them to an outdated status quo.”

— Northern Air Transport Association Submission to the CTA Review
December 30, 2014

Aviation

The Northern Air Transport Association highlighted to the CTA Review that there are significant physical and service-related infrastructure challenges faced by northern air operators, northern communities, and customers. Of particular concern, fleets capable of serving short-gravel runways are aging and increasingly costly to operate, and the “gravel kits” for the commonly used jet aircraft have not been manufactured for close to thirty years. The Review has heard that newer and more efficient jet aircraft will require paved runways and aprons.²⁰ The heightened risk that attends the use of unpaved, short runways in northern and remote aviation could mean that services are lost, or that there are a higher number of accidents.

“Many of Nunavut’s airports could benefit from the installation of GPS systems to reduce flight cancellations or missed approaches that have significant cost impacts to both passengers and airlines.”

— *Department of Economic Development and Transportation Government of Nunavut Presentation to the CTA Review June 23, 2015*

“The reality of 10 years of airline deregulation in Canada’s North are the foremost challenges currently facing Canada’s major northern air carriers. The larger southern based airlines are competing aggressively on major trunk routes to southern gateway airports with no obligation to provide regional or local service beyond northern gateways.”

— *RP Erickson & Associates*

Comparison of Approaches for Supporting, Protecting & Encouraging Remote Air Services
June 2015

By not subsidizing such services, Canada has taken a less interventionist approach to northern and remote aviation than countries such as the U.S., member states of the European Union, and Australia, where northern and remote communities benefit from reliable and robust passenger air services year-round.²¹ The Canadian experience has seen some successes, particularly in the northern hubs that are well served by multiple carriers. For example, Yellowknife, a city of approximately 21,000, is well served by five airlines connecting to three southern Canadian cities.²² Nevertheless, northern airlines face difficult operating environments, low traffic, and competition from southern airlines on their busiest routes.

The federal government is a significant user of air services to most remote and northern communities. However, public servants may have difficulty purchasing tickets on northern carriers. The research report on northern aviation and CTA Review consultations found that the northern air carriers are frustrated with the federal Government’s travel-booking platform, in that the system does not adequately display their inventory and prices.²³ These difficulties may be due to the high costs of participation and unfavourable display algorithms, both of which relate to the corporate travel policy set out by Public Works and Government Services Canada.

In general, aviation regulations apply equally across the country. For example, smaller and remote airports, such as the Erik Nielsen Whitehorse International Airport, have to comply with the same requirements as large airports, such as the Toronto Pearson International Airport, regardless of their difference in size. This one-size-fits-all approach may not be appropriate or realistic for the smaller airports of the North because the risks that the regulations seek to address are different in the North, as are the operating realities.²⁴

“Unlocking the potential of the North will not happen overnight. It will take decades of concerted effort and continued revisiting of strategies to make it happen. This will require long-term commitments and partnerships to ensure success.”

— *Government of Yukon Submission to the CTA Review*
April 2015

Canada’s North in the next 20 to 30 years

The current approach to federal infrastructure funding and northern marine and air transportation policies are not sufficient in scope, or proceeding at a sufficiently rapid pace, to enable Canada to grasp the opportunities that the North offers. The time has come for Canada to enable the development of vast potential of the northern economy. Mineral resources in particular require the transportation systems to channel them to export markets. The corridor efforts currently underway, the existing infrastructure funding mechanisms, and the current northern transportation systems are good bases upon which to build more robust transportation networks.

To overcome the impediments associated with insufficient transportation systems to bring resources to tidewater for export, Canada requires a number of long-term (20–30) projects to ramp up northern transportation networks. Long lead times reflect the high cost of planning and building new corridors and their associated infrastructure, the challenge of working in a northern climate, and the preconditions for consultation and collaboration with Indigenous and other communities. To address these challenges, the federal government and its partners need to develop a long-term vision for planning and constructing transportation infrastructure to catalyze economic development.

Efforts are currently underway within the federal government and in other jurisdictions to advance the development of northern transportation and multi-modal corridors. The Canadian Northern Economic Development Agency (CanNor) is developing a conceptual framework entitled the Infrastructure Corridor System (ICS) as a basis to assess infrastructure components that support economic development in the North. Some provinces have developed plans for developing northern and resource-rich areas: Quebec’s Plan Nord and the Government of Ontario’s *Growth Plan for Northern Ontario* are cases in point. There have also been discussions among participants (state, territorial, and provincial governments,

private sector stakeholders, and others) in the Pacific Northwest Economic Region to advance corridor development efforts. The University of Calgary's School of Public Policy and the Montréal-based Centre for Interuniversity Research and Analysis of Organizations (CIRANO), are undertaking a project to investigate the feasibility of building a multi-modal corridor north of the existing main routes.²⁵

How transportation can help fulfill Canada's northern destiny

The Review received many submissions related to northern transportation and met with a broad range of stakeholders. Our recommendations draw from this rich input, augmented by analysis and advice on infrastructure funding and construction, as well as policy and regulations. We believe these are all areas in which the federal government must play a leadership role to expand and improve northern transportation.

Nation-building initiatives, both immediate and long-term, should be put in place to attract investment and resource development, as well as to reinforce Canada's sovereignty over its northern territory. Through job creation and the provision of more fluid transportation routes, such initiatives will help to improve the quality of life for Northerners. Improved infrastructure and improved transportation, policies, and regulatory frameworks will contribute to a stronger economy, a cleaner environment, and a safer, more prosperous North.

Climate change is having a magnified effect on the North. Ecosystems are extremely vulnerable as are the continuing social and economic conditions of Indigenous and other communities of the region. Development will require a great deal of sensitivity to these conditions.

Research prepared for the Review indicates that there are six main northern Canadian transportation corridors that hold promise for improved infrastructure and development:

- Cassiar-Campbell, connecting southeast Yukon mining areas with the port of Stewart, BC.
- Klondike Dempster, which runs through central Yukon, between the Alaskan port of Skagway and NWT town of Tuktoyaktuk.
- Mackenzie Valley Corridor, which follows the Mackenzie River from Tuktoyaktuk to Yellowknife and Hay River.
- Coronation Yellowknife, which stretches northeast from Yellowknife, through Slave Geological Province to Grays Bay in Nunavut.
- Hudson Bay, connecting the Kivalliq Region of Nunavut to Montréal via sealift and to Winnipeg via multiple modes.
- Arctic Sealift, which encompasses the coastline of Nunavut and the NWT.

“Northern Corridor development needs to move beyond the economics of an individual resource project, which is often what precludes both. For multimodal planning and coordination within a potential corridor, all prospective linear infrastructure should be vetted to:

- **Build on what is already working;**
- **Seek synergies and avoid duplication;**
- **Promote sharing of risks, financing and permitting;**
- **Continually monitor changing risks and opportunities;**
- **Introduce Infrastructure Best Practices (e.g. franchising, P3s).”**

— *PROLOG Canada Inc.*

A Preview of Northern Resource Corridor Development: Prospects for Arctic and Northern Surface and Marine Corridors
August 2015

New dedicated funding approaches are needed to support the development of transportation infrastructure in the three northern territories. To confront the challenges involved in traversing vast distances and enabling the territories to address their many transportation needs, significant federal funding should be committed to stimulate economic activity, which in turn will attract private financing for resource development projects.

Infrastructure needs in the North are so significant that the most practical approach would be to focus on two or three long-term, nation-building projects that would serve to attract more investment in resource development projects in proximity to the infrastructure. Additionally, immediate projects should be developed to attract further private sector capital and to address immediate needs. Government investment in transportation infrastructure would yield significant long-term revenue and economic benefits for all of Canada. Investments in corridors could bring about additional local benefits that would effectively multiply the impact of investments several times over.

The Review assessed which of the six corridors would be of greatest benefit, and selected three priorities for infrastructure investment (see the Figure 2 below). The Cassiar-Campbell Corridor is an all-Canadian route that is predicted to result in development expenditures that exceed the government’s investment by an estimated multiplication factor of 32. Increased infrastructure investment should be committed to this corridor, as significant improvements are needed to enable increased resource development activities, including the reconstruction of the Nahanni Range Road that over the long-term could improve rail connections. The Mackenzie Valley Corridor is favoured due to the levels of infrastructure already in place, as well as the anticipated very high rate of return on investment. Finally, development of the Coronation Yellowknife Corridor is recommended, as it would tie together a number of mining projects and provide a deep-water port in the central Arctic. The Arctic Sealift Corridor and related infrastructure considerations are covered in the analysis regarding Arctic marine transportation infrastructure. It is acknowledged that the costs of planning and constructing such large-scale infrastructure are significant, but the current relatively low interest and lending rates are incentives to undertake this work as expeditiously as possible.

The Review considered whether the federal government could help to advance infrastructure projects by developing financing mechanisms, such as royalties or tolls, which would enable cost recovery over a long period of time. Such projects could include public-private partnerships in which the private sector and other contributors, such as Indigenous communities, would provide much of the upfront capital; in return, the federal government would guarantee a rate of return for investors. However, there would be significant challenges in attracting private sector investment and in introducing revenue mechanisms such as tolls.

| Resource Development Expenditures as a Multiple of Corridor Infrastructure Investment | | | |
|--|--|---|---|
| | Prospective Corridor Infrastructure Investment | Potential Resource Development Expenditures | Leverage Factor (Expenditures ÷ Prospective Investment) |
| Cassiar-Campbell Corridor | \$463,500,000 | \$14,878,000,000 | 32 |
| Klondike Dempster Corridor | \$438,000,000 | \$19,880,550,000 | 45 |
| Mackenzie Valley Corridor | \$2,270,490,000 | \$182,350,000,000 | 80 |
| Coronation Yellowknife Corridor | \$1,890,000,000 | \$39,496,672,000 | 21 |
| Hudson Bay Corridor | \$3,503,000,000 | \$8,556,981,000 | 2.4 |
| Arctic Sealift Corridor | \$558,000,000 | \$11,600,661,000 | 21 |
| Total | \$9,122,990,000 | \$276,762,864,000 | 30 |

FIGURE 2 — COST-BENEFIT ESTIMATES FOR INVESTMENTS IN NORTHERN RESOURCE CORRIDORS²⁶

Infrastructure also relates to technological improvements, such as satellite and space-based technology, to better realize the potential that the North holds for Canadians. It is anticipated that these technologies, and possibly airships, will continue to play an important role in growing the northern economy in terms of facilitating more fluid and safer transportation systems.

The federal government would be well advised to reverse the decline in funding for marine infrastructure in the North. Increased investments are needed to ensure the fluidity of goods and the safety of this mode of transportation in northern waters. With respect to operations on the water, increased investments for navigational assistance are needed and should focus on surveying and charting, ice breaking services, and other means to enhance navigational fluidity. To meet the charting needs of the increased vessel traffic in the Arctic, it will also be necessary to add capacity to the Canadian Hydrographic Service.

The most significant challenges to northern and remote aviation relate to infrastructure. It is beyond the ability of the territories and smaller communities to finance necessary projects, just as it is beyond the means of existing federal infrastructure programs to fund

them due to the high estimated cost. It would go against basic fairness to expect a territorial government to dedicate half or more of its ten-year federal infrastructure funding envelope to runway improvements for modern jet service in just one or two communities, given the known gaps in all forms of infrastructure across all communities in the North. We expect that collaborative relationships between the provinces and the federal government would include consideration of the unique circumstances of northern and remote areas of Canada.

The lack of paved runways and the difficulties in obtaining essential weather information pose serious threats to safety. An entirely new approach is needed to ensure the safety and development of northern and remote aviation.

1. The Review recommends that the Government of Canada develop and implement an infrastructure strategy for all modes of transportation in the North by:

- a. increasing the base level of funding in the federal government's infrastructure fund for the territories, and adapting funding initiatives and programs to take account of such northern realities as higher costs and longer time frames for planning and constructing infrastructure.
- b. focusing federal corridor development efforts on transformative nation-building projects, based on territorial and CanNor recommendations, including immediate support for the following projects:
 - i. the Cassiar-Campbell Corridor, improving tidewater access from resource development areas in the Yukon and western Northwest Territories, with preference given to the port of Stewart, British Columbia;
 - ii. the Mackenzie Valley Corridor, from the Tuktoyaktuk Peninsula South to Yellowknife along the Mackenzie River, including immediate infrastructure investment in an all-season road from Yellowknife to Whati;
 - iii. the Coronation Yellowknife Corridor, connecting resource development projects in the Slave Geological Province to the Arctic coast in the North and Yellowknife in the South; the intention is to facilitate the development of a central Arctic transportation corridor for both Nunavut and the Northwest Territories, beginning with funding for the Grays Bay Road and Port Project;
 - iv. Immediate paving and improvements to a few key northern airports that would set the groundwork for other economic and resource development.
- c. Renewing responsibility for and increasing investment in navigational assistance and sealift infrastructure to facilitate fluid, safe, and environmentally sustainable marine transportation in Canada's North. This renewed commitment would include federal funds to support dredging in Hay River and marine infrastructure (i.e. harbours, docks and landings) on the Mackenzie River, Northwest Territories Arctic coast, and in Nunavut. In addition, increased resources should be made available to support the Canadian Hydrographic Service to significantly increase charting and surveying, including securing opportunities on private vessels and those of partner organizations. For hydrographic surveying, the procurement and construction of government-owned vessels should address the need to have surveying technologies integrated into the designs.

- d. Providing targeted financial support for runway extensions and surfacing (e.g. paving), as well as for 24-hour automated weather systems and modern landing and approach systems in applicable communities in the territories. To facilitate these improvements, an investment of \$50 million per year over ten years is recommended to address the most significant infrastructure gaps, either by augmenting the Airports Capital Assistance Program, or by creating a new “Northern Airports Capital Assistance Program.”

Marine Policy and Regulatory Improvements

The increase in vessel traffic due to melting sea ice in the Arctic calls for a new vision and regulatory regime for marine transport in the North.

As the Tanker Safety Expert Panel reported in 2014, stronger measures are needed to address the environmental and safety risks associated with gaps in Canadian domain awareness and management in northern waters. Such improvements would help to realize the economic potential of resource development in the North.

Due to increased vessel traffic and the possibility that even more foreign vessels will operate in Arctic waters, it would be beneficial to establish a dialogue with pilots, private sector marine companies, and federal departments on whether operators should be required to contract the service of pilots in certain regions. It will be a challenge to recruit and train the required number of ice pilots and strategies will have to be developed to execute this initiative.

The establishment of an Arctic Port authority would enable the ports to work in a complementary fashion and avoid duplication in the planning and construction of facilities.

Establishing a program that enables Northerners to undertake hydrographic surveying work will improve Arctic marine charts, with the added benefit of providing needed employment opportunities.

Implementing these measures will also serve to demonstrate that Canada is exerting control and sovereignty over its waters, consistent with meeting the safety and security challenges in Canada’s Arctic.

2. The Review recommends that the Government of Canada develop a new federal policy vision and regulatory regime to strengthen the safety and reliability of marine transport in the Arctic that includes:

- a. stricter regulations requiring vessel operators in the Canadian Arctic to have more experience than is currently required;
- b. consultations on whether and how a coastal pilot requirement should be established in the North;
- c. compulsory reporting to NORDREG for all vessels and small crafts, regardless of size or purpose;

- d. establishment of an Arctic-wide governance model for port development, including an appropriate timetable for a Port authority to be established and in consideration of the Marine recommendation on port governance (see recommendation 3 in Chapter 10: Marine Transport);
- e. support for the Canadian Hydrographic Service, in consultation with government and Indigenous partners, to develop a program to engage, educate, and enable Northerners to undertake hydrographic surveying work in northern waters.

Northern Aviation Policy and Regulatory Improvements

Proposed policy and regulatory reforms to support northern aviation are based on the goal of maintaining and increasing the viability of northern operations. Successfully encouraging cooperative arrangements among airlines would give northern carriers access to the networks of the southern carriers and would enable them to compete on price and level of service. Other options include mandating improved cooperation on schedules, baggage handling, and access to frequent flyer programs.

By enabling northern carriers to compete for federal public service travel, the federal government would recognize the important role these carriers play in the economic development of the North.

Overall, the federal government should ensure that aviation regulations take into account the unique challenges of delivering air transport services in the North, including the high cost of maintaining and modifying northern aviation infrastructure, labour costs, and the limited financial capacity of the territories. (Refer to Chapter 9, Recommendation 11).

3. The Review recommends that the Government of Canada act to maintain and improve access to air transportation for communities and for the economic well-being of the North by:

- a. strengthening cooperation between southern- and northern-based airlines by seeking commitments from southern carriers or, in the absence of such commitments, the Government should consider monitoring, reporting and other mechanisms to encourage such cooperation. The purpose of a more collaborative system would be to ensure that customers are able to access global networks by paying a single fare, on a single itinerary or ticket, from place of origin to final destination. Other enhancements could include improved cooperation on schedules, baggage handling, and access to frequent flyer programs.
- b. adjusting policies for federal public service procurement of northern air transportation:
 - i. upon renewal of the federal travel directive travel agency services contract, including as a requirement that northern carriers be considered for government travel to the north and be displayed by the travel provider on an equal basis, on the understanding that final travel decisions will continue to be based on price.
 - ii. using the federal government's purchasing power to give northern carriers equal opportunities to compete for government travel.
- c. adequately and consistently considering the unique needs and challenges of the North in respect of all regulatory changes. The federal government should ensure that its regulations are reasonable for northern circumstances and should compensate the territories for mandated safety and security measures.

Notes

- ¹ John Stackhouse, "How Canada's North has become a test of nation-building for us all," *The Globe and Mail*, (January 16, 2014), accessed on November 23, 2015, online: <http://www.theglobeandmail.com/news/national/the-north/letter-from-the-editor-how-canadas-north-has-become-a-test-of-nation-building-for-us-all/article16378312/>.
- ² Robert Bothwell, "Transportation in the North," *Historica Canada*, accessed on November 8, 2015, online: <http://www.thecanadianencyclopedia.ca/en/article/transportation-in-the-north/>.
- ³ PROLOG Canada Inc., EBA Engineering Consultants Ltd., *Northern Transport Systems Assessment: Phase 1 Report, Northern Transportation Demand Assessment*, (June, 2010), at 7.
- ⁴ Yukon Government's submission to the CTA Review, April 17, 2015, at 33.
- ⁵ *Ibid.* at 13.
- ⁶ Canadian Northern Economic Development Agency (CanNor), *Northern Economic Diversification Index*, accessed on November 8, 2015, online: <http://www.cannor.gc.ca/eng/1388762115125/1388762170542>.
- ⁷ Mining Association of Canada, *Levelling the Playing Field: Supporting Mineral Exploration and Mining in Remote and Northern Canada*, (April 2015), accessed November 8, 2015, online: http://mining.ca/sites/default/files/documents/Levelling_the_Playing_Field.pdf.
- ⁸ Higginbotham, at 7 and 15.
- ⁹ Yukon Government's submission to the CTA Review, at 6.
- ¹⁰ Transport Canada, *Transport Canada's Northern Transportation Adaptation Initiative*, accessed on November 8, 2015, online: <http://www.vanhorne.info/files/vanhorne/transport-canada.pdf>.
- ¹¹ Transport Canada, *Evaluation of the Northern Transportation Adaptation Initiative: Final Report*, (Ottawa: March 2015), accessed on November 8, 2015, online: https://www.tc.gc.ca/media/documents/corporate-services/EVALUATION_NORTHERN_TRANSPORTATION.pdf.
- ¹² Some interesting statistics are available at http://ith.dot.gov.nt.ca/sites/default/files/ith_by_the_numbers_15-02-12.pdf
- ¹³ Nunatsiaq Online, *Inuit-owned firm explores for minerals in western Nunavut*, (October 15, 2015), accessed on November 23, 2015, online: http://www.nunatsiaqonline.ca/stories/article/65674inuit-owned_firm_explores_for_minerals_in_western_nunavut/.
- ¹⁴ Government of Northwest Territories, *Connecting Us: Northwest Territories Transportation Strategy 2015–2040*, accessed on November 8, 2015, online: <http://www.assembly.gov.nt.ca/sites/default/files/td267-175.pdf>.

- ¹⁵ Refer to Volume Two, Appendix D for an excerpt of the Canadian Space Agency's submission regarding satellites.
- ¹⁶ Nunavut Government presentation to the CTA Review, June 23, 2015.
- ¹⁷ NORDREG data (of voluntary reporting operators) shows an increase in small craft reporting: 11 in 2010, 20 in 2011, and 26 in 2012. Margaret Johnston et al. (Aug. 2013), *Strategies for Managing Arctic Pleasure Craft Tourism: A Scoping Study: Report to Transport Canada*, at 9, accessed on November 23, 2015 online: http://www.espg.ca/wp-content/uploads/2013/04/8-C-TAC_Scoping-Study.pdf.
- ¹⁸ To read about the Arctic Ice Regime Shipping System, go to <https://www.tc.gc.ca/eng/marinesafety/debs-arctic-shipping-operations-ice-navigators-1708.htm>.
- ¹⁹ Transport Canada, *A Review of Canada's Ship-source Spill Preparedness and Response: Setting the Course for the Future, Phase II – Requirements for the Arctic and for Hazardous and Noxious Substances Nationally: Report of the Tanker Safety Expert Panel*, (Ottawa: Her Majesty the Queen in Right of Canada, represented by the Minister of Transport, 2014), accessed on November 8, 2015, online: <https://www.tc.gc.ca/media/documents/mosprr/TC-Tanker-E-P2.pdf>.
- ²⁰ Nunavut Government Presentation to the CTA Review, June 23, 2015.
- ²¹ Refer to Volume Two, Appendix D for more details on the support for remote aviation provided by other states.
- ²² RP Erickson & Associates, *Comparison of Approaches for Supporting, Protecting & Encouraging Remote Air Services*, prepared for the CTA Review, (June 2015).
- ²³ *Ibid.*
- ²⁴ See Chapter 9, Recommendation 10, for addressing the one-size-fits-all approach of federal aviation regulations.
- ²⁵ The impetus for the research project is that the southern Canadian transportation system is built to trade with the United States and that it will take a new national vision to get exports to and market access in growing economies in Asia, Africa, and Latin America.
- ²⁶ PROLOG Canada Inc., *A Preview of Northern Resource Corridor Development: Prospects for Arctic and Northern Surface and Marine Corridors*, prepared for the CTA Review, (August 15, 2015), at 56.

Chapter 5: Innovation

Through the ages, technology and innovation have played a major role in moving people and goods from place to place. From the invention of the wheel in 3,500 BC, humankind has applied extraordinary ingenuity to the problem of how to get from A to B with heavier loads and less effort. By the late 18th century, we had gathered considerable steam with the invention of self-propelled road vehicles and steamboats; we proceeded to chug our way through the 19th century, first on steam-powered locomotives, then, with the invention of the internal combustion engine, by automobile. By the time the 20th century rolled around, we literally took flight: airplanes gave us wings, cargo containers moved mountains, bullet trains shaved hours off travel time and satellites paved the way for complex data transmission and precision guidance. Each new breakthrough enabled us to surpass previous generations in exploring new frontiers.

Today, as with all aspects of our society, transport modes are being recast and revolutionized by digital technologies, wireless communications, nanotechnologies, alternative energy sources, application of space-based technologies, and various tracking and monitoring devices. Innovation is reshaping transportation at an accelerating rate, and is redefining how goods are shipped, how people travel, and how services are provided.

The terms of reference for the CTA Review requested the Review to consider “how technological innovation can contribute to improvements in transportation infrastructure and services.” This chapter touches upon some of the remarkable inventions of the past that have transformed the way we trade and travel; it emphasizes the importance to Canada’s economic health of maintaining a firm commitment to technological advancement; and, in acknowledging our lacklustre performance on the world stage, it proposes how Canada can spark innovation by creating the right conditions.

Technology can drive innovation in transportation in a number of distinct ways: for example, by improving efficiency and productivity, by enhancing safety and security, and by increasing environmental protection. Some technological innovations are well known and pervasive (think GPS systems), while others work their magic in ways most people are unfamiliar with, unless they are involved in the relevant sector (electronic log-books for trucks, for example, and autonomous vehicles servicing the mining industry).

For Canada, innovation in transportation will be essential to remain competitive on a global scale, to improve productivity, and to minimize environmental impacts. Traditionally, transportation companies and agencies, whether private or public, have tended to be dominated by an operational focus, and the industry has rarely been perceived as a high-tech leader. But the pace of change in transportation today is such that we cannot afford technological complacency—the country’s economic interests are too dependent on our ability to address our innovation deficit. In addition, the travelling public expects better and more modern services, as well as services adapted to an aging demographic.

In this context, governments must be prepared to help create an environment that favours innovation and integration with our trading partners by providing incentives and enlightened oversight. Above all, the transportation system must remain highly responsive and adaptable to change. A recent comment by English journalist and businessman Matt Ridley captures it:

We should do our best to encourage people to meet, exchange ideas, to have the freedom to explore things—and then new products, new technologies, new ideas will emerge from that process, rather than government trying to plan the outcome. We're terrible at planning outcomes Instead, we need to be ready for serendipity. We need to be ready for the unexpected. And we need to not be too prescriptive.

The past 30 years: Bigger or Faster, but not Always Better

Since the 2001 CTA Review, technology has continued to transform the way we do business, conduct our personal lives, and relate to the world. The world itself seems ever smaller, the global marketplace within closer reach, the possibility of connecting with people in distant places more likely. This connectivity is due in large measure to technological advancements such as accessible Internet, affordable cellular phones, sophisticated mobile devices, and expanded satellite applications.

In transportation, even a low-tech innovation can be transformative. A classic example is containerization: the introduction of shipping containers forever altered global supply chains and trade flows in every corner of the world. In April 1966,¹ a decade after its invention, with new demand caused by globalization, the first international container ship carrying 236 containers sailed from the U.S. to the Netherlands. By the 1990s, hundreds of millions of cargo containers were circulating the globe, transporting cargo from international manufacturing hubs to consumers around the world.

Containerization enabled greatly reduced transaction costs and dwell times at ports, rail yards, and intermodal terminals. The simple, standardized box allowed marine shippers to achieve economies of scale by using larger vessels to carry an increasing diversity of goods. Today's largest container ships, have carrying capacity of over 19,000 Twenty-Foot Equivalent Units (TEUs)—approximately 47 percent² more than the New Panamax standard that held the previous world record in 2009. The ripple effects of this innovation in shipping are felt everywhere, from the rapid industrial development of the Four Asian Tigers (Singapore, Hong Kong, South Korea and Taiwan), to the emergence of the BRICs (Brazil, Russia, India and China) into the global economy; from the massive infrastructure projects that enlarged the Suez and Panama Canals, to the development of fully automated container terminals that can work around the clock, loading and unloading vessels in port.

Like marine transport, commercial aviation has also experienced “the bigger the better” phenomenon; longer ranges seemed to go hand-in-hand with larger capacities in new generations of aircraft. However, in recent years, it is not the super-jumbo jet that has pervaded the Canadian market. While bigger may be better in other places, it is innovation

in smaller aircraft, such as the Boeing 787 and the Bombardier Q400, that has enabled airlines to offer service on new routes, and new competitors to enter markets that were not previously viable.³ What the latest aircraft designs have in common are more efficient engine and airframe designs that reduce per-passenger operating costs by minimizing fuel use and maximizing cargo and passenger capacities. The benefits of these innovations contribute not only to the health of the air sector and the connectivity and choice of services available to Canadian travellers and shippers, but also to better environmental performance.

Innovation in aviation goes beyond aircraft design. A made-in-Canada example, the BORDERXPRESS™ automated customs kiosk, was invented by the Vancouver Airport Authority to allow border services officers to clear steadily increasing volumes of international travellers without the need for massive investments in new staff and enlarged facilities; this was achieved by automating the administrative portion of customs declaration. The success of the technology, in terms of cost-effective improvements in throughput at the border, has enabled the Vancouver Airport Authority to commercialize the kiosks: 700 kiosks have already been sold for use in 25 locations throughout North America and the Caribbean, including Toronto and Montréal. In October 2015, the CAPA Centre for Aviation awarded this patented invention the 2015 Airport Innovation of the Year Award at its World Aviation Summit in Helsinki, Finland.⁴

In the rail mode, high-speed passenger trains were designed to serve densely populated regions around the world. The maximum operating speed for today's high-speed trains is around 320 km per hour. Japan's Shinkansen (the Japanese Bullet Train), China's Harmony CRH 380A, Italy's AGV Italo, Germany's Siemens Velaro E/AVS 103, Spain's Talgo 350, the fully interoperable Alstom Euroduplex, and France's TGV Duplex are among the world's fastest high-speed trains.⁵ Faster than all of them is the Shanghai Maglev Train,⁶ a demonstration project that is capable of travelling 30.5 kilometres (from Shanghai to the Pudong International Airport) in 8 minutes, at a top speed of 430 km per hour. In contrast, and notwithstanding Canada's large land mass, ours is the only G-7 country that does not have high-speed passenger rail operations for its most congested cities.

In the mid-1990s, the commercial railway sector in Canada was transformed through privatization and divestiture. Today the Canadian National (CN) (government-owned until its 1995 privatization), the Canadian Pacific (CP), and all other Canadian railway companies operate as private companies and invest in accordance with their corporate priorities. CN and CP have invested in technologies to run longer trains with lighter cars, powered by stronger locomotives to increase car velocity and train speed, resulting in productivity gains. There have also been contributions to rail safety and traffic management, like with Centralized Traffic Control systems, locomotive voice and video recordings, air brakes, and safety gates at road crossings.

The automotive industry is dynamic and competitive, and has no shortage of incentives to innovate. In recent decades, technological innovations ranged from manual to automatic transmissions, better fuel consumption to alternative fuels, hybrid to electric cars, and cruise control features to autonomous vehicles. The automobile industry is market-driven and, through innovation, strives to align with consumers' needs and desires. Many recent innovative technologies, such as intelligent transportation systems and driverless vehicles, were made possible by advances in wireless communications. These will continue to have profound impacts on the transportation industry in the years ahead.

Disruptive Technology

A disruptive technology is one that displaces an established technology and shakes up the relevant industry; it is often a ground-breaking product that creates a completely new industry. The personal computer, for example, displaced the typewriter, and email largely displaced letter writing. In the field of transportation, disruptive technologies come in many forms: examples include unmanned aerial vehicles (also known as drones), hybrid cars, and automated vehicles. In a 2007 article by Thomas Frey,⁷ the three most likely disruptive technologies in transportation were predicted to be WiMax (vibrant high-speed wireless communications networks that will enable moving cars to talk to each other), automated navigation systems, and flying delivery drones. Frey's predictions are being realized today.

In 2014, Frey looked beyond the horizon with an article⁸ about a wave of disruptive technologies triggered by the "sharing economy." In the realm of transportation, he made reference to car-sharing services. These are already popular in northern Europe; they alter how people travel and reduce the need for car ownership. Car-sharing mobile applications, such as Uber, Lyft, and Zipcar, have started to displace taxi services in Canada and the U.S. and may well, reduce the frequency of car ownership and automobile production.

In fact, the ITF recently examined the changes that may result from the large-scale uptake of a shared and self-driving fleet of vehicles.⁹ They found that the deployment of a shared self-driving fleet could radically reduce the number of vehicles on the road, while still meeting the increased trip demand that is expected to result from forecast growth in urban populations (see Volume Two, Appendix A, Figure 2). One potential impact of such a combination of automation with the so-called sharing economy would be to change public transport as we currently know it. For small- and medium-sized cities, a shared fleet of self-driving vehicles could replace the need for traditional local bus services, with an on-demand service offering higher frequencies, shorter trip times, and lower operating costs for users and local authorities. Self-driving or autonomous vehicles can be considered a disruptive technology because they have the potential to dramatically change the way we forecast and plan for (among other things) major infrastructure projects, tolling systems, or revenue.¹⁰

Moreover, the UN forecasts that most of the world's new urban dwellers will live in cities of less than 500,000, many of which do not even exist today as more than villages.¹¹ In such a context, a fleet of automated vehicles has transformative potential: these new cities could altogether forego the construction of traditional road and transportation technologies for local movements, and "leapfrog" to a system of fully automated and shared vehicles. Other research shows that this innovation could deliver significant efficiency benefits for travel times and costs, while mitigating congestion and emissions in dense, developed cities such as New York.¹²

That said, in a 2015 study commissioned by the CTA Review,¹³ Brendon Hemily concluded that Canada is currently poorly positioned for a future characterized by disruptive technologies such as big data, the Internet of Things, ridesharing applications, 3-D printing, and connected and autonomous vehicles. Many countries with well-developed innovation cultures have already invested heavily in transportation-related technologies and are much better positioned to compete globally.

Where we are Today: Lagging in Innovation

In the World Economic Forum's *Global Competitiveness 2015-2016 report*,¹⁴ Canada's 13th-place ranking leaves it in the middle among developed countries—ahead of France, Australia and New Zealand, but trailing much smaller advanced economies such as Switzerland, Sweden, Norway, and Denmark (see Volume Two, Appendix E, Figure 1). These four countries, all of which experience harsh winter conditions similar to those in Canada, have been able to achieve a higher average GDP per capita in spite of their much smaller population base (see Volume Two, Appendix A, Figure 13).

As further noted in the *Global Competitiveness 2015-2016 report*, Canada consistently ranks much lower than our global partners on a variety of technology-related measures that are taken into consideration in the calculation for overall ranking of global competitiveness:

| | Canada 2014 Rankings |
|--|----------------------|
| Availability of latest technologies | 11 |
| Capacity for Innovation | 23 |
| Quality of Scientific Research Institutions | 18 |
| Company spending on R&D | 26 |
| University-industry collaboration in R&D | 19 |
| Government procurement of advanced technology products | 55 |
| Availability of scientists and engineers | 10 |

The United States and the European Commission have devoted enormous resources to developing and implementing transportation research, development, and deployment. Countries that rank high in overall global competitiveness, such as Switzerland, United States, Germany, Japan, Finland, Sweden and the United Kingdom also rank high on a number of technology-related measures (see Volume Two, Appendix E, Figure 1). Australia and Singapore have invested in developing frameworks for transportation technology research and development (R&D), as well as interoperability standards that will guide the development and adoption of technology for years to come. Canada must follow suit.

While investment in R&D is largely funded by the private sector, governments also play a role in encouraging expanded R&D and the adoption of new technologies. For example, the Government of Canada has the well-established *Scientific Research and Experimental Development Program*, one of the most generous tax incentive programs in the world to stimulate innovation. The Canada Foundation for Innovation (CFI), created by the federal government in 1997, strives to build the nation's capacity in research and technology development in Canada. CFI funding programs are available to universities, colleges, teaching hospitals, and not-for-profit research institutions, but do not include the private sector—a primary stakeholder group in terms of R&D.

In the automobile sector, the federal government administers a variety of incentive programs and initiatives, including AUTO21 (a national research initiative supported through the Networks of Centres of Excellence Secretariat), the Automatic Supplier Innovation Program, the Automotive Innovation Fund, and the Automotive Partnership Canada initiative.¹⁵ All these programs aim to strengthen Canada's automobile industry by creating a favourable environment for R&D and providing new opportunities for Canadian firms. Canada has also benefitted from the research done by its academic institutions. We have shown strong leadership with the ACTIVE-AURORA project (a project led by the Universities of Alberta and British Columbia to advance connected vehicle technology), and with the Natural Sciences and Engineering Research Council of Canada (NSERC)'s DIVA (Developing Next-generation Intelligent Vehicular Networks and Applications) Network, targeted to the development and integration of communication systems, vehicular technologies, and applications for enabling nationwide deployment of vehicular ad hoc networks and intelligent transportation systems. However, this has been something of an anomaly, as there has been little of this type of large investment in recent years.

What all of this amounts to is that, in spite of having excellent programs in place, Canada still needs to pick up its game in terms of the development and adoption of innovative technologies to remain competitive. Submissions to the CTA Review from universities and think tanks such as ITS Canada point to a host of actions required to boost our capacity. These include creating public-private partnerships; developing a shared vision among stakeholders; structuring activities through strategic plans; developing coherent and continuous technology R&D frameworks; coordinating the development and application of architectures and standards; monitoring developments; conducting pilot projects to test potential technologies; and promoting the adoption of technology through widespread knowledge dissemination.

“In the Canadian context: there is little in the way of a national innovation strategy; there is inadequate competition in many sectors; there is a lack of a global orientation in several innovation-intensive sectors; there is little focus on entrepreneurship in our higher education institutions; and while we spawn exceptional innovators, there is an innovation gap in most sectors between the best-in-class and the class average that is large and static.”

— *The Honourable Kevin Lynch, P.C., O.C.*

Averting the New Mediocrity: How to Boost Canada's Innovation Ranking
Policy Options Magazine May/June 2015

The private sector will always be the key stakeholder in developing technology, whether through large multinational corporations or small high-tech start-ups, but there is widespread recognition that governments have a critical role to play.

Where we need to be in the Next 30 years: Enabling Policies that Boost Innovation

Hemily and others who made submissions to the CTA Review reached similar conclusions about global best practices:

- Leading countries all have either a concrete initiative, or an action plan, to set priorities on innovation in transportation as a means to help coordinate and provide direction for the private sector.
- Private sector R&D spending on transportation-related innovation is fundamental.
- Government should provide incentives to stimulate private sector R&D investment.
- Public-private partnership is an effective way to move ahead, but government seed money can stimulate the formation of partnerships.

There is an opportunity for Canada to invest in and encourage greater R&D spending so that we are ready and equipped to deal with the rapid change that usually follows the release of new technology. Such an approach can help Canada capitalize on the economic opportunities that will inevitably present themselves, and ensure a stronger position of global innovation leadership.

“Private sector involvement in a national infrastructure body would increase the focus on innovation. This would apply especially in the design and selection criteria for projects. It would supplement attempts to introduce more innovation through public private partnership programs and other government initiatives.”

— *John Law and Carlo Dade*

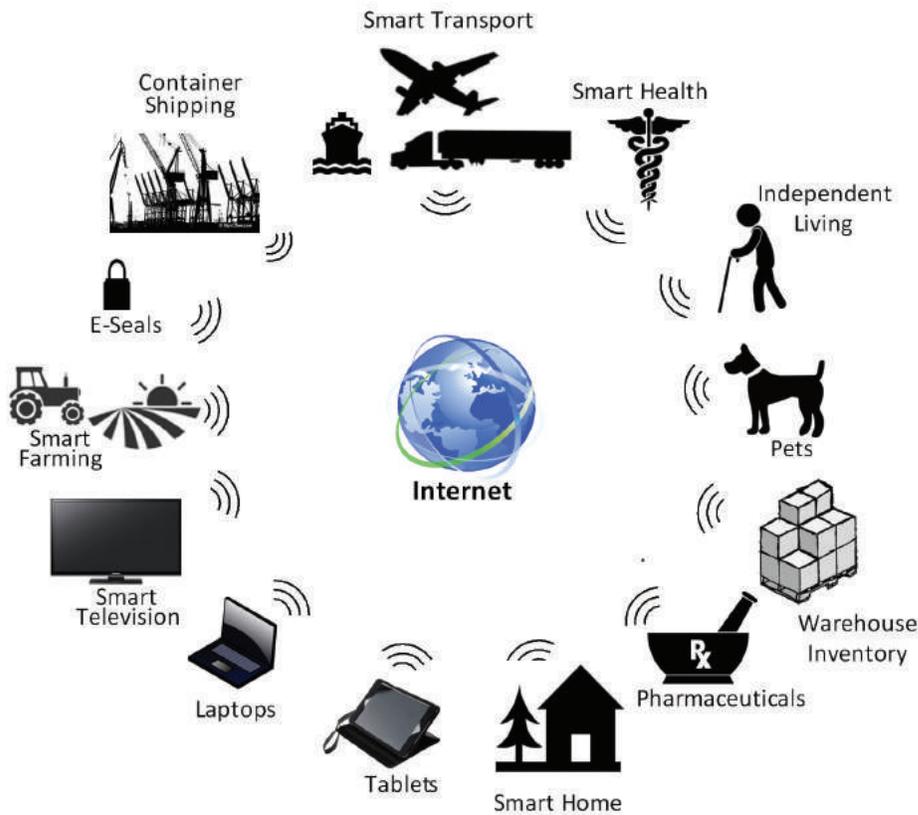
Building on Advantage: Improving Canada’s Trade Infrastructure *Canada West Foundation*
November 2014

Since a lot of lead time is required to plan and build transportation infrastructure, and given that technologies are advancing at an accelerated rate, the federal government should consider the potential impact of emerging new technologies in their long-term planning. For example, planning and design of new highway infrastructure should make provision for the eventual arrival of autonomous vehicles prior to project approval.

The Internet of Things (Figure 1⁶) refers to the future ability to remotely monitor and/or control by computer almost any individual object or measurable process; it is the core infrastructure required to produce both the volume and velocity of data required for big data analysis. In a report commissioned by the CTA Review,¹⁷ Brad Tipler stated, “the Internet of Things is still in the experimental phase. Canadians could develop the associated standards and thereby be on the leading edge.”

Internet of Things

FIGURE 1 —
CONCEPT OF INTERNET
OF THINGS



3-D printing, invented in 1985 and also known as “additive manufacturing,” appears to be another disruptive technology in the manufacturing industry. Initially, it was an expensive process, with limited prototypes and materials. Today, 3-D printers are used to create products ranging from new toys to artificial limbs and motorcycle parts.¹⁸ Based on the Senvol Database—the first 3-D printing database—this growing industry now has over 1,000 machine and material entries.¹⁹ Once 3-D printing is sufficiently cost-effective and items can be quickly produced, this technology will displace traditional manufacturing plants, and the focus will shift from where parts are manufactured to where parts are “printed,” with attendant dramatic effects on global supply chains.

With the continued and rapid development of wireless communications and information technologies, and given other seismic shifts affecting or likely to affect transportation in the decades ahead, Canada must be prepared to adapt and become part of an interconnected North American and global economy. Early identification of the potential impacts of disruptive technologies and other possible game changers, such as unmanned flying delivery drones, 3-D printing, the Internet of Things, and big data, will be essential if Canada is to proactively exploit opportunities and avoid economic disruptions. It will be particularly important for the federal government to act early to develop policy and regulatory approaches that not only complement international directions, but also guide regulatory developments at the provincial and territorial levels. The importance of early and effective regulation to guide the implementation of innovative products and practices is essential—without it, we will be consigned to catching up—hard to do without incident, as we have discovered in the case of the unregulated drones.

To better position Canada to compete with other countries in the application of technological innovation to the transportation sector, the federal government will need to create enabling policies and develop a specific innovation agenda. As discussed in Chapter two in relation to the governance of the transportation system, the Review is recommending the creation of a Centre of Excellence in Transportation, Logistics and Innovation as a funding and oversight mechanism to foster innovation and unlock Canada's potential as a global competitor. This will not only lend momentum to the efforts undertaken by public and private sector players, but also will ensure that investments are made in areas of top priority for Canada and pave the way for continuous improvements to the system.

1. **The Review recommends that the Government of Canada continue to collaborate with other countries through international organizations to ensure that Canada plays a strong role internationally in the development, adoption and regulation of new technologies and innovation that will enhance the performance of transportation systems.**

Exploiting Satellite Applications

Efficiency, safety, security, and innovation are all closely linked in transportation. With new technology comes useful innovation, but some forms of innovation can in fact be quite harmful to society. For example, as the automobile manufacturers continue to produce increasingly advanced autonomous vehicles with built-in functions, security experts are warning the public of a new form of cybercrime: car hacking, a crime whereby criminals can either remotely or directly take control of your car from their laptops. Such malevolent forms of cybercrime innovation have become a real challenge for global automobile manufacturers and law enforcement authorities. The Government of Canada has an opportunity to be a leader in setting standards in the international arena. Transport Canada and the Standards Council of Canada are both active participants in work being done by the International Standards Organization. Transport Canada, through its participation in international working fora such as the ITF and the Asia-Pacific Economic Cooperation Transportation Working Group, can demonstrate leadership on technology-related safety and security issues by ensuring that new and emerging risks and threats are met with a coordinated response.

“Space-based assets are strategic infrastructure essential to the functioning of modern economies and societies. They have made possible a global communication revolution, new ways of monitoring the Earth’s surface and atmosphere, the command and control of transportation systems and military hardware, and a more profound understanding of our place in the universe.”

— *Aerospace Review, Vol. 2*

Reaching Higher: Canada’s Interests and Future in Space

November 2012

Canada is already a leader in space-based technology. As this field evolves, it will continue to revolutionize all modes of transportation. The autonomous, intelligent transportation systems of the future will rely on two-way satellite communications, remote sensing, and accurate positioning and timing available from global navigation satellite systems (GNSS).²⁰ In the near future, airplanes, ships, trains, and automobiles will all require space-based assets to be functional at all times.

Satellite capacities will improve the quality of transportation services throughout Canada, especially in the North. Surveillance of infrastructure—the detection of terrain disturbances and deformations of bridges, roads, and rail infrastructure—is crucial to northern transportation. The RADARSAT remote sensing satellites have the capability of providing high-resolution images of the Earth's surface independent of daylight, cloud cover, and weather conditions. The Canadian Coast Guard makes use of RADARSAT data to assist its icebreaking operations. In addition, tracking the progression of permafrost melt on northern roads will allow for timely reaction. In remote areas, monitoring the environment surrounding pipelines, highways, and borders will improve safety and security. These technologies, along with communications satellites (e.g. Geosynchronous Earth Orbit systems) and weather satellites (e.g. Low-Earth Orbit), constitute an essential life-line in the North, as demonstrated by the October 2011 incident, when the Anik F2 satellite malfunction disrupted long-distance calls, cell phone service, data communications, internet, television services, and banking machines, causing a total black-out in the North. Satellite applications are elaborated in greater detail in Chapter 4: The North.

Space-based technologies can also save lives and shorten the search-and-rescue time following an aviation accident. Aireon's ALERT (Aircraft Locating and Emergency Response Tracking) will soon be providing global pole-to-pole aircraft tracking and surveillance services to the aviation community, free of charge. By 2017, Aireon's ALERT will begin using satellites to improve global navigation and aviation safety. Similarly, the United Nations International Telecommunications Union has now taken steps to set aside a particular part of radio spectrum to enable satellites to begin tracking all aircraft in the world in real time.²¹ Both initiatives will help to avoid situations in which a lack of information on an aircraft's location frustrates search-and-rescue efforts when the aircraft goes missing, as was the case for Malaysian Airlines flight MH370.

Canada can build on its success in the aviation industry to innovate in relation to other transportation modes. For example, the marine sector uses satellites extensively in navigation and tracking of ocean vessels. The deployment and integration of next-generation wireless communication technologies into surface transportation will create an ecosystem of connected vehicles and transportation infrastructure whose applications will increasingly rely on space-based technology.

Satellite-based navigation has become part of our daily lives. The Canadian public is dependent on the continued functioning of satellites systems, especially the United States-led GPS system and various types of satellites that are used for surveillance, communications, and Internet access. In September 2011, reflecting concerns with cyber security, a Federal Global Navigation Satellite Systems Coordination Board (FGCB) was created to look at the future of navigation satellites in Canada. Representatives of the FGCB should participate at international fora to ensure that Canada is able to maintain a key position in international policy development.

“We live in a world of technology where technology innovation will continue to accelerate with greater relevance to our lives and our environment. Space has had a formidable and pervasive impact on all modes of transportation. As space technology evolves, it will continue to revolutionize the transportation industry.”

— *Canadian Space Agency Submission to the CTA Review*
July 2015

With the continued development of wireless communications and space-based technologies, there is an opportunity for Canada to exercise leadership by adopting innovations to improve the performance of Canada’s transportation system and global networks.

2. The Review recommends that Transport Canada, in the context of the new governance arrangements proposed for federal involvement in the transportation sector, ensure that an action plan is developed, with specific objectives, implementation plans, and measurable outcomes, to guide Canada’s long-term investments in transportation technologies and innovation. Inclusion of the following features could be considered:

- a. Promotion of government incentive programs to stimulate R&D spending on transportation by the private sector;
- b. Inclusion of an innovation lens in federal infrastructure investment decisions and assessment of the potential benefits and challenges resulting from innovation and disruptive technologies in all new projects;
- c. Identification of Canada’s top priorities in R&D and the implementation and integration of innovation in relation to transportation infrastructure and services, and a commitment to ensuring the necessary support is in place to pursue these initiatives. The list of priorities might include entries such as:
 - i. satellite applications in the North, remote areas, and along the key gateways and corridors;
 - ii. environmentally compatible engineering and technology solutions to the development challenges of the North;
 - iii. evolving navigational scenarios, particularly for the North and the Great Lakes-St. Lawrence Seaway System, and cost effective technologies for managing navigation and security;
 - iv. technologies for noise, visual, and environmental mitigation of high-volume freight corridors, particularly in urban areas; and
 - v. technologies and innovative approaches for the transport of dangerous goods.

To provide more context to the topic of innovation, the Review examined an area of particular interest, autonomous vehicles, discussed below.

Autonomous Vehicles

An autonomous vehicle, also known as a driverless car or self-driving car, is capable of fulfilling the main transportation capabilities of a traditional car with little or no human input. Autonomous vehicles have the ability to sense the environment, navigate without a driver, and communicate automatically with other vehicles and roadside infrastructure. Several automobile manufacturers have indicated that they expect to have autonomous vehicles by 2020–2025.²² In the longer term, autonomous trucks and motor coaches will likely follow. In fact, on May 5, 2015, a Freightliner Inspiration Truck was unveiled at the Hoover Dam as the first licensed, semi-autonomous commercial truck to operate on a United States public highway.²³

In their January 2015 report for the Conference Board of Canada, *Automated Vehicles: The Coming of the Next Disruptive Technology*, authors Vijay Gill, Brian Flemming, Paul Godsmark, and Barrie Kirk predict the following benefits:

- Autonomous vehicles could reduce current annual road fatalities by approximately eighty percent, from 2,000 to 400;
- Autonomous vehicles could generate an estimated total economic benefit of more than \$65 billion per year, including collision avoidance, fuel cost savings, and congestion avoidance.
- Autonomous vehicles could produce potential cost savings of nearly \$3,000 per household, or slightly more than 5% of total household consumption.

There is an urgent need for Canada to lead in regulatory harmonization with the United States, particularly in preparation for the arrival of autonomous vehicles. Some United States state legislatures, namely California, Columbia, Florida, Michigan, and Nevada, have already begun regulating their use on public roads and have introduced or proposed laws to regulate autonomous vehicles testing and operations.

The United States government is looking at creating a national framework on this issue, and Transport Canada should seize the opportunity to develop a national regulatory framework that harmonizes with that of the United States. Although State laws with respect to autonomous vehicles vary, there are four common guiding principles for consideration: i) autonomous vehicle readiness, ii) the manual override feature, iii) driver credentials, and iv) insurance requirements. These guiding principles could provide the basis for the development of this framework.

Once a harmonized regulatory framework is established, provinces and territories will be able to use it to guide the drafting of new laws to prepare for the testing and full operation of autonomous vehicles in their respective jurisdictions. This should ensure a consistent regulatory environment from coast to coast. For the future, Canada will need to further examine the emerging spinoff effects and opportunities presented by this new technology to ensure the greatest benefits for Canadians.

- 3. With the advent of automated vehicles, the Review recommends that the Government of Canada develop a national regulatory framework that will harmonize Canada's approach with United States legislation with respect to the testing and operation of autonomous vehicles on public roads.**

Notes

- ¹ Container Home Plans, *A Complete History of The Shipping Container* (March 25, 2015), accessed on November 23, 2015, online: <http://www.containerhomeplans.org/2015/03/a-complete-history-of-the-shipping-container/>.
- ² TF, *The Impact of Mega-Ships – Case-Specific Policy Analysis* (Paris: OECD/ITF, May 2015), at 18 Table 1.2, accessed on October 25, 2015, online: http://internationaltransportforum.org/Pub/pdf/15CSPA_Mega-Ships.pdf. Note: New Panamax has a carrying capacity of 13,000 TEUs and was the largest container ship in 2009.
- ³ The Bombardier Q400 has allowed WestJet Encore to launch regular services to smaller regional markets, such as Brandon, Manitoba, that had gone years without such connectivity. Likewise, the range and efficiency of the Boeing 787 makes it possible for Air Canada to provide direct, non-stop service to such international destinations as Israel and India.
- ⁴ PAX magazine, *YVR awarded for BorderXpress kiosks*, accessed on November 10, 2015, online: <http://www.paxnewswest.com/article/yvr-awarded-borderxpress-kiosks>.
- ⁵ Railway-technology.com, *Top ten fastest trains in the world*, (August 29, 2013), accessed on November 23, 2015, online: <http://www.railway-technology.com/features/feature-top-ten-fastest-trains-in-the-world/>.
- ⁶ Maglev train uses magnetic levitation technology to run its trains at top speeds without touching the ground.
- ⁷ Thomas Frey, *The Future of Automobile Transportation*, The DaVinci Institute, (December 2007), accessed on November 23, 2015, online: <http://www.futuristspeaker.com/2007/12/the-future-of-automobile-transportation>.

- ⁸ Thomas Frey, *The Disruptive Nature of the Sharing Economy: Finding the Next Great Opportunities*, The DaVinci Institute, (February 2014), accessed on November 23, 2015, online: <http://www.futuristspeaker.com/2014/02/the-disruptive-nature-of-the-sharing-economy-finding-the-next-great-opportunities/>.
- ⁹ OECD/ITF, *Urban Mobility System Upgrade: How shared self-driving cars could change city traffic*, (Paris: OECD Corporate Partnership Board Report, 2015), accessed on July 15, 2015, online: http://www.internationaltransportforum.org/Pub/pdf/15CPB_Self-drivingcars.pdf.
- ¹⁰ Pete McMartin, "Could driverless vehicles kill off transit buses?" *Vancouver Sun*, (November 28, 2015), accessed on November 30, 2015, online: <http://www.vancouver.sun.com/opinion/columnists/pete+mcmartin+could+driverless+vehicles+kill+transit/11550080/story.html>.
- ¹¹ United Nations, Department of Economic and Social Affairs, 2014, *World Urbanization Prospects (2014 Revision)*, (New York: 2014), accessed on 27 October, 2015, online: <http://esa.un.org/unpd/wup/>.
- ¹² Lawrence D. Burns, William C. Jordan, Bonnie A. Scarborough, *Transforming Personal Mobility*, (New York: The Earth Institute, Columbia University, January 27, 2013), accessed on July 15, 2015, online: <http://sustainablemobility.ei.columbia.edu/files/2012/12/Transforming-Personal-Mobility-Jan-27-20132.pdf>.
- ¹³ Brendon Hemily, on behalf of ITS Canada, *Surface Transportation-Related Technological Innovation in Canada and Abroad*, prepared for the CTA Review (March 2015).
- ¹⁴ World Economic Forum, *Global Competitiveness Report 2015-16*, (Geneva: September 2015), accessed on October 15, 2015, online: <http://reports.weforum.org/global-competitiveness-report-2015-2016/competitiveness-rankings/>.
- ¹⁵ Natural Sciences and Engineering Research Council news release, "Government of Canada Invests in Next-Generation Automotive R&D: Innovations in Auto Sector Will Foster Growth and Job Creation" (October 2013). This initiative created 10 university–industry partnerships, valued at \$52 million. Accessed on November 23, 2015, online: http://www.nserc-crsng.gc.ca/Media-Media/NewsRelease-CommuniqueDePresse_eng.asp?ID=428.
- ¹⁶ PBX Engineering Ltd., *Supply Chain Technological Innovation*, at 38, Figure 8. (September 2015).
- ¹⁷ Brad Tipler, *Utilizing Wireless Communication Applications to Improve Transportation Safety and Efficiency*, prepared for the CTA Review (June 2015).
- ¹⁸ WhatIs.com, "3-D Printing (additive manufacturing)," accessed on November 23, 2015, online: <http://whatis.techtarget.com/definition/3-D-printing-rapid-prototyping-stereolithography-or-architectural-modeling>.

- ¹⁹ Canadian Shipper.com, *Senvol 3D printing Database adds over 100 new machines, materials* (2015). Senvol is the first 3-D Printing database. Accessed on November 23, 2015, online: <http://www.canadianshipper.com/transportation-and-logistics/senvol-3d-printing-database-adds-over-100-new-machines-materials/1003368028/>.
- ²⁰ Global Navigation Satellite System (GNSS) is used to pinpoint the geographic location of a user's receiver anywhere in the world.
- ²¹ "UN conference reaches agreement on radio spectrum for global flight tracking," (UN News Centre: November 11, 2015), available online: <http://www.un.org/apps/news/story.asp?NewsID=52524#.VkTtnC55-88>.
- ²² Vijay Gill, Barrie Kirk, Paul Godsmark, and Brian Flemming, *Automated Vehicles: The Coming of the Next Disruptive Technology* (Ottawa: The Conference Board of Canada, 2015), accessed on November 23, 2015, online: http://www.cavcoe.com/articles/AV_rpt_2015-01.pdf.
- ²³ Freightliner, *Introducing the Freightliner – Inspiration Truck*, accessed on November 23, 2015, online: <http://www.freightlinerinspiration.com/>

Chapter 6: Climate Change

Canada's history has been closely tied to the evolution of the transportation system. The different modes of transportation have helped to grow Canada's economy and have joined us together as a nation. However essential they are to our social and economic well-being, they can and do have impacts on public health and the environment. The most significant environmental consequences of our ever-expanding transportation system are air pollutants and greenhouse gas emissions, which contribute to poor air quality and climate change, respectively.

A recurring theme in this report is the importance of recognizing that transportation is key to a healthy economy. The multiple modes of transportation and the way they come together to support the movement of people and goods in a smooth, efficient, and seamless way is vital to competitiveness across the economy and to the daily lives of every Canadian. Regulatory, economic, or other measures that affect transportation and logistics flow through to affect commuters, travellers, shippers, exporters, importers and consumers, and will be felt in every corner of Canada. Getting the balance right between economic growth and environmental protection is nowhere more critical than in the transportation sector.

The Review was asked to give consideration to “whether adjustments to environmental regimes are needed to continue achieving high standards for sustainable transportation, given increasing system volumes/demands.”

There is no doubt about the growing imperative to limit the environmental impact of economic growth. As is so often the case, there are no simple formulas where transportation is concerned: the system is complex and responsibilities are dispersed across a broad spectrum. Ensuring that Canada strikes the right balance will require thoughtful analysis, political will, and concerted effort. Nonetheless, the changes the Review has proposed to the governance of the transportation system and the decision-making processes related to it are intended to allow for a more holistic approach—one that promotes a higher level of collaboration and coordination of effort, long-term thinking, more comprehensive data collection, and better priority-setting. In this context, it should be easier to apply an environmental lens to transportation-related decisions.

An overwhelming certainty never to lose sight of is this: The more efficient the transportation system, the smaller the economic trade-off to achieve greenhouse gas objectives. A slow motion, fragmented system, punctuated with too much stopping, starting, and idling will be an economic failure and an emissions disaster.

Environmental Challenges in the Past: The Fall of Acid Rain

Canada has been aware of air quality issues since the 1970s. Over the decades, the federal government has set increasingly stringent levels for air pollutants domestically and in tandem with the United States. Air pollutants, such as sulphur oxides, result from the incomplete combustion of fuel particles, resulting in air quality issues such as smog and acid rain and serious negative consequences to human health (see Appendix F for more information). Domestic negotiations beginning in the late 1970s to reduce sulphur emissions culminated in 1985 with a declaration by the federal government and the eastern provinces establishing the *Eastern Canada Acid Rain Program*, which placed a cap on sulphur

emissions. This was the Government's signal to industry on the future direction of sulphur oxide emissions. Industry got on board; they worked to reduce their emissions by investing in innovative emission reduction technologies and commercializing sulphur while simultaneously increasing their profits. The case study of Inco Ltd. (see the box below) shows how government and industry worked together, embraced change, and profited.

At the same time, Canada recognized that any solution had to include the United States, due to the trans-boundary nature of air pollutants. In 1991, the Canada–United States Air Quality Agreement, also known as the Acid Rain Accord, was signed by the President of the United States and the Prime Minister of Canada. The goal of the bilateral accord was to reduce sulphur oxide emissions by 50 percent below 1980 levels by 1994. Since its signing, the Agreement has progressed to include other trans-boundary air pollutants,¹ as well as to describe scientific and technical cooperation and research underway between the two countries. Since 1991, both countries have made substantial progress in reducing sulphur oxide emissions.

Inco Ltd.

— At one time one of the world's highest-cost nickel producers, Inco was, until recently, the greatest single point source of environmental pollution in North America. This was due to its aged and inefficient reverberatory-furnace smelter, which emitted excessive quantities of sulphur oxides. Inco had done all it could to improve the efficiency of this obsolete technology through incremental technical change.

Environmental signals and direction from the provincial government to reduce sulphur emissions prompted Inco to invest more than \$3 billion in a massive research and development and technological innovation program. Federal targets for sulphur emissions meant that Inco had to reduce its output by 60%. Inco replaced its furnaces with innovative smelters and constructed a new sulfuric acid recovery plant and an additional oxygen plant. The company reduced emissions by more than 100,000 tonnes in 1992, and by 1994 the firm expected to achieve the government target levels. Inco is now one of the world's lowest-cost nickel producers. Furthermore, Inco seeks to recoup R&D costs by aggressively licensing its technology to firms in other copper- and nickel-processing countries."

— Alyson Warhurst

"Mining and the Environment: Case Studies from the Americas"
(*International Development Research Centre: 1999*), p. 19

Canada and the United States continue working together. In 2013, a North American Emissions Control Area was created surrounding the continental coastline, to reduce emissions from ships through strict limits on air pollutants. This initiative is expected to reduce air pollutants by 96 percent.² Its adoption sent a clear signal to industry that more stringent emission regulations were forthcoming and unlikely to be met without investments in emission-reducing innovations, such as ultra low- and low-sulphur fuels, as well as on-board ship-specific technologies.³ Canada has consistently reduced air pollutants over the last 30 years and continues to set increasingly stringent emissions standards, resulting in progressively lower levels of smog and acid rain, and resulting overall in cleaner air.

The United Nations provides a global forum for addressing greenhouse gas emissions. As a member, Canada has international environmental obligations. Initially, Canada supported the Kyoto Protocol: an international effort to reduce global greenhouse gas emissions six percent below 1990 levels by 2012. In 2011, amid much debate about the economic risks of meeting Canada's Kyoto commitments, the decision was made to withdraw from the Accord, avoiding an estimated \$14 billion in international fines.⁴ One of the major lessons learned from the Kyoto Accord was the need to develop robust policies, based on careful analysis and a disciplined long-term plan containing supportive, market-based measures to achieve the targeted reduction in the combustion of fossil fuels.⁵

The 2001 Canada Transportation Act Review recommended that environmental goals and sustainable development be included in the National Transportation Policy, and in 2007, the Policy was updated to reflect the importance of achieving environmental and social outcomes. The Panel did not make any recommendations specific to climate change, but the concept of decoupling⁶ and implementing market-based measures to support a more environmentally-friendly National Transportation Policy were encouraged.

Gathering Storm: The Fight Against Climate Change

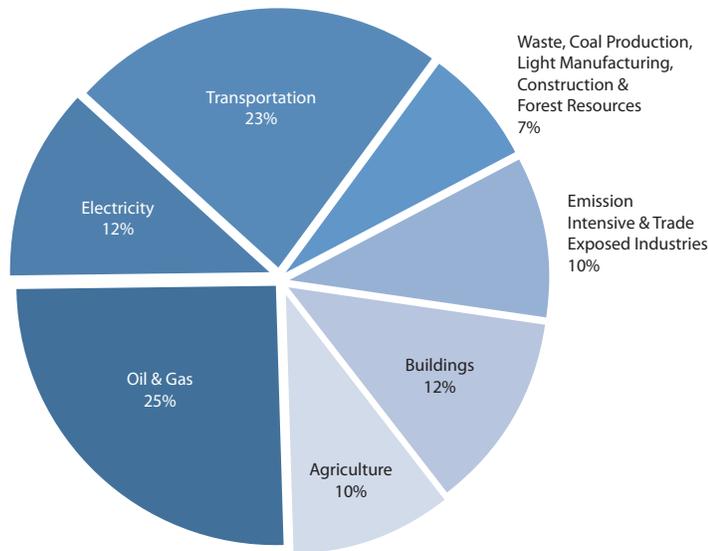
Today the pervasive problems are greenhouse gas emissions and climate change. As we have learned from the acid rain issue, businesses do respond to incentives. In the case of acid rain, cooperation and the market-based sulphur economy was used as an incentive to reduce emissions by making reductions part of the business model. A similar approach can be used to mitigate greenhouse gas emissions and contribute to a global effort to combat climate change.

Oceans, rivers, and lakes are warming, pollution is growing, and the risks to various species and ecosystems have reached crisis levels. Climate change is no longer speculative and is affecting virtually every part of the earth's surface. The need to ratchet down global greenhouse gas emissions and generally to reduce humanity's environmental footprint has become an international imperative.

After the withdrawal from the Kyoto Protocol, Canada committed to a 17 percent reduction of greenhouse gases below 2005 levels by 2020. In 2013, the transportation sector contributed 23 percent of Canada's total greenhouse gas emissions (see Figure 1), representing a 31 percent increase in emissions from the sector since 1990.⁷ On-road transportation, such as cars and trucks, accounts for the majority of transportation emissions. In order to achieve our targets without compromising the movement of trade, the Government of Canada worked across departments, and with the United States, to increase the fuel efficiency of on-road vehicles.

“[Canada is] serious about climate change . . . This means making decisions based on science, it means reducing carbon emissions, including through carbon pricing towards a climate resilient economy. It means collaborating with our provincial and territorial partners, supporting climate change efforts in developing countries and investing in sustainable economic prosperity.”

— *The Right Honourable Justin Trudeau, Prime Minister of Canada, as reported by CBC News November 23, 2015*



**FIGURE 1 —
CANADA'S
GREENHOUSE
GAS EMISSIONS
BREAKDOWN BY
ECONOMIC SECTOR,
2013⁸**

Canadian regulations include the *Renewable Fuels Regulations*, *Passenger Automobile and Light Truck Greenhouse Gas Regulations* and *Heavy-Duty Vehicle and Engine Greenhouse Gas Emission Regulations*. American regulations are similar. The regulations become increasingly stringent over time with positive results. According to the National Energy Board, “the average fuel efficiency for passenger cars sold in Canada improved 8.5 percent from 1990 to 2006, and the average fuel efficiency for light trucks improved by 6.1 percent over the same period.”⁹ (Volume Two, Appendix F provides more details regarding bi-national programs to address greenhouse gas emissions).

Actions are also being taken to decrease emissions in other modes. A series of Memoranda of Understanding (between the Railway Association of Canada, Environment Canada, and Transport Canada) to reduce emissions from locomotives include air pollutants and more recently, greenhouse gases. *Canada's Action Plan to Reduce Greenhouse Gas Emissions from Aviation* sets an aspirational goal to improve fuel efficiency from a 2005 baseline by an average annual rate of at least two percent per year until 2020. All modes of transportation are forced to innovate to reduce fuel consumption, not only due to regulatory pressures, but to save on the rising cost of fuel.

In spite of these positive developments, sufficient collaboration, innovation and incentives are lacking to achieve further emission reductions via operational strategies or prudent long-term investments: the elements of success behind the Canada-United States Air Quality Agreement. In the fall of 2014, the Commissioner of Environment and Sustainable Development reported that Canada is likely to miss its current target for greenhouse gas emissions reduction. Lack of federal consultation and planning with the provinces and territories has resulted in measures that have no benchmarks for monitoring and assessing progress. This prevents industries from planning investments effectively.¹⁰

Today, there is lots of discussion on expanded use of market-based mechanisms to induce environmental protection, such as congestion pricing, toll routes, carbon pricing, and emissions trading. These mechanisms are used quite extensively in other jurisdictions such as Europe and the United States. Creating a market-based cap-and-trade system worked in the past, as demonstrated by the Canada–United States Air Quality Agreement; it succeeded because an economy for unwanted sulphur emissions was also created.¹¹

The United Nations Conference of the Parties 21 (COP21)¹² should move the international community towards the expanded use of various measures to decrease greenhouse gas emissions. In preparation for COP21, each nation submitted a target and potential policy actions. The Government of Canada submitted a target of a 30 percent reduction of greenhouse gas emissions below 2005 levels by 2030. The United Nations may set the stage by providing a tool box of best practices and policy actions to assist nations in keeping the global average temperature rise below 2 degrees Celsius. (Appendix F provides more information on International obligations and events leading up to COP21.)

While acknowledging that climate change mitigation is needed, Canada must recognize that climate change is proceeding apace, and we need to adapt. Climate change adaptation aims to reduce vulnerabilities and increase the resilience of systems to climatic impacts. In the context of transportation, resilience refers to the physical strength and durability of the infrastructure to withstand adverse impacts without losing its basic function and its ability to recover quickly, at minimal cost.¹³ The cost to Canada of not adapting could reach \$5 billion per year by 2020 and rise to between \$21 and \$43 billion per year by 2050.¹⁴ Climate change and climate change adaptation are very real issues, and will pose even greater challenges to the Government of Canada in the future. There are no easy answers.

Facing the Future: Little by Little, Incremental Gains will Get us There

Innovation and the environment have a symbiotic relationship. Innovation has often been the cause of environmental degradation, while simultaneously driving the solution. It was innovation that led to the creation of the internal combustion engine, and it is innovation that will help mitigate its emissions. To the credit of our transport sector, voluntary actions have been taken over the years to reduce its environmental footprint. Investments have been made in affordable technologies, such as auxiliary power units that avoid idling and reduce fuel consumption, and in revised operational protocols, such as using long trains to increase the tonne-per-kilometre travelled and thus to increase efficiencies.

[CUTA recommends] “that the Government of Canada support the commercialization of new technologies and the procurement of innovative, energy-efficient products, such as through a fund . . . or procuring energy-efficient transit vehicles.”

— *Canadian Urban Transit Association Submission to the CTA Review*
December 2015

Manufacturers are employing state-of-the-art technologies in next-generation designs, such as the Tier 4 Locomotive engine, ships that meet international standards for energy efficiency, and planes composed of high-tech, lightweight materials. Each new technology contributes to transforming the system for the future. We will need to maximize the number of incremental gains in order to meet domestic and international commitments, particularly in the absence (so far) of any transformative technology to control transportation emissions.

Environmental benefits are highlighted throughout this report, from increasing efficiencies of supply chains, to decreasing urban congestion with short sea shipping, to using market-based mechanisms to support infrastructure funding. Transportation infrastructure planning must begin to incorporate more resilient design and construction practices to adapt to changing permafrost, melting sea ice, and rising sea levels. The recommendation in Chapter 2 for the creation of an Advisory Committee on Transportation and Logistics would provide a forum for government and industry stakeholders to develop measures that meet international and domestic environmental obligations. The Committee would take a collaborative approach to achieve greenhouse gas emission reductions specific to the transportation system and compatible with other initiatives to improve the system.

The need to address climate change and its impacts will continue to be a focus of government policy. The following recommendations are intended to ensure government-industry collaboration in developing approaches, metrics, and potential regulatory measures that will reduce greenhouse gas emissions over the long term. Support for innovative technologies that increase efficiency and reduce emissions is another way to enhance Canada’s productivity, competitiveness, and ease of movement for all Canadians. Performance-based regulations give manufacturers and operators the freedom to decide how standards are met, without compromising trade. Regulations can be harmonized with those of the United States and other trading partners to ensure that the movement of Canadian goods and people remains seamless throughout the international transportation system. Regulatory or voluntary, harmonization would foster a healthy exchange of ideas and sharing of expertise with respect to innovations for transportation.

- 1. The Review recommends that the proposed Advisory Committee on Transportation and Logistics work with Environment and Climate Change Canada to set objectives and report results impacting environmental stewardship in the transportation sector.**

2. The Review recommends that the Government of Canada develop performance-based emission regulations for all modes of transportation, while providing support for technological innovation. North American harmonization should be the goal.

“A sustainable approach is one that is designed for efficiency so that costs are reduced and productivity gains can be made. It is one that reduces the need for energy as much as possible, while respecting the value and heritage of our exceptional natural environment. It is based on a commercial framework and a market-based approach to ensure that new investment and growth will keep pace with the economy.”

— Partnership for Resource Trade Submission to the CTA Review
March 2015

Notes

- ¹ According to the *Canada-United States Air Quality Agreement Progress Report 2014*, other transboundary air pollutants include ozone, nitrogen oxides, carbon monoxide, particulate matter (PM₁₀ and PM_{2.5}), continuous PM_{2.5}, volatile organic compounds, and polycyclic aromatic hydrocarbons. International Joint Commission, *Canada-United States Air Quality Agreement Progress Report 2014*, (Canada: 2014), at 1, accessed on November 23, 2015, online: <https://www.ec.gc.ca/Air/D560EA62-2A5F-4789-883E-9F4DA63C58CD/AQA%20Report%202014%20ENG.pdf>.
- ² Environment Canada, *Sulphur in Diesel Fuel Regulations – Factsheet*, accessed on November 23, 2015, online: <https://www.ec.gc.ca/energie-energy/default.asp?lang=En&n=1764584F-1>.
- ³ An example of on-board, ship-specific technology would be an exhaust scrubber that “scrubs” excess sulphur from the combustion of the fuel prior to its release into the atmosphere, thereby further reducing sulphur emissions.
- ⁴ Environment Canada, Statement by Minister Kent, December 12, 2011, accessed on November 4, 2015, online: <http://www.ec.gc.ca/default.asp?lang=En&n=FFE36B6D-1&news=6B04014B-54FC-4739-B22C-F9CD9A840800> (Archived Content).
- ⁵ Steven Gelis, “Kyoto Protocol, 10 years later: Did deal to combat greenhouse emissions work and what of its future?” *National Post*, Feb 14, 2015, accessed on November 23, 2015, online: <http://news.nationalpost.com/news/world/kyoto-protocol-10-years-later-was-the-deal-to-combat-greenhouse-emissions-successful-and-what-of-its-future>.
- ⁶ Decoupling takes place “when the growth of the environmentally bad pressures is less than that of the economic good over a given period,” from: General Secretariat, *Sustainable Development: Indicators to Measure Decoupling of Environmental Pressure from Economic Growth*, (OECD: May 2002) SG/SD(2002)1/FINAL, accessed on November 23, 2015, online: <http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?doclanguage=en&cote=sg/sd%282002%291/final>.

- ⁷ Government of Canada, *Canada's National Inventory Report, 1990-2013*, part 1, (Environment Canada, Quebec) at 18 and 25, accessed on November 23, 2015, online: http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/8812.php. The greenhouse gas emissions break down in this report follow two formats: (i) the 2006 International Panel on Climate Change (IPCC) Guidelines by IPCC Sector and (ii) Economic Sectors. The former reports that Canada's transportation greenhouse gas emissions are 28 percent while the latter states 23 percent. The breakdown of emissions by economic sector is the approach taken by the Government of Canada to report against Canada's Copenhagen target of 17 percent reduction below 2005 levels by 2020. However, when broken down by IPCC sector, transportation accounts for 28 percent of Canada's greenhouse gas output.
- ⁸ *Ibid.*
- ⁹ National Energy Board, *Energy Briefing Note – Canadian Energy Demand: Passenger Transportation*, January, 2009, at 6, accessed on November 23, 2015, online: <https://www.neb.gc.ca/nrg/ntgrtd/mrkt/archive/2009pssngrtrnsprttt/pssngrtrnsprttt-eng.pdf>.
- ¹⁰ Office of the Auditor General of Canada, *Report of the Commissioner of the Environment and Sustainable Development*, Fall 2014, at 6, accessed on November 23, 2015, online: http://www.oag-bvg.gc.ca/internet/docs/parl_cesd_201410_01_e.pdf.
- ¹¹ Environment Canada, *Canada-United States Air Quality Agreement Progress Report 2012*, accessed on November 23, 2015, online: <http://www.ec.gc.ca/air/default.asp?lang=En&n=8ABC14B4-1&offset=2&toc=hide>.
- ¹² Canada's domestic targets are driven by international commitments set by the United Nations. In the past, it has been difficult for all members to agree on one specific target with respect to reducing emissions, as developing and developed nations have different needs. A new strategy was implemented for the United Nations Climate Change Conference, Conference of the Parties 21 (COP 21), in Paris in December 2015. The strategy was to have all members submit a proposal of a feasible emission target with an execution plan (called the Intended Nationally Determined Contribution) prior to COP21. If passed in December, COP21 will set an agenda for global action on climate change; members will be committed to their Intended Nationally Determined Contributions.
- ¹³ United Nations Economic Commission for Europe, *Climate Change Impacts and Adaptation for International Transport Networks*, (2013), accessed on May 23, 2015, online: <http://unstats.un.org/unsd/geoinfo/UNGEGN/default.html>.
- ¹⁴ National Round Table on the Environment and Economy, *Climate Prosperity Series, "Paying the Price: The Economic Impacts of Climate Change for Canada"*, (2011) at 16, accessed on November 23, 2015, online: <http://nrt-trn.ca/wp-content/uploads/2011/09/paying-the-price.pdf>.

Chapter 7: Access and Accessibility

People with disabilities represent a large and growing segment of the population. Whether in the workplace or going about the tasks of daily living, they require access and may require accommodation to participate fully in society. Ensuring they are able to use the transportation system is a fundamental part of this equation.

The Review was tasked with “examining the extent to which the national transportation system has the capacity and adaptability that will allow it, and its users, to respond effectively to evolving international and domestic conditions and markets.” While this question doesn’t explicitly raise the issue of accessibility, it nonetheless falls to the Review to address how the system can best accommodate the needs of Canadians who live with disabilities that might otherwise inhibit them from travelling.

The industries that transport people by land, air, and sea are governed by the *Canada Transportation Act*, which ensures accessible transport for people with disabilities and empowers the Canadian Transportation Agency to eliminate undue obstacles for people with disabilities in the federal transportation system. We also acknowledge the relevance of other legislation, namely the *Canadian Human Rights Act*, that call upon all federal institutions to eliminate policies and practices that discriminate against persons with disabilities. Finally, we note that Canada is signatory to the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), which upholds accessibility for persons with disabilities and refers to measures in relation to transportation.

This chapter addresses the issue of accessibility for people with disabilities and how the demographic shift toward an aging population accelerates the need for further action to strengthen access and eliminate barriers. We also discuss the shortcomings of the current approach to accessibility and the limitations on the Agency’s ability to intervene. These shortcomings are largely due to the inadequacy of legislative provisions, a largely voluntary regulatory framework, a lack of clarity surrounding service, equipment, and facilities standards, and jurisdictional confusion.

The past 30 years

After Confederation, Canada’s population grew steadily, doubling approximately every 40 years. Over the past 30 years, however, population growth has slowed to a yearly average of 1 percent. This declining trend is forecast to continue, with the population growth rate expected to slow to 0.5 percent within thirty years (see Volume Two, Appendix A, Figure 5). With the decline in this growth, the median age has risen.¹ So too has the percentage of Canadians with one or more disabilities, as their prevalence is strongly linked to age. In 2001, 3.6 million Canadians, or 12.4 percent of the population, had a disability; by 2012, those numbers had risen to 3.8 million, or 13.7 percent.

Canada has a relatively short history in developing legislation on accessibility in transportation. One of the Agency’s precursors, the Canadian Transport Commission, first considered the issue of barriers in transportation in 1979, in the matter of *Clariss Kelly v. VIA Rail*, an application that resulted in the removal of barriers to people using wheelchairs. With the

introduction of the 1987 *National Transportation Act*, the re-named National Transportation Agency acquired the specific mandate to remove undue obstacles to accessing the federal transportation network. The 1996 *Canada Transportation Act* prompted a third name change, this time to the Canadian Transportation Agency, but the accessibility provisions remained virtually unchanged.

Section 5 (the National Transportation Policy) and Part V of the *Canada Transportation Act* provide the policy and legislative framework that shape the Agency's accessibility mandate. The Act sets out the parameters:

- 170 (1) The Agency may make regulations for the purpose of eliminating undue obstacles in the transportation network under the legislative authority of Parliament to the mobility of persons with disabilities, including regulations respecting
- a) the design, construction or modification of, and the posting of signs on, in or around, means of transportation and related facilities and premises, including equipment used in them;
 - b) the training of personnel employed at or in those facilities or premises or by carriers;
 - c) tariffs, rates, fares, charges and terms and conditions of carriage applicable in respect of the transportation of persons with disabilities or incidental services; and
 - d) the communication of information to persons with disabilities.

The National Transportation Agency introduced two sets of regulations on accessibility—one in 1994, relating to air travel and the terms and conditions of carriage for persons with disabilities, and another in 1995, entitled *Personnel Training for the Assistance of Persons with Disabilities Regulations*. The air regulations ensure that air carriers provide uniform services to passengers with disabilities travelling in Canada on aircraft with 30 or more passenger seats. The training regulations ensure that personnel throughout the federal transportation system have the knowledge, skills, and attitudes necessary to assist passengers with disabilities in an effective and sensitive manner. Since the Act came into force in 1996, the legislative framework for accessibility has not changed. In keeping with the government's policy at the time to effect change through non-regulatory measures,² the Canadian Transportation Agency pursued voluntary codes of practice. The Agency has developed six *Codes of Practice* relating to ferries, rail, communication, aircraft accessibility, passenger terminals, and airport terminals outside the National Airports System. In addition, both the Agency and Transport Canada work with industry to monitor the effectiveness of the *Intercity Bus Code of Practice*.

Where we are today

The median age of Canadians is about 40.5,³ whereas 30 years ago it was just under 30.⁴ In addition, growth in the population of seniors began to accelerate when the first of the baby boom generation turned 65 in 2011. Seniors now constitute nearly 16 percent of the population and, in less than 50 years, will make up between 24 and 28 percent.⁵

Evidence shows that the prevalence of disability rises with age; for example, the 2012 Canadian Survey on Disability indicates that 4.4 percent of individuals aged 15 to 24 have a disability, whereas the number rises to 42.5 percent for those 75 years and over. Of those who reported having a disability, eight out of ten said they used an aid, such as a walker, or an assistive device, such as a wheelchair.⁶

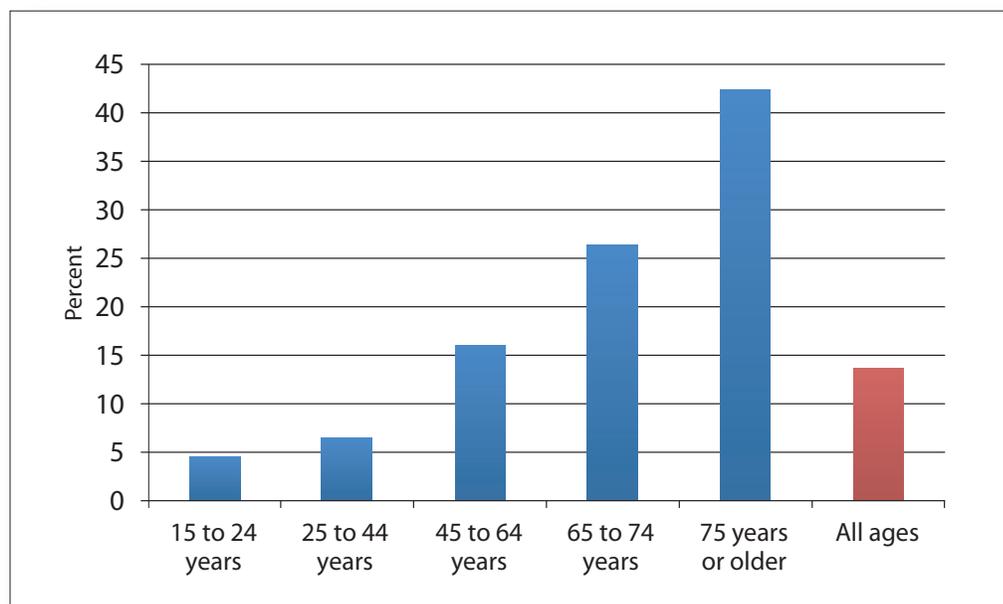


FIGURE 1 — SHARE OF THE CANADIAN POPULATION WITH A DISABILITY, BY AGE, 2012⁷

The prevalence of disability varies by age, with younger people (15 to 24) mostly reporting mental or psychological disabilities, learning disabilities and pain; and those aged 45 to 64 mostly reporting pain, flexibility, and mobility issues.

| Disability | Population | Percentage |
|---|------------------|-------------|
| Total number of Canadians who report having a disability | 3,775,900 | 13.7 |
| Pain-related | 2,664,200 | 9.7 |
| Flexibility | 2,078,000 | 7.6 |
| Mobility | 1,971,800 | 7.2 |
| Mental health-related | 1,059,600 | 3.9 |
| Dexterity | 953,100 | 3.5 |
| Hearing | 874,600 | 3.2 |
| Seeing | 756,300 | 2.7 |
| Memory | 628,200 | 2.3 |
| Learning | 622,300 | 2.3 |
| Developmental | 160,500 | 0.6 |
| Unknown | 79,500 | 0.3 |

FIGURE 2 — PREVALENCE OF DISABILITY BY TYPE, 15 YEARS AND OLDER, CANADA, 2012⁸

The Agency implements its accessibility mandate by developing and monitoring regulations and codes of practice; resolving complaints on a case-by-case basis; conducting informal dispute resolution; holding consultations (through its Accessibility Advisory Committee) and performing other outreach activities; and educating people with disabilities, and service providers, on their rights and obligations. The codes of practice have delivered some results, but the model is not as robust as those of other jurisdictions. Most Western industrial countries have addressed accessibility through legislation and regulation.

The Agency has dealt with a wide range of complaints involving many different kinds of disabilities and barriers to access. It has been particularly challenged by complaints on the basis of disabilities that are not conventionally understood as such—the so-called “grey area” disabilities, which includes obesity, or allergies. Rather than adopt a narrow approach, it has applied the World Health Organization’s (WHO’s) *International Classification of Functioning, Disability and Health* (more commonly, the ICF) to questions of whether a condition such as obesity constitutes a disability requiring accommodation in the transportation system.⁹

Where we need to be in 20 to 30 years: better and more certain access

With increased longevity, many people hope and expect to remain active longer than was the case for previous generations. This includes both people who may have had a disability from a young age, and others who may experience the difficulties that often accompany the aging process: reduced vision, hearing loss, difficulty with balance and grip, and loss of stamina. However, in neither situation can it be assumed that they will cease to travel as they get older. Persons with disabilities, like the general population, want and need to travel for work, as well as for pleasure, and they expect our transportation system to make it possible for them to easily do both. Thirty years ago, society was far less attuned to the barriers they confronted daily and to the extraordinary difficulties they experienced in trying to access and navigate the transportation system. Of course, times and attitudes have changed and important gains in the courts and through political action and legislative change have occurred.

As Canada’s population ages and the prevalence of disability increases, the pressure to provide equality of access to people with disabilities will mount. As a country, Canada will also have to show that it can match other developed countries in welcoming foreign visitors with disabilities. To respond adequately to these imperatives, tools are needed to address gaps in the system and broaden the Agency’s sphere of action.

The United States, the United Kingdom, France, Germany, and Japan have enshrined accessibility protections and standards in legislation.¹⁰ Canada has not. Without consistency, predictability, and reliability in the transportation system, persons with disabilities and seniors may not have the confidence to travel as much as they would under better circumstances.

The Review thus recommends a package of reforms and a new legislative framework that aligns Canada’s approach to accessibility with that of the U.S., the European Union, and, closer to home, Ontario (for reasons discussed below). Further, we recommend an accessibility mandate of broader scope for the Agency, so that responsibility for matters of accessibility in the transportation system fall squarely within its purview, jurisdictional overlaps are avoided, and the Agency can be given the tools to address systemic accessibility issues.

FIGURE 3 — BENCHMARKING OF ACCESSIBILITY FRAMEWORK (TRANSPORTATION)¹¹

| Element | Canada | United States | European Union |
|--|---|--|---|
| UN Convention on the Rights of Persons with Disabilities (UNCRPD) | Signed and ratified | Signatory to the Convention, but not ratified by U.S. Senate as required by U.S. law | Signed and ratified by European Union, signed by all Member States and ratified by most |
| Laws | <ul style="list-style-type: none"> • <i>Canada Transportation Act</i> • <i>Canadian Human Rights Act</i> | <ul style="list-style-type: none"> • <i>Americans with Disabilities Act (ADA)</i> • <i>Section 504 of Rehabilitation Act¹²</i> • <i>Air Carrier Access Act (ACCA)¹³</i> | <p>European Charter of Fundamental Rights</p> <p>Lisbon Treaty (2007/C 306/01)</p> |
| Regulations | <p><i>Air Transportation Regulations, Part VII</i></p> <p><i>Personnel Training for the Assistance of Persons with Disabilities Regulations</i></p> | <p>U.S. agencies issue detailed regulations and guidance covering all modes of transportation.</p> <p>U.S. legislation requires the U.S. Access Board to issue accessibility design guidelines for facilities and vehicles. The law also requires that the guidelines be incorporated into DOT regulations</p> | <p>Passenger Rights Regulations covering standards of service, rights of redress and complaints and dispute resolution: Aviation/Rail/Bus/Maritime</p> <p>Technical (construction) Regulations: Rail (PRM TSI), Bus (UNECE Reg 107) Maritime Directive (2110/36) on safety rules and standards for passenger ships</p> |
| Definition of Disability | None Agency applies WHO – ICF model for purposes of Part V of the Act | Defines person with a disability under ADA (broad application, not just transportation) and ACAA | Defines person with reduced mobility |
| Codes of Practice | <ul style="list-style-type: none"> • Communication • Ferry Accessibility • Accessibility and Terms and Conditions of Travel by Rail • Passenger Terminal Accessibility • Accessibility of non-national Airports Systems Air Terminals • Aircraft Accessibility (aircraft with 30+ seats) • <i>Intercity Bus Code</i> | <p>No Codes of Practice</p> <ul style="list-style-type: none"> • Guidance issued by individual Federal agencies <p>[Note: Access Board guidelines are incorporated in DOT regulations and cover much of the same substance]</p> | <p>No Codes of Practice</p> <ul style="list-style-type: none"> • European Commission Staff Guidance documents • European Civil Aviation Conference (ECAC) Guidance • Guidance at individual Member State level |
| Enforcement | <p>Canadian Transportation Agency</p> <ul style="list-style-type: none"> • Enforces compliance with regulations and decisions • Can impose administrative and monetary penalties for non-compliance with regulations and decisions | <p>U.S. laws split the federal authority among agencies (DOT and Department of Justice, for public and private transportation respectively).</p> <p>Robust enforcement program with agencies having authority to impose monetary /civil penalties or provide injunctive relief.</p> | <ul style="list-style-type: none"> • The technical regulations are enforced at the point of licensing or entry into service by national technical standards body. • Passenger Rights Regulations are monitored and enforced by National Enforcement Bodies¹⁴ of each Member State¹⁵ designated in compliance with the regulation. |

| | | | |
|---------------------------|--|--|---|
| Monitoring | Canadian Transportation Agency <ul style="list-style-type: none"> • Targeted Monitoring (Based on risk) • Agency publicly reports results • Agency staff work with service provider to achieve compliance | DOT and DOJ can conduct compliance reviews and investigate complaints. Air carriers must send annual reports to DOT concerning disability complaints received. | Monitoring by National Enforcement Bodies of each Member State |
| Dispute Resolution | Agency resolves complaints Adjudication/mediation/facilitation on a case-by-case basis | Air carriers and ferry operators have complaint resolution mechanisms Recipients of federal financial assistance must establish complaint mechanisms. DOT/DOJ also has authority to investigate complaints. | Member States (with recourse to European Commission and European Court of Justice) National Enforcement Bodies |
| Reporting | Federal – none Provincially (Ontario) Accessibility Plans <ul style="list-style-type: none"> • applies to all public, private and non-profit organizations including commuter trains | Requirement for carriers to report on all consumer complaints, including disability /non-compliance | Quality performance standards published (Airports) National Implementation Plans (Rail) |

A new accessibility approach...what we need to get there

National Transportation Policy

International benchmarking and independent analysis have raised the importance of access, not just accessibility. Access to services and facilities can include website accessibility, moving sidewalks, ramps, and levers for door handles which benefit the general population, including persons with disabilities. The United Nations Convention on the Rights of Persons with Disabilities includes the principle of access (see textbox). In the United Kingdom, for example, it was noted that when facilities such as rail stops are made accessible, there is a marked increase in passenger traffic.¹⁶

Article 9 — Accessibility

1. To enable persons with disabilities to live independently and participate fully in all aspects of life, States Parties shall take appropriate measures to ensure to persons with disabilities access, on an equal basis with others, to the physical environment, to transportation, to information and communications, including information and communications technologies and systems, and to other facilities and services open or provided to the public, both in urban and in rural areas. These measures, which shall include the identification and elimination of obstacles and barriers to accessibility, shall apply to, inter alia:

(a) buildings, roads, transportation and other indoor and outdoor facilities, including schools, housing, medical facilities and workplaces;

(b) information, communications and other services, including electronic services and emergency services.

2. States Parties shall also take appropriate measures to:

(a) develop, promulgate and monitor the implementation of minimum standards and guidelines for the accessibility of facilities and services open or provided to the public;

(b) ensure that private entities that offer facilities and services which are open or provided to the public take into account all aspects of accessibility for persons with disabilities; etc.

— *UN Convention on the Rights of Persons with Disabilities*

The National Transportation Policy, as set out in section 5 of the Act, includes the statement that “a competitive, economic and efficient national transportation system . . . is essential to serve the needs of its users, advance the well-being of Canadians and enable competitiveness and economic growth in both urban and rural areas throughout Canada” and that, among other things, “these objectives are most likely to be achieved when . . . the transportation system is accessible without undue obstacle to the mobility of persons, including persons with disabilities.” In view of the statistics on Canada’s aging population cited earlier, there is even greater urgency to bringing this about than when the Act was introduced. Giving formal recognition to the issue of “access” in the National Transportation Policy would be an important first step.

1. The Review recommends that the Government of Canada amend section 5 of the *Canada Transportation Act* (the National Transportation Policy) to reflect “access” for all, including persons with disabilities, and to better align with foreign jurisdictions.

Definition of disability

Curiously, Canada is one of the few Western industrial nations that does not define disability in its accessibility legislation.¹⁷

In addressing accessibility complaints and determining whether there is “an undue obstacle to the mobility of persons with a disability” under the Act, the Agency must first establish whether an application was filed by, or on behalf of, a person with a disability. As the definition of disability is not elaborated in the legislation, the Agency has been left to develop its own procedures, tools, and precedents. This means that there is less clarity or certainty for individuals or service providers as to who is included in the legislation. The United Nations Convention on the Rights of Persons with Disabilities provides some guidance in its preamble, where it speaks of disability as an evolving concept, related to the interaction between a person’s impairments and society’s response to them.

As already indicated, the Agency has adopted the World Health Organization’s classification system, in which disability rests on three determinants (impairment, activity limitation, and restriction). In each of the cases that come before it, the Agency uses the ICF to make a finding as to whether a disability exists. Detailed analysis is not usually required, except in relation to the “grey area” cases mentioned earlier.

In other jurisdictions, such as the European Union and the United States, disability is defined in legislation. The Europeans focus on the mobility barriers an individual faces when using public transportation (see the text box above), while the United States addresses discrimination through an all-encompassing definition. The United States definition falls under the *Americans with Disabilities Act* and is not specific to transportation. In the Canadian context, the government of Ontario has also defined the term “disability.” It is similar to the United States definition, in that it is not transportation-specific and includes a broad spectrum of disabilities, including physical, cognitive, and learning disabilities, along with mental impairments and disorders.

Any person whose mobility when using transport is reduced due to any physical disability (sensory or locomotory, permanent or temporary), intellectual disability or impairment, or any other cause of disability, or as a result of age, and whose situation needs appropriate attention and adaptation to his or her particular needs of the service made available to all passengers.

— *Definition of disabled person in Regulation (EC) No 1107/2006, (Article 2 (a), of the European Parliament and of the Council concerning the rights of disabled persons and persons with reduced mobility when travelling by air.*

July 2006

2. The Review recommends that the Government of Canada incorporate a definition of disability into the *Canada Transportation Act* (including reference to the three determinants of disability in the World Health Organization’s *International Classification of Functioning, Disability and Health* model), to bring clarity to the legislation.

The WHO’s three determinants of disability are impairments, activity limitations, and participation restrictions.

Applications (complaints) by persons with disabilities

Typically, an application (an accessibility complaint) is filed by a person with a disability who claims to have experienced an “undue obstacle” in the in the federally regulated passenger system, or by someone on behalf of the complainant. The current legislation allows for any individual to file a complaint about a perceived obstacle. In fact, the applicant need not be a person who has personally experienced the obstacle.

As noted in Chapters 8–10 on the different modes, the Review is recommending that applications be restricted to persons, or their representatives, who have traveled and experienced an obstacle. Below we recommend a broadened accessibility mandate for the Agency, accompanied by its own motion powers and the authority to address systemic issues. This will permit the Agency to consider accessibility issues on its own motion without having a specific complaint before the Agency.

Regulations and Codes

The Canadian Transportation Agency has the authority to remove systemic barriers to the mobility of persons with disabilities through the introduction of regulations. Regulations can address a broad range of accessibility issues, including design of equipment and facilities as well as, fares, terms and conditions of carriage, training of personnel, and communication of information. While the Agency’s predecessor had introduced regulations relating to air transportation and personnel training, since the mid 1990s it has largely relied on a non-regulatory approach through the creation of *Codes of Practice*. These Codes are developed by the Agency in consultation with persons with disabilities and transportation service providers. In contrast to regulations, the *Codes of Practice* are voluntary and not legally binding on transportation service providers: They set out an expectation for the accessibility of the federal transportation system. They establish minimum standards that transportation service providers are expected to meet and encouraged to exceed.

This approach focuses the Agency’s efforts on achieving accessibility through consensus, complaint resolution, and education. The Agency monitors the progress and implementation of the Codes and typically addresses problems by working with transportation service providers to identify solutions. However, there is no certainty that the equipment, facility, or service standards will be met and there are no legal mechanisms to address non-compliance.

As mentioned, these arrangements contrast with the legislative regimes in other jurisdictions, such as the 28 countries of the European Union, Australia, and the U.S., where the 25-year-old *Americans with Disabilities Act* and the *Air Carrier Access Act* prohibit discrimination on the basis of disability; the latter focuses on air travel and requires air carriers and airports to accommodate the needs of passengers with disabilities. The European Union also has strong consumer protection, including rights for persons with disabilities and accessibility standards enshrined in legislation.

Closer to home, the Ontario government introduced legislation in 2005 to remove barriers for persons with disabilities through the *Accessibility for Ontarians with Disabilities Act* (AODA); included under the Act are standards for accessibility, more formally known as the *Integrated Accessibility Standards Regulations*. The AODA applies to all public, private

and non-profit organizations with more than one employee; it sets out a process for ensuring the prevention and removal of physical, attitudinal, informational, technological, or communications barriers for persons with disabilities by 2025 and requires them to develop standards for customer service, employment, information, transportation, and the building environment.¹⁸

Compliance with these legislative frameworks varies, depending on the approach. The United States has a stringent system of self-reporting and monitoring and enforcement. It requires carriers to retain and, in some cases, report to its agencies on consumer complaints received. This greatly assists agencies in monitoring compliance and spotting trends. Enforcement authorities actively monitor and have the authority to impose stiff fines. Service providers generally comply so as to avoid these fines, and because they don't wish to become embroiled in litigation and the significant monetary awards that can result.¹⁹

In Europe, monitoring and enforcement are the responsibility of member states and there is no uniform approach. The United Kingdom has a strong system of enforcement, while other member states are less rigorous. For countries with a regulatory approach, there is a high degree of compliance, particularly in the United States, where penalties can be significant and service providers can risk losing federal funding.

It was clear from the benchmarking exercise and consultations conducted by the Review that, unless rights and standards are enshrined in legislation, Canada will continue to lag behind other countries in the regulation of accessibility. We are concerned that our voluntary approach does not measure up to what other countries have put in place and that, as a consequence, there is a lack of certainty and consistency in the development and application of standards.

A reasonable goal is to put Canada in the same league as other jurisdictions. This means giving teeth to accessibility legislation and clarifying service, equipment, and facilities standards so that transportation service providers are legally bound to live up to them. Consistent with international practice, practical transition periods would be allowed for equipment purchase and facility upgrades. Non-compliance could then be addressed through Canadian Transportation Agency enforcement.

Under the 1987 *National Transportation Act*, the National Transportation Agency did not have jurisdiction over extra-provincial bussing. As a result, Transport Canada took responsibility for the *Intercity Bus Code of Practice* and continues to work with the intercity bus industry to monitor the effectiveness of the *Code of Practice* and to resolve complaints. Canadian Transportation Agency jurisdiction over extra-provincial bus services was added when the *Canada Transportation Act* came into force, and since 1996 the Agency has addressed complaints regarding extra-provincial bus operations. It would be more efficient and less costly to have the *Intercity Bus Code* administered by the Agency, which has the resources and expertise to address complaints through mediation, facilitation, and adjudication. In the interests of efficiency, it would also make sense to have the *Intercity Bus Code* transferred to the Agency.

3. The Review recommends that the Government of Canada convert the *Codes of Practice for Accessibility* to Regulations, and that the *Intercity Bus Code* be transferred to, and administered by, the Agency.

A Broader Accessibility Mandate

Over the course of the Review, consultations, international benchmarking, independent analysis, and submissions raised the following issues:

Jurisdictional Overlap

The Agency's mandate to resolve accessibility complaints in relation to the transportation network includes the ability to impose corrective measures and reimburse expenses incurred that are directly attributable to the "undue obstacle." However, the Agency has no ability to award compensation for pain and suffering. On the other hand, the Canadian Human Rights Commission can refer complaints about barriers in the transportation system (and other domains) to the Canadian Human Rights Tribunal (CHRT), which not only has the authority to address such complaints, but also the power to compensate for pain and suffering. This overlap in jurisdiction, while recognized in the Act, means that a complainant who is dissatisfied with the Agency's decision could go before the CHRT in search of a better outcome. This is often referred to by the courts as "forum shopping" and is generally looked upon unfavourably.

Having more than one tribunal with the authority to consider matters of accessibility in the federal transportation network creates confusion, unpredictability, and inconsistency. It should be discouraged.

"The Agency uniquely has the specialized expertise to balance the requirements of those with disabilities with the practical realities—financial, structural and logistic—of a federal transportation system."

— Supreme Court of Canada, *Council of Canadians with Disabilities v VIA Rail Canada Inc.*, 2007 1 S.C.R. 650, 2007 SCC 15

The Supreme Court of Canada, in its decision on the *Council of Canadians with Disabilities v. VIA Rail (2007)*, recognized the Agency's specialized expertise in relation to accessibility in the transportation system. It follows that giving the Agency exclusive jurisdiction over accessible transportation matters in the federal transportation network, as well as the authority to order compensation for pain and suffering up to a prescribed limit will eliminate the confusion and put an end to forum shopping.

4. The Review recommends that the Canadian Transportation Agency be given exclusive jurisdiction over disability-related cases in the federal transportation network, including the ability to award compensation for pain and suffering, up to a prescribed limit.

Systemic issues

The Agency's ability to deal efficiently with systemic access problems, an issue also raised in the last Review, is seriously constrained. While the Agency can address systemic issues through its power to make regulations, it cannot make an industry-wide ruling on a complaint. With an approach where complaints are one-offs and the regulatory process is very slow²⁰, issues of a systemic nature cannot be addressed quickly and effectively. Furthermore, Agency action is entirely responsive: since 1996, it has had no authority to investigate a potential or suspected barrier unless a specific complaint has been filed. The Review continues to be concerned about these limitations, since they make it virtually impossible to pursue more comprehensive accessibility solutions.

“The case-by-case approach and decisions only applying to the carrier targeted in a complaint have been frustrating efforts to create an accessible and inclusive transportation system . . . the Agency must have the power to order systemic solutions.”

— *Council of Canadians with Disabilities Submission to the CTA Review*
December 2014

The Canadian experience has also shown that an approach such as this leads to inefficient and possibly inconsistent outcomes. Further, individual transportation service providers who are subject to a complaint can be placed at a competitive disadvantage when the Agency finds against them, since the corrective action applies only to them and not to other carriers who may have the same obstacles. Quite apart from this, the Agency should be in a position to eliminate barriers to accessibility wherever they exist in the transportation system.

Amending the Act to broaden the scope of the Agency's accessibility mandate and allow it to proactively identify and investigate potential barriers will lead to greater efficiency, consistency, fairness, and predictability in establishing the standards to be met.

- 5. The Review recommends that the Canadian Transportation Agency be given the authority to address systemic issues, including the authority to investigate accessibility matters on its own motion and issue general orders.**

Accessibility Scorecard

Jurisdictions with accessibility rights and standards enshrined in legislation at times require service providers to produce service standards and/or file accessibility plans as a way to advance the removal of barriers to persons with disabilities. In this way, service providers must demonstrate how they meet accessibility standards, their plans for removing existing barriers, and strategies for preventing new ones. Ontario has this type of requirement. The United States requires carriers and service providers to certify that they meet accessibility standards. The European Union doesn't require plans to be filed, but it does require all but the smallest airports to publish service standards.

Accessibility plans demonstrate what is being done and what still needs to be done; they provide a snapshot of the state of accessibility at the transportation service provider level. Consultations revealed that accessibility only became part of the culture when organizations were required to produce multi-year accessibility plans. It is for this very reason that it is a best practice and transportation service providers are encouraged to develop and report on their accessibility action plan. Nonetheless, the Review believes that it is important for the Agency to monitor the state of accessibility, so as to be in a position to flag matters of concern, identify best practices, and determine which areas give rise to complaints.

- 6. The Review recommends that the Canadian Transportation Agency report every three years on the status of accessibility through the use of a Score Card, which would include an overall assessment of various accessibility elements, noting best practices, status of compliance, the number of complaints, and any highlights or comments.²¹**

Further information pertaining to benchmarking of accessibility standards is included in Volume Two, Appendix G.

Notes

- ¹ The median age is the mid-point at which half the population is older and half is younger.
- ² Canadian Transportation Agency, *First Annual Report 1996: Setting a New Course* (1997), accessed on November 23, 2015, online: http://publications.gc.ca/collections/collection_2012/otc-cta/TT1-1996-eng.pdf.
- ³ Statistics Canada, *The Daily, July 1, 2015*, accessed on November 26, 2015, online: <http://www.statcan.gc.ca/daily-quotidien/150929/dq150929b-eng.htm>.
- ⁴ Statistics Canada, *Annual Demographic Estimates, Section 2* (September 2012), accessed on November 23, 2015, online: <http://www.statcan.gc.ca/pub/91-215-x/2012000/part-partie2-eng.htm>.
- ⁵ Statistics Canada, *Canada's population estimates: Age and sex*, (September 26, 2014), accessed on November 23, 2015, online: <http://www.statcan.gc.ca/daily-quotidien/140926/dq140926b-eng.htm>
- ⁶ Statistics Canada. *Canadian Survey on Disability 2012*, accessed on November 23, 2015, online: <http://www.statcan.gc.ca/pub/89-654-x/89-654-x2013001-eng.pdf>.
- ⁷ Source: Statistics Canada, *Canadian Survey on Disability 2012: Table 1.1 Prevalence of disability for adults by sex and age group, Canada 2012*, Catalogue no. 89-654-X, (Ottawa: 2013).
- ⁸ Source: Statistics Canada, *Canadian Survey on Disability 2012*, Catalogue no. 89-654-X, (Ottawa: 2013).

- ⁹ Gilles Dufault, Vice-Chairman, Canadian Transportation Agency, *Breaking New Ground in Accessible Travel*, at 4, (Canada: 2004).
- ¹⁰ Council Of Canadians With Disabilities, *Moving Backwards: Canada's State of Transportation Accessibility in an International Context* (February 2005) and United Nations, Government Action on Disability Policy, A Global Survey (Order number: 91-630-5904-5), accessed on November 23, 2015, online: http://www.independentliving.org/standards/UN_Answers/UN.pdf. CBS Capitol Business Solutions, *Comparison of Canadian and U.S. Approaches to Transportation Accessibility*, prepared for the CTA Review (March 16, 2015). Ann Frye Limited, *Comparing Canadian and European Approaches to Transportation Accessibility*, prepared for the CTA Review, (May 26, 2015).
- ¹¹ Sources: Canada: Information gathered in the course of the review, including the Canadian Transportation Agency's website, consultant reports and other publicly available information; United States: CBS Capitol Business Solutions, *Comparison of Canadian and U.S. Approaches to Transportation Accessibility*; and Europe: Ann Frye/Ann Frye Limited, *Comparing Canadian and European Approaches to Transportation Accessibility*.
- ¹² Section 504 of Rehabilitation Act of 1973, as amended, prohibits discrimination on the basis of disabilities in programs and activities receiving Federal financial assistance. While it has some substantive provisions unique to it (e.g. concerning level boarding and kiosk activities of airport operators and highway pedestrian bridges), its main current importance in transportation is as an enforcement mechanism for the substantive provisions of the *Americans with Disabilities Act* (ADA). For example, if a federally-assisted transit provider, ferry system, or intercity railroad fails to comply with its ADA obligations, then the Department of Transportation can investigate and impose the sanction of suspending or withdrawing the federal assistance to the operator.
- ¹³ The *Air Carrier Access Act* prohibits discrimination on the basis of disability in air travel and requires air carriers to accommodate the needs of passengers with disabilities.
- ¹⁴ The national body with oversight over that mode.
- ¹⁵ The principle of "subsidiarity" dictates that decisions should be taken as close as possible to the citizen. National Enforcement Bodies are required to ensure "satisfactory implementation." Ann Frye Limited- *Comparing Canadian and European Approaches to Transportation Accessibility*, at 38.
- ¹⁷ CBS Capitol Business Solutions, *Comparison of Canadian and U.S. Approaches to Transportation Accessibility*. Ann Frye Limited, *Comparing Canadian and European Approaches to Transportation Accessibility*.
- ¹⁸ <https://www.ontario.ca/page/about-accessibility-laws>
- ¹⁹ Sources: CBS Capitol Business Solutions, *Comparison of Canadian and U.S. Approaches to Transportation Accessibility*, and Council Of Canadians With Disabilities, *Moving Backwards: Canada's State of Transportation Accessibility in an International Context*.
- ²⁰ Typically, regulatory amendments take in excess of two years.
- ²¹ See Volume Two, Appendix G, Figure 4 for an example of a scorecard.

Chapter 8: Rail Transport

Chapter 8.1: Freight Rail

While Canada's economy continues to evolve and diversify, its trade in natural resources remains a foundation of our national wealth.¹ Just as trade in these raw materials is long-standing, so too is our reliance on railways to transport them, typically over longer distances than other countries. Railways are the most cost-effective means of transporting heavy bulk goods across long distances inland. Indeed, in most cases, shipping these goods by rail is realistically the only way to move them. Access to reliable and efficient rail service is critical for the economic health and growth of industries, communities, and cities across the country; it is also an important factor for businesses in deciding where to invest. Canada's world-class rail system can therefore be considered among our country's many competitive advantages.

Railways in Canada, once a vital means of transport for passengers, are now almost solely devoted to moving goods within regions, across the country, to marine ports, or across the shared border into the United States. Increasingly, rail traffic includes intermodal containers, either for domestic moves or to move goods between Canada and the United States and markets in Asia or Europe.² In addition to alleviating roadway congestion, the ability to put intermodal containers on rail expands the transportation choices available to shippers.

“While agriculture and grain are critical to Canada’s trade, intermodal inbound and outbound movements of manufactured goods are also critical to Canada’s long-term economic well-being.”

— *Canadian International Freight Forwarders Association. Submission to the CTA Review January 2015*

As well as being a more cost-effective means of moving bulk goods, railways are more energy efficient than road transport and leave a smaller carbon footprint. A 2009 United States Federal Railroad Administration study, for example, found rail to be 1.9 to 5.5 times more fuel efficient than trucking³ over a range of route choices. Like other modes that operate as links in broader supply chains, however, railway performance is affected by the performance of other logistics functions. Delays at any point can also reverberate throughout the rail network, particularly given the difficulty of diverting traffic around blocked or congested sections of track.

Grain transportation by rail was given priority consideration in the terms of reference for the Review, and specific recommendations pertaining to this sector follow. As anticipated in the terms of reference, consultations related to grain transportation by rail also informed the Review's broader consideration of freight rail transportation. Submissions revealed points of convergence among businesses (primarily those from Western Canada) and railways shipping grain and those shipping other goods. The recommendations below reflect rail-related consultations across industry sectors, with rail users, service providers, think-tanks, and governments.

The terms of reference for the freight rail sector were broad; they directed the Review to consider multiple questions, such as the extent to which the national transportation system has the capacity and adaptability that will allow it, and its users, to respond effectively to evolving international and domestic conditions; whether adjustments to the current legislative and policy framework for transportation are required to support Canada's international competitiveness, trade interests, and economic growth and prosperity; how technological innovation can contribute to improvements in transportation infrastructure and services; and how concerns about safety and well-being related to rail transportation (including the movement of dangerous goods) through communities can be addressed. With respect to this latter point, the Lac-Mégantic rail tragedy of 2013 has created a heightened awareness of the need to ensure that appropriate safety measures are in place, and rigorously applied.

History: The last 30 years

Canada's extensive railway network is a historic legacy of considerable economic and social importance.⁴ The Canadian network is integrated into a broader continental system that provides railway customers (typically those shipping goods, or "shippers") with myriad connections throughout the United States and, to a lesser extent, Mexico. While providing more choice for shippers, being able to link more locations increases the value and effectiveness of a railways' network. Increasing the use of these networks, by deploying longer, well-loaded trains, for example, also provides railways with economies of scale and potentially lower unit costs for both railways and shippers.

As with other modes, the rail industry in Canada has been significantly deregulated. A major watershed came with the report of the MacPherson Royal Commission on Transportation in 1961, which took the position that monopoly-based regulation was inappropriate, owing to new sources of competition from the national highway network, inland waterways, and pipelines. The Commission noted that deregulation of the rail sector would permit railways to adapt successfully to the increasingly competitive environment of the day.

Legislation that incorporated the principles proposed by the Royal Commission report was enacted in 1967, with the *National Transportation Act*. It included a formal statement of National Transportation Policy (as does the subsequent *Canada Transportation Act*), and adopted a new structure of railway regulations. This structure relied on market forces to achieve policy goals and outcomes, while setting maximum rates to protect those shippers most exposed to railway market power⁵ (a power derived from the absence of multiple rail competitors in certain parts of the country). It also prohibited the setting of rates that did not compensate railway costs. A comparison of railway profit (as measured by revenue per ton mile) to general prices suggests that shippers generally benefitted from these changes.

Twenty years later, in 1987, the *National Transportation Act* was amended following publication of a white paper by the Minister of Transport, entitled "Freedom to Move." The white paper included proposals to further reform the economic regulation of railways, to better harmonize the regulatory regimes between Canada and the United States and to prevent United States -based railways from gaining a competitive advantage over Canadian railways for trans-border traffic. Substantial deregulation of United States railroads was undertaken five years prior to the white paper's release, with the passage of the *Staggers Rail Act* (1980).

The amended NTA allowed shippers to negotiate a price and a package of services with a railway in a confidential contract, instead of shipping under a published tariff.⁶ As the 2001 report of the first *Canada Transportation Act* (CTA) Review noted, this encouraged competition between railways on service and price. Common carrier obligations⁷ were nevertheless retained in the NTA, meaning that railways would become both contract carriers and common carriers, depending on their arrangement with a shipper, with specific obligations arising in each case.⁸

The changes set a new course and direction for railways in Canada.⁹ Confidential contracts allowed a degree of pricing freedom outside of set tariff rates. Greater commercial freedom helped foster cost savings, productivity gains, lower aggregate rates, and improved railway profitability. In their 1993 report, a commission reviewing the *National Transportation Act* concluded “the withdrawal of government from direct management of the transportation section, and from the business of balancing economic interest through regulation, is a timely and appropriate policy.”¹⁰ Notably, the report was followed two years later with the privatization of the Canadian National Railway (CN).¹¹

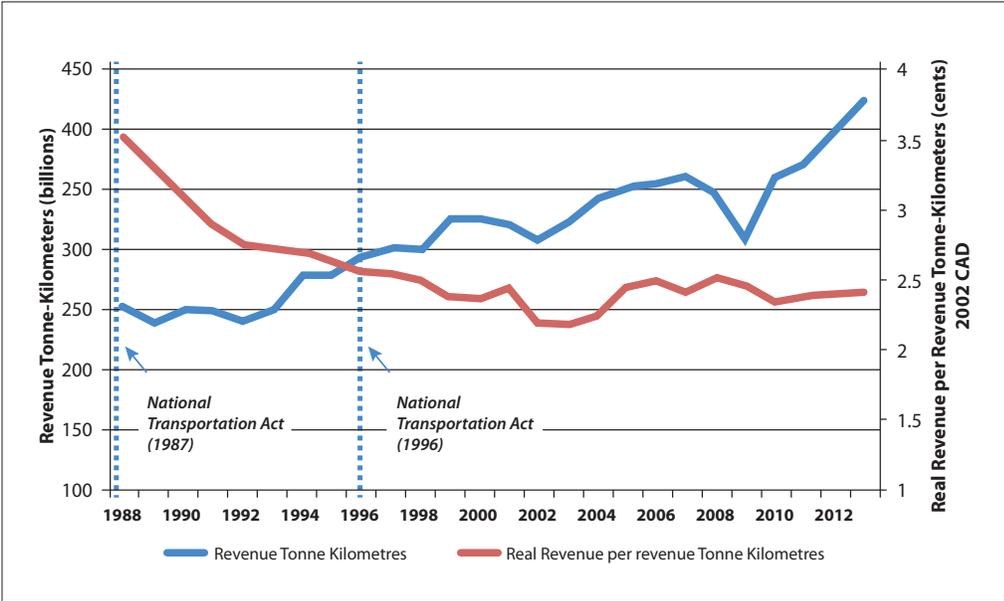


FIGURE 1 — RAIL WORKLOAD (AS MEASURED IN REVENUE TONNE-KILOMETRES) AND OVERALL YIELD (AS MEASURED IN REVENUE PER REVENUE TONNE-KILOMETRE), 1988 TO 2012¹²

Passage of the *Canada Transportation Act* (the Act) in 1996 saw the consolidation and revision of the *National Transportation Act* with the *Railway Act*. Among the more significant rail-related changes were the introduction of a simplified process for branch line discontinuance,¹³ the elimination of freight rate subsidies, and a reduced role for the newly renamed regulatory body, the Canadian Transportation Agency (the Agency). The first review of the Act took place over 2000 and 2001, and found that, in general, the freight rail system was working well for most users most of the time.

The 2000-2001 CTA Review Panel’s mandate included a requirement to consider proposals for enhancing competition in the railway sector. Though there was a push in some parts of the country for “open access” to railway lines, the report did not endorse this approach. Instead, it offered guidance on how the competitive access provisions of the CTA—including running rights, competitive line rates, and interswitching—could be revised. The Panel also made proposals about how shipper protections within the CTA could be improved.

Subsequent amendments of the Act in 2007 and 2008¹⁴ adopted a number of these changes. To this day, however, provisions allowing for more open access to a railway's network, through regulated running rights and competitive line rates, are seldom if ever used.¹⁵ Research undertaken since the Report's release has raised questions about their efficacy as tools to increase intra-modal competition, and have generally concluded that the associated costs outweigh the perceived benefits.¹⁶

The changes introduced in 2007 and 2008 had the effect of expanding the role of the federal government in the railway-shipper dynamic. The amended Act included new options for mediation, introduced final offer arbitration (FOA) for groups of shippers, and expanded Agency powers to investigate and provide remedies related to incidental charges. The amendments also lifted the requirement that an applicant for rate or service relief prove they would suffer "substantial commercial harm" if relief were not granted. In 2008, the Minister of Transport also committed to undertake a review of railway service,¹⁷ which culminated in a federal Rail Freight Service Review. The report, submitted in January 2011, ultimately led to further Act amendments¹⁸ that required a railway to offer a shipper a Service Level Agreement (SLA)—a form of a confidential contract—upon request. Where both parties were unable to agree on terms, a shipper would also be able to apply to the Agency to establish these terms through arbitration.

This last change was particularly significant, in that it placed in the hands of an arbitrator the authority to impose level of service requirements on a railway for a given shipper. This power was balanced in legislation by the requirement that arbitrators take account of, among other factors, a railway's obligations to other customers. However, railways have questioned the arbitrators' ability to do so, given the complexity of rail networks and traffic management. There is no requirement that Agency appointed arbitrators be rail experts, and despite their expertise, neither Transport Canada nor the Agency has the means to model the effects of adding incremental traffic to a railway's network—a potential outcome of imposing level-of-service requirements. The implication was that a railway would be responsible for adapting to any new service requirements while also maintaining its obligations to other customers.

Efforts to help railways and their customers negotiate a Service Level Agreement, while minimizing the need for arbitration, was initiated by a federal facilitator, Mr. James Dinning, in 2011. This took place after the release of the final report of the Rail Freight Service Review that was launched in 2008. Dinning's final report (released in 2012) included a Service Level Agreement template, and a process for commercial dispute resolution¹⁹. Although progress toward a stronger commercial service agreement was made, the process reached an impasse and no consensus was reached by the Stakeholder Facilitation Committee.²⁰

The last paragraph of Dinning's report provides a concise assessment of where railways and their customers have ended up after more than 40 years of regulatory evolution:

Railways and other stakeholders in the rail-based supply chain need to work together to innovate and make improvements in the functioning of the rail transportation system to keep ahead of our competitors. The participants in rail transportation systems need to "up their game" to be successful in highly competitive

world markets. Commercial tools such as service agreements with cost effective dispute resolution mechanisms have opened up the possibilities. Government can help create the environment to move forward but it is up to industry to take it to the next level.

That both parties have reached this point and prospered owes much to the path they were put on when government stepped back from the industry. Railways have become highly productive and self-sufficient, earning enough return to reinvest and grow. Since the last Review ended in 2001, a number of major developments have influenced the outcomes referred to by Dinning. These include the heightened expectations of efficiency in integrated logistics systems to support supply chains; the greater role of information and computerized systems; the increase in the volume of rail traffic close to capacity; and the fact that railways are now profitable. In addition, both CN and CP have adopted lean production principles²¹, characterized by the reduction of idle capacity within their networks, the shedding of unproductive assets, and the systematic drive for more efficient operational practices designed to eliminate inconsistent variations in the flow of traffic.

Finding a way to reconcile competing pressures between railways and shippers has been difficult. Despite progress and a number of changes introduced over the last decade and in the 2014 *Fair Rail for Grain Farmers Act*, proposals submitted to the Review continue to highlight disparate views about how best to improve the economic regulation of railways in order to strengthen Canada's long-term global competitiveness.

Making Connections: Where we are today

Today, railways in Canada play a crucial role in supporting and strengthening business competitiveness, trade, economic growth, and prosperity. In 2012, railways employed a total of 33,646 people and contributed \$6.6 billion to Canada's GDP.²²

Approximately \$280 billion worth of Canadian goods was delivered to domestic and international markets by rail in 2014; the value of international trade traffic by rail increased by more than 7 percent from the previous year, with rail exports of \$80.4 billion and rail imports of \$45.8 billion. The majority of these trade flows have been north-south, with access to United States population centres vital for growth. However, there is bound to be expansion along the east-west axis as well, given the rising middle class in the Asia-Pacific region.

There are similarities between railways in Canada and the United States, including the private ownership of infrastructure vertically integrated with rail operations (where railways both own the physical infrastructure and provide services to shippers). In some cases, these similarities provide a basis for comparing public policy approaches to economic regulation and related outcomes.²³ Operational similarities also provide for industry-level cooperation, such as agreements between Canadian and United States railways that allow for the sharing of assets.²⁴ Competition for traffic and resources among these railways is nevertheless evident.

After a wave of consolidation in the 1980s and 1990s, seven large rail companies²⁵ now account for the majority of North American freight traffic, including CN, CP, and their United States-based subsidiaries. There is also a range of smaller railway companies that

provide service to industries, regional economies, and larger rail operators. As in the United States, railway companies in Canada are private corporations responsible for their own capital and operational needs. They play an important role in achieving national public policy objectives, such as helping businesses seize new opportunities arising from more liberalized international trade relationships.²⁶ Since at least 2006, average freight rates²⁷ in Canada and the United States are among the lowest in the world and have been recognized as among the best.²⁸

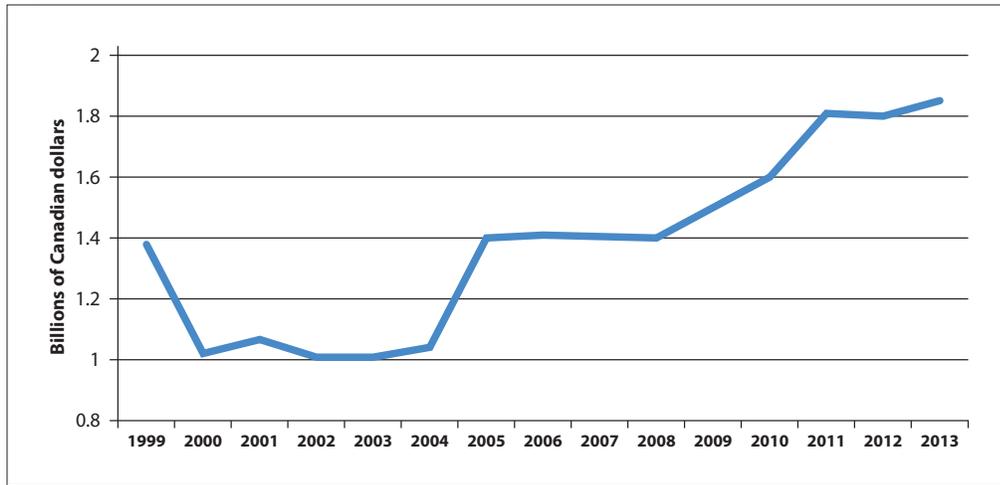
“[E]xcept for concern with the occurrence of train accidents, Canadians in general do not especially connect with freight rail, recognize its significant contribution to the national economy, or know that the industry is world class.”

— *Malcolm Cairns Research and Consulting Submission to the CTA Review*
December 29, 2014

Railway revenues accrue from charges to rail customers. Decisions about rate setting (prices) and services (output) are constrained by market forces and legislative or regulatory obligations. Rates are set above variable costs so that railways can recover their high fixed and common costs, and contribute to capital investments in physical assets and technology. Research provided to the Review²⁹ indicates that while, in some countries, railways set rates in order to recover variable costs only, these cases are often associated with higher tariffs and public subsidy of rail operations.

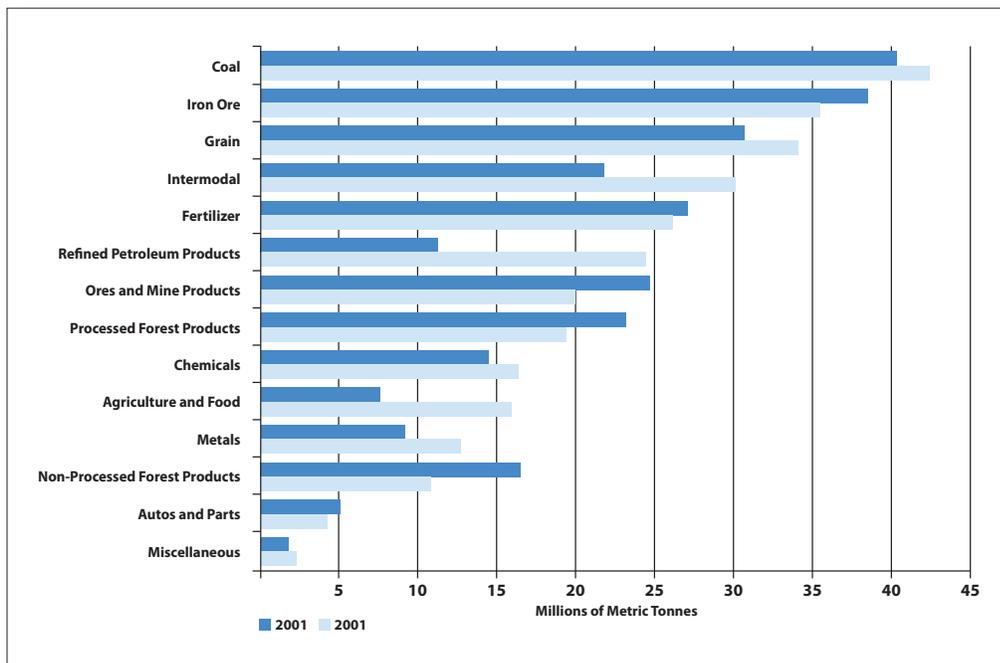
The Review met with various stakeholders, the majority of whom recognized that railway reinvestment is required to grow and maintain safe operations. An industry organization in Vancouver³⁰ noted, for example, that “[m]uch more investment in the rail system is required to address forecasted growth. We believe that rail capacity will be our greatest challenge.” While capital markets provide financing for capacity investments, it is based on investor assessment of the quality of railway operational earnings, management, and other risks. Railway decisions about how and where to invest are considered against demand forecasts and anticipated returns—some rail assets (such as track) are largely immobile and so include a large proportion of sunk costs. Collectively, North American railways have invested nearly half a trillion dollars in their infrastructure and operations over the past 30 years.³¹ On their own, Canada’s two largest carriers, CN and CP, have themselves invested on average nearly \$1.4 billion yearly over the past 15 years in capital projects alone—that is, nearly \$21 billion between 1999 and 2013.

Though relationships between railways and rail customers have become more commercially based over the years, the federal government continues to be involved in many facets of the railway sector. Transport Canada is responsible for federal economic policy for railways and for overseeing railway safety, security, and environmental performance,³² and the Canadian Transportation Agency acts as primary economic regulator.³³ The role of the Agency and the presence of economic regulation is long-standing, and today attempts to guide outcomes that cannot be achieved satisfactorily by competition and market forces.³⁴ The Agency’s responsibilities for rail are akin to those of the Surface Transportation Board in the United States, although the two organizations discharge them differently.³⁵



**FIGURE 2 —
CAPITAL
EXPENDITURES OF
CANADIAN RAILWAYS
ON CANADIAN
OPERATIONS, 1999
TO 2013**

The volume of freight on railway networks has increased since 2001, but growth has not been uniform across all industries. Significant increases were evident in the volume of refined petroleum products travelling by rail and in intermodal traffic, linked to growth in imported marine containers and growth in domestic intermodal service. Significant gains were also evident in grains and agriculture and food products, linked to a host of factors outlined in the following chapter. These gains were moderated by lower volumes of forest products, iron and other metal ores, and automobiles and automotive parts. With the caveat that it may not capture changes occurring year-over-year, Figure 3 below highlights the types of goods that today travel most frequently on Canada's rail network.



**FIGURE 3 —
COMPARISON OF
TOTAL LOADINGS,
2001 AND 2013³⁶**

While Canada's two main railway companies account for a majority of the traffic outlined above, short line railways play an increasingly important role. As a segment of the rail industry in Canada, they have grown substantially since the *Canada Transportation Act* was first enacted, from 12 in 1996 to 60³⁷ today. Their growth has mostly been as a

consequence of efforts by CN and CP to shed unprofitable branch lines. Transferring ownership to short line operators, however, has provided businesses located on these rail lines with continued rail access. They are a mix of federally and provincially regulated entities.³⁸

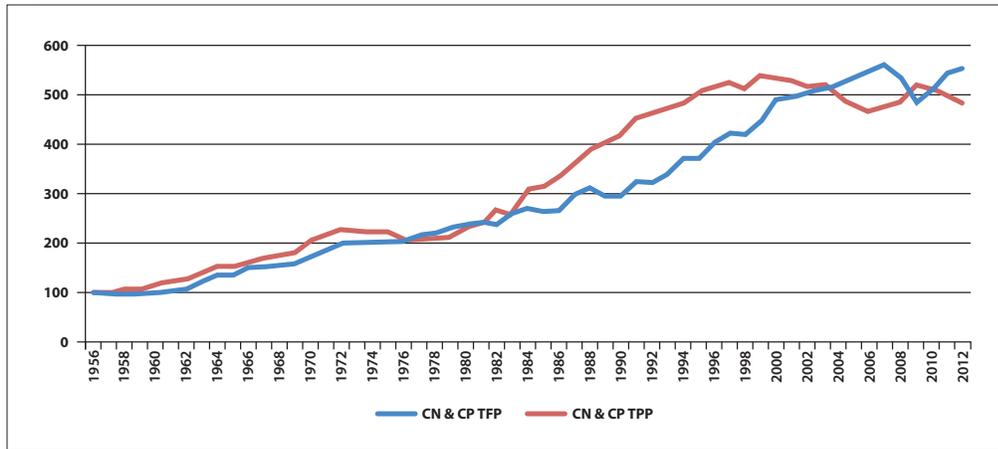
Collectively, shortlines today account for roughly 11 percent of Canada's rail network, with total operating revenues of \$930 million in 2013.³⁹ Almost three-quarters of their traffic base is composed of natural resources and heavy manufacturing; the remainder includes fuel and chemicals, manufactured goods and autos, forest and paper products, and agricultural and food products. Shortlines generally originate cargo⁴⁰ and depend on Class 1 railways for empty railcars to load and serve distinct regional needs. Many face financial pressures associated with regulatory compliance, adoption of new technologies, and capital reinvestment.

A common measure of a railway company's financial performance is its *operating ratio*, meaning its operating expenses as a percentage of total revenues. The ratio provides a quick snapshot of financial performance and, indirectly, of a railway's ability to attract private capital in order to grow. Between 2001 and 2014, CN's operating ratio has declined from 68.5 percent to 61.9 percent, while CP's has dropped from 77.3 percent in 2001 to 64.7 percent in 2014.⁴¹ While not a definitive assessment of corporate health, they point to the fact that Canada's two major railways are on stronger financial footing today than they were during the last CTA Review. By contrast, the operating ratio of short line railways in Canada averaged 89 percent over the period from 2000 to 2013.⁴²

Among the large North American rail operators, these ratios have decreased since the last Review, largely as a result of three main trends in railway operations:

- Reducing costs and increasing efficiency by, for example, reducing duplication in networks, selling branch lines, and reducing the size of the workforce;
- Hauling more cargo and a different traffic mix—including more containerized traffic and, more recently, crude oil—and increasing revenues;
- Improving performance by increasing a train's weight, length and/or velocity, maximizing the use of available capacity, and retiring aging and inefficient equipment, among other adjustments.

In their drive to earn sufficient revenues to reinvest, improve performance, and strengthen their competitive position, railways in Canada and the United States have sought to optimize their operations across networks (akin to providing a bus service as opposed to a taxi service, one railway argued), rather than optimize their operations to meet the specific needs of individual shippers. Though benefits have accrued to railways and shippers alike, the elimination of excess capacity in their operations (which formerly provided a buffer to help manage short-term constraints) has also affected their ability to respond to unexpected or unplanned events.⁴³



**FIGURE 4 —
CANADIAN CLASS 1
PRODUCTIVITY,
AS MEASURED BY
TOTAL FACTOR
PRODUCTIVITY (TFP)
AND TOTAL PRICE
PRODUCTIVITY (TFP),
1956 TO 2012⁴⁴**

This drive for efficiency and optimization has resulted in productivity gains.⁴⁵ Some of the benefits have been passed on to rail customers—for example, by controlling the impact of rising input costs on rates. Though railways have significant pricing freedom in Canada (relative to the United States, for example, where the Surface Transportation Board sets a statutory threshold), and possess greater market information relative to shippers (on rates and commercial activities), the Act can provide an FOA remedy on rates and conditions of service for shippers, along with access to regulated interswitching. These are particularly important for those captive shippers who rely on railway service to remain in business, but are served by only one railway company. The fact that some traffic is contestable by other transportation providers⁴⁶ (for example, some facilities are located near two or more competing railways, and it would be reasonable to expect some traffic to travel by truck) also acts to curb pricing freedom.

A question of service

In general, there have been few concerns expressed to the Review about rates charged by railways. Access to FOA and interswitching remedies are long-standing, and although several changes have been proposed in this report, these remedies are generally considered to function well. Rate concerns have related primarily to the movement of dangerous goods: shippers have suggested that the rates they are charged incorporate an excessive risk premium, considering the standards and practices dangerous goods producers have implemented to ensure safe loading, transport, means of containment, and regulatory compliance. They have also noted that few product alternatives exist and that transport by rail is the safest means to satisfy consumer and societal needs.

The majority of comments received by the Review concern railway service and performance, since there is disagreement among shippers and railways about what obligations the level of services provisions in the Act⁴⁷ impose on railways, and how these should be met. In part, this arises from the use of language that is open to interpretation, namely that a railway must provide “adequate and suitable accommodation” for a customer’s needs.⁴⁸ It was suggested to the Review that the use of this language is intended to recognize that rail customers do not all fit the same mold, but have different characteristics; determining whether “adequate and suitable accommodation” was made should therefore be considered on a case-by-case basis.

“WCSC believes that the level of service provisions should be strengthened to clarify that a railway company must fulfil its service obligations in a manner that meets the shipper’s rail transportation requirements.”

— *Western Canadian Shippers Coalition Submission to the CTA Review*
December 2014

Many rail customers have urged the Review to recommend that the level of services provisions be amended to clarify that these obligations must be met according to the needs of shippers. However, a recent decision of the Canadian Transportation Agency⁴⁹ emphasizes that these provisions are already given fair, large, and liberal construction and are interpreted in such a way as to ensure attainment of the same levels of service that market forces would set.⁵⁰ Further, the decision notes that “the Agency’s powers under section 116 of the Act are broad enough to authorize the Agency to make orders affecting practically all aspects of a railway company’s business and operations where necessary to remedy a breach of its level of service obligations.”⁵¹ Importantly however, these powers are not exercised unless a complaint has been received by a shipper and a level of service proceeding is initiated. That said, over the course of the Review, the Agency remedy was seen as time-consuming, expensive, and after-the-fact, meaning that the true lost value of a service failure could never be recovered through financial or service compensation.

“[A]s each service level arbitration is specific to a single shipper, an arbitrator has the power to impose a specific train service for that specific shipper regardless of the network and supply chain consequences, a clear example of misplaced decision-making.”

— *CN Submission to the CTA Review*
March 2015

Railways have advocated that the service provided to all customers, rather than to customers individually, should be taken into consideration when interpreting their service obligations. Jurisprudence and legal precedents,⁵² they say, indicate that a railway must make reasonable efforts to meet service demands—that their duty is not to furnish cars at all times sufficient to meet all demands. Further, they have argued that optimizing service for one customer at a time may adversely affect other users and undermine the service design that has been developed for the benefit of all customers.

In a 2014 decision,⁵³ the Agency examined the legislative history and purpose of the level of service provisions in the Act, how they have been interpreted by the courts, and the Agency’s role in the application of the provisions. To evaluate the level of service application, the Agency developed a new test based on three questions, namely:

- Was the shipper’s request reasonable?
- Did the railway company fulfil this request?
- If not, are there reasons that could justify the service failure?

In reaching their decision, the Agency found that the railway (CN) had not fulfilled the terms of its contract with the shipper (Louis Dreyfus Commodities Canada). It found that the contract provided guidance on the remedy, and issued an order directing CN to undertake specific actions as a result. Though the decision is currently on appeal, the proceedings highlight the fact that the Agency is restricted to providing solutions particular to the individual shipper and individual railway only. Level of service proceedings are not designed to take account of the broader impacts of an Agency decision on a railway's service to other shippers.

A railway's obligation to accept all traffic offered for transportation according to defined statutory terms of service (referred to as a common carrier obligation) has been a feature of Canadian transportation legislation since at least the 1909 *Railway Act*. The competitive landscape around these provisions, however, has changed substantially since they were first established. In an investigation into the broader question of whether the common carrier obligation (which is commonly equated with the level of service provisions of the Act) continues to be relevant,⁵⁴ Bruce Doern comments that:

... the common carrier concept is now simply a residual unmentioned concept and that service levels are used to define something that is no longer mentioned as a principle. It makes little practical sense unless all parties recognize publicly that the new North American model of system interrelationships among capacity, congestion, system optimization and levels of service is the overriding feature of Canadian freight rail transportation.

This raises the question of whether the Agency's responsibility to examine applications for level of service relief, as it does today, can necessarily deliver the best possible outcomes for national prosperity, or whether it merely creates winners and losers, at least in the short run. The Review examines this question more broadly in the following chapters.

Though the Review has received many proposed amendments to rail-related provisions in the Act, calls for change have not been universal across all sectors, nor have they been limited to firms of a specific size. Concerns have been raised most prominently among bulk shippers (of all sizes), rather than those shipping goods by intermodal containers. There is likely a range of factors at play, but containers have notably shown the highest level of growth among all cargo types; the Association of American Railroads notes, for example, that intermodal was the largest single source of railway revenue in 2014.⁵⁵

This fact was underlined in a comment by CP CEO Hunter Harrison in a March 2014 *Globe and Mail* article, when railways were digging out of the effects of an extreme winter: "Mr. Harrison highlighted the different service levels demanded by the various sectors the railway handles. He said bulk shipments of coal, potash, and grain have been 'modestly' affected by the severe winter [of 2013/14], even though 'some people in Ottawa or a farmer would disagree.' But domestic intermodal traffic—moving the containers that move to and from ships—has held up 'very well. . . . Because that's one commodity that we're sensitive to,' Mr. Harrison said. 'If you miss, you miss. It's not like grain or it's not like coal, [where] if you're a little bit late you're still going to haul it. If that [intermodal] trailer comes in Friday night and you're not able to handle it, it's probably not going to be there Monday.'" ⁵⁶

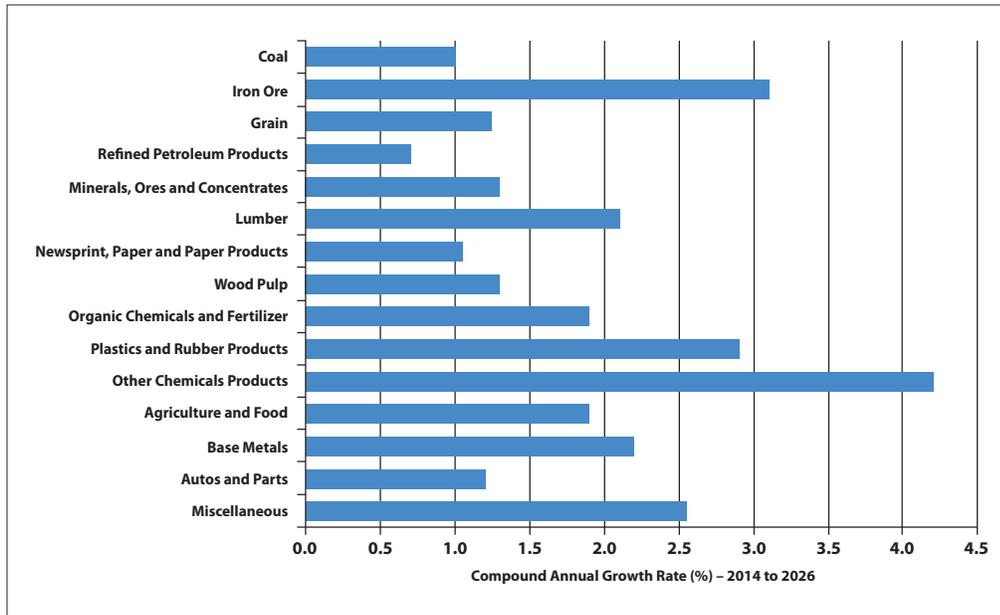
Like all elements of transportation today, Mr. Harrison's comments cannot be considered in isolation. There are public benefits that accrue from railways earning sufficient revenues to allow for investment and the adoption of technologies or innovations that improve safety, productivity, and environmental performance. But as all companies are exposed to the same global pressures to deliver reliable and predictable service, any preference for one customer or cargo-type over another can compromise the competitive position of other shippers and, potentially, the economy as a whole.

Where we need to be in 20 to 30 years

Railways will continue play a crucial role in supporting economic growth across the country. Though the composition of traffic travelling by rail is unlikely to change dramatically in the future, continuous improvement in how railways, their customers, and supply chain partners coordinate and align investments and operations will help strengthen Canada's competitiveness and ability to adapt to global market demands.

In a 2013 White Paper on railway efficiency,⁵⁷ the International Transport Forum acknowledges that, particularly in financially-constrained times, governments have an interest in ensuring railway systems deliver the best possible return on invested capital. In Canada, this challenge is left to individual railway operators. For its part, Transport Canada has focused on railway efficiency by measuring the average time required to transport goods between two cities (for example, from Vancouver to Toronto), along with the variability around this average time.⁵⁸ This approach reflects business imperatives that are not likely to disappear, as manufacturers, retailers, natural resource, and agricultural industries seek to reduce the total landed cost of their products and their ability to ensure on-time delivery.

Beyond efficiency, there is also a need to consider broader issues that will shape railways in Canada over the next 20 to 30 years. More frequent or intense weather events, such as extreme winter cold in Canada, will challenge the railways' ability to adapt and recover. More liberalized trade and investment arrangements will create new opportunities, but within an intensely competitive global marketplace. Pressures on whole supply chains, on a sector-by-sector basis, will mean that success is based on all parties working together to meet customer demands. Business and financial pressures will lead overall supply chain capacity to expand only when market signals support investment. Technological developments will give rise to innovations that create both new competitive advantages and threats. And, absent any changes, railways will likely continue to operate at or near capacity, with minimal buffers for unexpected demand.



**FIGURE 5 —
FORECASTED GROWTH
RATES OF CANADIAN
EXPORTS, 2014 TO
2026⁵⁹**

The demands placed on railways by their customers will also evolve over the coming 20 to 30 years. Businesses will increasingly require access to real-time data and make greater use of global social networks. They will want to be able to track their shipments on mobile devices, which will provide instant alerts of traffic disruptions or schedule changes. Shippers will seek end-to-end solutions for transport that minimize costs and maximize reliability and predictability. And Canada’s major population centres will continue to grow and densify, affecting how freight travels through and within these regions.

There is significant scope for railways, their customers, and other supply chain partners to work together to seize opportunities and create solutions that benefit all players. At times, governments will have an important public interest role to play. The Review offers recommendations that turn all these pressures and possibilities to our advantage.

Recognizing railway’s role in achieving national economic outcomes

The *Canada Transportation Act* begins with a National Transportation Policy declaration that affirms key public policy principles guiding the economic regulation of Canada’s transportation system. It states, in part, that “a competitive, economic and efficient national transportation system that.. makes the best use of all modes of transportation at the lowest total cost is essential to serve the needs of users, advance the well-being of Canadians and enable competitiveness and economic growth . . . throughout Canada.”

This declaration has been revised several times since it was first inserted in the *National Transportation Act* in 1967, although it has continued to be anchored to core principles of competition and economic growth. Changes such as those related to safety, regional development, accessibility, and the environment have acknowledged how the public interest in transportation, or the role that transportation plays in our lives, has evolved over time.

Today, the link between transportation efficiency and Canada’s ability to compete in global markets is clear. Transportation costs, for example, often represent a more significant hurdle to expanded trade than costs associated with international tariffs or related barriers.

This is true for primary natural resource and agriculture producers and their value-added industries, whose competitiveness and ability to grow are built around access to rail services and supply chain efficiency.

To this end, a number of stakeholders have proposed that language be incorporated into the Policy Statement to recognize that Canada is a trading nation in which transportation is vital to the country's social and economic well-being. In general, they advocate that the *Canada Transportation Act* adopt a more global perspective. In relation to the economic regulation of railways, amendments to the National Policy Statement to incorporate this perspective would signal that Transport Canada and the Agency must consider how railway supply chains enable or detract from Canada's economic and competitive position nationally and internationally.

To make this shift, the Agency would need a good understanding of what constitutes the entirety of railway supply chains, including both the federally and provincially regulated railways and the broader integrated network with the United States. A chain is as strong as its weakest link and each link in this particular chain can have an impact on total network efficiency, performance, and output.

This proposal would strengthen the connection between federal and provincial bodies responsible for policy and regulatory oversight of the rail industry. When considering the long-term health of railways in Canada and of those businesses dependent on rail service, closer federal-provincial cooperation would also provide a platform to assess rail connectivity within other modes or logistics activities, areas where jurisdictional boundaries sometimes overlap.

In short, closer federal-provincial cooperation on rail matters would be advantageous. In order to meet future demands, the physical footprint of Canada's rail network will need to change, adapt, and grow. Ensuring that future constraints are identified, risks to growth mitigated, and the right infrastructure is put in the right place at the right time will require disciplined, long-term planning and decision making by all involved stakeholders.

1. In order to deepen railway interconnectivity in Canada and foster a multi-jurisdictional approach to future rail expansion, the Review recommends that:

- a. the National Transportation Policy declaration in section 5 of the *Canada Transportation Act* be amended to include more explicit recognition of the importance of transportation to international trade and our ability to compete in global markets.
- b. Transport Canada formalize in policy the concept of a National Freight Rail System, inclusive of all interconnected railways in Canada;
- c. Transport Canada, through an Advisory Committee on Transportation and Logistics, identify and designate, or set aside, land required for railway expansion within the National Transportation System. Priority consideration should be given to rail network bottlenecks in supply chain systems and major points of cargo consolidation or distribution, such as those around marine or inland ports.

Improving the competitiveness of Canada's investment climate for rail

Over the course of the Review there has been universal recognition that, in order to meet future service and safety demands, investment in the assets that underpin railway networks will be required. For railway companies, these will fall into three main categories: rolling stock, fixed physical assets, and rail technologies. Some decisions may be linked to regulatory compliance; others will be discretionary and based on a business-case assessment.

“The transportation system is already constrained and any increase in demand will have a significant ripple effect on the level of congestion throughout the system, including at Canada’s ports and border crossings.”

— *Forest Products Association of Canada Submission to the CTA Review*
December 2014

Along with adding new productive capacity, new capital investments also offer potential for productivity growth. Improvements in railcar design, locomotive power and efficiency, and track design,⁶⁰ for example, all help grow capacity and output (the volume of freight carried) within the same physical rail footprint. The long life cycle of railway assets also means, however, that investments can be “lumpy”—they assist railways to derive maximum advantage from existing assets, building new on top of old, but they don’t necessarily capture all the productivity improvements that could or should be implemented.

Capital investment is also linked to the adoption and diffusion of new technologies—another potential source of productivity improvement, often with collateral benefits in terms of environmental and safety performance. Examples include advances in track wayside detectors, which relay information to operators on rolling stock in real time, helping to prevent damage and accidents before they occur, or new traffic management systems, which help planners to model and optimize train flows and improve operational, service, and safety performance. And while benefits from these investments accrue to the initial investor, the development and use of the technologies provide systematic and ancillary benefits to shippers and the broader community.

However, relative to their United States-based competitors, railway operators in Canada face a higher effective cost of capital investment; allowances to depreciate capital cost in the United States are as much as five times higher for a given class of asset. To the extent that this strengthens the business case for investing outside of Canada, it creates the risk that railways in Canada will not be able to maintain the same pace of capital investment as its competitors in the United States, which, over time, would have repercussions beyond those associated with a supply chain for a given commodity; multiple users and multiple commodities would be affected. Increasing the capital cost allowance (CCA) rates in Canada to levels similar to those in the United States would strengthen the business case for investing here, and so help to moderate this risk.⁶¹

Though beneficial, higher CCA rates alone would not address the fact that short line railways have challenges in raising sufficient revenue for investment. They do not have the same economies of scale or density as their larger partners. They have also retained service on tracks that generally received little investment from their previous owners. In the United States, the federal government has instituted a *45G Short Line Railroad Tax Credit Program* to help the short line industry overcome similar challenges. This leverages private investment by allowing for a tax credit of 50 cents for every dollar spent on track improvements, up to a cap of \$3,500 per mile of track. It also includes an assignment provision, where tax credits can be assigned to a shipper or contractor, who then pays 90 to 95 cents on every dollar of tax credit back to the short line. The American Short Line and Regional Railroad Association view this as the most effective federal program to stimulate investment in short line infrastructure.

Currently, the *Income Tax Act* and its regulations prescribe CCA rates for six different types of railway assets: locomotives, railcars, track, ballast, suspension devices, and traffic control or signaling equipment. To the extent that all are vital to the effective functioning of the railway network as a whole, stakeholders have questioned whether such divisions are necessary. In response, the Review recommends that these categories be consolidated into fewer groupings, as outlined below.

Railways do not, however, bear sole responsibility for capital costs in railway networks. Rail customers and transload facilities are also required to invest in similar classes of assets in order to move their goods, load or unload railcars, or manage related traffic needs efficiently. These may include, for example, machines that allow shippers to load bulk commodities into intermodal containers—such investment would increase ongoing or surge capacity for some commodity types, while helping to better balance the flow of loaded containers to and from marine ports. In aggregate, performance gains across such facilities will also strengthen rail network capacity and overall competitiveness. And to the degree that investments by all parties in the rail logistics chain strengthen the buffers that absorb surges or constraints in traffic flow, investment adds flexibility and adaptability to rail-based supply chains.

2. Recognizing that investment will be required to meet future rail transportation demands, the Review recommends the following changes to the *Income Tax Act* or its regulations in order to ensure the incentives are in place to support growth and Canada’s long-term competitiveness:

- a. Reducing the number of railway asset categories to three, grouping together (1) rolling stock (including locomotives and railcars), (2) fixed physical assets (track, ballast, bridges), and (3) technological assets (including traffic control or signaling equipment, and other technologies that reduce the industries’ environmental footprint); and
 - i. increasing the capital cost allowance of category 1, rail rolling stock, on a permanent basis, to levels comparable to those in the United States; and
 - ii. increasing the capital cost allowance for a period of five years for categories 2 and 3, fixed physical and technological assets, to levels comparable to those in the United States; following this period, and prior to considering more permanent changes, conducting an evaluation to assess whether the changes were successful in increasing investment.

- b. Increasing the CCA rates for a period of five years for loading- or unloading-related capital investments for rail customers and transload facilities, including storage, warehousing, and track investments; this too would be followed by an evaluation, prior to considering more permanent changes, to assess whether the rate hikes were successful in increasing investment;
- c. Implementing a tax-credit program for non-Class 1 railway operators to offset the costs of track rehabilitation, similar to the *45G Short line Railroad Track Credit Program* in the United States.

Acknowledging the importance of Canada's integrated rail network

Short line railways are important components of Canada's national rail network. They account for one in five railcar loads originating on Canadian railways and in some cases they also provide passenger transport and resupply to remote communities.⁶² They enable goods trade for large and small shippers alike, and ensure businesses located along divested branch lines have ongoing access to rail transportation. Use of shortlines for distribution and consolidation also helps to moderate congestion and other road-related problems associated with higher volumes of freight transported by trucks.

“As provincially-regulated railways are increasing in number, it would be appropriate to ensure they are recognized within the system and an effective and efficient mechanism is in place to deal with inter-jurisdictional issues involving connections, running rights, service levels, interchanges and inter-switching rates.”

— *Government of Saskatchewan Submission to the CTA Review*
April 27, 2015

There are a variety of short line railways across Canada of different sizes, operating models, and with different ownership structures. Approximately forty, out of the total of sixty, are provincially regulated, while twenty are regulated by the federal government. Most feed traffic into main line railway networks (with the exception of the Hudson's Bay Railway, which terminates at the Port of Churchill, and those operating in northern Québec and Labrador that terminate at the St. Lawrence River ports of Sept-Îles or Port Cartier, Québec), and rely on these operators for empty cars to load. Most operate on lower-density lines and therefore lack the same degree of traffic concentration that underpins the viability of the larger operators.

Given that many have taken over the legacy parts of Class 1 networks, infrastructure reinvestment is needed if they are to remain viable over the long term. Though higher CCA rates would provide an incentive to invest or expand, thin profit margins, limited ability to raise capital, and competing pressures for maintenance and ensuring compliance with safety regulation means that making headway will be difficult. One short line indicated, for example, that upgrading a two-mile section of track cost \$1 million; another reported that upgrading track was in the range of \$1 million per mile.

In the United States, the short line rail industry is supported through a variety of programs. At the federal level, these include funding for railway-highway grade crossings (covering 90–100 percent of project costs) and the *Transportation Investment Generating Economic Recovery (TIGER)* program, where grants to shortlines have averaged roughly \$9 million. Federal long-term financing is available under a rehabilitation and improvement program, where \$7 billion is reserved for loan and loan-guarantees for non-Class 1 carriers. In addition, more than half of the United States states have rail and short line grant and other financial support programs, including those to improve, modernize, or repair privately owned lines, improve industrial access, or improve grade crossings and safety. Parties in the industry and the shipper community in Canada have called for similar types of support to enhance productivity and expand service choices for their customers.

Federal cost-shared infrastructure project funding is available to shortlines under the *New Building Canada Plan*, although no short line has successfully concluded a funding arrangement to date. Federal funding is also available for federally regulated shortlines under Transport Canada's Grade Crossing Improvement Fund. Provincially, Saskatchewan is the only province currently providing financial support for short line infrastructure. This program is available to the province's 14 privately owned short line railways, with funding historically in the range of \$35,000 to \$200,000 per project since 2008.

Financial weakness among many short line operators also affects those who depend on their services. Stakeholders submissions note that the lack of investment translates into lost revenues for shortlines and the customers they serve; it reduces their connectivity with Class 1 operators and limits their ability to handle larger or heavier car blocks, or to provide ancillary services (such as switching).

Changes to insurance requirements introduced in 2015 were another common theme in our consultations. Although they recognize the need to ensure that third parties are fully compensated in the event of an accident, a number of short line operators were concerned about the impact that higher insurance premiums—where expanded insurance coverage was even available—would have on their ability to invest elsewhere, or to continue operating.

In this context, the Review outlines an approach below for reinvesting in the short line sector. Our recommendation provides the means to strengthen connectivity within the national freight rail system and ensure service can be extended to those who rely on it. It also enables shortlines railways to earn revenues sufficient for investment elsewhere in their operations (such as more fuel-efficient locomotives). A more connected, efficient, and sustainable shortline sector may, in turn, encourage additional private capital flows into the sector, and into the businesses that it serves.

3. Recognizing that short line railways serve an important function in Canada's national rail network and support resource and manufacturing industries, along with remote communities, the Review recommends:

- a. modifying eligibility criteria for federal infrastructure programs to allow short line railways to apply for funding directly, without a government sponsor;
- b. creating a federal-provincial short line infrastructure program in order to support (through contributions, grants, or low-cost, long-term financing) capital infrastructure investments.

Building knowledge and capacity to support fairness and commercial performance

Over the course of the Review, data has emerged as a central, cross-cutting theme. In the freight rail context, shippers have advocated for more visibility and transparency about rail operations, costing, and performance. Many see the absence of better information and reliable data as a root cause of many of the problems they experience and have relayed to the Review. Railways have noted, however, that in addition to publishing financial and operational data, they also provide data regularly to a range of government organizations, including Transport Canada, Statistics Canada, and the Canadian Transportation Agency. The problem may not only be a lack of data, but how existing data can best be used and turned into actionable information.

“Collecting and publishing railway data, as is permitted under sections 50 and 51 of the Canada Transportation Act and is already done to some degree for the agriculture sector, would not only enhance transparency in the transportation system, but may also improve relations between shippers and transportation service providers, avoid unnecessary and costly disputes, and provide government with the tools necessary to identify, assess, and resolve existing challenges.”

— *Coalition of Rail Shippers Submission to the CTA Review*
April 2015

Despite the range of data collected, many key questions about freight railways and their networks, along with how they interact with the supply chains that they support, appear to be unanswered.⁶³ Making public policy or regulatory decisions that affect railways and shippers involves a degree of risk, therefore, that may not be warranted, given the resources that could potentially be brought to bear to address data and analytical shortfalls.

As an example, we considered how access to data on individual rail shipments, currently submitted to Statistics Canada and contained in a railway waybill, is unavailable to the Canadian Transportation Agency. Though such data would provide detailed insight into individual cargo movements and assist in fulfilling the Agency’s mandate, Agency officials are unable to use the data for regulatory purposes. This is not the case in the United States, where the Surface Transportation Board uses waybill records for monitoring and regulatory purposes and publishes them in a public-use waybill sample publication.⁶⁴ Amendments to the mandate and powers of the Canadian Transportation Agency proposed in this report would provide for such access.

Transport Canada has made progress in developing and publishing metrics that provide insight into some aspects of rail efficiency and performance (transit times, variability, and United States. comparisons) between certain origin and destination pairs. They will continue to be important and relevant for the types of supply chain metrics discussed elsewhere in this report. So far, however, Transport Canada’s metrics are not being used to support negotiations, agreements, or regulatory interventions.

The development and regular publication of performance metrics by an impartial third party such as Transport Canada would provide railways and shippers with new options for defining service and related parameters within confidential contracts. In the absence of regularly published performance metrics, individual companies and organizations have taken to recording or publishing their own.⁶⁵ Though efforts have been made to make these as rigorous as possible, there is little agreement apparent between shippers and railways on their validity. However, shipper level data is important from a supply chain perspective, and likely needed for making marked progress.

Developing a clearer, better quantified understanding of these and related questions is important for the efficiency and balance of regulatory interventions that support the national economy. Being able to map and model a likely set of outcomes arising from regulatory or legislative changes (and their impacts on individual commodity supply chains) is also important. Such an understanding would also help engender more trust in the legislative and regulatory framework.

4. In order to enhance the efficiency of decision making and ensure that data are available to fulfill legislative and regulatory responsibilities and support commercial arrangements, the Review recommends that:

- a. supply chain performance metrics, including railway and shipper information, be calculated and published with the frequency (weekly, monthly, or quarterly) most responsive to public and industry needs, and that allows them to be used as key performance indicators within confidential contracts or service level agreements between railways and their customers;
- b. the process of railway data collection under the *Transportation Information Regulations* be streamlined and consolidated, and that consideration be given to the discontinuance of data collection in cases where the data are of little value for public policy or industry purposes;
- c. amendments be made to the mandate and powers of the Canadian Transportation Agency to provide sufficient authority for the Agency to access railway waybill records and any other data that the Agency requires in order to execute its mandate;
- d. Transport Canada publish an evergreen five-year rolling forecast of rail network demand in order that future capacity needs can be better anticipated.

Providing more guidance about service obligations

While free markets generally work best to allocate resources in a dynamic environment, public intervention and regulation are often used in cases where market forces do not fully come to bear on commercial outcomes. In this context, there is long-standing debate about how best to balance shipper protections and railway freedoms. Review consultations highlighted broad-based concern among many shippers that railway service obligations in the *Canada Transportation Act* fall short, ultimately, of reliably providing predictable outcomes that allow them to effectively manage risk and maximize their economic potential. In particular, concerns revolve around how the service expectations of railways are articulated in the Act, and differences of opinion in how these are interpreted.

The views from the rail shipping community about railway service are mixed. In 2014, for example, a survey of large shippers indicated that 75 percent of respondents rated North American rail service as good or excellent. The approval rate dropped to 21 percent in the 2015 survey report, notably after widespread, highly publicized service issues over the preceding year. Among the shippers who provided submissions to the Review, many characterized service failures as an abuse of railway market power. They felt that railways needed to provide more capacity—crews, locomotives and railcars—in order to support national economic growth and well-being.

Many shippers have advocated for a clearer definition of rail service obligations. Others have gone further to suggest that the level of service provisions should include accommodation for traffic to satisfy the needs of individual shippers. This would give shippers a sizeable lever in negotiations with railways and proceedings before the Agency. Over time, however, a change of this nature would likely give rise to pressures on railways to optimize their networks to individual shipper needs, in preference to ensuring the efficiency of the national rail system as a whole. Though they may share some similarities, the needs and circumstances of each shipper generally vary across sectors, regions, and firm size.

It is unclear that optimizing rail service to meet individual shipper needs would also optimize the potential output and performance of the railway system. Research conducted for the Review suggests that, after almost 20 years of streamlining their operations to optimize total network output, railways would see their performance impaired by such a change. It could also lead to widespread service failure, congestion, and, ultimately, network collapse. The year 2013–14 is a cautionary tale: the railways struggled to maintain service levels for all users in the face of a historic Western grain crop, combined with mandated minimum grain volumes and extreme winter cold, illustrating that they are currently operating at or near full capacity.

“Service design and execution is a crucial aspect of operating a railway and providing customer service across the entire multi-user shared network. When things are going smoothly, it is in large part because of the advance work that is occurring in service design.”

— CP submission to the CTA Review
January 29, 2015

Differences of opinion between railways and shippers are likely to continue for as long as the level of service provisions are open to interpretation. Failure to define them more clearly means that ongoing disputes will consume energies that could be better used elsewhere. The Review recommends that the level of service provisions be amended to include a more clearly defined goal. This would provide clearer direction to railways with regard to the federal governments’ expectations as they arrange to accommodate a shipper’s traffic. It would also provide the Agency with clearer direction and context when considering complaints that go beyond the broad statements included in the National Transportation Policy Statement.

Including a more clearly stated goal within the level of services provisions may decrease the number of disputes between railways and shippers. On its own, however, this may not help to improve the uptake of commercial agreements that help guide service arrangements. The practice should nonetheless be pursued. Effective agreements create stable “terms of engagement” for contract parties, enabling operational and risk management planning and the coordinated allocation of capital and labour. In an effort to help implement service agreements, a federal facilitator issued a report in 2011 that outlined a potential way forward. It proposed elements to be included in a Service Level Agreement, based on the characteristics of an individual shipper, along with a template agreement that could be customized by shippers. Some progress was also made on how commercial dispute resolution would be undertaken.

Though there has been much discussion of Level of Service agreements over the course of the Review, there is little evidence that the template approach has been implemented among shippers and railways. Better articulating a goal within the level of services provisions would provide impetus to address some intractable positions held by shippers and railways. But based on the positions expressed to the federal facilitator in 2011, and comments received over the course of the Review, federal involvement via the Canadian Transportation Agency will likely be required to bring the parties together to conclude agreement terms, particularly for smaller shippers. The Review believes that Agency arbitrators should be required to have a depth of experience in and understanding of railway operations, which is not currently the case.

The process of beginning, negotiating, and conducting business under the terms of commercial arrangements establishes an important line of evidence about whether either or both parties are acting in good faith. Operating under commercial agreements also provides the likeliest path to achieving an end point where railways and shippers work together to maximize their respective economic opportunities. There will be occasions, however, when expectations go unmet and well-synchronized hand-offs between railways and shippers do not occur. Given the complexities of railway networks and unique shipper circumstances, it is often difficult to understand how problems arise and who (if anyone) is ultimately responsible. The current tendency is to point a finger at the next link in the supply chain. This is not the way to elicit the best efforts of all involved.

The Agency has established formal and informal processes for dealing with complaints (although no specialized unit exists, as suggested above, to attempt to bring parties together). However, concerns have been raised about their effectiveness: current processes are viewed as time-consuming, expensive, and often inadequate to address issues until after economic harm has occurred. Under the Agency’s mandate, however, complaints are dealt with on a case-by-case basis. Operating with own motion power opens up a new opportunity to better understand the reason(s) for the dispute and to help parties reconcile issues as they arise.

In this context, the Review also believes that an Agency with enhanced “soft power” to guide the resolution of issues is in the long-term best interests of both railways and shippers. Exercise of soft power must be founded on expertise and contextual knowledge if it is to engender trust. The Review believes that this power should reside in and be discharged

by a dedicated organizational unit within the Agency, with competencies in a range of areas critical to the functioning of railway networks, such as systems dynamics, network theory, traffic engineering, data management, and data analytics. Without this expertise, how can the Agency affect change, weigh opposing views, or chart the terrain that may divide parties with disparate positions?

Breaking down silos within organizations and between parties in this way would also recognize that the impacts of failures are not only felt by those directly involved: failures can raise questions outside of our borders about Canada's reliability as a supplier of goods. This was amply illustrated by the challenges thrown up by the extreme winter and record grain crop of 2013. Exercising "hard power" in this case appeared to address one issue, but many within and outside of the grain and railway industry felt the unintended consequences. Creating a dedicated unit within the Agency, equipped to provide expert advice internally, to other departments, different levels of government, and railway or shipper groups, would help moderate the risk inherent in a system designed to pick winners and losers.

5. In order to reinforce the functioning of alternative dispute resolution activities available to railways and shippers, to promote and provide consistency among formal and informal Agency processes, and to improve the effectiveness of commercial arrangements between railways and shippers, the Review recommends that:

- a. The Agency establish a dispute resolution unit and exercise its expertise on railway network operations within the organization in order to provide more effective and timely informal dispute resolution options that help to resolve operational issues between shippers and railways prior to them escalating into formal Agency proceedings;
- b. this unit include or advise Agency officials responsible for providing informal expert support, as noted above, when parties attempt to reach and conclude terms of negotiated arrangements;
- c. Agency officials providing alternative dispute resolution services (mediation, facilitation, arbitration) report within the new organizational unit noted above.

6. In order to provide greater clarity for railways and rail customers about the level of service provisions of the Act and improve the commercial tools available to both parties, the Review recommends that:

- a. the level of services provisions in the *Canada Transportation Act*, sections 113-116, be amended to recognize shippers and their collective needs, in the context of the optimal performance of the freight rail system;
- b. the Agency provide railways and shippers with access to in-house expert support if they are unable to conclude terms through informal negotiations;

- c. should railways and shippers be unable to conclude agreement terms through an informal process, the Canadian Transportation Agency will provide mediation services as requested in a manner that distinguishes between large and small shippers, with the understanding that:
 - i. failure to reach a mediated agreement may result in one being established through arbitration;
 - ii. arbitrated service level agreements will consider establishing parameters for the following elements: communications; provisions for internal escalation; protocols for local service changes; key performance indicators; performance standards; recovery plans; confidentiality; service contingency planning; and reciprocity.
- d. level of service arbitration will be conducted by arbitrators within the Agency who possess significant railway expertise, and concluded in a manner that provides consistency and comparability across agreements;
- e. when making level of service determinations, the Agency will consider acts of good faith undertaken in negotiations by either party, along with:
 - i. whether railways and shippers have shared their long-term plans with one another and identified long-term transportation needs;
 - ii. whether railways have maintained a degree of flexibility in their operations and have adequate resources to meet network demand, including a reasonable contingency for unforeseeable fluctuations in demand.

Clear and Effective Dispute Resolution Mechanisms

There are five means of achieving an agreement between a shipper and a railway, some collaborative and some adjudicative. At the collaborative end of the spectrum, the parties determine the outcome: a shipper can use a railway's published tariff or negotiate an agreement with the railway. These two types of agreements are commercial in nature. However, if the parties cannot reach an agreement on service, they can seek an adjudicated settlement: an arbitrated level of service agreement where an arbitrator determines operational terms after the railway and the shipper file submissions to the Agency in support of their position (section 169.3 of the Act); or a decision by the Agency on a complaint filed by a shipper that a railway has breached its level of service obligations. The two parties can also come to the Agency for FOA, and an arbitrator will choose between the final offer of the shipper or the railway.

“While some of the “Shipper Protection” provisions of the Act work for some shippers some of the time, most of the provisions are difficult and expensive for small and medium sized shippers.”

— *Freight Management Association Submission to the CTA Review*
January 2015

Many stakeholders have been critical of the dispute resolution mechanisms within the Act, calling them ineffective, costly, time-consuming, and inaccessible, with the potential to create acrimony in a shipper-railway relationship. Moreover, many of the decisions that flow from existing dispute resolution provisions—following FOA, for example—are valid for only one year, which may further discourage shippers from seeking *Canada Transportation Act* remedies. Some feel there is a lack of clarity around roles and responsibilities within the Act and its regulations, and that greater clarity would diminish the need to file formal complaints. Others note that, if the Agency’s mandate is expanded such that it acquires greater legislative and regulatory powers—specifically, the authority to act on its own motion and to address issues on a systemic and *ex parte* basis,⁶⁶ issue general orders, and access and obtain relevant and strategic data of import to its mandate—the number of complaints about rail service could fall. As we note in greater detail in Chapter 11, new powers would enable the Agency to proactively address issues before they erupt into large-scale problems.

How can the Act more clearly define the obligations of shippers and railways, and the consequences of breaches, without being overly prescriptive and over-regulating? How can the Act’s dispute resolution mechanisms become speedier, more efficient and effective, and more accessible to all shippers?⁶⁷ It became clear to the Review that there are no perfect answers applicable to all contexts and circumstances. There are avenues for improvement, however.

One option may be to introduce mandatory mediation between shippers and railways before they embark on a formal dispute resolution procedure. With regard to FOA, another helpful measure might be to modify the \$750,000 freight charge limit on the less-expensive summary FOA and increase it to \$2 million. Some consider the present process inaccessible to the majority of shippers because the cap is too low; raising the limit to a more reasonable level, given the high volumes of bulk commodities transported by rail and their associated freight charges, could help. Further, the cap can impose an artificial distinction; a shipper with a relatively simple case may have to undertake an expensive, full-scale FOA procedure because the cap is exceeded.

The dispute resolution process should be streamlined so that it is quicker, commercially grounded, more accessible for smaller shippers, and provides for timely payment of penalties and reimbursement of harmed parties. The Agency is best placed to determine how this can be achieved.

7. Further to the recommendation in Chapter 11: The Canadian Transportation Agency, that the Agency’s mandate be modified and enhanced, so that it enjoys greater legislative and regulatory powers and has access to all relevant data and information to effectively execute its mandate, the Review recommends that:

- a. the Canadian Transportation Agency provide guidance (through clearer definitions) and undertake improvements to make the shipper dispute resolution mechanisms in the Act speedier, more efficient and effective, more predictable, and more accessible to all shippers;
- b. before they proceed to formal dispute resolution, shippers and railways be subject to conciliation or mediation;

- c. the \$750,000 freight charge limit on the less expensive summary FOA process be changed to \$2 million, to permit all rail shippers and those with non-complex cases to have greater access to the mechanism;
- d. in an FOA, shippers be given the option at the outset of the arbitration of having the Arbitrator's decision apply for up to three years.

Supporting the safe transport of dangerous goods

The level of services provisions in the *Canada Transportation Act* require that railways make adequate and suitable accommodation for all traffic. Consultations over the course of the Review—with shippers and railways—indicate that these provisions are not being applied universally or consistently for the transport of dangerous goods. Canada recently amended the *Canada Transportation Act* and *Railway Safety Act* to create a new liability and compensation regime for federally regulated railways hauling crude oil and related fuels. The new regime creates a mechanism for sharing financial responsibility between railways and shippers for the cost of accidents and ensures that adequate resources are available for compensation if an accident occurs. It follows as a response to the rail disaster in Lac-Mégantic, where liabilities have far exceeded the \$25M in insurance coverage held by the Montreal, Maine and Atlantic Railway.

The amendments, made with the *Safe and Accountable Rail Act (2015)*, set new minimum insurance requirements, create a compensation fund financed by levies on crude oil shippers, increase information-sharing provisions, and provide stronger oversight powers for the Minister and Transport Canada inspectors. In particular, shippers of crude oil will be required to pay a levy per tonne of crude oil shipped to build up a supplementary fund to pay for damages that may exceed a railway's minimum insurance level, should an accident involving crude oil occur (i.e. a pre-incident levy).

While this approach addresses risks associated with the growth of oil by rail transport, it falls short of providing the same coverage for other, sometimes more dangerous, goods. This inconsistency leaves a hole in a regime that otherwise more fairly apportions liability to third parties in the event of an incident among shippers and railways.

Without addressing this issue, chemical and other dangerous goods manufacturers, producers, investors, and railways will be left wondering when the other shoe will drop. Many of them represent important sectors of the Canadian economy. The lingering sense of uncertainty has the potential to put a chill on reinvestment in Canada, or on business expansion.

Rail is among the safest modes of transport for the commodities in question. They include products such as the chlorine used in municipal water treatment, or anhydrous ammonia used as fertilizer. Many are products from which all Canadians benefit directly or indirectly. While the National Transportation Policy speaks to outcomes that don't favour one mode of transport over another, the transportation of dangerous goods should be considered a special case, and should favour rail over other modes (e.g. trucking) for long-distance transport of dangerous goods. This approach would reduce or moderate the public's exposure to risk.

Shortline operators have also raised concerns about the budgetary impact of higher insurance premiums required when transporting petroleum products, following the changes noted above. Though recognizing the need to ensure compensation to third parties is available in the event of an accident, most who met with the Review commented that higher coverage, if it was available, would come at significantly higher premiums. If no other rail options were available, failing to secure higher insurance coverage would mean that dangerous goods would shift to trucks for part, or the whole of their journey, or would not be transported at all.

8. Recognizing that level of service obligations include the requirement that railways must carry dangerous goods, and recognizing the importance of these goods to Canadian prosperity and the positive efforts undertaken to moderate risks to public health and safety, the Review recommends that:

- a. consideration be given to extending the revised liability and compensation regime established for crude oil transportation by rail, and enacted with the *Safe and Accountable Rail Act*, to all other dangerous goods;
- b. consideration be given to establishing a pooled insurance regime for federally or provincially regulated short line railways as an option for ensuring third-party liability insurance needs can be met and connectivity with Class 1 rail networks can be maintained.

Recognizing the impact of level crossings on railway network performance

Along 42,650 km of federally regulated railway lines in Canada, there are roughly 14,000 public and 9,000 private at-grade crossings. As cities grow around historic railway rights-of-way, so too will pressure grow to build more crossings. Along with safety issues, growth in demand to open new crossings has also raised questions about whether there is an over-arching strategy guiding decisions about whether to open or close crossings, and how costs and responsibilities are apportioned.

Due to concerns noted by Canada's Transportation Safety Board, Transport Canada registered new Grade Crossing Regulations in November 28, 2014, with the primary objective of increasing safety at Canada's federally regulated grade crossings and reducing death, injury, property damage, and environmental impacts. Among the steps taken to help realize this goal was clarification of the roles and responsibilities of railway companies, road authorities, and private authorities for new or existing crossings.⁶⁸

For private crossings, roles and responsibilities between railways and landowners are sometimes outlined in a formal agreement. Where both parties cannot agree, a landowner can request that the Agency order the construction of a crossing and include in its order terms and conditions governing crossing construction and maintenance. The Act does not, however, allow railways to request support from the Agency if they are unable to reach an agreement with a landowner on their respective responsibilities for construction or maintenance. The Review believes that it is reasonable to accord this same right to railways.

During Review consultations, one railway company suggested that roles and responsibilities within federal organizations needed clarification. Currently, the Canadian Transportation Agency gives approval for the construction of new crossings, and acts to resolve disputes when they arise between railways, road authorities, municipalities, landowners,

and utility companies. Transport Canada has the power to close a crossing, although this is linked to its mandate for safety. The railway has argued that both responsibilities should be vested in Transport Canada.

The case for making such a move is not apparent. The responsibilities of each department align with their broader responsibilities for safety regulation (Transport Canada) and economic regulation (Canadian Transportation Agency). In addition, the Canadian Transportation Agency has established processes for dealing with concerns or issues related to the opening, operations, or maintenance of crossings that are not mirrored nor appropriately located at Transport Canada. Moreover, once the Agency receives an application to construct a new crossing, it shares that application with Transport Canada for a 30-day comment period. While the Review believes the roles of the Agency and department are quite separate, an integrated approach in respect of crossings is entirely appropriate.

9. In order to further clarify roles and responsibilities related to private crossings and enact changes that consider not only public health and safety, but also the impacts that at-grade crossings have on economic activity, the Review recommends that:

- a. the *Canada Transportation Act's* crossing provisions be amended, such that applications for the construction of new crossings include consideration of the impact a new crossing will have on a railway's local and regional performance;
- b. section 103 of the Act be amended to give a railway company the right to apply to the Agency to resolve cases where no agreement can be reached with a landowner regarding the terms and conditions governing the construction and maintenance of a crossing.

Keeping pace with developments in safety technologies

Freight and passenger railways in the United States, including United States-based subsidiaries of CN and CP, are required to implement an interoperable system of communications between railways and land-based stations called Positive Train Control, or PTC, by the end of 2015. Federal funding has been made available to help offset the significant related costs.

“Responsible, controlled, risk-and-incident-based review of [locomotive video and voice recorder] data will add to existing compliance processes and promote a safety culture and accountability. Evidence shows that these systems increase industry operating rules compliance and reduce tendencies toward behaviours that erode safe operations.”

— *CP Submission to the CTA Review*
January 29, 2015

PTC is an emerging train control technology designed to stop a train before certain incidents occur, including train-to-train collisions, overspeed derailments, incursions into work zone limits, and the movement of a train through a switch left in the wrong position. Along with safety benefits, the technology may also help accommodate increases in network capacity.

The Transportation Safety Board noted the absence of PTC-like technologies in Canada in their report on the 2012 derailment of a VIA Rail train near Burlington, Ontario. The Board notes that “there has been no formal strategy developed to adapt either emerging technology or existing on-board computer systems to provide fail-safe physical train control defences.” The 2012 report recommends that “The Department of Transport require major Canadian passenger and freight railways implement physical fail-safe train controls, beginning with Canada’s high-speed rail corridors.”

Transport Canada officials note that they work closely with their counterparts in the United States on railway safety issues, and they are no doubt aware of ongoing discussions and related progress and delays. Notwithstanding these experiences, the absence of a clear public declaration about how and when similar technologies (PTC, in-cab video and voice recorders) will be implemented in Canada may be viewed as placing insufficient priority on the safety of Canadians and Canadian communities. The implementation of PTC in Canada will also have direct application to the safety of rail passengers, since corridors are shared with freight railways and, indirectly, it will add another tool for freight railways to optimize capacity on their existing physical footprint.

10. In order to strengthen the safety of the Canadian rail network, the Review recommends that Transport Canada work with the Canadian freight and passenger railway industry within the next year to determine the steps required to harmonize the deployment of safety technologies in Canada with those in the United States, including:

- a. developing a policy to adapt either emerging technology or existing on-board computer systems to provide fail-safe physical train control defences within the Canadian rail network that are interoperable with United States-based Positive Train Control systems, and identifying a source of funds to support implementation in Canada;
- b. developing a formal strategy for the implementation of in-cab video and voice recorders by 2020.

Providing more separation between railway traffic and communities

The fact that many rail lines continue into the centres of towns and cities is in some respects, a relic of days gone by. Passenger travel by train has been overtaken by roadway travel across most of the country. In its place, however, freight rail traffic has intensified. Trains, particularly those of Class 1 operators, have also gotten longer and heavier in a drive to lower unit costs and increase the productive capacity of inputs and their networks. Up until the 1990s, for example, train lengths were on average around 5,000 feet; now they stretch up to 12,000 feet or more.

Although longer trains provide benefits for railways and their customers, there are disadvantages for communities when longer trains translate into longer wait times at level crossings. The City of Saskatoon, for example, has been documenting railway-crossing delays at three locations around the city and has found 300 instances of delays lasting more than five minutes over a three-month span (September to November 2014). The longest delay lasted 42 minutes. The City is now working with both CP and CN to try to find solutions to the problem.

Railway construction and operations also give rise to concerns about noise and vibration in neighbouring areas. Since 2007, the Canadian Transportation Agency has authority to resolve related complaints associated with federally regulated railways and has established a process to do so. The process recognizes distinct responsibilities for both railways and municipalities, and that planning and communications can help to assess and mitigate impacts before they become issues requiring Agency proceedings. While some complaints arise in established neighbourhoods relative to existing railway properties, the development of new residential areas, including through the conversion of industrial or commercial property, also gives rise to potential proximity issues. The Federation of Canadian Municipalities and the Railway Association of Canada have established guidelines to help their members work through issues arising in the latter case. Eight cities have either incorporated the guidelines into their Land Use Plans or are working to do so now.

Several cities (including Red Deer, Lethbridge, Regina, and Calgary) have worked with railway companies and the federal government to relocate rail operations to sites on the periphery of urban centres. Doing so helps moderate proximity issues like those noted above, along with risks associated with dangerous goods transport, and creates new options for the introduction or expansion of passenger or commuter rail, or urban transit. It also offers potential performance improvements for railways, as lower operating speeds within a city may lower average train velocity (velocity is a source of growing productive capacity).

Short of relocating whole sections of track, efforts have also been undertaken over the last decade to separate rail and roadway traffic. The Roberts Bank Rail Corridor project in British Columbia's lower mainland involved nine road-rail improvement projects over a 70 km stretch of track that connects Canada's largest marine container terminal and a major coal terminal with the continental rail network. The project included 12 funding partners, including railways, the province, and municipalities, and is helping to moderate safety and environmental impacts on local communities (including a reduced need for train whistling), while also providing operational flexibility for railways.

In addition to railway safety and the transportation of dangerous goods regulations, the options highlighted above would also help to address safety and well-being concerns of communities related to rail transportation. In its decisions since 2007, the Agency has confirmed that the parties involved—particularly railways and municipalities—both have clear responsibilities to implement solutions as they arise.

The Review recognizes that in amending the Act, the federal government has provided the Agency with a clear mandate to address noise and vibration complaints in a way that tries to balance the needs of railways and their customers with those of the communities through which railways pass. The forecasted growth of freight rail volumes, along with densification of urban centres, both argue in favour of an additional role for the federal government, outside of the Act, to support the construction of infrastructure or implementation of technologies that could provide a more permanent solution for railways and communities alike.

11. The Review recommends that in order to support the long-term health of Canadian urban municipalities and reduce the risks associated with public and freight rail interactions, the federal government use infrastructure funding leverage to:

- a. support the relocation of rail infrastructure outside of dense urban centres, and the implementation of technologies or infrastructure aimed at improving the safety of the rail/urban interface, with safer alternatives including road/rail grade separations, tunnels, and robust noise/visual barriers;
- b. encourage municipal governments to establish a buffer zone around new rail developments in order to provide separation from residential development and mitigate future concerns over rail and logistics operations.

Notes

- ¹ Primary industries alone, for example, accounted for 10 percent of Canada's GDP in 2014, or \$165,262 million of \$1,637,891 million in total. (Source: Statistics Canada, CANSIM, table 379-0031).
- ² Intermodal traffic accounted for 24 percent of total Canadian railcar loads in 2013, compared to 18 percent in 2001 (Railway Association of Canada, *Rail Trends*, 2002 and 2014). In 2015, it is one of the only industry segments to have shown positive growth in Canada over 2014 levels (RBC Capital Markets, 2015).
- ³ ICF International, *Comparative Evaluation of Rail and Truck Fuel Efficiency on Competitive Corridors — November 2009* (Washington: U.S. Department of Transportation, 2009), at 4.
- ⁴ The last spike, marking the completion of the Canadian Pacific Railway Transcontinental line, was driven home in 1885; the last major railway construction, the Great Slave Lake Railway between Roma, Alberta, and Hay River, Northwest Territories, was opened in 1964.
- ⁵ Commonly referred to as "captive shippers."
- ⁶ Railways would be allowed to charge different shippers different rates to recover the common costs of operating their network, a practice known as "differential pricing."
- ⁷ Formerly outlined in section 262 of the *Railway Act*, obligations related to levels of service continue today in sections 113-115 of the *Canada Transportation Act, SC, 1996, c 10*.
- ⁸ Bruce Doern, *The Relevance of Common Carrier Provision in the Context of Social Licence and Social Regulation Concepts: Key Priorities, Complexity and Legitimacy in Long Term Canadian National Transportation Policy and Governance*, prepared for the CTA Review (July 2015).
- ⁹ The separation of economic and safety legislation related to railways in Canada also occurred around this time, with passage of the *Railway Safety Act* in 1985.

- ¹⁰ National Transportation Act Review *Commission, Competition in Transportation: policy and legislation in review*, (Ottawa: Minister of Supply and Services, 1993).
- ¹¹ With the 1995 *CN Commercialization Act*.
- ¹² CTA Review, with data from the Railway Association of Canada.
- ¹³ This helped railways transfer parts of their networks to other carriers in order to improve their efficiency, and fostered the rapid growth of short line railways.
- ¹⁴ With Bill C-11, June 2007 and Bill C-8, February 2008.
- ¹⁵ The precursor to the *Canada Transportation Act* ordered a Competitive Line Rate to CSP Foods in 1989.
- ¹⁶ See, for example, John Bitzan, *Railroad Costs and Competition – 2002* (Journal of Transport Economics and Policy), volume 37, Part 2, (May 2003), at 201-225, or R. Gallamore and J. Panzar, *When is Competition Not Good? The Case of Compelled Access and Maximum Rate Regulation for Railroad Captive Shippers*, (2004).
- ¹⁷ Standing Committee debate related to passage of Bill C-8 (2008) provides additional context for the commitment, and is available at: <https://openparliament.ca/bills/39-2/C-8/?page=5>.
- ¹⁸ In the *Fair Rail Freight Service Act*, SC 2013, c 31.
- ¹⁹ J. Dinning, *Facilitator's Final Report—Service Agreement Template and Commercial Dispute Resolution Process*, Transport Canada, (May 31, 2012).
- ²⁰ A 15-member stakeholder committee with four representatives from railways (two members each from CN and CP) and 11 shipper members representing the agriculture, natural resources, manufacturing, and intermodal sectors.
- ²¹ See John Coleman, *The Interrelationships among capacity, congestion, system optimization, and levels of service*, at 57-61, prepared for the CTA Review (August 3, 2015), for an excellent summary of lean production and how it has manifested itself in the rail sector.
- ²² Transport Canada, *Transportation in Canada, 2013*, (Minister of Public Works and Government Services, Canada: 2014).
- ²³ Examples include a 2015 report by the U.S. Transportation Research Board of the National Academies entitled *Modernizing Freight Rail Regulation* and a 2009–10 report by Laurits R. Christensen Associates entitled *A Study of Competition in the Railroad Industry and Analysis of Proposals that Might Enhance Competition*.
- ²⁴ Cooperation is evident between CN and CP within Canada also, through arrangements such as reciprocal commercial access (termed co-production), which allows for directional running along roughly parallel sections of track along British Columbia's Fraser Canyon.
- ²⁵ They are generally referred to as Class 1 railways, the classification for the largest freight railroads, based on operating revenue.

- ²⁶ “Corporations are economic entities, to be sure, but they are also social institutions that must justify their existence by their overall contribution to society,” from “Beyond Selfishness” in *MIT Sloan Management Review*, October 15, 2002, online: sloanreview.mit.edu/article/beyond-selfishness/.
- ²⁷ Based on data published by the Railway Association of Canada and as measured by revenue per ton mile, adjusted for purchasing power parity according to World Bank measures.
- ²⁸ See “High-speed railroading,” *The Economist* (July 22, 2010), as an example of global perspectives on North America’s rail industry.
- ²⁹ Oliver Wyman, *International Rail Regulation in Developed Markets: Where Does Canada Stand?* (Ottawa: Canadian National Railway, November 2014), quoted in CP Submission to the 2015 CTA Review, at 13.
- ³⁰ The Greater Vancouver Gateway Council, in their February 2015 submission to the Review.
- ³¹ Association of American Railroads, *Economic and Public Benefits*, accessed on Nov 27, 2015, online: <https://www.aar.org/todays-railroads/our-network>.
- ³² This includes the establishment, monitoring, and enforcement of regulations, rules standards and directives related to railway safety, including railway operating rules, the safety of federally regulated bridges and the inspection and testing of traffic control and grade crossing warning signals, security, environmental performance, and the safe transportation of dangerous goods.
- ³³ Responsibilities include granting authority to construct or operate a railway and construct rail crossings; conducting FOA and resolving complaints (through mediation, arbitration or an Agency proceeding) related to railway operations; granting orders to interswitch traffic; overseeing land transfers and the discontinuance of rail operations; and, together with the Canadian Grain Commission, establishing the Maximum Revenue Entitlement for the transportation of grain in Western Canada.
- ³⁴ As intimated in the National Transportation Policy, s. 5 (b) of the *Canada Transportation Act*.
- ³⁵ Regulatory provisions to provide for greater competition in Canada, such as regulated interswitching or final offer arbitration of rates, are not available in the U.S. Unlike the U.S., however, Canada does not publish a sample of railway way-bill data.
- ³⁶ Transport Canada Annual Reports, 2001 and 2013 (Supplemental Table RA10).
- ³⁷ According to Transport Canada, there are 20 federally regulated short line freight railways and approximately 40 that are provincially regulated, not including Class 2 subsidiaries of United States Class 1 railways (BNSF, CSX) that operate in Canada.
- ³⁸ Generally, they are regulated by the federal government when they cross a provincial boundary.
- ³⁹ Transport Canada correspondence, 2015.

- ⁴⁰ According to a report prepared for the Railway Association of Canada by consulting firm CPCS, one in five carloads originating on a Canadian railway originates on a short line railway.
- ⁴¹ This compares with U.S. railway operating ratios of Union Pacific (63.5%), BNSF (69.2%), NS (69.2%), CSX (71.5%), and KCS (68.6%).
- ⁴² CPCS, *Review of Canadian Short Line Funding Needs and Opportunities – February 2006*, at 8.
- ⁴³ J. Coleman, *The interrelationships among capacity, congestion, system optimization, and levels of service*, prepared for the CTA Review (August 2015).
- ⁴⁴ InterVISTAS Consulting, *Railway Economics and Competition in Canada: Addressing the Issue of Railway Market Power*, report prepared for CN (March 2015).
- ⁴⁵ Increases in total factor productivity (a ratio of output to a measure of all inputs) and total price productivity (a ratio of the price of inputs—labour, capital fuel—relative to the price of outputs—rates charged to shippers) over the period 2001 to 2012 suggest that these gains have been achieved.
- ⁴⁶ The InterVISTAS report referenced in footnote 42 found that there is a significant degree of competition for a customer's traffic.
- ⁴⁷ Sections 113 through 116 of the *Canada Transportation Act*.
- ⁴⁸ In "The Relevance of Common Carrier Provision in the Context of 'Social Licence' and Social Regulation Concepts: Key Priorities, Complexity and Legitimacy in Long Term Canadian National Transportation Policy and Governance" (2015) the author, B. Doern, argues that the use of these terms "invites differences of view and interpretation, challenges in disputes and in negotiations between shippers and railways."
- ⁴⁹ Canadian Transportation Agency Decision No. 2014-10-03, "Application by Louis Dreyfus Commodities Canada Ltd. against the Canadian National Railway Company, pursuant to section 116 of the *Canada Transportation Act*, S.C., 1996, c. 10, as amended."
- ⁵⁰ *Ibid.*, Paragraph 10.
- ⁵¹ *Ibid.*, Paragraph 16.
- ⁵² Including a 1959 Supreme Court decision in *Patchett and Sons Ltd. v Pacific Great Eastern Railway Co.*
- ⁵³ Further to an application brought by Louis Dreyfus Commodities Canada Ltd. against the Canadian National Railway Company (CN), discussed in Canadian Transportation Agency Letter Decision No. 2015-06-18.
- ⁵⁴ B. Doern, *The Relevance of Common Carrier Provision in the Context of 'Social Licence' and Social Regulation Concepts: Key Priorities, Complexity and Legitimacy in Long Term Canadian National Transportation Policy and Governance*, (2015), at 17.
- ⁵⁵ Association of American Railroads, *Rail Intermodal Keeps America Moving* (May 2015), accessed on November 23, 2015, online: <https://www.aar.org/BackgroundPapers/Rail%20Intermodal.pdf>.
- ⁵⁶ Eric Atkins, "Railways fire back over grain shipments," *Globe and Mail* (March 12, 2014).

- ⁵⁷ International Transport Forum, *Railway Efficiency*, (Paris: OECD/ITF Discussion Paper, December 2013).
- ⁵⁸ For more information, see Transport Canada's Fluidity Indicator portal at <https://stats.tc.gc.ca/Fluidity/Login.aspx>.
- ⁵⁹ IHS Global Insight Forecasts.
- ⁶⁰ Higher capacity railcars, for example, allow for heavier loads to be transported for the given movement of a single car. Higher horsepower, more fuel-efficient locomotives, help maximize the use of inputs and allow for longer, heavier trains. Heavier gauge rails or more substantial rail beds can better sustain the force of longer and heavier trains.
- ⁶¹ Recognizing that federal budgetary measures in 2008 increased the CCA for locomotives permanently from 15 to 30 percent.
- ⁶² CPCS, "Review of Canadian Shortline Funding Needs and Opportunities," prepared for the Railway Association of Canada, February 26, 2015.
- ⁶³ Such as, What is a network's (or bottleneck's) maximum capacity, or at what point does incremental volume begin to slow down traffic throughput?
- ⁶⁴ Consideration over the course of the Review was given to whether such a sample database could be implemented in Canada. However, due to the much smaller number of shippers, it was considered unlikely that such a sample could adequately protect the traffic movements and trading activities of an individual shipper, and so this idea was not pursued.
- ⁶⁵ A group of agricultural associations (Ag Transport Coalition) now publish their own weekly report, for example, including rail performance metrics derived from service provided to the coalition's members.
- ⁶⁶ *Ex parte* in this instance refers to proceedings where one of the parties has not received notice and, therefore, is neither present nor represented in the proceedings. Relief is awarded without the presence or even the knowledge of the other party, who may be affected or bound by the proceeding. Accordingly, in law, it is considered extraordinary relief. *Ex parte* is usually used in situations where emergency relief is requested and time is of the essence. A full hearing of the application generally occurs after the interim relief is granted.
- ⁶⁷ It is worth noting that the June 2015 report by the U.S. Transportation Research Board of the National Academies, "Modernizing Freight Rail Regulation," recommends that the Surface Transportation Board look to Canada's final offer arbitration process as something for the United States to consider as a possible means to resolve rate disputes in that country.
- ⁶⁸ Noted in the *Grade Crossing Regulations*, Regulatory Impact Analysis Statement, Canada Gazette, Vol. 148, No. 6 – Feb 18, 2014, accessed on November 23, 2015, online: <http://www.gazette.gc.ca/rp-pr/p1/2014/2014-02-08/html/reg2-eng.php>

Chapter 8.2: Transport of Grain

The 2014 Canada Transportation Act Review was initiated one year earlier than required to address a range of changing conditions and challenges in the transportation sector, including those related to the movement of grain by rail on the Prairies. A record crop of wheat and other grains in Western Canada in 2013–14 highlighted some of the weaknesses in the transportation system and this, coupled with severe winter cold, caused difficulties for the transportation providers hired to move the shipments. In spite of the challenges confronted by the grain-handling-and-transportation system, it still managed to move record volumes of grain under some very difficult conditions.

In the terms of reference for the CTA Review, we have been tasked with considering “the provisions of the *Canada Transportation Act* that are relevant to the transportation of grain by rail, some of which could be applied more broadly to the rail-based supply chain for all commodities, taking into account Canada’s need for a commercially based, market-driven, multimodal transportation system that delivers the best possible service in support of economic growth and prosperity.”

In this chapter, we describe how, historically, Canada has moved its grain to market, the state of the grain transportation industry today, the future we foresee, and what changes are needed to ensure this vitally important Canadian export continues to feed the world while contributing to our own economic success.

A History of Helping Farmers¹

Since the late 1880s, the federal government has regulated grain freight rates in Western Canada through various regulatory mechanisms. In 1897, the federal government and the Canadian Pacific Railway (CP) signed the Crow’s Nest Pass Agreement. This Agreement set subsidized rates for the movement of agricultural products by rail from the Prairie provinces to tidewater. In return for reducing freight rates, the federal government gave CP a cash subsidy of \$3.3 million and land title to extend a line through the Crow’s Nest Pass into the Kootenay region of southern British Columbia. The freight rates were subsidized to ease the hardship faced by Western farmers, which they felt the railways had imposed on them. These rates became statutory in 1925. In 1927, the Crow rates were extended to the Canadian National Railway (CN), and over time to cover exports of grain, flour, and several other crops shipped to ports on the West Coast and to Churchill, Manitoba.²

In 1935, the *Canadian Wheat Board Act* established the Canadian Wheat Board (CWB) as a marketing board for Western Canadian wheat and barley, charged with operating a mandatory marketing system for those grains in Alberta, Saskatchewan, Manitoba, and a small part of British Columbia. It was illegal for farmers in areas under the Canadian Wheat Board’s jurisdiction to sell their wheat and barley through any other channel. Its power over wheat and barley marketing was referred to as the “single desk.” The CWB’s mandate was to pay farmers a base price for their grain, identify markets where the grain could be sold, negotiate the best price, deliver the product, issue advance cheques, and make final payments after the crop was sold. If the wheat market went up, farmers captured the profits, and if the market declined, the government absorbed the loss.

Over the next 60 years, freight rates for the transportation of grain were subsidized according to various formulas that were, alternately, more or less favourable to farmers. In the face of international pressure to eliminate the subsidy and the domestic imperative of eliminating the country's deficit, the federal government put an end to subsidized freight rates in 1995, initiating as it did so the gradual deregulation of the grain industry. Some protection was still afforded to farmers—in particular, a rate cap was established under the 1996 *Canada Transportation Act* for the transportation of 58 grain commodities by rail.

In December 1998, Justice Willard Estey delivered the report of the Grain Handling and Transportation Review commissioned a year earlier by the Minister of Transport. The report contained 15 recommendations—one among them that the statutory rate cap be repealed and, in effect, replaced by negotiated contract rates. The report also recommended something akin to open access to the existing CN and CP lines, so as to “better serve the national interest in obtaining competitive and efficient transportation by rail.” Other recommendations concerned the *Canada Transportation Act's* final offer arbitration (FOA) provisions, the disposal and allocation of the federal government's hopper-car fleet, the promotion of the St. Lawrence Seaway as an alternative transportation route for the movement of grain, and the removal of jurisdiction over the handling and transportation of grain from the Canadian Wheat Board.

The federal government agreed with Estey's vision that, if the Western grain-handling-and-transportation system were to be more commercially based, with appropriate safeguards to protect the public interest, it would ultimately become more efficient, accountable, and beneficial to farmers. On May 10, 2000, the government announced a package of reforms, with six components: replacement of the rate cap with the Maximum Revenue Entitlement; creation of a more commercial and competitive system for moving grain from country elevators to ports (by tendering CWB shipments); improvements to the Agency's final offer arbitration provisions; funding for prairie grain roads; improvements to the process for eliminating branch lines; and independent third-party monitoring of the impact of these changes.³

On June 14, 2000, the government passed Bill C-34, giving responsibility to the Canadian Transportation Agency (effective August 1, 2000) for establishing annual Maximum Revenue Entitlements for CN and CP for the movement of western grain. The Maximum Revenue Entitlement was originally envisaged as a short-term measure, to have effect during the period of transition to a fully commercialized industry.

Since 2000, a number of federal government initiatives have attempted to further strengthen the grain-handling-and-transportation system. For example, in 2013, the *Fair Rail Freight Service Act* was enacted in response to a review of rail freight service. Railway companies are now required to offer a service agreement to a shipper upon request, and an arbitration process was established for cases where negotiations fail. On January 21, 2014, the federal government announced an investment of \$1.5 million over five years in a multi-sectoral project (involving the pulse, oilseed, and grain industries) to improve supply-chain efficiency and reliability. In February 2014, the government announced its intention to change its grain-monitoring program to compel the railways to provide more detailed information

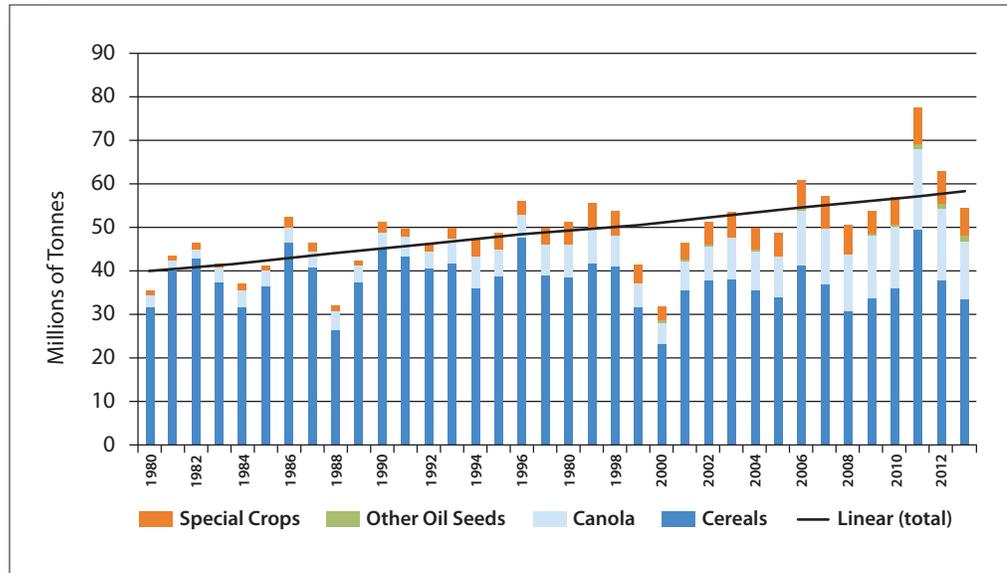
on a more frequent basis.⁴ On May 29, 2014, Bill C-30, the *Fair Rail for Grain Farmers Act*, received Royal Assent; this legislation was enacted in response to the challenges associated with moving the record grain crop of 2013–14. On August 1, 2014, a number of regulations, measures, and an Order in Council related to the implementation of the *Fair Rail for Grain Farmers Act* came into force. These included the passing of an Order in Council setting out the minimum amount of grain to be moved by CN and CP in a crop year⁵; regulations requiring CN and CP to provide additional data and more frequent reporting on grain movements (as announced in February 2014); regulations clarifying the operational terms in a service level agreement that can be arbitrated by the Canadian Transportation Agency; an amendment to the *Railway Interswitching Regulations* extending interswitching distances in Saskatchewan, Alberta and Manitoba to 160 km from 30 km for all commodities; and regulations to provide farmers with better protection through more accountability for grain companies in contracts.⁶ A number of the measures within the *Fair Rail for Grain Farmers Act* are in force until August 1, 2016, or until a later date if adopted by resolution by both houses of Parliament.

With regard to the marketing of wheat, the Canadian Wheat Board's single-desk marketing power officially ended on August 1, 2012 subsequent to the passage of Bill C-18, the *Marketing Freedom for Grain Farmers Act*. The Canadian Wheat Board changed its name to CWB to reflect its changed status. It continued to operate as a grain company as it moved toward eventual privatization. On April 15, 2015, a 50.1 percent majority stake in CWB was sold to Global Grain Group, a joint venture of Bunge Limited and the Saudi Agricultural and Livestock Investment Company, for \$250 million.⁷ (See Volume Two, Appendix I for a more detailed history of grain transportation regulation.)

Taking the Pulse: Today's Grain Transportation Industry⁸

While grain, oilseed, and special crop production occurs across a vast geographic area in Canada, the majority of production occurs in the Prairie provinces, Ontario, and Quebec. Most crops are planted between April and May, while some, like winter wheat, are planted in the fall. Harvesting generally occurs between August and September, and crops are then stored until delivery into the grain-handling system. The vast majority of grain is sold in the same year it is produced, although approximately 13.3 million metric tons (or about 18 percent of the total crop – this varies from year to year⁹) is carried over into the next crop year. Limited storage capacity in the off-farm elevator network requires a just-in-time approach to the planning and execution of grain shipments from the farm gate. (See Volume Two, Appendix I for more information on grain production.)

**FIGURE 1 —
WESTERN CANADIAN
GRAINS PRODUCTION**

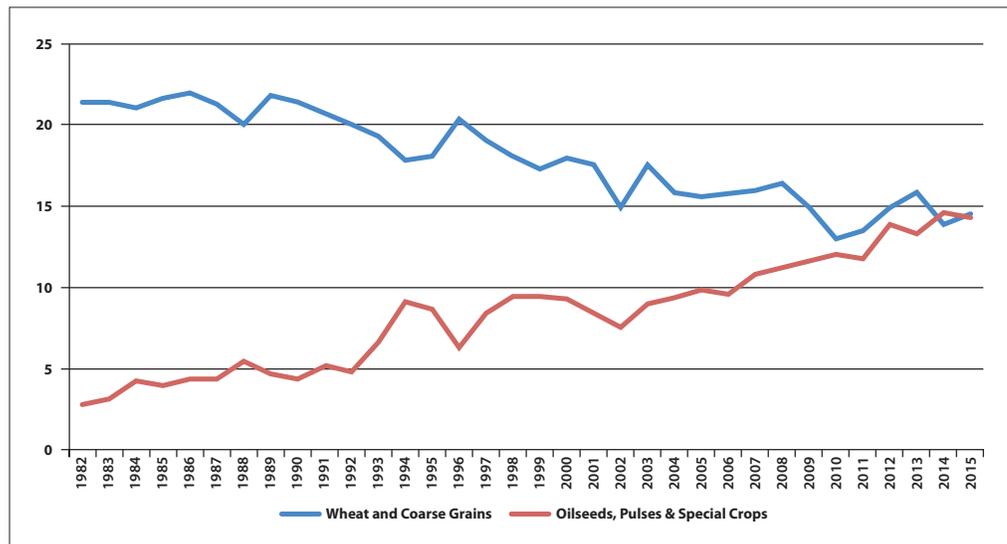


Western Canadian grain production is highly variable due to external factors such as weather, moisture, pests, and disease. However, on average, volumes have increased approximately 1 percent per a year over the past 30 years,¹⁰ as indicated in Figure 1, above.

Ideal weather conditions in the fall of 2013 led to an unprecedented and unpredicted grain crop of 77 million metric tons in Western Canada. This was 28 percent higher than the last bumper crop of 2008 of 60 million metric tons. While 2013 was unusual, new technologies and better agronomic practices are expected to continue to expand long-term yield growth, likely beyond the 1 percent average annual growth rate.

The composition of Canadian crops has also changed over time. Figure 2, below,¹¹ shows a long-run trend across Canada towards planting more oilseeds, pulses, and special crops and less wheat and coarse grains. It captures the expansion of soybean production across Eastern Canada and canola across Western Canada, and the diminution of area seeded to wheat, barley, and oats.

**FIGURE 2 —
CANADIAN SHIFTS
IN HARVESTED AREA
OF PRINCIPAL FIELD
CROPS**



In terms of the impact on the transportation system, the trend toward rising yields for all western Canadian crops has had a greater impact on shipping requirements than the shift in cropping mix. Yields have risen steadily over the past 20 to 30 years, and the grain-handling system has adjusted. Thus the shift in cropping mix has not been considered a major factor in transport requirements. The major exception is that the increased production of pulses and special crops has led to more demand for containers and supporting infrastructure.

Another significant transportation challenge for the grain industry has been the variability in yields from year to year. A major drought, such as occurred in the 2002–03 crop year, reduces demand for railcars (refer to Figure 3, below, on exports);¹² conversely, higher than expected yields during delayed growing seasons, such as 2009–10 and 2013–14, can create unexpected railcar demand.

The difficulty of estimating yields and production during atypical crop years has occasionally caught the industry off guard and made it hard to plan rail requirements. With the elimination of the Canadian Wheat Board marketing monopoly, the grain industry has adopted more commercial practices to coordinate grain flow. This transition is well underway, but stabilizing the new system and reducing shipping uncertainty takes time.

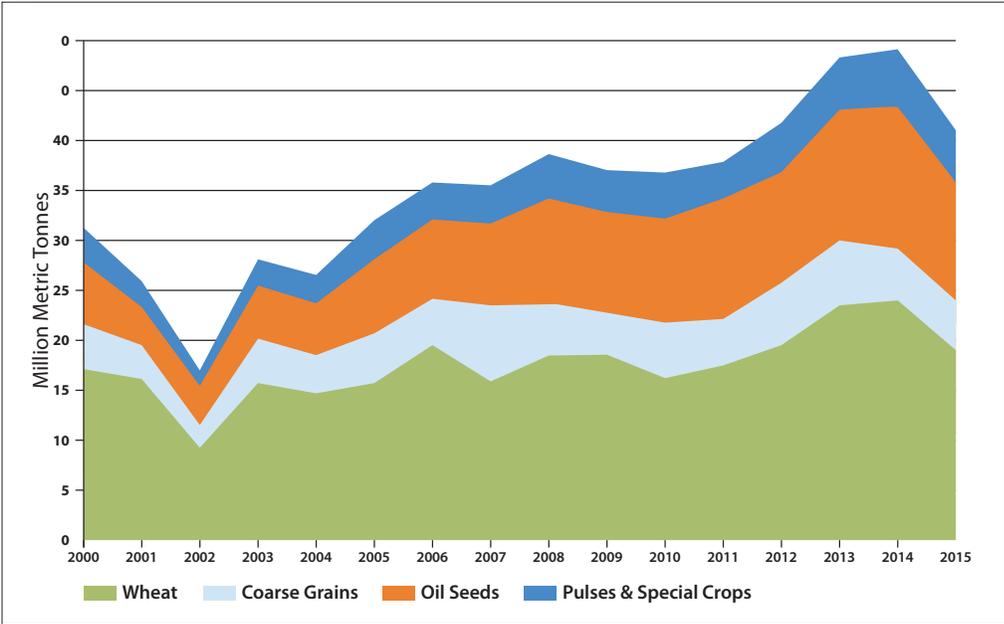


FIGURE 3 — EXPORTS OF PRINCIPAL FIELD CROPS, 2000-2015

A particular challenge for Canada, relative to global competitors, is the distance the grain must travel to reach export position. Western Canadian grain travels between 1,450 km and 1,950 km, while other grain-producing countries, such as Australia, Brazil, or any of the European countries, deal with a much shorter haul, in the range of 320-400 km.

Approximately 94 percent of all Canadian grain exports move by rail to port or to final destinations in the United States and Mexico.¹³ Moreover, Canadian agricultural shippers’ reliance on rail is considerably greater than that of shippers in the United States or Australia, where rail moves only 50 percent of grain exports to port. Movement of certain commodities by truck is an option for some producers, but is significantly more costly and has a deleterious effect on provincial road infrastructure.

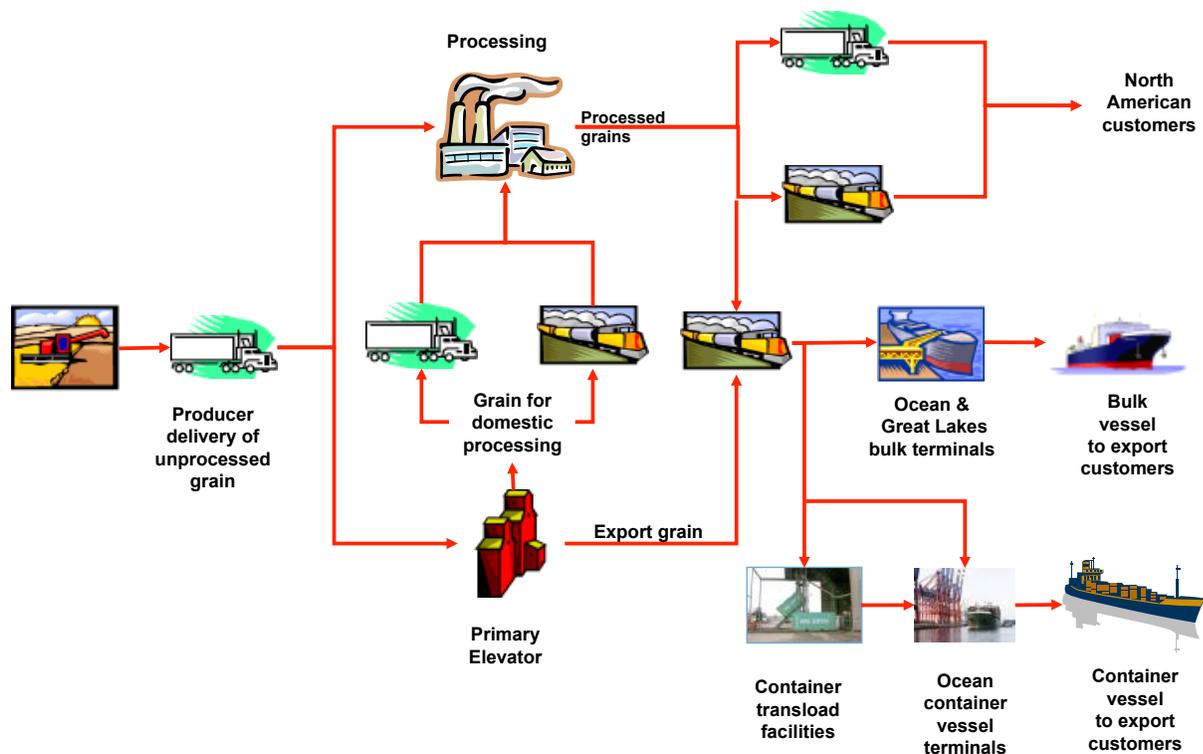
For agricultural shippers in Canada, the ability to access the global market and remain competitive depends on effective rail service. If service is unreliable or unpredictable, contract penalties, lost sales, and lost premiums ensue; the shippers bear the costs, which are significant, and pass them back to farmers.

Due to distance travelled, the cost of transporting Canadian grain is, proportionately, the largest element in the overall cost of production. The sector relies on an extensive, diverse, and integrated road, rail, and marine transportation network for dependable movement of crops from farms to international and domestic markets. The system involves not only the physical infrastructure of on-farm storage, grain elevators, trucks, roads, railways, and port terminals, but also the logistics involved in making all of the interdependent components function efficiently.

In the past ten years, the system has undergone more important modifications than in the preceding three decades; the way grain is now sourced and moved in Western Canada has been transformed completely. So too has the shape of the transportation and logistics network, due to a variety of factors: a consolidation of grain companies in conjunction with the rationalization and consolidation of the country's elevator system¹⁴ and supporting rail network; other changes to rail and elevator infrastructure; an increase in the distance trucks travel to bring grain from farm gate to elevator; and the growth of short line and producer car operations (railway cars loaded and shipped by producers). Increasingly, special-crops shippers use marine containers for their lentils, peas, and pulses, with the result that the number of container transload facilities in the country and at port has also grown.

The Western Canadian grain-handling-and-transportation system is a complex system of interdependent supply chain components. There are four primary logistics systems: bulk export by rail to ocean port or direct to customer; bulk export via the St. Lawrence Seaway; containerized export; and the movement by rail of processed grain products.¹⁵ The movement of grain from producers to consumers in each of these supply lines requires a high degree of integrated planning.

Three grain companies—Vterra, Richardson, and Cargill—are the dominant handlers of grain in Western Canada, accounting for approximately 75 percent of annual exports. This concentration is also reflected in the way grain is gathered into the system, with the vast majority of the tonnage collected at fewer than half of the system's delivery points. In the 2013–14 crop year (the last for which statistics are available), 95 of the system's 261 active delivery points took in 80 percent of the grain delivered. A simplified illustration of the system is shown on next page.¹⁶



As illustrated, grain is almost always delivered by truck to a primary elevator or processing facility. From there it can move via rail or truck, either directly to customers or to terminals and facilities for loading to bulk and container vessels for shipment to overseas customers. The processes and activities are different, based on the type of grain and the market for which it is destined, but there must be close coordination for the supply chains to work effectively.

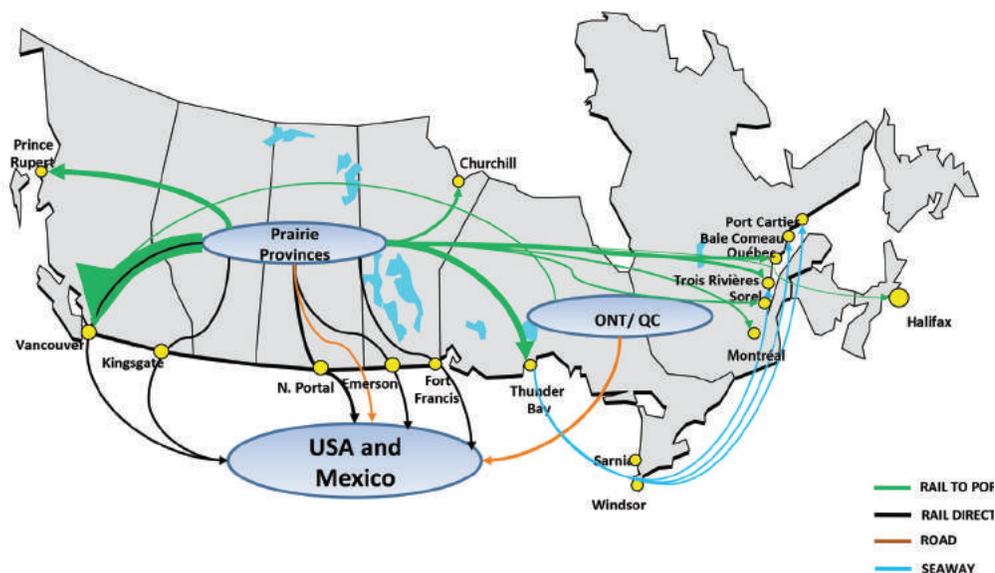
Producer cars and producer-car loading sites represent another important component of the grain handling system. They are used to ship grain directly from a farmer to a particular destination and provide a delivery alternative to the licensed grain handling system. Producer-car loading has increased since 1999–2000, although the number of producer-car loading sites has fallen.

Canada’s two Class 1 freight railways, CN and CP, control approximately 85 percent of the route-miles in the Western Canadian railway network. Non-Class 1 carriers (short line railways) service the remaining 15 percent. A significant trend in the Western Canadian short line industry has been the move by producer groups to purchase railway lines for the explicit purpose of supporting producer-car loading.

In respect of the terminal network, at the end of the 2012–13 crop year there were 15 facilities with terminal elevators concentrated in Vancouver and Thunder Bay. The majority of Western Canadian grain is shipped through three corridors: the West Coast (Vancouver and Prince Rupert), eastward through the St. Lawrence Seaway, and South (to the United States and Mexico). A small portion of grain is shipped through the northern port of Churchill, Manitoba. The West Coast is the primary port destination for Western Canadian grain and generally handles more than three-quarters of the grain directed to port position.

While freight rates and the allocation of railcars have had some influence over the comparative use of ports at various times, the dominance of West Coast ports is deeply rooted in Canada's Asia-Pacific grain trade, reflecting strong demand for Canadian grain in markets such as China and Japan, notwithstanding market fluctuations that occur from year to year. It does not appear that the role accorded to the West Coast ports will soon diminish, given that about half of Canada's grain exports are directed to markets in the Asia-Pacific region.

**FIGURE 4 —
KEY MODAL FLOWS:
ALL GRAINS¹⁷**



Strengthening the Supply Chain: What the System Needs to Flourish in the Next 20 to 30 Years

Because of Canada's relatively small population, the majority of its grain is exported. In an average year, Canadian farmers export 70 percent of their wheat, 50 percent of their oilseeds, and 25 percent of their coarse grains.¹⁸ In order to remain globally competitive and grow global market share there is a need to ease existing and potential bottlenecks in the Canadian grain-handling-and-transportation system. To improve the system, it is critical to evaluate the entire supply chain, not merely the rail component. Taking a rail-only focus would be short-sighted and associated changes would be made with little to no regard for the impact further up or down the supply chain.

All supply chains share a common foundational premise: they consist of businesses operating in an interconnected network, focused on the planning and delivery of goods or services to their end customers.¹⁹ In order to succeed, all supply chains require that the economic interests of the partners are aligned and that reliable and timely information on demand, capacity, and performance is shared throughout the supply chain. This is a major challenge for most supply chains, including the Canadian grain supply chain, as information about future demand and capacity is always somewhat uncertain. The level of success is often a function of the predictability of this information and the flexibility of the system to respond to variability in demand and performance.

There are aspects of the Canadian grain supply chain that differentiate it from a typical supply chain. First among them is the separation of those controlling the production (farmers, or producers) from those who manage and control the primary marketing and selling of grain to the end-use customer (grain exporters and dealers). Second is the high dependence of the Canadian grain supply chain on the rail freight logistics system to provide the necessary capacity to carry grain to port.

Unlike many other countries, such as Australia, the United States, and Brazil, where production is relatively close to export tidewater, in Canada the average rail haul from inland elevator to port is very long—about 1,500 km. Grain must be gathered via a road-and-rail network and delivered by rail to ports for vessel loading throughout the year. At times, grain-gathering transportation and vessel-loading activities must be conducted in harsh conditions: frequent heavy rain, extreme snowfall, and prolonged periods of cold weather.

Also, unlike international competitors, Canadian farmers move nearly all harvested grain by truck to on-farm storage and then by truck to inland commercial storage. From there it is moved by rail to port terminals. In the United States, only about 50 percent of the harvest goes into on-farm storage. The other 50 percent moves directly from field to commercial storage by truck. Grain is then moved by rail, river barge, and truck to terminal ports. Brazil relies primarily on trucking to move the entire harvest destined for export to port position with next to no on-farm storage.

A major pressure point in the Canadian system is the lack of adequate off-farm storage. The combined commercial elevator capacity in Canada (including port and inland) can store no more than 20 percent of our average annual production. The United States, by contrast, can store over 50 percent of the crop in off-farm commercial storage, and Australia has storage for 175 percent. Instead of a system where most of the grain is poised for export at all times, Canada relies on “just-in-time” delivery from farm to port to meet export demand. A just-in-time approach can only be successful if buyers and sellers know exactly what is available in on-farm bins and if there is a coordinated effort to move the exact grain and grade required from farm to port, as it is needed.

In light of ever-increasing yields and production, the interdependencies of supply chain partners cannot be over-emphasized: the planning of railway resources and assets for the movement of grain rests on the timely and consistent performance of the railways. For medium- and longer-term planning, railways depend on shippers to provide reliable demand forecasts in order to plan asset and resource allocation positioning. Changes to directional traffic flows or planned volumes can result in train crews, locomotives, and maintenance staff being out of position to effect efficient train operations. Reallocation of these resources to respond to such changes can sometimes take months to effect.

When planning a sale, grain companies look ahead as much as three months to determine whether they will have the capacity to move the grain by rail to port position. On this basis they negotiate with shipping lines to schedule an ocean charter and with the port terminal to load the grain. When the railways fail to deliver on time, the scheduling of terminal-and vessel-loading activities is affected: empty terminals and idle crews and vessels make for costly delays. Ultimately, the seller pays through contract penalties and reputational damage.

Railways provide cars in response to demand, but they can only supply cars for grain that has been emptied at the terminal. And the terminal operator depends on the vessels arriving at dock on time. The ongoing supply of grain to port, and from there to the customer, is entirely dependent on the efficient execution of operations across the entire supply chain, from farmers to marine carriers.

Canadian grains and grain products are marketed and sold in a global marketplace, in direct competition with comparable products produced in other countries. The marketing of grain is fraught with uncertainty, particularly with respect to supply, but it is a key driver of supply chain activities. The selection of markets, distribution channels, terms of sale (including required product attributes), logistics considerations, and the timing of delivery affect stakeholders up and down the supply chain. The types and quantities of grain in demand influences production decisions, drives infrastructure requirements, and shapes operating practices in the grain-handling system. These are the variable factors that establish demand for specific transportation services to move grain and grain products from country origins to consuming markets.

The current grain-handling-and-transportation system is subject to breakdowns and constraints that must be addressed if Canada is to remain a world-class supplier. Many of the issues and concerns raised over the course of stakeholder consultations became more serious in the context of the 2013–14 western grain shipment crisis.

In 2013–14, most of Canada, and Western Canada in particular, experienced an unusually harsh winter, with extended periods of extreme cold and significant snowfall. On its own, winter poses a range of challenges to railway operations: increased frequency of rail breakage and equipment failure; the breakdown or limitations of hydraulic systems due to plummeting temperatures (-25 degrees Celsius or lower); and the concomitant reduction (by half) in the length of trains required to maintain safe operations during the period of extreme cold. There may be technological fixes available to address the issue of hydraulic system breakdown, but it would have to be applied system-wide across North America to resolve the problem.

Exacerbating an already difficult winter operating environment was an unanticipated record Canadian grain crop. With producers and grain companies concentrating shipments to obtain the premium prices available ahead of the harvest in the southern hemisphere, the record crop backed up in an already impaired rail network.

At the same time, the western grain-handling-and-transportation system was transitioning to “marketing freedom,” resulting from the removal of the Canadian Wheat Board’s single-desk selling system. Stakeholders highlighted that the entire system was plagued by insufficient information, a lack of visibility, and unreliability, while both CN and CP were trying to balance service with financial market pressures to drive efficiencies and asset utilization. Ultimately, the federal government issued an order under the “Extraordinary Disruptions” provisions in section 47 of the *Canada Transportation Act*, mandating CN and CP to transport minimum weekly grain volumes.

The 2013–14 grain crisis thus resulted in significant disruptions to the grain-handling-and-transportation system. Some say that it aggravated an already existing problem. Regardless, short-term measures (such as the s. 47 Order) were taken to address a short-term problem. This experience demonstrated the need for a system that is structurally competitive for the long term, while being able to adapt to periodic fluctuations in supply and demand. It also underscored the importance of real-time system data, and of supply chain collaboration to strengthen the logistical system and reduce the atmosphere of animosity and mistrust so apparent today. The recommendations below are not about a “quick fix.” They are about the long-term future of the grain-handling-and-transportation system and its contribution to the growth and prosperity of the nation.

Maximum Revenue Entitlement Program

The federal government’s regulation of grain rail transportation via the Maximum Revenue Entitlement program has a unique history reaching back to historically controlled freight rates for grain. But much has changed over the years, and the rationale for the remaining remnant of regulated freight rates for grain, but not for other commodities, is weak. If the underlying premise behind the regulation of rail freight rates for the movement of grain is to contain the market power of the Class 1 railways, it is not clear why this protection is limited to grain shippers. Shippers of other commodities (such as forest products or coal, for example) make the same case about “market power imbalances,” but are not protected by a Maximum Revenue Entitlement. The Review found no compelling evidence why grain shippers should be protected by this program and not other kinds of shippers.

Created in August 2000 by an act of Parliament to replace maximum freight rates, the Maximum Revenue Entitlement imposes a ceiling on the average rate that CN and CP can charge, and on the total revenues they can earn (i.e. the average rate per tonne) for moving regulated, non-U.S.-bound western export grain in a crop year, as calculated by the Agency. It was assumed to be short-term, and to serve as a bridge between the maximum rate scale set out in the 1983 *Western Grain Transportation Act* to a deregulated, more fully commercialized pricing environment. It was envisaged that it would end five years from implementation, and that a review of the *Canada Transportation Act’s* grain provisions would be undertaken. However, the Maximum Revenue Entitlement program remains in place today— this despite the fact that the grain sector has changed considerably since its introduction and a number of issues, both technical and policy-related, have arisen since. These include the fact that it discourages the movement of grain by container,²⁰ creates “free-riders,”²¹ which deters railways from investing in grain rail capacity improvements, and creates unfairness among the railways as a result of the treatment of interswitching movements.

1. The Review recommends that the Maximum Revenue Entitlement Program be modernized, in anticipation of its total elimination within a seven-year time horizon, as the Western Canadian grain-handling-and-transportation system evolves to a more commercially grounded framework. Modernization should consider, but not be limited to, all of the following:

- a. Excluding the movement of containerized grain from Maximum Revenue Entitlement calculations;

- b. Allowing railways to set aside up to one-third of their respective railcar fleets, for which shippers may pay “freight premiums” to guarantee railcar supply and service. These “premiums” would be excluded from the railways’ respective Maximum Revenue Entitlements and charged under specific programs or conditions (e.g. winter premiums from December to March, or an auction program whereby a pool of grain hopper cars are set-aside for auction to the highest bidder, etc.); such programs should be designed to include the less than unit-train shippers;
- c. Excluding interswitching (i.e. revenues earned, costs, and tonnage moved) from the Maximum Revenue Entitlement calculations to prevent unfairness and financial harm to railways and to remove a barrier to the use of interswitching;
- d. Reforming the Maximum Revenue Entitlement methodology to allow for attribution of individual railway investments in capacity, and creating incentives for overall railway investment in new equipment and railcars for the benefit of all shippers;²²
- e. Expanding the list of eligible crops subject to the Maximum Revenue Entitlement and listed in Schedule II of *Canada Transportation Act* to include chickpeas and soybeans, in recognition of their increased production in Western Canada.

The impact of these modernization initiatives, in conjunction with the impacts of the Review’s other recommendations affecting the efficiency of the grain-handling-and-transportation system, should be evaluated within a five year period to ensure they are successfully enabling on-going system fluidity (and to allow for course correction) as the grain sector transitions to a fully commercial framework, absent the Maximum Revenue Entitlement.

Taking immediate action to address the current formula’s market-distorting effects and removing some of its unintended irritants will be a first step toward improving network efficiency and easing existing system bottlenecks, and toward improving the incentives for railway investment and innovation in the Western Canadian grain-handling-and-transportation system.

The eventual elimination of the Maximum Revenue Entitlement will finally place the grain sector on an equal footing with all other commodities transported by rail in Canada. It will reflect the changing nature of the sector, including the growth in specialty crops, higher crop yields, the entrepreneurial ingenuity of producers, and the elimination of the Canadian Wheat Board’s single-desk monopoly. Further, it will harmonize Canada’s grain pricing and regulatory regimes with those in the United States. Finally, an unfettered commercial framework provides greater assurance that supply chain partners who handle and transport grain will invest in innovative supply chain solutions to move grain efficiently in years to come.

The Maximum Revenue Entitlement was reviewed, as it was being implemented, during the last CTA Review. In their Final 2001 Report, the Review Panel concluded that there was no apparent reason “why grain transported by rail should be treated any differently than other commodities.”²³ The Panel also expressed concern that the crisis in the grain industry during 2001 was partly a result of “failure to move quickly enough to a system where commercial forces are allowed to work.”²⁴ The Panel recommended (Recommendation 5.9) that the grain-handling-and-transportation system be moved to a more commercial basis.

Finally, studies over the past decade have supported the notion that the Maximum Revenue Entitlement has had adverse effects on the efficient operation of the grain-handling-and-transportation system; they further argue that the Maximum Revenue Entitlement limits investments required to increase Canada's infrastructure capacity so as to competitively move Canadian grains into world export markets. Regulation tends to stifle both technological and service innovations, thus keeping rates higher than necessary. It is essential that there be no barriers to the most effective services and prices, particularly for export traffic, where transportation is a large (and for some commodities, the largest) cost component in the delivered price of some of Canada's major exports.

Level of Service Obligations

Service failures and shortcomings by the railways have been a longstanding complaint of shippers, especially captive shippers. Under sections 113–116 of the Act, a railway company, as a common carrier, has service obligations for carrying traffic for shippers, which include furnishing “adequate and suitable accommodation” for loading, receiving, carrying, delivering, and unloading traffic “without delay, and with due care and diligence.” Ambiguity in the meaning of “adequate” accommodation has existed for some time and past attempts to elaborate railway service obligations have been unsuccessful. Divergent opinions also prevail concerning the obligations of shippers in the relationship.

Many shippers want the Act to specify that the needs of users are paramount. Railways affirm that level of service obligations must take into account how railways manage traffic for all shippers across the entire finite network.

There is also a need to provide a mechanism to reinforce accountability and predictability of transportation services and performance. Some stakeholders believe that this should include, for example, reciprocal penalties for service breaches, and/or financial consequences for non-performance on the part of all parties to a contract or specific service. Nevertheless, the power imbalance among all the parties in the system (producers, shippers, and carriers) must be addressed.

A more transparent railway network and an Agency empowered to collect and/or possess real-time, system-wide data, analyze trends, and enact change will be better positioned to understand how the system is operating as a whole. (This is discussed in greater detail in Chapter 11: Canadian Transportation Agency.) It will be able to assess, from a network perspective, whether shippers' requests for service are reasonable and whether the railways are fulfilling their obligations to their clients. Most importantly, it will be able to take action based on solid research and analysis to ensure the throughput and profitability of the supply chain is optimized.

In the interest of increasing network collaboration, efficiency, responsiveness, and adaptability, Recommendation 6 in Chapter 8.1: Freight Rail has been advanced. It addresses the concerns of many grain shippers respecting the Act's Level of Services provisions. Among other things, Recommendation 6 proposes that “... the level of services provisions in the *Canada Transportation Act*, sections 113-116, be amended to recognize shippers and their collective needs, in the context of the optimal performance of the freight rail system ...”. This means that the railways must meet the needs of shippers in consideration of the on-going fluidity of the rail network and health of the Canadian economy. The recommendation also addresses the issue of network transparency and supply chain collaboration

by proposing that railways and shippers, among other things have, “ . . . access to in-house expert support if they are unable to conclude terms through informal negotiations . . . ”. If issues cannot be resolved informally, it is also recommended that “ . . . should railways and shippers be unable to conclude agreement terms through an informal process, the Canadian Transportation Agency will provide mediation services. . . ”, and if a mediated agreement cannot be reached it “ . . . may result in one established through arbitration , . . . ” and “ . . . conducted by arbitrators within the Agency who possess significant railway expertise, and concluded in a manner that provides consistency and comparability across agreements . . . ”. Railways and shippers must also negotiate in good faith, share their long-term plans with one another, and identify long-term transportation needs to reduce the potential for the creation of supply chain bottlenecks.

Taken together, these measures will enable the Agency to assess needs and demands in advance, and direct corrective action before minor issues explode into major problems. Amendments to the legislation, such that recognition is given to the network nature of the railway system, and proposals that the railways plan ahead to effectively manage unforeseeable events may also reduce the number and severity of service issues, and make the rail transportation network more resilient.

In regard to producer-car shippers, it is worthwhile to mention the importance of continued, reliable access to producer cars. Under the *Canada Grain Act*, subsections 87(1) and 87(2), grain producers are entitled to order producer cars through the Canadian Grain Commission to ship any grain designated under the *Canada Transportation Act*. Producers generally use these cars to circumvent the grain companies and reduce their costs. In certain instances, such cars represent the only option for delivering a product to market. Accordingly, many grain producers consider the use of producer cars to be a critical marketing and shipping tool for prairie farmers.

That said, the ability for producers to use producer cars is dependent on their availability to be shipped. The grain transportation challenges experienced during the winter of 2013–14 had an especially deleterious effect on the movement of grain via producer cars, according to those in the industry. Some stakeholders mentioned that the Class I railways were giving producer-car movements the lowest of priorities, and that by narrowing the ordering window to a two- to four-week period, the extent of the producer-car demand was obscured.²⁵ According to some, the inability to source producer cars resulted in lost sales and damage to Canada’s shipping reputation. Concerns were also expressed that, with the elimination of the Canadian Wheat Board’s marketing monopoly, and over time, the Class I railways and grain companies will reduce their access to producer cars and infrastructure, and eventually remove this competitive tool for producers.

Many grain industry producers have therefore recommended that the *Canada Transportation Act* be amended to clearly identify the importance of producer cars, prioritize their movement, and ensure that sufficient loading facilities are available and maintained. They also want to ensure that the Act creates an environment in which farmers who wish to load and ship producer cars and have them serviced by the Class I railway companies are able to do so. However, the producer-car shipper’s relationship with the railway might cause some

ambiguity as to whether all shipper protection provisions are available to them. Consequently, the Act should be clear that producer-car shippers are able to avail themselves of the Act's shipper provisions. In order to make certain that producers who wish to transport their product using producers cars are recognized as "shippers" and are accorded the same rights under legislation as other railway shippers, the *Canada Transportation Act* should be amended to clearly articulate who is entitled to file a level of service complaint with the Agency, as well as who might be considered a shipper for this purpose.

- 2. The Review recommends that the *Canada Transportation Act* explicitly define "producer-car shippers" as "shippers" and therefore eligible for all shipper protection provisions enshrined in the Act, including its level of service provisions.**

Compensatory Interswitching Rates

Interswitching is a competitive access provision for the benefit of shippers, intended to allow "captive" shippers fair and reasonable access to another competing railway at a regulated rate.²⁶ Sections 127 and 128 of the Act provide the authority for the Agency to regulate interswitching within a radius of 30 km of an interchange.²⁷ The Railway Interswitching Regulations set the rates to be charged for interswitching services provided by the terminal carrier. The interswitching rate is based on the system-wide average of the railways' costs for such switching movements (including a contribution to fixed costs). While the Agency has established different rates based on zones within the 30 km radius (and beyond) and on the numbers of cars switched, the rate is the same regardless of where the move occurs, and does not vary by market conditions.

Concerns have been raised that rates set in a formulaic manner such as this are not consistent with commercial considerations, as stipulated in section 112 of the *Canada Transportation Act*: "A rate or condition of service established by the Agency . . . must be commercially fair and reasonable to all parties." They may not respect the need for a sufficient return to justify investment by both the Class 1 railways and federal short lines.

Further, the railways argue that the current treatment of interswitching movements in the Maximum Revenue Entitlement calculations are causing them financial harm, because, while the railway in question must claim the revenue it receives for performing interswitching, the adjustment made to its Maximum Revenue Entitlement does not fully reflect the interswitching movements performed (i.e. the adjustment for tonnes moved). This perceived unfairness of the rate calculation methodology may discourage railways from engaging in interswitching, thereby eroding the effectiveness of a tool intended to stimulate railway competition.

- 3. The Review recommends that the Canadian Transportation Agency review its methodology pertaining to interswitching rate setting methodology to make them compensatory.²⁸ The Review further recommends that the Agency be permitted to set interswitching rates annually, to better reflect actual costs, and not only when the *Railway Interswitching Regulations* are reviewed and published.**

There is a lack of clarity in the way in which interswitching rates are calculated by the Agency. The prescribed interswitching rate is solely cost-based and does not take into

account the revenue adequacy of the terminal carrier, of any forgone contribution to fixed costs that might otherwise have been earned by the terminal carrier, or of the quality or competitiveness of the terminal carrier's service. A comprehensive review of the Agency's interswitching rate methodology will determine whether they are truly compensatory in all or most instances.

Shippers believe that railways do not currently compete for one another's traffic. If it is determined that the interswitching rates are not compensatory, a modernization of the interswitching rate-setting methodology, with a view to making them compensatory to the railways, including federal short line railways that have a unique cost structure relative to the Class 1s, could encourage rail carriers to engage in more interswitching operations, thereby increasing competition.

At a minimum, enabling the Agency to set rates annually and removing the rate-setting mechanism from the regulatory process (i.e. when the *Railway Interswitching Regulations* are reviewed and modified²⁹), could result in interswitching rates that better reflect actual costs. There are important time lags between the initiation of the regulation-making process and the making of regulations, so interswitching rates currently in effect can actually reflect railway costs from four or more years in the past. The railway industry is dynamic and interswitching rates established many years ago cannot be presumed to remain reflective of railway costs.

Sunset 160 km Interswitching Limits

The Railway Interswitching Regulations were amended on August 1, 2014, extending the limit for rail interswitching for grain and all other commodities from 30 km to 160 km in Alberta, Saskatchewan, and Manitoba.³⁰ This measure was intended to increase competition among the Class 1 railways and give shippers access to alternative rail services. The 30 km interswitching limits allowed only 14 elevators in that radius to commercially negotiate a rate with a competing rail line (either in Canada or the United States) for the line haul movement, whereas 150 grain elevators became eligible once the limit was extended to 160 km.³¹

Although approximately 94 percent of grain elevators are currently served by one railway, to date only a handful of shippers have taken advantage of these new limits. Reasons for the low uptake may include the fact that parties are not willing to make investments (in new sidings, for example) to accommodate the extended limits, given that they are aware of some uncertainty surrounding their permanency. Shippers may simply believe that CN and CP are unwilling to compete for such traffic and that interswitching is therefore ineffective. Alternatively, the new distances may still not be long enough to capture most non-grain "captive" shippers of commodities such as forestry, or coal.

The railway community believes that the Agency's regulated interswitching rates are non-compensatory, as discussed above, even within the 30 km radius, and are contrary to market-based pricing. If the extended 160 km interswitching limit were applied to all commodities in all provinces, regulated freight rates could potentially apply to the vast majority of rail traffic in Canada. Since regulated interswitching rates are cost-based, interswitching along a longer portion of the track means a diminution of that portion of the network from which the railways can generate revenues at market prices and engage in differential pricing.

Further, the 160 km interswitching limit raises issues about connectivity and competition from railway carriers in the United States, as American carriers can solicit Canadian traffic, but the reverse is not true.

Applicants not covered by the 160 km limit may still go to the Agency to request an interswitching extension. However, the intent of the Act is to provide an extension to those located relatively close to the 30 km interswitch bounds, if the shipper's circumstances warrant it (e.g. the applicant would be competitively disadvantaged without it).

4. The Review recommends that the Government of Canada allow the extended 160 km interswitching limits, as defined under the amended *Railway Interswitching Regulations* and related to the *Fair Rail for Grain Farmers Act* (Bill C-30), to sunset.

According to Agency officials, very few shippers have availed themselves of the extended limits to date, thus it is expected there will be little impact if they are "sun-setted." Competition could be enhanced, however, if interswitching rates were compensatory to the railways, as per Recommendation 3 above, and if section 127(4) of the Canada Transportation Act were modified in such a way that shippers could apply for extended interswitching under exceptional circumstances, without having to be located "... reasonably close to the interchange."

Hopper Car Investment

Renewing the aging grain hopper-car fleet is a critical part of ensuring a modern, efficient grain-handling-and-transportation system. The total number of Canadian grain hopper cars is currently estimated at roughly 23,000. Federal and provincial government-owned cars account for about 44 percent of the total, with the balance owned by the CWB/G3 Global Grain Group and the railways. Roughly 75 percent of the total hopper-car fleet is likely to be retired as they reach the end of their service life during the five-year period from 2025 to 2030. Given that new hopper cars cost approximately \$100,000 each, the replacement of the fleet will require a large capital investment in the medium and longer term. Replacing the cars during the five-year span in which three-quarters of them will likely be retired would make the task even more financially daunting. Moreover, since 1995, government policy has focused on commercial solutions for the maintenance and renewal of the grain hopper-car fleet. There has been no public investment in renewing or expanding the fleet.

The government hopper-car fleet was purchased when subsidized grain freight rates were not compensatory and did not provide sufficient revenue for the railways to invest in replacements for the box-car fleet used for grain transportation at the time. These circumstances no longer exist. It is of note that modern, jumbo hopper cars have 15 percent more capacity than government cars, which could increase capacity of the fleet.

Many submissions from and consultations with grain shippers highlighted the lack of adequate railcar capacity in the grain-handling-and-transportation system. This perception of insufficiency was intensified during the grain transportation "failures" in the winter of 2013-14, when some shippers were receiving some of the cars they ordered from the

railways, and others were receiving none. Most shippers appealed to the railways to increase their railcar supply to meet current and future demand. Given the seasonal peaks in demand for transportation of grain and the inadequate supply of hopper cars to meet the peak demand, hopper-car rationing was inevitable.

Implementation of Chapter 8.1: Freight Rail, Recommendation 2 (Improving the competitiveness of Canada's investment climate for rail), coupled with the implementation of Recommendation 1 respecting the Maximum Revenue Entitlement (above), will create an environment more conducive to investment in the renewal of the grain hopper-car fleet, thereby helping to ensure that network capacity meets current and future demands.

Making an immediate change to the Maximum Revenue Entitlement methodology to permit attribution of individual railway investments will provide immediate investment incentives. In the longer term, its elimination will further reduce disincentives for investment in a renewed grain hopper-car fleet required for Canada to competitively move Canadian grains into world export markets.

In addition, increasing the capital cost allowance (CCA) rates to levels comparable to those in the United States would motivate all operators or car owners to expand capacity, including grain hopper-car capacity, in the near term. Permanent CCA increases will create a stable and predictable environment for investment, and place Canada on a stronger competitive foundation. Expanded capacity is a potential source of new productivity gains, and protection against congestion or network failure.

Notes

- ¹ This section was prepared from a review of many sources, including Agriculture and Agri-food Canada (AAFC) internal documents, and a paper written by Joseph Monteiro and Gerald Robertson entitled: *Grain Transportation in Canada – Deregulation* (July 27, 2014).
- ² Darcie Doan, Brian Paddock and Jan Dyer, *Grain Transportation Policy and Transformation in Western Canadian Agriculture*, Agriculture and Agri-food Canada (2003).
- ³ This refers to the present day Grain Monitor. In conjunction with the enactment of Bill C-34, the government announced that it would appoint an independent third party to monitor the overall efficiency of the grain-handling-and-transportation system, including the impact of changes on producers, the Canadian Wheat Board, railways, grain companies, and ports. Quorum Corporation was selected as the monitor for the Prairie grain-handling-and-transportation system in June 2001.
- ⁴ Agriculture and Agri-food Canada, "Harper Government to Further Address Grain Logistics System Challenges," News Release (February 3, 2014).

- ⁵ Given that there had been improvements in the movement of grain by rail over the previous year, on March 28, 2015, the Minister of Transport Canada and the Minister Agriculture and Agri-food Canada announced that the Government of Canada would not renew its requirement for CN and CP to transport minimum volumes of grain by rail after the most recent Order in Council expired on March 28, 2015. [Source: Transport Canada, “Canada’s grain supply chain returning to normal,” News Release (March 28, 2015)].
- ⁶ Agriculture and Agri-food Canada, “Important Measures for the Grain Handling and Transportation System Now in Force,” News Release (August 1, 2014).
- ⁷ Euan Rocha and Marwa Rashad, “Saudi firm, Bunge to buy majority stake in Canadian grain handler,” Reuters (April 15, 2015), accessed on November 23, 2015, online: <http://www.reuters.com/article/2015/04/15/canadian-wheat-ma-g-idUSL2N0XC17Q20150415>.
- ⁸ This section draws from current Agriculture and Agri-Food Canada analysis and various Quorum Corporation reports.
- ⁹ Agriculture and Agri-Food Canada, internal data, as of October 2015: grains and oilseeds, including special crops, except for dry peas, at the Canada level.
- ¹⁰ Agriculture and Agri-Food Canada, internal data, as of October 2015.
- ¹¹ *Ibid.*
- ¹² *Ibid.*
- ¹³ Quorum Corporation, Grain Monitoring Program Supplemental Study, *Grain Supply Chain Study – Final Report* (September 2014), page 22.
- ¹⁴ The number of licensed primary elevators (i.e. those that receive grain directly from producers for storage, forwarding, or both) and process elevators (i.e. those that receive and store grain for direct manufacture or processing into other products) in Western Canada has declined from 1,004 facilities in 1999–00 to 371 facilities in 2013–14, a decline of over 63 percent. Note there are two other types of grain elevators in current use: “Terminal elevators” which receive grain on or after official inspection and weighing and then clean, store, and treat the grain before moving it forward, and “transfer elevators,” which transfer grain that has been officially inspected and weighed at another elevator.
- ¹⁵ Quorum Corporation, Grain Monitoring Program Supplemental Study, *The Marketing and Logistics Component of the Canadian Grain Supply Chain – Technical Report* (September 2014), at 28.
- ¹⁶ Quorum Corporation, Grain Monitoring Program Supplemental Study, *Grain Supply Chain Study - Final Report* (September 2014), Figure 12: Summary View of the Canadian Grain Logistics Supply Chain, at 50.
- ¹⁷ *Ibid.*, at 22.
- ¹⁸ Agriculture and Agri-Food Canada, *Op.Cit.*, 2015.
- ¹⁹ Quorum Corporation, Grain Monitoring Program Supplemental Study, *Grain Supply Chain Study - Final Report* (September 2014), page 27.

- ²⁰ Railways' costs are higher for container movements and so they charge higher rates; this extra revenue consumes the railways' respective Maximum Revenue Entitlements more quickly.
- ²¹ The current formula cannot distinguish individual railway investments, so investments, regardless of which railway makes them, are applied equally to both railways in the formula. Thus, benefits from one railway's investments accrue to both railways equally, creating the disincentive and the "free-rider" effect.
- ²² This could mean that the Maximum Revenue Entitlement methodology would be modified, such that each railway would have its unique railway price inflation index, as now, by law, it is the same for both railways. The railway price inflation index is the volume-related composite price index; given that it is the same for both railways in the Maximum Revenue Entitlement formula, it can create distortions. For example, the rate of inflation of each railway's input prices are not identical; thus the current formulaic approach results in one railway having a higher Maximum Revenue Entitlement than necessary while the other railway benefits from a lower one. The same holds true respecting railway investments in hopper cars, for instance; only half of the cost-adjustment is attributable to the railway making the investment, while the non-investing railway receives an undeserved benefit.
- ²³ Transport Canada. *Vision and Balance: Report of the Canada Transportation Act Review Panel – June 2001*, (Ottawa: Minister of Public Works and Government Services Canada, 2001), Catalogue No. T22-107/2001E, at 73.
- ²⁴ *Ibid.*, at 73.
- ²⁵ Saskatchewan Barley Development Commission, *Submission to the Canada Transportation Act Review Panel* (December 2014), accessed on November 23, 2015, online: <http://www.saskwheatcommission.com/newspost/submission-to-the-cta-review-panel>.
- ²⁶ Interswitching is the transfer of rail traffic by one railway, the local carrier, between a shipper's facility and an interchange with a second railway. Interswitching rates are the freight rates paid to the local carrier to move the traffic to and from the interchange point.
- ²⁷ Of note, on March 26, 2014, Agriculture and Agri-Food Canada Minister Gerry Ritz, supported by Transport Canada Minister Lisa Raitt, introduced in Parliament Bill C-30, an Act to amend the *Canada Grain Act* and the *Canada Transportation Act* and to provide for other measures (*Fair Rail for Grain Farmers Act*). Section 7 of the *Fair Rail for Grain Farmers Act* empowers the Canadian Transportation Agency to prescribe new interswitching rates for customers at distances for specific regions, and for commodities as the Agency sees appropriate. The Government indicated that this amendment would be used to permit the interswitching of all commodities within a limit of 160 kilometres in the Prairie provinces (Alberta, Saskatchewan and Manitoba), extending the limit from the existing limit of 30 kilometres so as to ensure maximum opportunity for competition and for additional railway service to support grain farmers in the Prairie provinces.

- ²⁸ This may be done pursuant to section 128(5) of the *Canada Transportation Act*, which requires the Agency to review the *Railway Interswitching Regulations* when circumstances warrant, and at least once in every five-year period after the regulations are made.
- ²⁹ Currently, interswitching rates are only modified and published when the *Railway Interswitching Regulations* are reviewed; this may be whenever circumstances warrant, but at least once in every five-year period after the regulations are made. This means, for example, that an interswitch rate set four years ago reflects costs possibly four years old or older. Perhaps a degree of a rate's perceived "non-compensatory" nature may be due to this time lag, given that most railway costs (e.g. labour, maintenance, etc.) rise over time.
- ³⁰ See footnote 27.
- ³¹ The number of grain elevators as stated by the Hon. Gerry Ritz, Minister of Agriculture and Agri-food, to the House Standing Committee on Agriculture and Agri-Food, March 31, 2014. However, the Canadian Transportation Agency's August 1, 2014 Regulatory Impact Analysis Statement indicates that: "This amendment extends the interswitching zone for shippers of all commodities located within Alberta, Saskatchewan and Manitoba from 30 kilometres to 160 kilometres Up to 261 grain elevators will have access to more than one carrier, compared to 48 at present."

Chapter 8.3: Passenger Rail

The building of a transcontinental railway, Canada's first great project, is inextricably linked to Confederation and, 130 years later, is still an event of mythic proportion. The romance of the railway embedded in the Canadian psyche belies the reality that, with the completion of the TransCanada Highway and the introduction of passenger airlines, federally operated services have experienced declining ridership for decades. In contrast, commuter rail ridership has continuously increased.

Still, passenger rail has an important place in public consciousness and Canadians have a positive view of the convenience of rail. The train that carries us from coast to coast is a symbol of our nationhood, despite the small percentage of Canadians who use it.

The Review has been asked to consider "How federally-regulated passenger rail services can be delivered to meet travellers' needs while minimizing costs to the public purse."

History: Many Different Tracks

Since its inception, passenger rail has largely operated on the same tracks as freight rail. This has allowed passenger rail to develop without necessitating corresponding investment in track infrastructure. However, there are significant drawbacks inherent in this approach. Each service, for example, operates at different optimal speeds and passenger trains run more effectively on tracks that provide a smoother ride.

Passenger rail operations that fall within the scope of this chapter are inter-city rail; regional and remote rail; tourist and long-haul passenger rail; and commuter services that are federally-regulated and/or come under elements of federal jurisdiction, such as sections of the *Canada Transportation Act*.¹

In 1977, VIA Rail was established through an Order in Council as a Crown Corporation with non-agent status. This means that the federal government is not legally liable for the specific actions of VIA, unless the corporation acts under explicit direction of the Crown; practically speaking, VIA cannot borrow funds with the assurance that the federal government will backstop the loan.

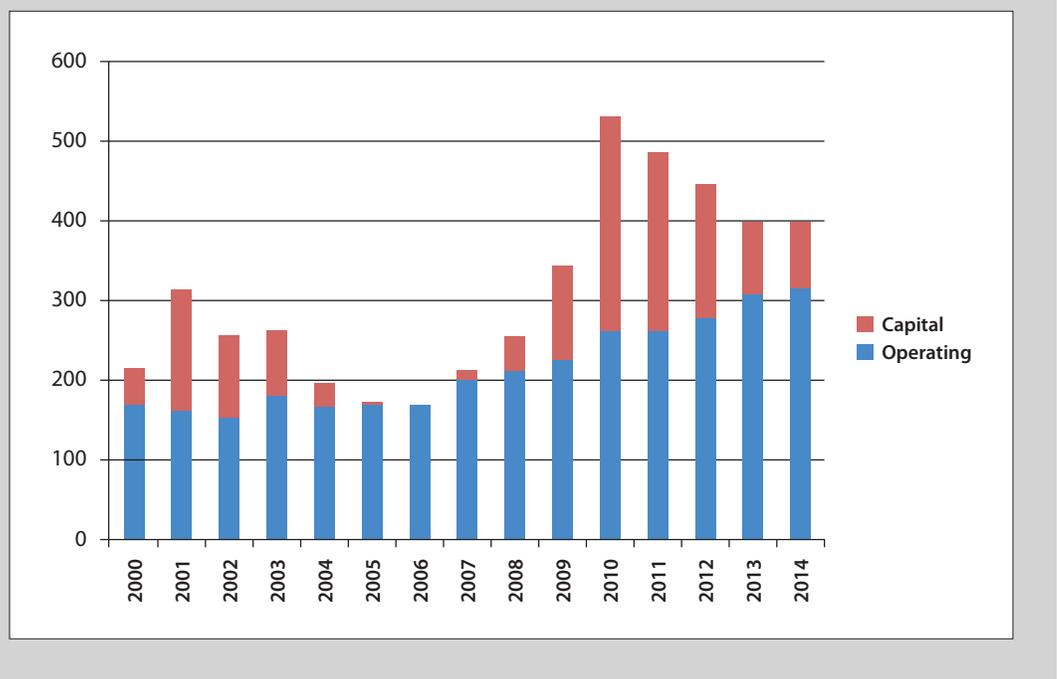
VIA's assets and operations result from combining passenger services previously provided by CN and CP. Ridership peaked at about eight million trips in 1981 and fluctuated around 6 to 7 million for the remainder of the decade,² yet it was highly subsidized. In 1990, operations were reduced by about 50 percent, which eliminated regional routes with low ridership and consolidated long-haul routes. Once VIA Rail's operations were cut, there was a commensurate and significant decrease in ridership. Throughout its history, VIA Rail's fortunes have ebbed and flowed depending on the decisions of government and have, in some cases, suffered from short-term funding and policy choices.

Canada’s model of passenger rail service is unique compared to models in other countries because, in Canada, commuter rail and long-distance services are provided by different entities.³ This means that the two services move on separate tracks in a figurative sense, although not a literal one; there is no joint planning or funding. In addition, while passenger rail ridership has been in long-term decline, commuter rail has experienced growth in ridership, networks, and investments from governments.

The recommendations on passenger rail services included in the report of the 2001 Canada Transportation Act Review generally focused on transforming VIA Rail into a more commercially oriented operation. Notwithstanding the report’s recommendations, VIA Rail’s governance structure has remained unchanged. Low ridership, significant subsidies, declining on-time performance, and the lack of frequencies are long-standing challenges to the continued sustainability of federally operated passenger rail services.

On the other hand, the significant growth of commuter rail services over the past 50 years aligns with the growth of urban and suburban areas and increased congestion on high-ways. The increasing reliance on commuter rail has occurred in Canada’s three most populated areas: the Greater Toronto Area, the Greater Montréal Area and the Lower Mainland in British Columbia.

**FIGURE 1 —
GOVERNMENT OF
CANADA PAYMENTS
TO VIA RAIL INC.,
2000–2014**
VIA RAIL ANNUAL REPORTS,
2000–2014 (MILLIONS OF
DOLLARS)



| 2014 Subsidies to VIA by Service | | | |
|--------------------------------------|---------------|-----------------------|---------------------------------|
| Train Service | Total Subsidy | Subsidy per Passenger | Subsidy per 100 Passenger Miles |
| Toronto-Ottawa-Montréal | \$93 | \$44 | \$21 |
| Total Corridor (Quebec City-Windsor) | \$172 | \$48 | \$27 |
| "Canadian" (Vancouver-Toronto) | \$55 | \$591 | \$50 |
| "Ocean" (Halifax-Montréal) | \$36 | \$480 | \$93 |
| Regional/Remotes | \$54 | \$777 | \$304 |
| Total VIA Rail | \$317 | \$83 | \$39 |

FIGURE 2 —
SUBSIDIES TO VIA
 FROM VIA RAIL SUBMISSION
 TO THE CTA REVIEW, P.19
 (MILLIONS OF DOLLARS)

Despite declining ridership, long-distance passenger rail service in Canada continues to provide an alternative to road and air travel, offering transportation options in the Quebec City–Windsor Corridor, on long haul routes in Eastern Canada, and from central to Western Canada, as well as service to locations where the transportation options are limited.

Where we are today: Illustrating The Need and Opportunity for Governments to Act

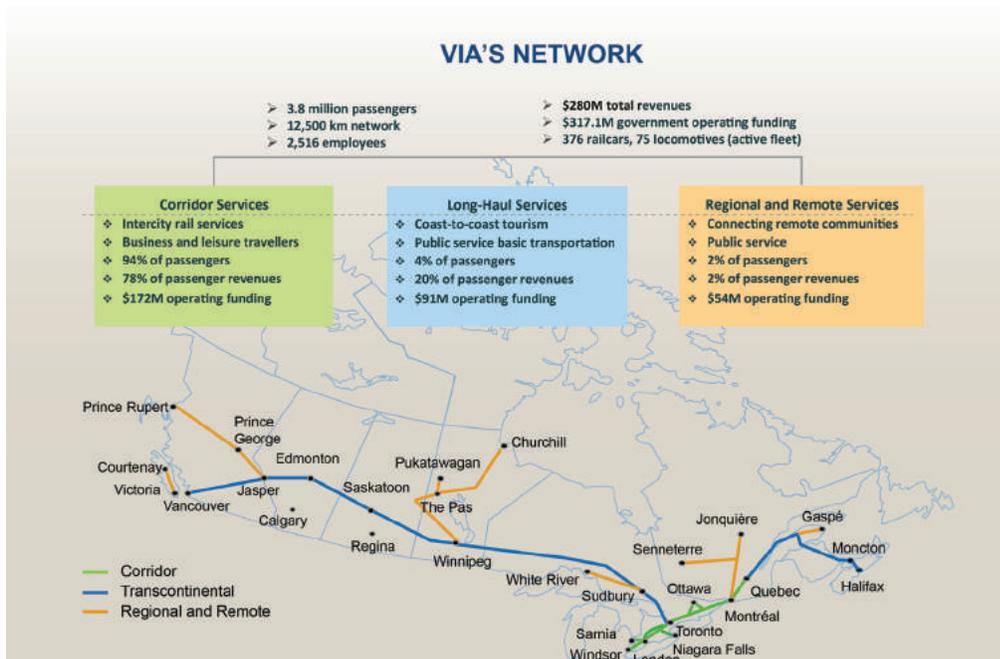


FIGURE 3 —
 FROM VIA RAIL SUBMISSION
 TO THE CTA REVIEW, P.19

VIA Rail's 2014 Annual Report indicates that it operates 500 trains weekly on 12,500 kilometres of track, connecting more than 450 communities.⁴ VIA has historically and consistently received significant federal subsidies, as indicated in Figure 1 above. In 2014, VIA Rail received a total of \$317 million from the federal government for its five major services, as detailed in Figure 2.

There are three types of federally operated passenger rail service in Canada: Intercity rail, regional and remote passenger rail, and tourist and long-haul passenger rail. The following section sets out the current status of each type.

Intercity passenger rail services connect cities and cover longer distances than commuter rail. Intercity passenger rail service plays a modest role in transportation across Canada, although in the Windsor–Quebec City Corridor it captures about eight percent of the travel market (by trips).⁵ The majority of VIA Rail trips are in the Toronto–Ottawa–Montréal Corridor, and they represent VIA's core business, although VIA advised the CTA Review that operations are hampered by slow speeds and limited access to track (VIA uses CN's track for much of this service). VIA Rail makes the case that the construction and use of a dedicated passenger rail track in this Corridor would significantly diminish the need for subsidies, at least for Corridor operations. In addition to the subsidies, which are significant, VIA also pays CN and CP for track access. This contrasts with the use of roadways and highways, where the principle of direct user-pay is generally not in effect, except in limited portions (i.e. Highway 407 in Ontario – although it may be argued that drivers on roads pay indirectly for use through fuel taxes.) If it were, particularly in respect of highway transportation in the Windsor–Quebec City Corridor (the Corridor), perhaps travellers would see passenger rail as a more attractive option and ridership might increase.

There is known to be significant friction between VIA Rail and CN in the Corridor. VIA Rail has requested but not yet received additional frequencies and has experienced poor on-time performance. VIA indicates that this had a negative effect on ridership between 2010 and 2014. VIA attributes the poor on-time performance to the priority accorded to freight trains over passenger trains. While research indicates that lower on-time performance may not be a reliable driver of ridership levels in the Corridor,⁶ there is inherent incompatibility between freight and passenger trains. Conventional passenger rail trains are short, light, and capable of travelling at higher speeds than freight trains. Highway congestion within the Corridor has been increasing and the time may be ripe to seek private sector investment in the infrastructure required to significantly improve this service.

Regional and remote passenger rail consists of subsidized services provided by VIA Rail and other operators in, or to, several rural and remote areas of Canada. As noted in VIA Rail's 2014 Annual Report, "(m)andated by the Government of Canada to meet essential transportation needs, these trains serve many communities where alternative, year-round transportation is limited or unavailable."⁷ VIA Rail operates five dedicated regional and remote routes. There are at least three additional regional and remote routes operated by private providers. Please see Volume Two, Appendix J for more information on regional and remote passenger rail services in Canada.

Tourist and long-haul passenger rail services are terms with overlapping meanings. VIA Rail operates the Canadian, which runs from Toronto to Vancouver, and the Ocean, which runs from Montréal to Halifax. While many tourists use these services, other types of travellers also take advantage of them, including residents who travel from centre to centre. Other tourist rail services include the Rocky Mountaineer (which operates mostly between Vancouver and Alberta) and the White Pass and Yukon Route Railway; these focus exclusively on tourism and do not receive federal subsidies.

Commuter rail services transport people to and from work, from outlying areas to downtown cores. As Canada's three commuter rail systems carry passengers between cities and municipalities, they are operated by provincial agencies.

In the Greater Toronto and Hamilton Area, GO Transit began operating on a rail line along Lake Ontario in 1967. Since then, it has developed an extensive network of rail lines that, along with its bus operations, transport more than 68 million passengers per year. GO Transit states that on a typical weekday, it runs over 250 trains each weekday carrying 215,000 passengers. GO, which is owned by Metrolinx (formerly the Greater Toronto Transportation Authority), manages more than 337 km of track corridor, equivalent to approximately 80 per cent of its network, whereas freight rail companies own the remainder of its network.⁸

In the Greater Montréal Area, the Agence Métropolitaine de Transport (AMT) is the organization responsible for public transportation services, including bus and commuter rail. AMT owns approximately 35 percent of the rail network on which its commuter trains run; other rail companies own the remainder.⁹

West Coast Express is the commuter rail service for the lower mainland of British Columbia, between Mission and downtown Vancouver. Its parent organization is TransLink, which is officially known as the South Coast British Columbia Transportation Authority. West Coast Express does not own tracks.¹⁰

Other Jurisdictions

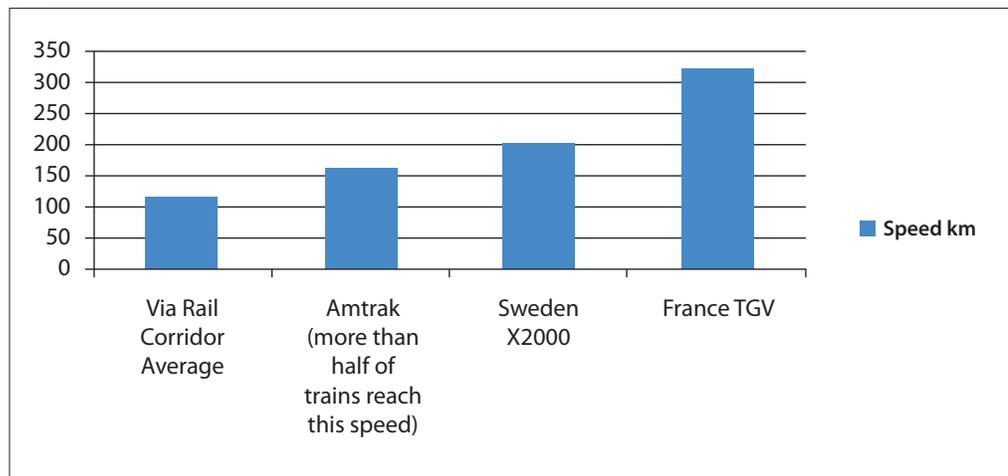
Canada's passenger rail system differs in many respects from that of other developed countries. Canada, for example, has no legislative framework to articulate mandates, objectives, structures, and funding arrangements for passenger rail services. This is not the case for the United States, which passed the *Rail Passenger Services Act* in 1970, or the United Kingdom, with its 1993 *Railways Act*.

Research included in VIA's 2014 Annual Report also indicates that, "Canadian population and rail volumes are much smaller in comparison with other countries. VIA Rail does not have the same potential as other countries for traffic density in its markets (i.e. long, frequent trains with many passengers)."¹¹ A further difference is that, in many other countries, intercity and commuter rail services are integrated. This enables joint planning and shared funding by multiple levels of government. In Canada, the provinces and the federal government, as well as VIA Rail's own management, plan and implement policies and services without the benefit of collaboration and joint planning.

In the U.S., the biggest passenger rail operator is Amtrak, a publicly funded, for-profit corporation. Amtrak has its own enabling legislation and receives funding from states as well as the federal government. Freight railroads own most of the tracks on which Amtrak operates, but Amtrak owns the rail track in most of the relatively dense Northeast Corridor (NEC)—unlike VIA Rail, which does not own track in its Quebec City–Windsor corridor. Amtrak’s NEC operates at a US\$290-million profit (2015 fiscal year estimate) with a US\$735-million capital investment (comprising the US\$290-million operating profit and a US\$445-million federal capital grant request). There are key differences between the Northeast Corridor and the Windsor–Quebec City Corridor, including the Northeast Corridor’s much greater population density, Amtrak’s ownership of most of its infrastructure, and the fact that Amtrak transports commuters to and from work.

Canadian passenger rail also stands out in comparison to European operations.¹² European Union member states have separated the provision of transport services and the management of the associated infrastructure. In most cases, national railway companies were split into separate divisions or independent companies in charge of infrastructure, passenger, and freight operations. Speed is another distinguishing feature: the European high-speed railway network operates at speeds that far exceed the speeds at which VIA trains currently run. Figure 4 below compares the average speed of trains in VIA’s Windsor–Quebec City Corridor to the speed of trains in the United States and two European Union services.

**FIGURE 4 —
PASSENGER RAIL
SPEEDS COMPARISON¹³**



Where we want to be in the next 30 years: Laying the Tracks for Passenger Rail Success

The Review received submissions addressing both short- and long-term passenger rail issues. The concerns and suggestions they contained have informed our Review and led to recommendations calling for a new model of passenger rail services, in which passenger rail (including commuter rail) would be segregated from freight rail. The recommendations are linked to long-term objectives, based on a planning horizon of 30 years or more.

In the coming decades, passenger and freight rail traffic are both expected to increase at accelerated rates in and around urban areas. There are various reasons why Canadians should continue to have access to passenger rail services as an alternative to road or air travel. Maintaining passenger rail is in keeping with the government's efforts to address climate change. It also makes sense in relation to Canada's aging population and the goal of effecting productivity improvements through increased fluidity and mobility. The current model of shared track infrastructure necessitates collaboration and trade-offs between passenger and freight rail services. Although workable in the near term, it severely limits fluidity, and is untenable over the longer term.

Changes are needed to enable passenger rail services in Canada to develop on a more predictable and sustainable basis. Private sector approaches, such as a share-capital model and private sector financing, would better address some hitherto intractable problems: decreasing ridership, fare prices that do not reflect services provided, poor on-time performance, inability to add frequencies on some routes, and the inability, as a non-agent Crown Corporation, to borrow and raise capital. Since most passenger rail services in the Western world require financial support from government, so too would VIA continue to rely on subsidies from the federal and other governments, although the improvements that would likely flow from a private sector approach would lessen the burden on the public purse.

For commuter rail and federally operated passenger rail services, there needs to be collaboration and joint planning on policy and operational levels between the federal government and provincial partners. The Review has heard that these two types of services are not as well integrated as they could and should be and that sometimes they work at cross-purposes by duplicating routes and failing to coordinate planning of long-term track construction and route design.

There are multiple technological advances that may have an impact on passenger rail and other transportation services for the public. The advent of automated vehicles could make it easier, more productive, and ultimately more comfortable to travel in personal vehicles. Rising levels of ridesharing, especially among young travellers who are frequent intercity rail users, may negatively affect passenger rail demand. As an example, a Montréal-based ridesharing service increased subscriber rates from 6,000 to 200,000 between 2006 and 2014.¹⁴ Improvements in video-conferencing technologies could also reduce the demand for passenger rail travel among business travellers.

In contrast, there are demographic factors that may create opportunities for growth of passenger rail in Canada, including declining vehicle ownership rates and a greater openness to alternative means of travel.¹⁵ In addition, an aging society may be less dependent on personal vehicle use for convenience, or by necessity, if enough reasonable options exist.

“Passenger rail service may be the only viable transportation option for many residents living in communities in Nova Scotia and New Brunswick . . . The need for this passenger service is becoming more acute given the ageing demographic in Atlantic Canada that is highly dependent on public transportation services. We recommend that the CTA include an appropriate provision that would commit the federal government to guarantee the existing level of service as a minimum and provide appropriate resources to VIA Rail as required to continue pursuing and implementing new initiatives to rebuild the service.”

— *Atlantic Canada Ministers of Transportation Submission to the CTA Review*
January 23, 2015

Fluidity of Passenger Rail

Due to the different characteristics of passenger and freight rail operations (such as different optimal speeds and, ideally, different types of tracks) and the anticipated continued growth of each service, separate networks should be sought whenever and wherever possible. According to their March 2015 submission to the Review:

VIA Rail believes that, with a dedicated passenger infrastructure, through improved services in the Toronto–Ottawa–Montréal Corridor and the rest of the Quebec City–Windsor corridor, its corridor operations could contribute sufficiently to its overall operations to substantially reduce and possibly eliminate the Government of Canada’s operating subsidy.

A direct user-pay component exists for all types of passenger rail services, to various degrees, along with subsidies received from federal and provincial levels of government. However, government has not applied this same principle to the use of personal vehicles through such mechanisms as toll roads or gas taxes to directly support road construction and maintenance, which means that driving cars over long distances tends to be less costly than taking passenger rail. There is little question that both commuter and federally supported passenger rail would attract more riders if direct user charges were consistently applied to all modes of transportation, depending on the differential between different modes.

“. . . (w)e recommend that the federal government consider infusing user-pay principles for all transportation infrastructure decisions, regardless of mode. We also suggest that the federal government support the development of a national road-tolling policy to increase the competitiveness between modes. Finally, that funding decisions be based on full life-cycle costs of both capital and operating.”

— *TransLink (South Coast British Columbia Transportation Authority) Submission to the CTA Review*
January 2015

Passenger rail companies and agencies have limited influence on freight railways in the context of negotiations and dispute resolution for access to tracks and conditions of use. Operators of commuter rail services are experiencing significant growing pains associated with the expansion of their networks and interface with other railway companies. VIA is among those experiencing challenges and has stated that it is in a “deep hole” due to deteriorating reliability and its inability to obtain additional frequencies on some routes. A tourism operator has noted that, while track access agreements have been concluded successfully, the increases in freight usage may seriously undermine access to track capacity in future.

“As owners, we are able to enhance infrastructure, increase service and more effectively control the safety of our operations. As owners, we have rights and responsibilities over our own rail corridors, and assert the right to establish the terms and conditions for any party’s use of such tracks, subject to our constituting legislation. In order to do this, we need information on federal freight movements and incidents. Without this information, we are at risk whenever there may be inadequate route planning of hazardous commodities, or insufficient information sharing and collaboration in risk management, product containment or security, or other rail freight safety measures. Our concerns echo municipal concerns with the ongoing movement of dangerous goods on rail corridors spanning (in particular) built-up metropolitan areas, and issues of transparency, information sharing and route planning.”

— *Metrolinx (GO Transit division); l’Agence Métropolitaine de Transport; TransLink (B.C. Rapid Transit Company Ltd.); and West Coast Express Ltd. Group Submission to the CTA Review*
May 2015

Passenger rail operators are obligated to conduct business in a timely and reliable manner —Canada’s economic productivity depends on it, as do passengers counting on the service to get to work, or move from one city to another for business purposes. The Review heard that passenger trains are sometimes required to stop on multiple occasions for periods of up to one hour or more, to allow freight trains to pass.

There are a number of concerns and proposals brought forward by commuter rail agencies. For example, the Review heard that the movement of dangerous goods poses risks to the safety and security of the travelling public and has requested reporting of data on incidents and movements of such goods on commuter corridors.

On the topic of the transportation of dangerous goods on commuter rail tracks, the Review encourages collaboration between all parties to reach appropriate arrangements.

According to a non-rail operator, the current arrangement of shared track is also causing challenges for export-driven freight rail. Port Metro Vancouver submits that trade corridors are experiencing high congestion, partly due to passenger rail using the same track as freight rail trains. The Port recommends that passenger services “avoid using critical commercial rail lines” and that new protocols be put in place to plan the growth of freight and passenger traffic and the preservation of critical corridors.

Long-term planning is required to ensure that corridors are protected and plans are in place for future use, whether for passenger or freight rail purposes. The Canadian Urban Transit Association suggests that the *Canada Transportation Act* “recognize the strategic value of urban rail corridor investments to support growth” and asks that the sale of railway corridors be based on fair market value. Clearly, all parties should work toward long-term solutions that allow for the development of rail corridors for both freight and passenger rail. It is in Canada’s economic interest that they collaborate.

In the short-term, the federal government should encourage enhanced cooperation of freight and passenger rail to ensure optimization and reliability of operations for both services. If necessary, it should mandate improvements for the interim and remaining use of the shared track infrastructure, such as positive train control.

A dedicated track in the Toronto–Ottawa–Montréal corridor, similar to Amtrak’s Northeast Corridor, could significantly improve passenger rail service for this intercity market. Securing private investment to supplement federal government support could help to make this happen much sooner than would otherwise be the case. A dedicated track would be good for Canada: it would allow for additional passenger rail frequencies and more freight rail capacity in the long term and would help to lower highway congestion in Ontario and Quebec. However, any proposal from VIA Rail would have to be carefully assessed to ensure that the elements relating to ridership and attracting private investment are viable. The decision should be based on achieving environmental goals and targets; it should also take account of changing demographics, ensure the efficient transportation of people, and effect a reduction in highway congestion.

If a dedicated track is planned for the Toronto–Ottawa–Montréal corridor and might eventually be extended to Windsor on one end and Québec City on the other, route planning should anticipate the likelihood, over the long term, of introducing high-speed service. For high-speed service, collaborative planning would be beneficial for passenger rail corridors (Calgary–Edmonton, Windsor–Québec City) to prepare for the long-term need.

Over the last decades, a number of government-funded studies have been done on prospects for high-speed rail in Canada. The most recent study, commissioned by the federal government, Ontario, and Quebec, was conducted by a consortium called EcoTrain. The study assessed high-speed rail technologies, possible routes, ridership forecasts, and cost-benefit analyses. The main findings from the financial analysis of the full Quebec City–Windsor corridor were that, while the project could cover all operating costs, governments would need to contribute significantly to project development costs and would receive no financial return on their investment. By comparison, the Montréal–Toronto segment would make more financial sense. An analysis of the non-financial costs and benefits of the project suggested that implementing the Montréal–Toronto segment of the project, using either diesel or electric trains, would have a positive impact on the Canadian economy.

The federal government should position both freight and passenger rail services for long-term sustainability through proper planning and investments for separate rail infrastructure. These improvements will also strengthen safety by reducing the risk of conflicts between freight and passenger services. In the short term, it must foster an environment in which freight and passenger rail operators collaborate to improve the fluidity of shared networks.

1. The Review recommends that the Government of Canada act to improve the fluidity of passenger railway services by:

- a. using federal legislative powers and infrastructure funding, with the long-term objective of separating freight rail and passenger rail networks, to enable connections between and within urban and suburban areas;
- b. using infrastructure financing models that integrate the principle of direct user-pay pricing for rail and road modes of personal transportation in the interests of long term harmonization of pricing incentives;
- c. collaborating now, and on a continuous basis, with provincial and municipal governments to plan for integrated commuter and other passenger rail networks and for dedicated passenger rail tracks that allow for eventual adoption of high-speed rail.

Positioning Federally Operated and Funded Passenger Rail

Passenger rail costs borne by taxpayers are high, but it is recognized that most passenger rail services around the world do not operate on a completely commercial basis. Some of VIA Rail's operational costs are attributable to being a public organization, where funding decisions have often been made on a year-to-year basis, making stable operational and capital planning difficult. Developing a stable, long-term policy for federally regulated passenger rail services, including a provision to allow the provider to borrow funds against its assets, would be a significant improvement.

Changes are needed to enable passenger rail services in Canada to develop on a more predictable and sustainable basis. Private sector approaches, such as a share-capital model and private sector financing, could help address decreasing ridership, low fares, problematic on-time performance, diminished frequencies, and the inability to commercially borrow and raise capital. There is no doubt that federally operated and funded passenger rail service is important for many Canadians; this was apparent in all the submissions received from individuals, communities, and organizations that seek support for continued or enhanced passenger rail services. A private sector approach would not eliminate the demand for subsidies, but it would result in greater efficiencies, potentially reducing the cost burden on taxpayers, and place passenger rail services on a more sustainable trajectory.

In their submissions to the Review, major competitors maintained that VIA's subsidies give it an unfair advantage and promote uncompetitive practices. Rocky Mountaineer, a world leader in providing tourism rail services for Canadian and international tourists, competes to some degree with VIA for the same market, but does not have the advantage of federal subsidies to support and market its services. Taxpayers should not subsidize tourism services that compete with private sector operators in Western Canada. Rocky Mountaineer is requesting that, at a minimum, subsidies for VIA's "Canadian" transcontinental and tourist service to be eliminated.

It is recognized that private sector intercity bus services compete with passenger rail services and that subsidization of the latter should not create or exacerbate a competitive imbalance. In a more balanced competitive environment, intercity bus operators and passenger rail operators will no doubt find ways to partner to provide more integrated and complementary services that would benefit travellers.

In the long term, there will continue to be a need for regional and remote services connecting Canadians to one another. But responding to this need is costly: VIA Rail's regional and remote passenger rail services were subsidized to a total of \$54 million in 2014. VIA Rail rightly contends that it is providing a "true public service" and since regional and remote services are unlikely to be profitable in the foreseeable future a continued subsidy should be anticipated. The Review has heard that VIA Rail's Ocean service, between Montréal and Halifax, provides transportation services and options for New Brunswick and Nova Scotia residents in an area of the country that has an aging demographic. Whether these services should be considered as "regional and remote" is a debate for Parliament and not one where the Review can add much value.

Most passenger rail services in the developed world require financial support from their national and other levels of government, just as they do in Canada. What is needed is a longer-term perspective, with policies that support the efficient transportation of people and that are based on social and environmental imperatives, changing demographics, the interrelationship of cities, and reduced highway congestion.

With respect to the commercialization of federally supported passenger rail services in the Windsor–Quebec City corridor, consideration should be given to the most appropriate means of bringing about improved service

The development and implementation of a modernized VIA Rail would provide opportunities for the federal government and the provinces to plan and harmonize their respective passenger rail policies. A transition period for increased private sector approaches would be required to arrive at this goal, but the rewards would be greater stability of operations and a reduced burden on taxpayers.

2. The Review recommends that the Government of Canada increase the use of private sector approaches for federally-operated passenger rail services including by:

- a. considering the elimination of subsidies for the Toronto–Vancouver service;
- b. supporting the on-going feasibility of a dedicated corridor from Montréal to Toronto;
- c. continuing the federal subsidy for the regional and remote, and the Montréal–Halifax services, in partnership with, and with contributions from, the provinces and communities concerned;
- d. developing a legislative framework that articulates government policy on passenger rail, clarifies roles and responsibilities, establishes overall funding arrangements, and sets rules for competition and cooperation with other transportation modes, such as air and bus services.

Notes

¹ While commuter rail services are not generally considered to be federally regulated passenger rail services, the *Canada Transportation Act* includes references to "public passenger service providers" that include urban transit authorities.

- ² Jean Dupuis. *VIA Rail Canada Inc. and the Future of Passenger rail in Canada*, Library of Parliament Research Publications (November 16, 2011), accessed on November 29, 2015, online: <http://www.parl.gc.ca/Content/LOP/ResearchPublications/2011-93-e.htm>.
- ³ Kieran MAS, *International Comparison of Passenger Rail Systems*, prepared for the CTA Review, (June, 2015), at 2.
- ⁴ VIA Rail, *2014 Annual Report*, at 2. (2015), accessed on November 23, 2015, online: http://www.viarail.ca/sites/all/files/media/pdfs/About_VIA/our-company/annual-reports/2014/VIA%20Rail_2014%20Annual%20Report_EN.pdf.
- ⁵ VIA Rail, *Submission to the Canada Transportation Act Review*, (April 1, 2015), at 34. According to the submission, the breakdown is 77 percent for cars; 8.2 percent for planes; 7.7 percent for trains; and, 7.0 percent for buses.
- ⁶ AECOM, *Overview and Long-Term Outlook for Inter-City Passenger Rail*, prepared for the CTA Review, (September 2015), at 8.
- ⁷ VIA Rail, 2013 Annual Report, in Research and Traffic Group, *Overview of Long-Term Scenarios for Regional and Remote Passenger Rail in Canada*, prepared for the CTA Review, (June 2015).
- ⁸ GO Transit, About GO, accessed on November 9, 2015, online: <http://www.gotransit.com/public/en/aboutus/whatisgo.aspx>.
- ⁹ Information drawn from the May 26, 2015 meeting between CTA Review Panel members and the Commuter Rail Group, including the heads of the Agence Métropolitaine de Transport, West Coast Express, and GO Transit.
- ¹⁰ *Ibid.*
- ¹¹ Kieran MAS, *International Comparison of Passenger Rail Systems*, *Op. Cit.*
- ¹² Passenger rail transportation in Europe is characterized by its diversity. Rail networks in Western and Central Europe are often well maintained and well developed, but those in Eastern and Southern Europe often have less coverage. The EU aims to make cross-border operations easier, as well as to introduce competition to national rail networks.
- ¹³ Information drawn from the following sources: VIA Rail submission to the CTA Review, (April 1, 2015); and *Amtrak, National Fact Sheet: FY 2014*, accessed on November 10, 2015, online: <http://www.amtrak.com/ccurl/101/724/Amtrak-National-Fact-Sheet-FY2014,0.pdf>; VisitSweden, *Getting around Sweden by Train*, accessed on November 10, 2015, online: <http://www.visitsweden.com/sweden/Travel-guide/Getting-around-in-Sweden/By-Train/>; Provence & Beyond, *TGV History and Speed Records*, accessed on November 10, 2015, online: <http://www.beyond.fr/travel/tgvhistory.html>.
- ¹⁴ AECOM, *Overview and Long-Term Outlook for Inter-City Passenger Rail*, prepared for the CTA Review, (September 2015), p. 12.
- ¹⁵ Brad Tuttle, "Car Ownership Has Peaked – or Maybe It Hasn't," *Time Inc.*, (February 3, 2015), accessed on November 10, 2015, online: <http://time.com/money/3693978/car-ownership-peak-auto-sales/>.

Chapter 9: Air Transport

While the world becomes more connected and technology allows speedier access to the global marketplace, size and location continue to matter. Canada's geography and distance from foreign markets means that air transport is vitally important to our economic success. Not only does air travel provide access and labour mobility to urban, rural, and remote locations in Canada, but airports and air carriers act as economic engines for communities and for the country as a whole, enabling the flow of professional services, tourism, and high-value, time-sensitive exports. They are a major factor in attracting foreign investment. Successful gateways all depend on integration into the transportation system; and since the value proposition of air transport is speed, fluid and reliable road and transit networks are also critical for delivering competitive air services to travellers and cargo (see Chapter 3).

The terms of reference for the CTA Review asked us to address "how the vitality of the Canadian aviation sector, air connectivity, and Canada's ability to attract visitors and transiting travellers can be maintained and augmented in light of the range of cost factors and competitive global markets." In subsequent letters, the Minister of Transport asked that specific consideration be given to the governance and service delivery model for aviation security, and to issues related to the foreign ownership limits in Canadian air carriers.

In this chapter, we tackle these issues and propose a series of significant changes to the existing air transport system. The recommendations are targeted to three broad objectives: increasing competition and the discipline of market forces; supporting and improving the health of the air transport sector in Canada; and supporting and strengthening governance in the sector (including with respect to airports, consumer protections, security screening, and level playing field issues). The recommended measures have been crafted to work together to advance the ultimate objectives of reduced cost, increased connectivity, and improved service for Canadian travellers and shippers.

The past 30 years: preparing the system for take-off

Canada has historical advantages in the air services sector. Montréal has been home to the International Civil Aviation Organization since its creation at the end of World War II. Canada is globally recognized as one of a handful of world leaders in the development and certification of safe aviation policies, products, and professionals. Canada's airports, air navigation system and airlines are frequently ranked among the best in the world.¹ Canadian travellers and businesses also benefit from relatively good air access to our most important international trading partners. In large part, these successes are the result of decisions made in the 1980s and 1990s from which the current policy framework derives.

Between 1986 and 2006, Canada shifted to a commercially based, market-driven system from one based on government ownership and control. This transformation began with the economic deregulation of the domestic market for air services and the privatization of Air Canada. There was some turbulence: as air carriers exercised new freedoms (deciding where to fly, which aircraft to use, and what fares the market would bear), the system saw job losses, service cuts, and price hikes in some regional markets. There were bankruptcies and consolidations in response to the new commercial and operating conditions. However,

over time, the airlines imported successful business models from the U.S. and realized significant efficiencies by implementing hub-and-spoke networks and unbundling services. Air Canada, WestJet, and the remaining smaller, regional, and vacation airlines have stabilized into a profitable sector, although Canadians continue to pay relatively high airfares, in part due to the lack of competition on many routes.

Following deregulation and privatization in the carrier sector, the government moved to commercialize larger airports and air navigation services. Under the 1994 National Airports Policy, the federal government transferred the management, operation, and development of 22 large airports, including those in the national and provincial capitals to non-profit airport authorities governed by local boards, retaining, however, ownership of land and fixed assets. These larger airports,² along with those in the territorial capitals and Kelowna (26 in total), constitute the National Airports System. At the same time, the government divested itself of the vast majority of smaller, federally-owned airports, in most cases, selling them to provincial, territorial, or local authorities for a nominal fee, and providing lump sum funding for near-term safety needs.³ The same policy also established Nav Canada as a not-for-profit, non-share capital corporation that operates Canada's air navigation system and manages 18 million square kilometres of Canadian and oceanic airspace. At its creation in 1996, Nav Canada purchased all of its assets from the federal government for \$1.5 billion.

Both the large airport authorities and Nav Canada have successfully fulfilled their mandate to develop or renew infrastructure through capital investment, while remaining self-sufficient. However, the smaller airports within the National Airports System, as well as those in remote markets, have found it difficult to do the same, given limited traffic volumes and business opportunities. The federal government has provided some funding for smaller airports through the *Airports Capital Assistance Program* for safety projects, as well as infrastructure funds such as Building Canada, but the smaller National Airports System airports and the few remaining federally-owned and operated airports are ineligible for most of these programs. These airports in particular have had well-known struggles to maintain their infrastructure based on revenues from low and/or fluctuating traffic volumes, and have limited opportunities to invest in new business or services.

International air service liberalization began with the 1995 Canada–U.S. air services agreement, followed by agreements with the United Kingdom and other key partners. In 2006, the government adopted the Blue Sky policy, which aims for the liberalization of international air services and reciprocal Open Skies-type agreements. These agreements allow for more flights by foreign airlines to more Canadian cities, providing Canadians with greater choice when travelling to the country's busiest markets, or connecting to points beyond. With globalization, this policy has become increasingly important.

The attacks of 9/11 revealed new risks, requiring major changes in aviation security arrangements. From 2001 to 2003, the government created two new agencies: the Canada Border Services Agency and the Canadian Air Transport Security Authority. Both the Canada Border Services Agency and the Canadian Air Transport Security Authority have faced challenges to maintain high levels of service while delivering on their core national security mandate, due in large part to limited budgets and increased passenger volumes. Recently, the Canada Border Services Agency has implemented innovative new technologies, such

as Automated Border Clearance kiosks that speed the processing of low-risk travellers, and enable it to better focus its resources. For a number of reasons, the Canadian Air Transport Security Authority has not embraced technology and risk analysis to the same extent, and so has not delivered the same process improvements. At airport security, higher passenger volumes have meant longer wait times. This has placed an additional burden on airport facilities and compromised the on-time performance of airlines, and frustrated travellers.

The maps in Figure 1 illustrate the transformation of domestic air services in Canada over the last 30 years. Changes include the significant increase in traffic; the development of previously minor airports, such as those at Toronto Island and Fort McMurray, into facilities that annually host more than one million passengers; the consolidation of airlines serving the major centres; the hub-and-spoke networks; and the increased importance of remote routes as a result of natural resource developments.

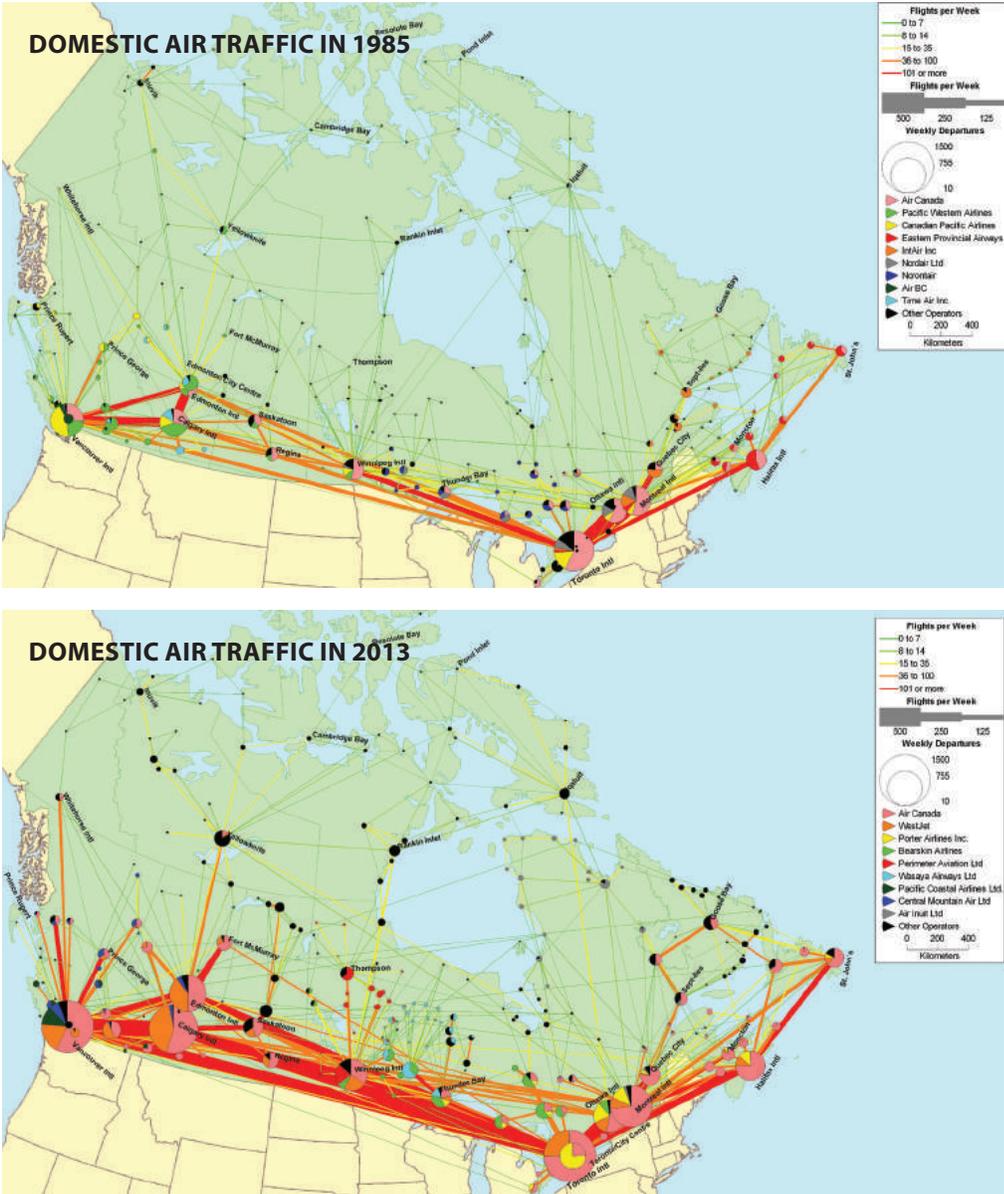


FIGURE 1 — CHANGE IN DOMESTIC AIRLINE TRAFFIC VOLUMES, ROUTES AND COMPETITION, 1985 AND 2013⁴

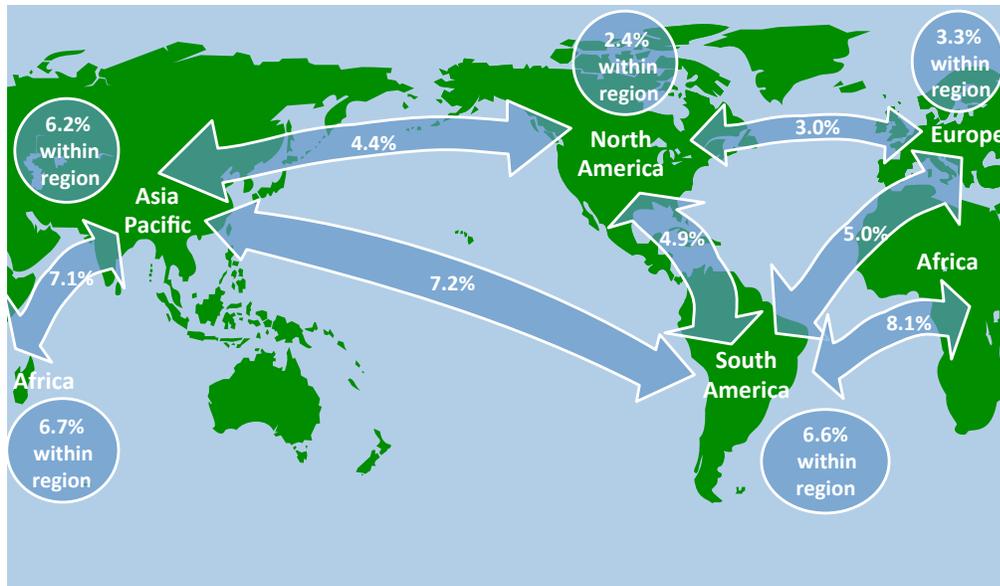
Where we are today: flying high?

Transport Canada's roles in the air sector are now largely confined to those of policy maker, regulator, and landlord for the country's largest airports. The department establishes regulations and standards for aviation safety, security, and environmental performance, and it qualifies products, individuals, and organizations in accordance with those standards. Transport Canada's expertise in these areas is well regarded internationally, and the Review has heard that Canadian-certified aircraft, equipment, and skilled personnel are in high demand around the world.

In 2012, air transport directly employed 141,000 Canadians and contributed \$34.9 billion in GDP and more than \$7 billion in taxes to federal and provincial treasuries.⁵ In 2014, the industry served nearly 125 million passengers, up 45 percent over the decade since 2004, and transported \$116 billion in international cargo.⁶ While air cargo accounts for approximately 1 percent of Canada's international trade by volume, by value it represents as much as 25 percent of exports outside the United States.⁷ The primary commodities are gold, aircraft and parts, diamonds, pharmaceuticals, and telecom equipment—mainly lightweight, high-value items that must reach their destinations quickly. Toronto's Pearson airport handles about half of Canada's international air cargo trade, with Montréal's two main airports, Vancouver, and Calgary accounting for most of the rest. Air transport is also a key component of Canada's Northern Strategy, including the reinforcement of Arctic sovereignty, as it is the only means of delivering essential provisions, health care, and law enforcement in many remote areas. Air transport accounts for 5 percent of all employment in the North (compared to about 1 percent in Canada overall).⁸

Presently, Canada's air transport system may be in the best shape that it has ever been. The largest airlines boast renewed fleets, record profits and aggressive growth strategies; the quality of our airport and air navigation infrastructure is among the best in the world; and traffic continues to grow faster than the economy. But low fuel prices may be masking a number of underlying issues, and emerging challenges on the horizon threaten the sustainability of the Canadian air sector's current success.

Canadian cities such as Vancouver, Calgary, Toronto, and Montréal are well placed geographically to serve passengers in transit, connect them to emerging markets, and provide a gateway for North America. International traffic is forecast to continue to grow fastest between emerging economy countries (see Figure 2, below). Other countries, including the Persian Gulf states, Turkey, and China, are competing for transit traffic, and their large public infrastructure investments are being rewarded with major increases in market share.



**FIGURE 2 —
BOEING FORECASTS
FOR INTERNATIONAL
AIR PASSENGER
GROWTH WITHIN AND
BETWEEN REGIONS⁹**

Despite the importance of air travel to Canada, it is increasingly difficult for our air transport system to remain globally competitive, due to geography, population density, and federal policies that inhibit growth. Not much can be done about the first two, but policies that, in today's context, no longer serve national interests should be revisited.

For example, Canada has emphasized governmental cost recovery more than many other countries. Cumbersome immigration and border controls may act as a disincentive for some travellers to visit Canada. Traffic volumes in northern and remote regions are insufficient to support needed infrastructure improvements and a competitive carrier market based on commercial and user-pay principles alone.

Demand for air travel is known to be extremely price-elastic, so small price changes can have pronounced impacts on travel decisions. Low traffic volumes limit economies of scale (larger aircraft can realize lower operating and fuel costs per passenger) and dissuade new entry into the market; this ensures high airfares that depress travel and so perpetuate the problem.

Where we need to be in 20 to 30 years: faster, better, open to the world

Countries around the world have recognized the importance of aviation to their national interest as a vehicle for trade and investment, and also as a means of projecting political influence by exposing incoming visitors to their values and culture. The vast distances from Canada's priority overseas markets only increase this strategic importance, and so the quality of our air transport system ought to be of concern. Fortunately, we have met the test in many respects: our major airport and air navigation infrastructure is excellent, and our airlines are profitable and internationally recognized for customer satisfaction.

However, the world is changing and moving inevitably towards a liberal open market for air services. It is time to reconsider policies that may have served us well when the Canadian airline industry needed protection to flourish, but that now impair competitiveness. Of course, such protectionism comes at a cost that is largely borne by Canadian consumers, who pay relatively high airfares, and by the Canadian travel and tourism sector that, also due to higher costs, has been losing market share for over a decade (see Global Hub Strategy section, below).

The Review recommends a package of measures that address the three major components of competitiveness: cost, access, and user experience. The aim is to reduce the cost burden on the sector and ensure that these savings are passed on to users. Proposals are also included to reform governance structures to allow more competition in domestic and international markets, to strengthen market-based oversight of airports, and to facilitate increased international travel to and through Canada by visitors, investors, and in-transit travellers. Finally, the proposed measures enhance consumer protections to align with those in the U.S. and the European Union, and to ensure greater consistency and transparency across the system. We believe these measures will create the conditions for Canada to assume a position of leadership in respect of air safety, security, and efficiency.

The flight plan: what we need to do to get there

A system based on competition, market forces, and the user-pay principle is the best means to deliver a robust air transport sector in most cases. However, it remains important for government to support the safety, security, and efficiency of air transport essential for access to remote and northern communities that do not have the volume of traffic to do so on their own. The ten recommendations below have been crafted to advance the interests of consumers, increase competition, and support the health of the air transport sector. Volume Two, Appendix K provides supplemental analysis on each issue area.

User Pay Policy and the Cost of Air Transport

Air transport is critical economic and social infrastructure, providing access to trade and investment; connecting people to jobs, friends, and family; and delivering vital goods and services in remote areas. Geography, population size, and environmental conditions increase the operating costs of air transport in Canada compared to other jurisdictions. A user-pay approach to financing air infrastructure and services is effective and sustainable, but it further increases costs for the sector and for users (shippers and travellers).

Other countries see the increasing importance of air transport for global competitiveness. Some, such as the U.S., Singapore, and the Persian Gulf states, actively subsidize their air sectors; others with user-pay models that promote self-sufficiency, such as countries in the European Union, still support their air sectors in other ways and minimize further tax burdens on the sector. Canada is unique among its competitors in charging onerous rents and taxes that undermine competitiveness. Airport rents, for example, can represent up to 30 percent of airport operating budgets,¹⁰ far more than would be expected in dividends and income tax from a private, for-profit airport, such as those in Europe. Security charges

of up to \$25 per passenger have exceeded the cost of security screening by an average of 18 percent every year since 2010-11¹¹ and fail to recognize the national interest in a secure system. In other modes, and in the U.S. and European Union, security costs are shared and, unlike their competitors across the border, airport authorities in the National Airports System bear the additional burden of having to make payments to their municipalities in lieu of municipal taxes. These payments can be substantial—as much as \$30 to \$40 million per year in the cases of Toronto and Montréal—and there is no requirement that they be aligned with property taxes levied against comparable industrial sites in those jurisdictions.

In 2011, the 9 largest U.S. airports received US\$423 million in capital contributions, grants and land transfers from federal and state governments in the same year.

— Association of Canadian Travel Agencies Submission to the CTA Review
December 2014

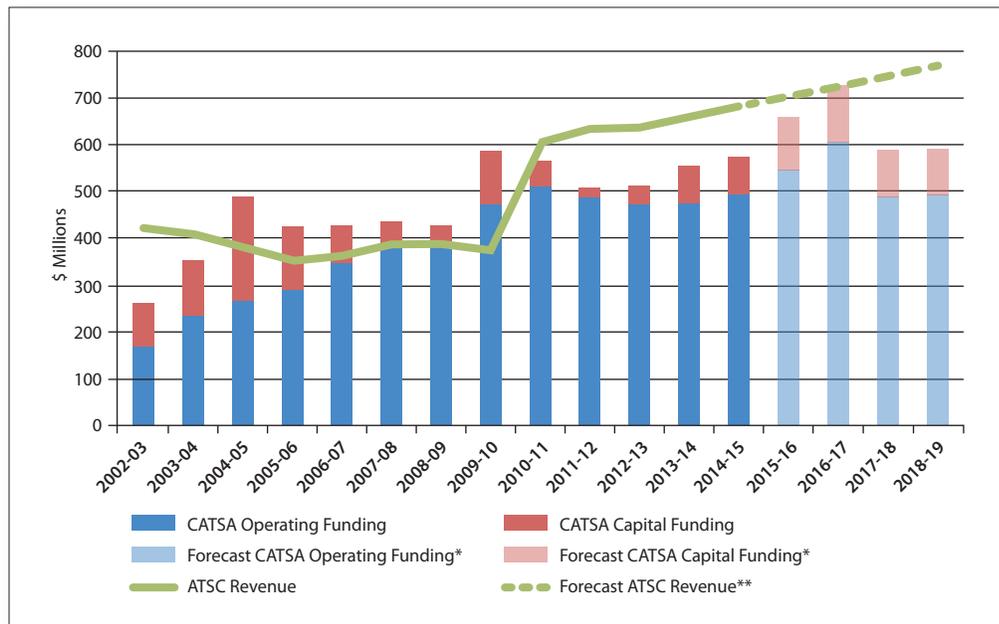


FIGURE 3 — COMPARISON OF HISTORIC AND FORECAST CATSA FUNDING AND ATSC REVENUES (\$MILLION)¹²

Canada has collected approximately \$5 billion in airport rent since 1992, already well in excess of the value of the assets originally transferred, and is estimated to collect at least \$12 billion more over the next 40 years.¹³ The C. D. Howe Institute, the Conference Board of Canada, the Senate Standing Committee, and industry and business groups have consistently called for airport rent and the Air Travellers Security Charge to be significantly reduced and restructured, or eliminated altogether, to help improve cost competitiveness for the air sector, and ultimately, for travellers and shippers.

Canada cannot become a world-leader in terms of the cost competitiveness of air transport without heavy public subsidization of the sector, not only to match the subsidies offered by some competitors, but also to overcome the naturally high-cost operating conditions and lack of economies of scale. Such subsidized models are unsustainable and not recom-

mended. Nevertheless, the gap must be narrowed, such that air infrastructure and services are cost-competitive with those jurisdictions in which infrastructure and services are generally self-sufficient, such as Australia, the United Kingdom, and others in Europe.

- 1. The Review recommends that the Government of Canada act for the benefit of consumers to reform the user-pay policy for air transport and improve its cost competitiveness in relation to comparable jurisdictions, while ensuring continued and sustainable financing for infrastructure and operations by:**
 - a. linking fees predictably and transparently to the actual provision of services and infrastructure;
 - b. drawing on general government revenues, in addition to user fees, to support objectives that advance the national interest in a secure, accessible system that serves northern and remote regions;
 - c. phasing out airport rent and increasing capital funding available to smaller airports, as one of the airport governance reforms in Chapter 9, Recommendation 3;
 - d. reducing the Air Travellers Security Charge as one of the airport security screening reforms in Chapter 9, Recommendation 8.

- 2. The Review recommends that the Government of Canada work with the provinces to further improve cost competitiveness by:**
 - a. committing to re-invest fuel tax revenues in safety, security, and reliability improvements at smaller regional, remote, and northern airports;
 - b. reducing or eliminating aviation fuel taxes on international traffic (where these still exist);
 - c. allowing all passengers arriving from international destinations to purchase duty free merchandise, as is increasingly the case around the world;
 - d. ensuring that payments in lieu of municipal taxes required of individual airport authorities in the National Airports System are no greater than for comparable job-creating industries.

National Airports Policy: Ownership and Governance

Airports play a significant role in the competitiveness of the air transport sector as a whole. Airport authorities must work and invest in the long-term interests of their communities and users, including competing air carriers. To do so, they must be internationally competitive, as well as transparent and accountable.

With the introduction of the National Airports Policy, Canada achieved its objective of reducing the administrative and financial burden on government of managing, operating, and developing airports. A network of efficiently run airports spans the country and, since divestiture, the airport authorities have invested over \$19 billion in new, upgraded, and badly needed infrastructure.¹⁴ However, the model put in place to accomplish this transformation is one that now puts the airports' cost competitiveness at risk. The World Economic Forum ranks Canadian airports among the best in the world for infrastructure quality (16th overall)¹⁵, but 135th for cost.¹⁶ Air carriers note that in addition to government-imposed fees and taxes, the continued and rapid escalation in airport infrastructure costs significantly affects their ability to offer customers competitive fares, to grow their services and to compete internationally.

The requirement to turn over National Airports System airports in good condition, free of debt, and the 30- to 40-year depreciation that applies to most airport-related investment will all become serious constraints on airport management as the end-of-lease dates approach. Also, while most airport authorities have developed certain good governance and consultation practices that may be codified in the leases or bylaws, these vary from case to case, and the authorities do not operate under a specific piece of governing legislation as do the Canada Port Authorities, under the *Canada Marine Act*, or Nav Canada, under the *Civil Air Navigation Services Commercialization Act*. The Review heard concerns that airports and carriers may potentially abuse a dominant market position, absent common rules and appeal mechanisms applicable to all airports, on such issues as fee charging, competing in the same business as their tenants, and disadvantaging rival carriers in relation to landing rights, slots, and gate access. This gap should be closed.

Lease requirements are fundamental limitations making the Canadian model financially unsustainable. The option to extend leases for 20 years would postpone the problem, but it will inevitably resurface. Sooner or later, the model will have to evolve; otherwise, airports are likely to fall back into the same state of under-funding that led to divestiture in the first place. The Canadian model where government retains ownership is unique in the world; elsewhere the dominant model is full or partial privatization.

— *Aéroports de Montréal Submission to the CTA Review*
April 2015

Canada was a leader in commercializing airport operations, but airport ownership models have changed worldwide in the past 25 years. For-profit corporations with share capital predominate, making the antiquated Canadian model somewhat unique and international comparisons, along with benchmarking, very difficult. The Review heard from many of the original authors of the Canadian model, who considered it to be a first step towards fully private, for-profit airports; independent analysis and international examples show the benefit of increased private sector discipline in the management of large airports. Meanwhile, smaller, federally owned airports are operating at a significant disadvantage, as they cannot access federal infrastructure funding like the larger locally-owned airports outside the National Airports System, and they are subject to taxes. They should be treated on a level playing field with all other regional airports in Canada.

Our goal in addressing these issues is to restore Canada to its place as a world leader in the governance of airports and in the use of competition and market forces to determine optimum investment and service levels and costs. Our recommendations follow:

- 3. The Review recommends that the Government of Canada strengthen the viability, accountability, and competitiveness of the National Airports System by:**
- a. divesting the federal government of smaller federally owned airports¹⁷ in consultation with provinces, municipalities and First Nations, and provide one-time payments for needed safety investments, where appropriate;
 - b. moving within three years to a share-capital structure for the larger airports, with equity-based financing from large institutional investors, accompanied by legislation to enshrine the economic development mandate of airports and to protect commercial and national interests (including provisions that are currently spelled out in the airports' leases) by:
 - i. establishing investment thresholds, foreign ownership limits, and tests of public interest and national security to be administered by Industry Canada and the Competition Bureau, under the *Investment Canada Act* and the *Competition Act*, similar to the controls in place for air carriers with passenger service proposed in Recommendation 4, below;
 - ii. maintaining protections against insolvency (currently contained in the airport leases), so that, in the event it should occur, all assets belonging to the insolvent airport authority would revert to the Crown without liability;
 - iii. enacting so-called light-touch regulations covering fees and charges to protect users and confer oversight on the Canadian Transportation Agency.
 - c. To resolve issues applicable to airports regardless of the ownership/governance model, enacting legislation to implement the following provisions for all Canadian airports with scheduled services:
 - i. establishing a set of principles to guide all airports in Canada when determining fees,¹⁸ and requiring airport operators to grant reasonable access to any licensed airline who requests it; providing the Canadian Transportation Agency oversight and enforcement in both instances;
 - ii. tying airport improvement fees to specific projects with explicit sunset provisions;
 - iii. requiring airline expertise on the boards of directors of airport operators (current airline employees would not be eligible);
 - iv. ensuring meaningful and timely user consultation for major capital projects;
 - v. strengthening performance reporting and benchmarking;
 - vi. providing appropriate directive powers to the Minister in the event of extraordinary circumstances (legislation is currently silent on this, unlike for other modes).
 - d. Significantly increasing funding for the *Airports Capital Assistance Program* to support safer, more efficient, reliable services at regional and local airports. This would require expanding the eligible investments to include lengthening and surfacing runways for modern jet service in northern and remote airports, and investing in more advanced navigation, weather, and landing systems.

Privatization Options

The Review notes that a number of options are available for privatizing the large airports (see Backgrounder in Volume Two, Appendix K). This could include working with airport authorities to facilitate their transformation into for-profit entities and selling them the assets of larger airports. Similar processes were followed in the past with the privatization of Crown corporations like Petro Canada and Air Canada (and overseas, for example with Aéroports de Paris). Or it could be achieved by selling the airports to another private enterprise, as was done with large airports in the United Kingdom in the 1980s. Alternatively, the government could maintain ownership, while fully privatizing the operation of the airport, as was done in Australia.

In any case, rather than placing the emphasis on extracting maximum revenue for government from these public assets, the objective of privatization should be to encourage their development and operation as critical drivers of the competitiveness of the Canadian economy.¹⁹ A share-capital approach would provide clearer and more direct accountability and more market-disciplined oversight by the board of directors (who would be answerable to shareholders) than may be the case for the existing community-based boards, which are not distinct from the members of the corporation. With Agency oversight of aeronautical fees and charges, there would also be a check against abuse of market power through excessive charges where there is no realistic alternative.

Domestic Air Carrier Competition and Foreign Ownership Limits

The existing international regime for air transport, based on bilateral air services agreements, generally requires airlines to be substantially owned and effectively controlled within one of the countries party to an agreement; as a result, most countries limit foreign ownership in airlines to somewhere between 0 and 49.9 percent of voting shares. All but a few countries incorporate similar requirements in legislation for airlines operating purely domestic services as well, even though the international agreements do not apply. Canada, like the U.S. has a 25-percent limit. The 2008 Wilson Report²⁰ and various government commitments have called for an increase to a maximum of 49 percent, on a negotiated basis; Canada's air services agreement with the European Union contains provisions that would allow 49 percent foreign ownership, but this stage of the agreement has yet to be implemented. The Minister of Transport wrote to request that the CTA Review consider the foreign ownership issue.

The OECD Service Trade Restrictiveness Index²¹ ranks Canada in the bottom third of major economies as “less trade friendly” for air transport. The European Union allows up to 49 percent foreign ownership in its airlines, while Australia and New Zealand allow 100 percent foreign ownership for airlines operating within their domestic markets. Canada's vast size and small population limit our ability to compete in the global marketplace. However, there is room to increase competitiveness, as evidenced by the high load factors and the record profits of the two largest carriers, as well as the fact that Canada is the only major air market without an ultra-low-cost carrier. Such carriers have been highly successful in every other major aviation market, as they generate significant traffic, offer the best average returns on investment, and provide increased connectivity and choice, at lower prices.²²

Small, privately held carriers, prospective start-ups, industry analysts, and others report that the 25 percent foreign ownership limit is a barrier to entry: in contrast to larger markets like the U.S., there may not be enough capital in Canada to finance 75 percent of a new national carrier.²³ Over the years, publicly traded carriers have benefitted from a work-around; using variable voting shares to access capital in excess of the limit.²⁴

This makes it difficult to measure the extent to which a publicly traded airline is under foreign control. Smaller operators (who are more likely to be privately held) operate at a significant disadvantage; their reporting of ownership is more transparent, but they are far less likely to be able to access debt and equity sources outside of Canada.

There are two broad approaches for determining domestic control of an air operator.²⁵ The one promoted by International Civil Aviation Organization policy documents, and used in Australia and New Zealand, is based on “primary place of business and effective regulatory control,” and has a great deal of merit. However, Canada uses a more “traditional” determination, based on substantial ownership and effective control, and this is the same approach used in the U.S. and Mexico.²⁶ For Canadian policy to move too far out of step with the other two jurisdictions in North America would be difficult. But, a policy of insisting that increases to foreign ownership be on a reciprocal basis effectively restricts access to Canada’s largest and most likely source of capital—the United States—as the politics around this issue in that country are such that it is unlikely to increase foreign ownership limits for the foreseeable future.

Our goal is to see Canada join most other large aviation markets in allowing significant (but not full) foreign ownership of passenger air carriers, and become a leader in allowing full ownership for freight and specialty air services.²⁷ Expertise already exists at Industry Canada and the Competition Bureau for assessing the implications of a large foreign investment for competition, security, and other national interests that should be leveraged. These changes should contribute to narrowing the gap between Canada and other markets in terms of our relatively low level of competition and our relatively high airfares. They would also bring Canada up to the OECD average for “trade friendliness” in air transport.²⁸

The effect of these changes will be to ensure airlines are treated in a manner consistent with other strategic, federally regulated sectors of the economy regarding issues related to ownership, competition, and the national interest. We propose to further level the playing field for entry and growth by small privately held operators. Taken in context, these changes should be viewed as part of the transformation begun two decades ago, the culmination of which will be an open competitive market. To that end, over the longer term, the Government of Canada should take a lead role internationally in the creation of an open common market for air services, with countries that represent major trade markets and trusted aviation jurisdictions, with no foreign ownership limits whatsoever.

4. Assuming bilateral agreements continue to form the basis of Canada’s international air transport regime, the Review recommends that the Government of Canada amend the *Canada Transportation Act* and *Canadian Aviation Regulations* to:

- a. increase foreign ownership limits to at least 49 percent for air carriers operating commercial passenger services;

- b. increase foreign ownership limits to 100 percent for airlines operating all-freight and specialty air services;
- c. ensure legislation and regulations for granting licenses and air operator certificates to new entrants or growing carriers, as well as to specialty air service operators, are consistent with one another;
- d. transfer oversight for investment and competition issues to Industry Canada and the Competition Bureau, under the *Investment Canada Act* and the *Competition Act*, to apply the various public interest and national security tests (with the Canadian Transportation Agency retaining oversight over the ownership and control tests of air carrier licensing);
- e. review the approach used by the Canadian Transportation Agency to determine domestic control of an airline to ensure that it remains relevant and effective (i.e. focused on testing matters related to the strategic decision making of the airline, and taking into consideration the practices of comparable international jurisdictions for benchmarking);
- f. work with industry to review, clarify, and improve guidelines for testing financial fitness by the Canadian Transportation Agency when reviewing applications for licenses to operate air services.

International Air Carrier Competition and International Air Policy

The existing international regime for air transport, based on bilateral air services agreements, generally requires air carrier service and competition to be opened up on a reciprocal, negotiated basis. The uncertainty and disruptions following the bankruptcies, mergers, and major shocks in the airline sector that marked the 1990s and early 2000s, provided reasonable justifications for Canada to put some protectionist measures in place and exercise caution in opening the market to competition from fast-growing (and sometimes state-subsidized) international hub carriers.

There is a concern that, by opening up quickly to the largest global hub carriers, Canada risks becoming a feeder at the end of a spoke, rather than a competitive hub itself. However, while Canada's restrictive international air access regime has generally benefited Canadian carriers, they have failed to prevent fast-growing international carriers from indirectly accessing several Canadian markets through nearby U.S. airports (such as Seattle-Tacoma International Airport).²⁹ By this work-around, U.S. airports are benefiting from restrictive Canadian air access policies by attracting Canadian origin or destined air travellers, to the detriment of Canadian airports.

The world is moving towards an open market for air services. Canada's approach has outlived its usefulness and now renders our air services less competitive, less trade-friendly, and more costly than those of our global competitors. Canada's largest carriers are now among the fastest-growing and most profitable in the world. By the carriers' own representations to the Review, their sound finances, renewed fleets, and aggressive strategies position them well for global competition. Canada's excellent infrastructure and geographic location are strong assets that enable us to compete for global hub traffic. Hubs require a strong anchor carrier (which Canada now has), and they must also be able to attract multiple competing carriers; without these, they cannot generate the passenger and cargo volumes needed to sustain frequent service to growing numbers of destinations.

One or two airlines cannot possibly connect Canadians to the world in a convenient way and still provide competitive fares to consumers. Foreign airlines have an important role to play: providing new destinations, better connectivity through their networks, and competitive prices to Canadians.

— *Qatar Airways Submission to the CTA Review*
February 2015

Canada has an opportunity to leverage an aviation history and position of strength to assume a leadership role in crafting the economic, safety, and security regimes that will frame a global market for air transport. Maintaining the status quo presents the risk of continued decline in market share and a weakened economy, due to the higher costs of air travel that flow from a lack of competition. At the same time, it is recognized that air transport is not covered by the established international regime for trade in other goods and commodities, with procedures in place at the WTO to address anti-competitive practices. Until such a time, new open and expanded air services agreements should provide for dispute resolution.

Canada should embrace more open international competition and a willingness to work towards an open common market for air services with countries that represent major trade markets and trusted aviation jurisdictions, on a bilateral or multilateral basis. The Government could issue a policy declaration that Canada will pursue more liberalized air agreements with an objective of “open skies” with all willing, safe, and secure partner jurisdictions within a transition period of no more than 10 years. The aim should be to narrow the gap with other major aviation markets that have competitive air hubs in terms of the pace and scope of Canada’s effort to liberalize its market for international air services. A recalibration to address the issues of cost and competitiveness would bring Canada closer to the OECD average for “trade friendliness” in air transport.

5. The Review recommends that, as a starting point for negotiations, the Government of Canada commit to making more open international air services agreements, beginning with the following measures:

- a. a minimum allowance of seven flights per week (7/7 daily service) for each of the air carriers designated by all new and existing air services agreements with any safe and secure partner;
- b. all subsequent increases in air access in increments of at least seven flights per week, per designated air carrier;
- c. consider agreements that incorporate automatic planned increases in capacity to allow for stimulation of demand, with established timelines for moving towards “open skies;”
- d. include fair trade and competition requirements in all new and expanded air services agreements, providing for remedies and enforcement mechanisms should a party not meet its obligations;³⁰
- e. accord greater weight to trade policy objectives, such as the Global Markets Action Plan, Federal Tourism Strategy, and Study in Canada, along with the business objectives of Canadian airports and airlines, when developing negotiating strategies and priorities for new and expanded agreements.

Global Hub Strategy

Customer experience and access, along with price, are the three critical elements that determine the competitiveness of Canada's travel and tourism sectors. The easier the access to Canadian destinations and the more seamless the transit through our airports, the better the experience for travellers and the better able we are to support development of Canadian hubs through increased passenger traffic.

Increased volumes of travellers and freight can be leveraged to lower transportation costs in the country as a whole and can also create new opportunities for other sectors of the economy to add value. Transit traffic can account for as much as 25 to 50 percent of airline seats on major international routes;³¹ this can induce airlines to offer flights to new destinations that it would not otherwise be possible to service. It can also increase the frequency and capacity of flights to established markets.

Industries tend to develop in clusters around transportation hubs, whether they are directly related to air services—such as warehousing and logistics—or to manufacturing and export services, such as information technology, communications, insurance, and finance. Other countries recognize the importance of aviation and hubs for trade and investment, and they support their development. They do so, in part, by allowing travellers to transit through secure facilities without visas (except for those from a handful of high-risk countries), and by using technology and risk-based screening to facilitate immigration, customs, and security processes for trusted travellers.

Canada's approach is the opposite: only travellers from a small number of low-risk countries are allowed to transit without a visa; only Canadians are allowed to access to automated border clearance; and only travellers through Toronto may connect from international to domestic flights without collecting their bags and re-clearing security.

Promotion of Canada as a destination for tourism, investment and education is also an important part of increasing travel to Canada. International marketing strategies should go hand in hand with measures to make travel to Canada as seamless as possible, as is increasingly the case in competing jurisdictions. While the Canadian tourism sector has been growing well since the 2008-09 economic downturn, Canada has been steadily losing global market share for nearly 15 years. For example, in 2002, Canada was the 7th-largest tourism market in the world, with over 20 million international visitors, while Turkey was 16th, with less than 13 million visitors. Within a decade, the two countries had switched positions. By 2013, Canada had slipped to 17th place in the world with 16.6 million visitors, while Turkey had become the 6th-largest tourism market, with nearly 38 million visitors.³² Among Turkey's success factors are the integration of its global hub airline and airport, with hassle-free access to the cruise ship industry and a number of world-class tourism destinations. Canada is no-less blessed with renowned destinations, and can do more to regain market share, which in turn will support increased competition and lower prices for international flights to and from Canada.

Canada's domestic market is relatively mature, and significant growth requires attracting international traffic. Air Canada is trying to grow its connecting passenger traffic, and the government has been supportive with its Transit without Visa and China Transit programs, in place at the Vancouver and Toronto-Pearson airports. However, these programs have significant limitations. A loss of market share has been the result. An InterVISTAS report shows that in 2005, airlines carrying passengers through Canada for travel between South America and Asia had a 4 percent share. By 2013, it had dropped to 2 percent.

— *Air Canada Submission to the Review*
February 2015

Our goal in respect of this issue is to bring Canada in line with other jurisdictions whose policies and programs enable fast and secure connections through their global air hubs, including the United Kingdom, the European Union, Turkey, South Korea, Singapore, and some Persian Gulf states. The measures proposed above to improve cost competitiveness, governance, and competition will all support increased international traffic to Canada. However, to further promote international traffic, Canada must also continue to prioritize immigration, customs, and security measures that make it faster, easier, and more attractive for low-risk travellers to choose Canadian airlines and airports for transit and to choose Canada as a destination for business and personal travel.

- 6. The Review recommends that the Government of Canada look beyond transportation policy and take broader action to foster the development of global air hubs to position the Canadian air sector to compete internationally by:**
 - a. harmonizing immigration and trusted traveller programs with the U.S. and other trusted jurisdictions (e.g. the United Kingdom, the European Union, Australia, and New Zealand), with expanded eligibility;
 - b. continuing to streamline immigration and customs processes by, for example, reducing the need for Canadian visas and increasing the use of Electronic Travel Authorization (eTA) for lower-risk visitors, such as those from lower-risk countries and/or with valid U.S. visas;
 - c. allowing transit without a visa for citizens of all but high-risk countries at all Canadian airports with approved secure facilities;
 - d. allowing travellers to connect from international to domestic and transborder flights without collecting their bags, at all airports with approved secure facilities;
 - e. expanding trusted traveller programs and access to Automated Border Clearance systems, in parallel with the U.S., to include citizens from other trusted jurisdictions, such as the United Kingdom, the European Union, Australia, and New Zealand;

- 7. The Review recommends that the Government of Canada ensure that there is strategic alignment between the priority markets for tourism promotion, immigration and border facilitation measures, and international trade and air services negotiations.**

Airport Security Screening: Governance and Performance

Safety and security are fundamental pre-conditions for efficient transportation of people and goods. Air traffic is growing faster than the economy in Canada and around the world, while security risks continue to evolve. The Canadian government and industry are leading the way in respect of safety and security. However, the Canadian Air Transport Security Authority has been unable to meet the challenge of increasing demands with limited resources, and this is harming the efficiency and competitiveness of transportation services. The Minister of Transport requested that the CTA Review consider this issue.

Throughout the consultations and submissions, the Review has heard near-universal condemnation of the existing state of security screening services at Canadian airports. While stakeholders accept that the Canadian Air Transport Security Authority and Transport Canada have fulfilled their security mandate, the service and operational failings of the existing oversight and delivery model were consistently cited, and observed first-hand. There is wide recognition that at least three problems are likely at root:

- There is a substantial and growing gap between the revenues from the Air Travellers Security Charge and the Canadian Air Transport Security Authority's budget allocation that leaves the latter under-resourced to manage growing traffic (see Figure 3, above);
- Transport Canada's control over regulation and policies leaves too little room for the Canadian Air Transport Security Authority to adjust its operations and procedures;
- In the face of these constraints, the culture at the Canadian Air Transport Security Authority has become relatively closed to outside criticism and new ideas that might otherwise help it to find innovative ways to maintain higher service levels, in spite of limited resources and growing traffic volumes.

The aviation security agencies in competing countries have adopted intelligence-driven, risk-based initiatives to deliver security screening while improving customer convenience, but without increasing costs. The TSA Pre✓[®] program in the U.S., which streamlines screening for trusted travellers, is an example of this. Unlike most of its global competitors, Canada does not have regulated airport security screening service standards that might spur action on growing wait times. At London's Heathrow Airport and the Hong Kong International Airport, the prescribed standard is to screen 95 percent of passengers in fewer than five minutes.³³

While the current "one size fits all" air passenger screening model employed by the Canadian Air Transport Security Authority allows it to fulfill its core security mandate, it is not capable of meeting the current and projected growth in passenger numbers without massive increases in government funding, significant passenger inconvenience, or both. Canadian travellers already pay one of the highest aviation security fees in the world, but there is insufficient capacity to meet predictable peaks in demand; performance is declining and queues are lengthening. Solving this problem is a top priority for nearly every travel and tourism stakeholder consulted, as well as for business groups, independent observers, and others.

The government failed to establish a clear and effective service level standard for security screening when CATSA [Canadian Air Transport Security Authority] was created. Consequently, there is no accountability for the deteriorating level of service and unacceptable wait times for travellers who have paid for this service. Canada also takes a highly prescriptive approach to security screening regulations, which limits the efficiency of screening checkpoints and results in longer wait times. Others are pursuing more outcome-focused regulations and risk-based security programs. These progressive approaches are not only as effective, but also more efficient in terms of throughput and should result in higher service standards for passengers.

— *Canadian Airports Council Supplemental Submission to the CTA Review*
April 2015

Unlike the Canadian Air Transport Security Authority, other federal government agencies such as the Canada Border Services Agency and Immigration, Refugees and Citizenship Canada have embraced new technology and have made major progress in using new risk-based programs to improve service and reduce wait times. This is achieved even while reducing the cost of delivering their mandates to protect border integrity.

Canada may be falling behind global competitors in terms of innovation and performance in airport security screening service; but reform can do more than just narrow the gap. With better use of intelligence and technology, and greater alignment of the policy and regulatory functions with frontline operations, it should be possible to shorten wait times, without increasing costs, even while traffic continues to increase. Reforms of Canada's aviation security system would position us to become a world leader in security, service, and value for money, in support of the overall long-term competitiveness of air transport.

8. The Review recommends that the Government of Canada overhaul the regulatory, financing, and delivery models for airport security, to maximize performance and service while delivering the highest standards of security and good value for money, by:

- a. establishing greater alignment and coordination between the regulatory and operational functions of aviation security. This could be achieved by replacing the Canadian Air Transport Security Authority with the creation of a single integrated aviation security agency with responsibility for both regulatory oversight and operations;
- b. legislating a customer service mandate and regulated performance standards, benchmarked against those in competing international jurisdictions to ensure customer service transparency;
- c. recognizing that the primacy of national security can cohabit with customer service through the provision of stable and predictable financing for aviation security, from both the Air Travellers Security Charge and general revenues, that meets the needs of growing traffic volumes, along with evolving security risks;

- d. replacing the current “one size fits all” passenger screening approach, which treats all passengers equally, with an intelligence-driven, risk-based passenger screening process, similar to those employed in other jurisdictions³⁴ that leverage technology and existing trusted traveller programs such as NEXUS and CANPASS.

Consumer Protection of Airline Passengers

As already mentioned, customer experience is one of three critical elements of the competitiveness of Canada’s travel and tourism sectors, and yet airline travellers are subject to an acute imbalance in market power compared to air carriers. In recognition of this, a number of governments around the world have intervened to ensure fair and reasonable treatment of air travellers. Canadian air carriers already comply with the prescriptive, statutory consumer protections of airline passengers imposed by several jurisdictions including the U.S. and European Union when they operate service to and from those destinations. The result is an unusual situation where Canadian air travellers benefit from strong and codified consumer protections when traveling abroad, even while flying with Canadian air carriers. Canadian travellers deserve similar levels of treatment when traveling within Canada as they do across a border.

In public opinion research conducted for the Canadian Automobile Association in June 2015,³⁵ Canadians identified unsatisfactory treatment of airline passengers affected by delays, cancellations, and other problems as their third biggest concern after cost issues, and cramped seats. Nine out of ten respondents said it is very or somewhat important to have a national airline consumer code, and three quarters said that there should be a set schedule of compensation that is consistent across airlines.

The current system, based on one-off rulings by the Canadian Transportation Agency in response to complaints, is producing suboptimal, piecemeal outcomes for industry, consumers, and the regulator alike. We have heard from all sides of the issue—carriers, public interest advocates, and the Agency—that the status quo is untenable. It creates higher transaction costs and uncertainty for carriers; a lack of consistency, transparency, and predictability for passengers; and an overload of complaints by a very small number of well-meaning and highly motivated individuals seeking to strengthen passenger rights one case at a time, in the absence of a strong industry-wide code. Because the Act currently holds that complaints may be made by “any person,” they often emanate from people who have never been aggrieved customers of the airlines in question; and yet, the Agency is required to rule on all complaints.³⁶

While airlines need to maintain the flexibility to overbook flights for commercial reasons, passengers need easy access to information on their rights. The current situation often results in a one-off negotiation between a gate agent and a stressed, time-sensitive passenger who does not know how much the airline can or will offer in compensation. The same is true for flight delays or cancellations. The result can be unequal access to compensation.

— *Canadian Automobile Association (CAA) Submission to the CTA Review*
December 2014

Reform of the system currently in place would see Canada join comparable jurisdictions, such as the U.S. and the European Union, in providing clear and consistent protections to travellers, as prescribed in statute.

9. The Review recommends that the Government of Canada enhance consumer protection for airline passengers by:

- a. enacting legislation or regulations that define rights and remedies that are as harmonized as possible with those of the U.S. and the European Union, and that apply to all carriers serving Canada;
- b. providing the Canadian Transportation Agency with the power to undertake investigations on its own motion so that it may report on and resolve systemic issues, as well as general order powers so that rulings may be applied to all carriers;
- c. amending the language of the *Canada Transportation Act* to require complainants to have been a customer of the operator against whom the complaint is being laid (the legislation currently defines a complainant as “any person”);
- d. mandating the collection of relevant data, such as the number of passengers denied boarding, on-time performance, and lost baggage rates, and their publication, where possible, at point of sale;
- e. clarifying the obligations of airports and airlines to provide service in both official languages, and working with industry and Official Language Minority Communities to improve consistency;
- f. working with the Provinces to ensure that the existing all-inclusive airfare advertising rules also apply to charter services.

World-Class Air Sector Regulation and Certification

The aerospace and air transport sectors are mutually supportive: professionals move back and forth; aerospace activity supports airport development; and airlines and operators need ready access to quality maintenance, repair and overhaul services (MRO), and original equipment manufacturers (OEM). Timely certification is a prerequisite for all of this activity.

There is a critical role for government in the aviation industry and in keeping the sector competitive: Canada has a world-recognized reputation as a regulator and certifier, and as a result, Canadian (or Canadian-certified) engineers, designers, pilots, and products can be re-certified for operation anywhere in the world. Canada’s certification proficiency is a competitive advantage for the Canadian economy.

The European Aviation Safety Agency has recognized that competitors such as China are quickly building their capacity and could emerge in the medium term as world leaders in certification and regulation, unless established jurisdictions continue to develop more streamlined and risk-based processes.³⁷ The 2012 Aerospace Review recommended that the government implement a full cost-recovery model for aircraft safety certification.³⁸ The aviation and aerospace sectors are ready to pay fees for service, if the service standards are clear and consistently met. Smaller businesses, and northern and remote carriers, also play vital economic roles and require careful consideration to ensure the new rules and standards do not adversely affect their operations; one size does not fit all.

A problem that Northern aviation has struggled with for years is well intentioned regulations that make sense for the major carriers and large airports but have an inordinate impact on smaller and remote airports and carriers. Federal policy and regulation must properly and consistently consider the uniqueness of northern and remote aviation’s situation, and not just the industry as an average.

— *Northern Air Transport Association Submission to the CTA Review*
December 2014

The sector also requires a nimble regulator that can facilitate innovation—for example, the ongoing experimentation and up-take of new technologies, such as unmanned aerial vehicles (also known as UAVs or drones)—while at the same time protecting the public from potential pernicious side-effects in relation to safety, security, privacy, and so forth. The regulatory environment must enable the development of productivity- and performance-enhancing uses of the technology, such as inspecting the condition of bridges and rail lines, and monitoring crops, while also controlling or mitigating inappropriate (and often illegal) uses, such as drone incursions near airports, wildfires, and private homes.

Overall, our goal should be to maintain Canada’s position among the handful of leading regulators and certifiers in air transport around the world.

10. The Review recommends that the Government of Canada commit to strengthening its reputation as a world leader in aviation regulation and certification, in support of the findings of the 2012 Aerospace Review, by:

- a. investing in the necessary resources and systems to ensure that Canadian certification continues to be a globally recognized and sought-after seal of approval;
- b. implementing full cost recovery for certification, with world-leading service standards (e.g. response times);
- c. investing in the resources and expertise needed to properly assess risks and impacts when formulating new regulations and standards in Canada and at the International Civil Aviation Organization; regulations and standards should reflect an understanding of the differences between each aviation segment, including business aviation and small northern and remote operators, as well as large commercial carriers;
- d. working with industry and international partners to ensure that domestic and international regulatory frameworks and standards are tailored as much as possible to the needs and risks in each aviation segment;
- e. working with industry and international partners to develop protocols and technologies to strengthen protections of public safety, security, and privacy from inappropriate use of unmanned aerial vehicles, and to enforce violations, without unduly restricting the development of innovative and beneficial uses of this technology in Canada.

Notes

- ¹ For example, the International Air Transport Association has awarded Nav Canada three times as the best air navigation services provider, and a number of Canadian airports have consistently outperformed other comparable size airports in both the Skytrax and Airports Council International Airport Service Quality awards.
- ² According to the policy, any airport that processes more than 200,000 passengers a year. However, other than adding Iqaluit following the creation of Nunavut, no changes have been made to the National Airport System. This is despite the fact that airports such as Billy Bishop Toronto City and Fort McMurray have grown significantly, while passenger volumes at other airports, such as Gander and Mirabel, have shrunk or disappeared altogether.
- ³ This includes the airports in the territorial capitals, which are now owned and operated by the territorial governments. Transport Canada continues to own and operate 18 smaller airports that were not divested during that period.
- ⁴ Source: Transport Canada.
- ⁵ Conference Board of Canada & SNC-Lavalin Inc., *The Economic Impact of the Air Transportation Industry in Canada*, prepared for the Canadian Airports Council (April 2013) accessed on October 21, 2015, online: http://www.cacairports.ca/sites/default/files/Docs_2013/CAC_Economic-Impact-Study_FINAL_April-2013.pdf.
- ⁶ Passenger traffic refers to total enplaned and deplaned. Transport Canada, *Transportation in Canada 2014*, (Ottawa: 2015), accessed on October 20, 2015, online: https://www.tc.gc.ca/media/documents/policy/2014_TC_Annual_Report_Overview-EN.pdf.
- ⁷ Conference Board of Canada & SNC-Lavalin, *The Economic Impact of the Air Transportation Industry in Canada*, *Op. Cit.*
- ⁸ Source: Transport Canada internal assessment.
- ⁹ Source: CTA Review with data from Boeing, *Boeing Current Market Outlook, 2015-2034*, (2015), at 55, accessed on October 28, 2015, online: http://www.boeing.com/resources/boeingdotcom/commercial/about-our-market/assets/downloads/Boeing_Current_Market_Outlook_2015.pdf.
- ¹⁰ Source: CTA Review with data from Transport Canada, internal records. (Also see Volume Two, Appendix K, Figure 3, and Endnote 1.)
- ¹¹ For example, in 2014-15, Air Travellers Security Charge revenues were \$683 million compared to Canadian Air Transport Security Authority operating and capital expenditures of \$573 million, and the gap is growing; see Figure 3 for historical and forecast air transport security revenues and expenditures.

¹² Table prepared by the CTA Review using publicly available data. Note: “CATSA” refers to the Canadian Air Transport Security Authority, and “ATSC” refers to the Air Travellers Security Charge. Sources for actual data: Receiver General for Canada, *Public Accounts of Canada* (years 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, (Ottawa: Public Works and Government Services Canada), Canadian Air Transport Security Authority *Annual Report* (years 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015), (Ottawa: Canadian Air Transport Security Authority); and Transport Canada, *Transportation in Canada 2014*.

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* Forecast taken from Canadian Air Transport Security Authority, *2014/15-2018/19 Corporate Plans*, (Ottawa: Canadian Air Transport Security Authority).

** Forecast assumes three percent growth, the medium scenario from Transport Canada’s last forecast (2008-2022) .

¹³ Canadian Airports Council, *Submission to the CTA Review* (January 2015).

¹⁴ *Ibid.*

¹⁵ World Economic Forum, 2015, *The Global Competitiveness Report 2015-2016*, accessed on October 21, 2015, online: <http://reports.weforum.org/global-competitiveness-report-2015-2016>.

¹⁶ World Economic Forum, 2013, *The Travel & Tourism Competitiveness Report 2013*, accessed on October 21, 2015, online: http://www3.weforum.org/docs/TTTCR/2013/TTTCR_DataTables10_2013.pdf.

¹⁷ At a minimum, this should include all 18 remaining federally owned and operated (non-NAS) airports, and all of those within the National Airports System with fewer than 550,000 enplaned and deplaned passengers per year. The government should also consider whether the next smallest tier of NAS airports will be part of a core national transportation system for the next 30 years, or whether they would also be more effectively owned and operated by local authorities, as is already the case with similar-size facilities in Hamilton, Abbotsford, and Fort McMurray.

¹⁸ See, for example, “Charging Principles” in *Civil Air Navigation Services Commercialization Act*, SC 1996, c. 20, s 35.

¹⁹ Taxpayers have already received a significant return on their investment in the airports, as some observers have estimated that revenues in excess of the value of the airport assets that were transferred by the Government to the airport authorities have already been collected in airport rent. Note that maximizing the sale/concession price of the airports would further increase airport costs, which would ultimately be passed on to Canadian travellers in the form of higher airfares and fees, and undermine the objective of a more competitive air transport sector.

²⁰ The Competition Policy Review Panel, *Compete to Win* (2008), accessed on November 23, 2015, online: <http://www.ic.gc.ca/eic/site/cprp-gepmc.nsf/eng/home>.

- ²¹ OECD, *Services Trade Restrictiveness Index* (2015), accessed on November 23, 2015, online: <http://www.oecd.org/tad/services-trade/services-trade-restrictiveness-index.htm>.
- ²² See for example, International Air Transport Association, *Profitability and the air transport value chain* (IATA Economics Briefing No 10) (June 2013), accessed on October 20, 2015, online: <https://www.iata.org/whatwedo/Documents/economics/profitability-and-the-air-transport-value%20chain.pdf>.
- ²³ Scholarly research to answer the question of whether a change in restrictions on foreign ownership of airlines would affect competition among airlines is inconclusive; see Volume Two, Appendix K for a summary of David Timothy Duval & Aaron Schiff, *An Assessment of Foreign Investment Limits on Air Service Provision in Canada*, prepared for the CTA Review, (August 29, 2015).
- ²⁴ A variable voting regime is one where a company issues two or more classes of shares, which are given different weights in votes at general meetings, such as for the election of directors. The *Canada Transportation Act* (S.C. 1996, c. 10) section 55 (1) defines a Canadian as “a Canadian citizen or a permanent resident within the meaning of subsection 2(1) of the *Immigration and Refugee Protection Act*, a government in Canada or an agent of such a government or a corporation or other entity that is incorporated or formed under the laws of Canada or a province, that is controlled in fact by Canadians and of which at least seventy-five percent, or such lesser percentage as the Governor in Council may by regulation specify, of the voting interests are owned and controlled by Canadians.” The Canadian Transportation Agency has determined that a variable voting regime is “an acceptable alternative,” where a separate class of shares is offered to non-Canadians” which, as a class, cannot ever carry more than 25 percent of the aggregate votes attached to all issued and outstanding voting securities of the company” even if the value of these shares represents more than 25 percent of the equity in the company. (Source: Canadian Transportation Agency, *Interpretive Note: Canadian Ownership Requirement* (last modified October 5, 2015), accessed on November 16, 2015, online: <https://www.otc-cta.gc.ca/eng/canadian-ownership>).
- ²⁵ Duval and Schiff, *An Assessment Foreign Investment Limits on Air Service Provision in Canada*.
- ²⁶ *Ibid.*
- ²⁷ The foreign ownership limits in the Act do not apply to specialty air services (e.g. aerial firefighting); however the *Canadian Aviation Regulations* require the holder of an Air Operators Certificate to be Canadian, so specialty operators with significant foreign ownership must obtain a ministerial exemption to access capital otherwise allowed in the law.
- ²⁸ The OECD’s interactive tool for the Services Trade Restrictiveness Index enables users to simulate the outcomes of different policy changes, accessed on November 23, 2015, online: <http://www.oecd.org/tad/services-trade/services-trade-restrictiveness-index.htm>.
- ²⁹ For example, in a presentation to the CTA Review, the Canadian Tourism Commission estimated that 52 percent of international visitors from India and 59 percent of visitors from Australia arrive in Canada via the U.S.

- ³⁰ Examples include the dispute resolution mechanisms employed by the U.S. and United Kingdom in air services agreements, such as those with the United Arab Emirates, and the dispute settlement mechanism in the Canada-U.S. Softwood Lumber Agreement.
- ³¹ Sources: Benjamin Dachis, *Full Throttle: Reforming Canada's Aviation Policy*, C.D. Howe Institute Commentary No. 398, (January 2014), accessed on October 20, 2015, online: https://www.cdhowe.org/pdf/Commentary_398.pdf and the Canadian Airports Council, Submission to the CTA Review.
- ³² Sources: National Round Table on Travel and Tourism, *Submission to the CTA Review* (February 2015), and the United Nations World Tourism Organization World Tourism Barometer, April 2014, (UNWTO, April 30, 2014) accessed on October 20, 2015, online: <http://mkt.unwto.org/barometer/april-2014-volume-12>
- ³³ Canadian Airports Council, Supplementary *Submission to the CTA Review on Aviation Security Screening in Canada* (April 2015).
- ³⁴ For example, the U.S. TSA Pre-✓[®] includes streamlined screening processes for recognized trusted travellers.
- ³⁵ CAA contracted Nielsen Consumer Insights to conduct an online panel survey, and shared the results with the CTA Review. The sample of 2,020 was weighted by age, gender, region to reflect the Canadian population according to Census 2011, and a margin of error of ± 2.2 percent, 19 times out of 20.
- ³⁶ See *Canada Transportation Act*, SC 1996, c. 10, ss 65, 66(1), 66(2), 67.1, 67.2(1), and 85.1(1).
- ³⁷ See for example European Aviation Safety Agency, *EASA Vision 2020* (2015), accessed on November 23, 2015, online: <https://easa.europa.eu/newsroom-and-events/news/vision-2020-easa-presents-its-vision-future-aviation-regulatory-system>.
- ³⁸ Aerospace Review, *Beyond the Horizon: Canada's Interests and Future in Aerospace* (Review Report, Volume 1) (November 2012), at 46, accessed on November 23, 2015, online: [http://aerospacereview.ca/eic/site/060.nsf/vwapj/Aerospace-e-online.pdf/\\$file/Aerospace-e-online.pdf](http://aerospacereview.ca/eic/site/060.nsf/vwapj/Aerospace-e-online.pdf/$file/Aerospace-e-online.pdf).

Chapter 10: Marine Transport

Encircled by three oceans, Canada boasts the world's longest coastline and a network of inland waterways that are navigable for part, if not all of the year. The abundance of natural resources combined with a profusion of coastal waters, rivers, and lakes long ago shaped Canada's destiny. Maritime trade is a habit the country inherited at birth.

The Europeans who settled here were not, of course, the first to profit from Canada's unique geography to move people and goods around. Centuries before Confederation, Indigenous peoples used our coastal waters and inland waterways to hunt, trap, fish, and trade a wide range of items. The fur trade, so intimately bound up with the economic history of Canada, was entirely dependent on water transport. The Atlantic, Pacific, and Great Lakes fisheries, the forest industry, mining—all these and many more of the country's major industries have relied on marine transport to feed hungry domestic and foreign markets in the last 150 years.

Today, marine transport remains essential to Canada's prosperity and is the backbone of the global economy: about 90 percent of trade by volume and more than 70 percent of trade by value is carried by sea and handled by ports worldwide, according to United Nations Conference on Trade and Development (UNCTAD).¹

While the terms of reference for the Canada Transportation Act Review did not specifically single out marine transport, they did call on the Review to consider a number of issues applicable to the mode, including:

- the extent to which the national transportation system has the capacity and adaptability that will allow it, and its users, to respond effectively to evolving international and domestic conditions and markets;
- whether adjustments to the current legislative and policy framework are required to support Canada's international competitiveness, trade interests, and economic growth and prosperity;
- how strategic transportation gateways and corridors can be developed and leveraged to support Canadian prosperity through linkages to global markets; and
- whether current governance and service delivery models for key federal operations, assets and agencies (e.g. Pilotage Authorities, St. Lawrence Seaway, and port authorities) can be improved.

In this chapter, we tackle these issues and propose changes to the existing model for marine transport.

The past 30 years: The seas sailed

Canada's ports are integral to Canada's transportation system and serve as a gateway to facilitate domestic and international activity. Canada's port system is made up of approximately 68 ports;² it comprises 18 Canada Port Authorities, 29 smaller regional and local ports—as well as 21 ports in remote regions of the country remaining under Transport Canada control. Ports with container-handling capabilities include Vancouver, Prince

Rupert, Montréal, Saint John, Halifax, and St. John's. While all of them are busy, Port Metro Vancouver in particular handles the most significant volumes of bulk and containerized commodities.³ Non-Canada Port Authority ports such as Baie Comeau, Port Cartier, and Port Hawkesbury also play a significant role in the Canadian supply chain.

Canada is well positioned to connect North America to established and emerging markets in Europe and Asia. Before commercialization, however, our ports were not equipped to keep pace with the potential for growth in trade.

The introduction of the *Canada Marine Act* in 1998 led to the modernization of the system of ports: it established port authorities, commercialized management of the St. Lawrence Seaway, strengthened safety regulations, and increased the competitiveness and efficiency of the marine sector. This new legislation was followed in 2001 by updates to the *Canada Shipping Act*, which governs the activities of Canadian vessels in all waters and all vessels in Canadian waters; it also aligns Canadian regulations with international standards.

The commercialization of the major ports transferred operational responsibility to Canada Port Authorities, while most smaller ports were divested to the provinces, municipalities, and local interests, although 21 ports and harbours continue to be administered by Transport Canada. The 18 Canada Port Authority ports account for more than 61 percent of the total tonnage handled by the port system.⁴ Commercialization significantly improved operational performance and the state of facilities at the largest ports.

The 2006 Asia-Pacific Gateway and Corridor Initiative resulted in Canadian ports and railways capturing market share from their counterparts in the United States for North American trade with Asia. Port Metro Vancouver has grown 35 percent since 2006,⁵ and the Port of Prince Rupert developed from a small resource port with no containers to one that handles a booming business in container imports and coal exports—the fastest gateway from Shanghai to Chicago. On the West Coast, Port Metro Vancouver and Prince Rupert were handling, and continue to handle, the preponderance of international cargo, making it easier to achieve a coordinated strategy.

The Atlantic Gateway Initiative was less successful: multiple stakeholders from the four provinces complicated the picture and without consensus, a less coordinated approach resulted. The East includes the Canada Port Authority ports of St. John's, Belledune, Saint John, and Halifax, as well as eight ports owned and operated by Transport Canada; together they account for 15 percent of Canadian marine traffic.⁶

Like the ports, the St. Lawrence Seaway was commercialized under the *Canada Marine Act*. The Great Lakes St. Lawrence Seaway System is the longest deep-draft navigation system in the world,⁷ extending 3,700 km. The system includes the five Great Lakes and their connecting channels, as well as the St. Lawrence River to the Gulf of St. Lawrence. The 13 Canadian locks that permit navigation from Lake Erie to Montréal are operated and maintained by the St. Lawrence Seaway Management Corporation, whose board of directors includes federal and provincial appointees as well as major industry representatives. The Corporation operates under an agreement with Transport Canada that is currently scheduled to end in 2018.

The Canada-United States border bisects much of the Seaway, and responsibility for its ongoing management is therefore shared. The St. Lawrence Seaway Development Corporation is a government agency that manages assets in the American portion of the Seaway, including two more locks on the American side; it is the United States counterpart to the St. Lawrence Seaway Management Corporation. Together, the two Corporations coordinate the waterway's rules, regulations, day-to-day operations, traffic management, navigation aids, safety, environmental programs, operating dates, and trade development programs.

The *Coasting Trade Act* governs the operation of foreign-registered vessels in Canadian maritime services. Under the *Coasting Trade Act*, Canadian commercial marine activities are reserved for Canadian registered, duty paid⁸ ships, unless a suitable and adequate Canadian registered ship is not available for that activity or capable of performing the required tasks. In such cases, a vessel from the international fleet can be made available for a limited time following application and approval for a coasting trade license. This allows shippers to temporarily import a vessel into Canada and get temporary work permits for the vessel's crew.

International shipping plays a large part in Canada's trade and transportation. Canada, as a flag state, does not have a significant presence, as there are relatively few national carriers. On the other hand, given our geography Canada does engage in short sea shipping. Short sea shipping is typically defined as the commercial shipment of cargo and/or passengers by domestic and international shipping carriers operating in coastal and inland waters. Short sea shipping often moves cargo to and from interchange points as part of multi-modal international supply chains, but also serves regional needs for economical movement of bulk commodities. While it entails primarily domestic shipping, it can also include cross-border traffic between Canada, the United States and Mexico. It competes with land modes, namely rail and truck, which are regulated differently from short sea shipping.

Canada's inland and coastal waterways were once the primary means of moving cargo domestically. Over time, they have been eclipsed, first by rail, and then by highways, as the preferred means of shipping all but lower-value bulk products. Shipping by road and rail offers benefits—namely reliability, convenience, and speed—whose value can bear the higher unit costs compared to shipping by marine vessels.

Container shipping came to the Seaway in the 1960s and 1970s, before vessels grew larger and intermodal rail service became more efficient. Container gateways at Halifax, Montréal, New York, and elsewhere diminished the role that Great Lakes ports used to play in the shipment of general cargo. The economies of scale that ever-larger container ships offered then (and continue to offer) made it difficult for Great Lakes container shipping to compete.⁹

As they do in the air sector, many countries limit foreign-owned, registered, and crewed vessels from carrying shipments between two domestic points (referred to as "coasting trade" or "cabotage"). Historically, both Canada and the United States have particularly restrictive cabotage rules that predate World War I. In most cases, marine cargo moving between two Canadian or two American ports must be transported by a ship owned and registered in Canada—or the United States, as the case may be—and owned and crewed by nationals of the same country. While most sectors of the economy have gradually opened up to increased international competition over the past 30 years, domestic shipping has remained closed, even in the wake of the Canada-United States, and North American Free Trade Agreements.

The Canadian Coast Guard is responsible for the safe circulation and operation of vessels in Canadian coastal and inland waters. The Canadian Coast Guard owns and operates the federal government's civilian fleet and provides key maritime services, such as aids to navigation, waterways management, environmental response, icebreaking, search and rescue, and marine communication and traffic services that support the Canadian economy.

The Canadian Coast Guard was transferred from the portfolio of the Minister of Transport to the Department of Fisheries and Oceans in the mid-1990s, where it has been designated a Special Operating Agency since 2005. As a civilian body, the Canadian Coast Guard cannot provide enforcement of international and national laws and regulations pertaining to the sea, the environment, and sovereignty; even though its presence on the water puts it in a position to observe breaches, this role is reserved for the Royal Canadian Mounted Police (RCMP).

It is also a longstanding maritime practice for countries to require licensed pilots to operate vessels around ports and other designated waters, such as through locks or treacherous channels. The *Pilotage Act*, has set the framework and regulations for the provision of pilotage services in Canada since 1972, with few changes since then. It establishes four separate pilotage authorities as Crown corporations responsible for designating compulsory pilotage areas in the Pacific, Great Lakes, St. Lawrence (known as "Laurentian"), and Atlantic regions, and exclusively providing pilotage services within those areas.

Where we are today

International trade volumes have consistently grown faster than world GDP for the past 30 years, and both the OECD and the ITF forecast that this growth will continue for years to come. World seaborne trade is expected to almost double, from 10 billion tonnes in 2014 to between 19 and 24 billion tonnes by 2030.¹⁰ The value of Canadian international seaborne trade was \$210 billion in 2014, an increase of 4.3 percent from 2013. In terms of value, significant commodities carried by water were crude petroleum, gasoline and fuel, and grains and agricultural products.¹¹ Globally, the marine sector is responding to the continued importance of marine trade with massive public and private investments in the expansion of the Panama and Suez canals; new, expanded and automated ports and terminals; and fleets of ever-larger vessels. Canada's geographic advantage for shipping cargo faster into the North American heartland from the Pacific and Atlantic Oceans will not be enough in and of itself to draw traffic to Prince Rupert and Vancouver on the West Coast, and Halifax and Montréal on the East Coast. The Atlantic ports in particular must articulate a strong strategic vision; otherwise, they may not fully develop, and may not be able to capitalize on the opportunities likely to arise.

Today, the world is much more interconnected than in previous decades, due in large part to trade agreements, supply chain networks and logistics systems, globalization, and the advent of mega-ships. The larger of Canada's ports are critical trade infrastructure—the gateways to accessing global trading markets. Shipping is the most cost-effective means of transporting cargo in volume, particularly for long distances. Consequently, port infrastructure and capacity are essential for countries wishing to successfully engage in international commodity trades.

Canada's post-commercialization policy framework for the marine sector works for the current environment. However, as the model ages, the limits of marine system governance¹² will become more apparent; it may well be too inflexible to meet the needs of the economy of the future.

According to Transport Canada, total marine freight traffic in Canada reached about 500 million tonnes in 2014.¹³ For most years, this has typically translated into 24 percent domestic, 20 percent transborder and 56 percent other international traffic. The 18 Canada Port Authority ports handled 66 percent of Canada's marine imports and exports; in dollar terms, this represented \$209.8 billion worth of international trade in 2014, which divides roughly into 47 percent exports and 53 percent imports.¹⁴

The Great Lakes and St. Lawrence Seaway operators carry dry and liquid bulk in vessels that meet the maximum size and operating limits of the Seaway system. Fleets comprise bulk carriers, self-unloaders and tug and barge units related mostly to domestic dry cargo movements, while a fleet of small tankers handles petroleum products. Every year, more than 160 million metric tons of raw materials, agricultural commodities, and manufactured products are moved on the entire Great Lakes–St. Lawrence Seaway System.¹⁵ Dominant cargoes include iron ore, coal, limestone and cement, and grain. Within this system, Seaway traffic for 2014 totalled 39.9 million tonnes, made up of general cargo (steel imports) liquid bulk, dry bulk (coke and salt), coal, iron ore, and grain.¹⁶ Martin and Associates estimated that, in 2010, this was equal to \$34.6 billion in economic activity (of which \$16.1 billion was contributed by the Canadian fleet) and represented over 225,000 jobs.¹⁷

Services and Costs of Marine Transport

In Canada there are multiple departments and agencies at the federal level that play a role in marine transportation and the governance of the system is therefore quite broadly dispersed—a situation that calls for some streamlining. Transport Canada has primary responsibility for policy development and the oversight and application of marine legislation and regulation. The Minister of Transport has responsibility for the Canada Port Authorities, the Pilotage Authorities, the St. Lawrence Seaway Management Corporation, Marine Atlantic, Ridley Terminals Inc., and international shipping protocols. Transport Canada is thus the major player, but others have responsibility for discrete aspects of the system: Fisheries and Oceans Canada for the Canadian Coast Guard; Environment Canada for environmental regulation; the Canadian Transportation Agency for resolving some tariff-related complaints and a limited number of other marine matters; the Canada Border Services Agency for the foreign crew requirement of coasting trade applications; Employment and Social Development Canada and Citizenship and Immigration Canada for regulations governing the use of foreign crews and marine professionals.

Canada Port Authority ports and the marine shipping industry in Canada are on a stable footing financially and understand the value of incorporating new products, services, and information management technologies into their operations. However, to support economic development over the longer term, government controlled service providers must emulate successful private enterprises in evolving their business models and asset structures. More flexible and responsive governance is required. Without this degree of adaptability and appetite for innovation, the Canadian industry runs the risk of losing customers and market share to U.S. and Mexican ports.

In Canada, the government organizes or provides, on a partial cost-recovery basis, a number of services vital to marine transport. These include aids to navigation, vessel traffic services, waterways management (maintaining main commercial shipping channels, including structures, and providing information on conditions), and icebreaking. The government has established a variety of governance models in this area:

- Pilotage authorities are crown corporations that do not receive federal appropriations;
- Ports are shared-governance organizations, governed by statutes, and required to be financially self-sufficient without federal appropriations; and
- The St. Lawrence Seaway Management Corporation is not-for-profit and funded by the governments and user tolls.

In 2013-14, such user fees totalled \$857 million.¹⁸ Port, pilotage, and St. Lawrence Seaway fees accounted for over 90 percent of this total. The fees have been increasing by more than 5 percent per year on average for the past 15 years.¹⁹ The United States does not impose fees for vital services such as icebreaking or dredging; Canadian user fees are considered high by comparison, even though they only recover part of the cost. This has a direct effect on the industry's competitiveness.

Unlike National Airport System airport authorities, Canada Port Authorities have generally been eligible for recent federal infrastructure programs, and ports have received significant public funding to maintain and improve some of their assets. Nonetheless, Canada's port infrastructure has slipped from 14th place in the World Economic Forum's Global Competitiveness Index in 2010-11 to 21st place in 2014-15.²⁰ Canada Port Authorities are similar in structure and purpose to airport authorities, but not identical. While they are free to set fees, they may not take on debt above a certain limit set by the Minister of Transport. Also, unlike airports, they are prohibited from developing port lands for non-transportation uses without ministerial approval, even when these lands are located well away from the water.

These factors constrain the larger Port Authorities' ability to invest to meet the demands of growing ship sizes and higher tonnage throughput. Ports are discouraged from favouring one user over another, but with finite footprints hard choices have to be made. And the Panel also heard concerns that Port Authorities may use some revenues from existing leases to invest in operations, such as a terminal, that would compete with existing tenants. Smaller ports are often highly specialized to handle a limited number of bulk commodities, such as mineral exports from the lower St. Lawrence, and have had challenges maintaining and upgrading their infrastructure on a user-pay basis. Revenues from bulk shipping in some cases have proved to be too small and unpredictable, due to boom-bust market cycles.

Like the large airports, Canada Port Authorities are required to be self-sufficient and to remit to the federal government a portion of their gross revenues on an annual basis (the Ports general revenue charge totalled \$19.3 million in 2014).²¹ This is in addition to providing the municipalities with payments in lieu of municipal taxes.

In 2008, the *Canada Marine Act* was amended to reflect the impact of expanding trade as well as growth and prosperity of the Canadian economy. A policy statement in the *Canada Transportation Act* linking marine transportation to trade would serve the marine sector better and support the integration of marine into Canada's transportation policy.

There are opportunities to refashion gateway models in Eastern Canada to emulate those in the Pacific, especially in light of proposed new trade agreements. Other countries are moving ahead with national trade and transportation strategies, providing a foundation for decisions such as port investments. The federal government should lead the development of a strong framework to ensure that capacity development and port infrastructure projects proceed within the context of a long-term plan. A comprehensive framework would allow ports to leverage their assets to compete in a changing global trade environment, and support the construction of appropriate facilities where necessary to serve increasing volumes and the next generation of mega-vessels.

Short Sea Shipping

Canada is also relatively slow to embrace international competition and investment in its marine transport sector, compared to other jurisdictions. In respect of marine transport, restrictions on cabotage, ship registry rules, and until very recently the 25 percent duty on foreign-made ships that was only lifted for larger ships in 2010, are all protecting sectors that have not grown, or that no longer exist, from competition by cost-effective international operators interested in developing new services and markets. Some argue that this has worked to the detriment of the economy as a whole, and Canadians bear the cost for little apparent benefit.

The Review heard repeatedly in consultations and from stakeholder submissions that seafarers are aging and the pool is diminishing, not just in Canada, but throughout the Western world. Recruitment is difficult—young people are not attracted to the maritime lifestyle and the prospect of long periods away from home. Alternative recruitment methods should be explored to ensure that Canada has the skilled and experienced workforce it requires for the immediate and longer term.

By optimizing existing port capacity for freight movement, short sea shipping—the movement of cargo by water without crossing an ocean—offers opportunities to move freight around congested land corridors such as on the Great Lakes and in the Lower Mainland of British Columbia, with lower emissions and without the need for costly investment in new road and rail capacity. Marine is already the best way to move bulk and large break bulk freight. Many other countries also use short sea shipping for containers, and roll-on, roll-off (Ro/Ro) services for trucks especially in circumstances of congestion. These latter services are underdeveloped in Canada; for example, there are no domestic container services on the Great Lakes–St. Lawrence Seaway above Montréal, and Ro/Ro operations are generally limited to ferry services. While the feasibility of many initiatives has been explored and some new services attempted, the cost of operations for crews and vessels proved excessive; service providers and their sponsors could not sustain the losses.

“Canadian short sea shipping plays an essential role in the broader, integrated domestic, continental and international supply chain.

The existing capacity of the Great Lakes and St. Lawrence Waterway to satisfy increased requirements and relieve congested alternative modes and routes presents a tremendous opportunity for growth.

Canada’s Coasting Trade Act is essential to the sustainment and growth of Canada’s short sea shipping industry with its links to continental and international bulk commodity supply chains. Specifically, CSA is seeking continuation of the Coasting Trade Act and the cabotage regime. The proposed changes to the Coasting Trade Act through the Comprehensive and Economic Trade Agreement could significantly undermine the ability of the domestic fleet to be a contributor to increased trade and to meet existing domestic requirements. Canadian short sea shipping is a reliable, safe and environmentally responsible mode of transportation that forms a critical part of the North American supply chain.”

— *Canadian Shipowners Association, Submission to the CTA Review*
December 31, 2015

Because inland warehousing and distribution capacity is currently co-located around rail and motor hubs, short sea supply chain proposals must include the cost of the inland transport legs to or from those hubs, which are generally performed by truck. These additional transport legs add significant expense to shore-based costs (waterfront terminals, equipment, and labour), making conversion to short sea shipping that much more challenging. In short, the deck is stacked against short sea shipments for most merchandise.

But a growing number of countries are putting in place measures, including cost mitigation, to increase utilization of short sea shipping.²² To bridge the cost gap, government’s role would have to be expanded beyond minor funding to substantially bring down costs, for example by eliminating fees and opening the waterways to international competition. Competing jurisdictions, such as the European Union, have already opened up the short sea shipping markets without any obvious downside. The European Union reduced protective barriers to allow European Union country-flagged vessels to engage in coasting trades in any other member country.

Another barrier to service in the Great-Lakes–St. Lawrence Seaway is the seasonal nature of operations. The lack of year-round ice-breaking service, navigation aids, and closure for annual lock maintenance all impose capacity constraints and a disincentive to invest in supply chains that have to be replaced with parallel logistics for part of the year.

The factors that also limit the competitiveness of short sea shipping compared to other modes include the high cost of Canadian crews and port workers, maritime fees, and until recently, the age of the Canadian fleet. The cost of shipbuilding and the lack of domestic shipbuilding capacity, along with a 25-percent duty on foreign-made ships (lifted in 2010) are also part of the equation. Together these factors increase the cost of short sea shipping, making it a less attractive option.

Legislative restrictions on maritime cabotage constrain short sea shipping. Shippers may apply to the Canadian Transportation Agency for an exemption that allows a foreign-flagged vessel to transport cargo in Canada's domestic trade when a suitable and adequate Canadian vessel is not available. But the application and licensing process for an international vessel to obtain a coasting trade licence is onerous, uncertain, and sometimes lengthy due to the number of authorities involved.

Ensuring international vessels operate safely in Canadian waters was a concern expressed by stakeholders. Their crews are foreign nationals, most without extensive experience in Canada, whereas Canadian-flagged ships meet our standards by definition. So after receiving an exemption to fulfill a request for service by foreign vessels entering Canadian waters, foreign vessels are subject to laws, regulations, and processes overseen by Employment and Social Development Canada and the Canada Border Services Agency. But those processes add uncertainty to the logistics plans of shippers and serve to discourage marine transport as an option when new transport requirements arise.

Today, with only one shipping registry, a small market, and a high-cost operating environment, Canada has relatively few national carriers. Other jurisdictions, such as Norway and Denmark, have established a second national ship registry aimed at competing with the costs of vessels registered under flags of convenience, such as Panama and Liberia. Such "international" registries were established in recognition of the fact that the operating and crewing costs of national fleets had lost important transport assets. Using globally recognized certification bodies that ensure compliance with the safety, security and environmental rules of the International Maritime Organization, vessels enrolled under these national certification programs comprise globally competitive fleets that bring lower costs to domestic trades while retaining skilled jobs in the host country.

The Canadian Coast Guard

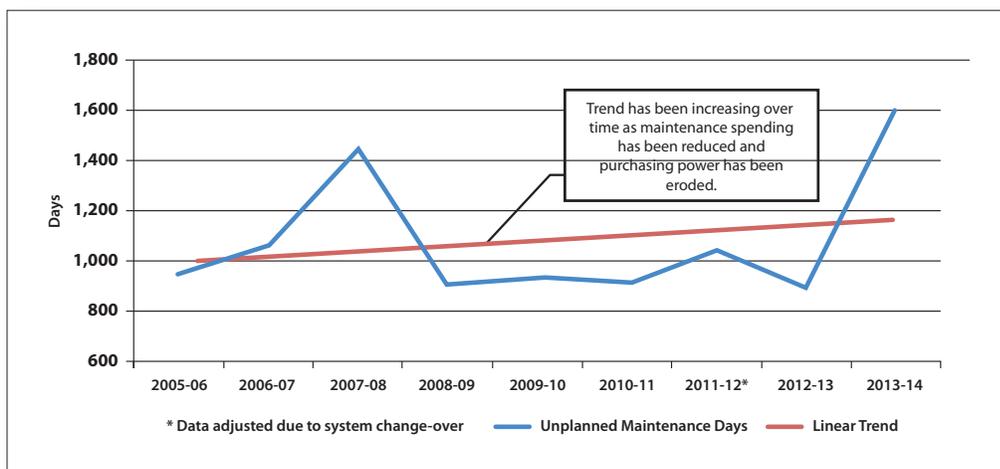
As noted above, the Canadian Coast Guard is responsible for the safe and efficient movement of ships in Canadian coastal and inland waters. Canada is unusual in having a civilian coast guard. In other northern jurisdictions, such as Denmark, Greenland, Norway, Iceland, Finland, and Russia, and in the United States, the coast guard is a military or security organization. As a civilian body, the Canadian Coast Guard does not have the authority to enforce international and national laws and regulations pertaining to the sea, the environment, and sovereignty without RCMP officers present, even though Canadian Coast Guard vessels and staff may be the best placed to respond to critical events and detect illegal activity. This has resulted in an inefficient enforcement regime. Canada has also been slow to use maritime transport to promote development and strengthen sovereignty. Canada must ensure that it meets the challenges of increased maritime traffic in the Arctic, the St. Lawrence, the Great Lakes, the Seaway, the Pacific and the Atlantic. Because of existing governance arrangements and inadequate funding, the Canadian Coast Guard is not currently well equipped to do so.

| | 2007 (%) | 2012 (%) | 2015 (%) |
|---|----------|----------|----------|
| Large Vessels (Design Life 25 to 45 years: average 35) | | | |
| Equal to or beyond average mid-life (≥ 18 years) | 95 | 100 | 80 |
| Equal to or greater than 25 years | 55 | 78 | 51 |
| More than 35 years | 25 | 25 | 29 |
| Small Vessels (Design Life 15 to 20 years: average 18) | | | |
| Equal to or beyond mid-life (≥ 9 years) | 55 | 70 | 81 |
| More than 20 years | 31 | 28 | 59 |

**FIGURE 1 —
AGE OF COAST
GUARD FLEET²³**

| | 2009 (%) | 2012 (%) | 2015 (%) |
|--|----------|----------|----------|
| Large Vessels | | | |
| New condition | | | 8.6 |
| Good condition or only minor repairs required | 52.5 | 2.8 | 2.9 |
| Major system repairs required | 27.5 | 72.2 | 85.7 |
| Significant equipment or system refurbishment required | 20.0 | 25.0 | 2.9 |
| Small Vessels | | | |
| New condition | | | 9.5 |
| Good condition or only minor repairs required | 81.4 | 52.4 | 41.9 |
| Major system repairs required | 12.8 | 41.5 | 45.9 |
| Significant equipment or system refurbishment required | 5.0 | 6.1 | 2.7 |

**FIGURE 2 —
REPAIRS OR
REFURBISHMENT
REQUIRED²⁴**



**FIGURE 3 —
UNPLANNED
MAINTENANCE DAYS
ON SHIPS (SHIPS OUT
OF SERVICE)²⁵**

As noted above and as depicted in Figures 1, 2 and 3, the Canadian Coast Guard fleet is aging, which has implications for maintenance as well as procurement. Given that 29 percent of the large vessels are more than 35 years old and close to 60 percent of small vessels are older than the design life of 20 years, it is not surprising that the number of major systems repairs required is increasing, vessel days are decreasing, and the number of ships out of service is increasing over time. The decrease in 2009 was as a result of money dedicated for repairs paid by the Economic Action Plan. Indeed, for such a critical piece of transportation infrastructure, the Canadian Coast Guard is not receiving the political attention, or the administrative and financial resources it requires. In 2014, the Commissioner of the Environment and Sustainable Development found that the Canadian Coast Guard's icebreaking presence in the Arctic is decreasing, while vessel traffic is increasing.²⁶ In response, the Canadian Coast Guard, Transport Canada, and the Canadian Hydrographic Service are currently advancing the Northern Marine Transportation Corridors Initiative to support responsible marine development, enhance marine navigation safety, and guide future Arctic investments.²⁷

In addition, the 2015 Report of the *Independent Review of the M/V Marathassa Fuel Oil Spill Environmental Response Operation* found that the Canadian Coast Guard lacked adequate staff to respond in any part of its region at any time.²⁸ Not only is it understaffed, but its fleet is one of the oldest in the world and urgently requires renewal (individual ships average nearly 34 years of age).²⁹ Without such renewal it will have to pull ships from service, further reducing reliability. However, under the National Shipbuilding and Procurement Strategy, which requires the Canadian Coast Guard to purchase ships from Canadian shipyards, it can only replace one ship a year, at most. At that rate, the median age of the fleet will not decrease. Other strategies, such as outsourcing or leasing, are not part of the strategy and thus cannot be deployed to meet short-term requirements.

On October 30, 2015, the eight Arctic Council states signed an agreement to establish the Arctic Coast Guard Forum (ACGF). This agreement builds on an earlier agreement that established areas of responsibility for search and rescue operations in the Arctic.³⁰ However, as noted by Paul Pryce of the NATO Association of Canada, the Canadian Coast Guard "will have a weakened position in the context of the ACGF simply due to the lack of vessels it is currently operating in the Arctic."³¹

The first report of the Tanker Safety Expert Panel, from November 2013, *A Review of Canada's Ship-source Oil Spill Preparedness and Response Regime—Setting the Course for the Future*, noted that developments in oil spill preparedness and response in other jurisdictions were not being adequately reflected in the Canadian regime. The Tanker Safety Expert Panel also reported that the Canadian oil spill regime was in a weakened state overall.³² Their recommendations covered a range of themes from preparedness and response to strengthening the polluter-pays principle, and call for more leadership, engagement and continuous improvement. The Government has announced and enacted measures to engage stakeholders to improve oil spill prevention, preparedness, and response, and is improving polluter-pay mechanisms in response to Panel recommendations.³³ Canada's rules for dangerous goods are covered under the *Canada Shipping Act* and the *Transportation of Dangerous Goods Act*, which apply to ships, dockside operations, and inland carriage and movement of dangerous goods. Transport Canada inspection programs verify that

regulatory requirements are followed. For instance, a Transport Canada-approved Emergency Response Assistance Plan is required by anyone who imports or transports a dangerous good, including carriers and ports.³⁴ In addition, the Port State Control involves inspecting foreign vessels to ensure compliance with relevant international maritime conventions.³⁵

The April 2014 Tanker Safety Expert Panel Phase II Report noted that “change is taking place in the Arctic, both in terms of the extent of multi-year sea ice, as well as economic development. In addition, the Canadian Coast Guard has a more important role to play in the Arctic with respect to ship-source spill preparedness and response than it does south of 60°. Due to the continuously evolving situation in the Arctic, the Government must regularly review and adjust its Arctic spill preparedness and response requirements and capabilities over the longer term.”³⁶ The Tanker Safety Panel expressed concern that Canadian Coast Guard capabilities have been declining and that this has affected its ability to keep up with the current modest increases in shipping and tourism and a lengthening shipping season. In light of the longer season, it is important to recognize that, for the Canadian Coast Guard to adequately fulfill its role, it will need to be physically present in the Arctic for the duration of the active shipping season. As Canada’s eyes and ears on the ocean in the North, it needs to start planning now for the increased demands on its services in the future.

Marine transportation will continue to be a critical link connecting Canadian consumers to markets around the world and Canada’s ports and marine sector will continue to be a significant contributor to Canada’s GDP. The Canadian Coast Guard’s fleet has been aging; the result of this over time has been to increase its operating costs while compromising services and capabilities. In order not to hold back economic activity, essential services must be provided for the South and the North. But the government must act to ensure that that this economic enabler is positioned to help the economy grow while maintaining safety and security.

Pilotage

Pilots are essential to the safe operation of international vessels, ports, and marine corridors, but the governance of pilotage has not changed fundamentally since 1972, in spite of advances in technology. Canada has not fully taken advantage of these advances to improve efficiency and reduce overall costs the way some peer countries (such as Norway and Denmark) have done. The Pilotage Authorities acknowledge that technology, including remote piloting of vessels and automated navigation systems, reduce the requirement to have pilots available at all times and in all circumstances.

Canada’s Pilotage Authorities are internationally respected for operating, maintaining, and administering a safe pilotage service within their respective geographic regions. While safety is clearly a priority, stakeholders have raised concerns about cost and the requirements for pilots to be so frequently on duty. Canada’s pilotage regimes are based on risk assessments; however, these are slow to take into account new risk profiles, technologies or alternative arrangements. Improved communications and information technology also undercut the arguments for maintaining four distinct Crown corporations to oversee pilotage in different geographic regions of the country.

While pilotage by its nature is a local service that relies on expertise and responsiveness to local circumstances, effective local operations do not require separate regional authorities. Moreover, given the average age of pilots (58) and a skills shortage (based on current pilotage requirements), the governance of pilotage requires a strategic focus—one that aligns mission and purpose and promotes more effective use of technology and innovation. Given this, the current model could be perceived as somewhat inefficient and ineffective, outdated, and costly, especially in the face of the growing skills shortage.

Some comparable jurisdictions already allow exemptions to the mandatory utilization of pilots by providing ship's officer training. In addition, international jurisdictions are examining "shore-based" pilotage³⁷. For example, the Danish Maritime Authority concluded that implementing shore-based pilotage was feasible in outlying waters, with little impact on safety.³⁸

Canada could reduce compulsory pilotage areas by expanding certification of vessel operators as pilots as well as adapting the advancements in navigation system capabilities such as automation and remote piloting. This would enable experienced pilots to redeploy to service areas experiencing growth in demand for services while minimizing risk.

Plotting the course: what we need to do to get there

Marine transport is the mode of choice for transporting goods across great distances at the lowest cost and with the lowest emissions.³⁹ For the most part, a system based on competition, market forces, and the user-pay principle is best equipped to deliver a robust marine transport sector; however, there is a need for government to play a greater role in the delivery of core marine services, such as navigation and ice-breaking, and to encourage greater use of available marine capacity, including short sea shipping in the Great Lakes and St. Lawrence waterway.

As noted above, short sea shipping offers opportunities to move freight within congested corridors, thereby lowering emissions per tonne-km moved and deferring the need for costly highway expansion. In addressing urban congestion, the government should encourage greater use of ports and encourage logistics facilities to locate along the Great Lakes–St. Lawrence Seaway system to restrain the growth in truck traffic. Doing so will reduce Canada's growing greenhouse gas and air pollutant emission levels. This shift in short sea policy would bring market forces into play, but also recognize the positive environmental and social impacts of increased marine transportation. While some Canadian ship owners have recently invested significantly in renewing their fleets, these vessels are designed for specific trades and intended mainly to reduce operating costs. Newer ships bring beneficial impacts to the environment as a result of lower greenhouse gas emissions and air pollutants; however, they are not in themselves going to drive the conversion from land-based transport to marine.

Without an adequately resourced Coast Guard, there could be impediments to commercial shipping, and Canada may not be able to meet its objectives in our territorial waters. The overall efficiency of the system will be affected; for example, the lack of icebreaking services will limit use of waterways. Canada will be unable to develop short sea shipping and Arctic routes that could optimize freight capacity, open new economic development opportunities, and mitigate congestion and emissions. Equally worrisome is that Canada's credibility and influence on the international front is at risk.

Given these concerns, the Review recommends a package of measures to reduce the cost burden on the sector, stimulate investment, promote marine-based economic development, and ensure that savings are passed on to users. This can be achieved by streamlining and reforming governance structures and embracing increased competition in domestic and international markets. Further measures are recommended to enhance the delivery of marine services by the Canadian Coast Guard.

We acknowledge the fact that many submissions and consultations spoke in favour of the status quo, particularly in respect of short sea shipping and pilotage. Although they may be unpopular in the short term, the Review is proposing changes in these domains that we believe will be in the long-term best interest of Canada and its marine transport system.

It should be noted that Transport Canada has recently undertaken a separate review of federally regulated ferries and ferry services. The report was not finalized in time to inform the CTA Review.

Services and Costs of Marine Transport

In marine transport, there are many user fees. Pilotage, berthage, wharfage, icebreaking, navigation, dredging, terminal, and towing are all activities that entail a separate fee structure and, in some cases, a related dispute resolution mechanism. Pilotage fees are subject to a cumbersome and lengthy regulatory process, as they are published in the Canada Gazette for public consultation. The approval process takes so long that market conditions can change in the interim, and there is no easy way to modify the charge without repeating the whole process. While consultation occurs along the way, the process can be viewed as neither responsive nor efficient. On the other hand, port and Seaway charges are part of a different regime: they are filed publicly and users can challenge them through a complaints mechanism at the Canadian Transportation Agency. However, terminal and towing fees are not part of this regime and cannot be contested.

This patchwork of approaches in respect of user fees is unwieldy, unresponsive to users, and inefficient. A common dispute mechanism with common criteria and established grounds for appeal would work better and be fairer to the parties.

“The Canadian marine transportation system is very expensive. Seaway tolls, compulsory pilotage (for Canadian vessels in the St. Lawrence) and Canadian Coast Guard recovery charges are among the many charges that affect the competitiveness of the St. Lawrence Seaway route. . . . Costs for unnecessary services should be eliminated.”

— *Algoma Central Corporation Submission to the CTA Review*
April 14, 2015

While the Canadian Transportation Agency can review whether port and Seaway fees are unduly discriminatory and pilotage fees are prejudicial to the public interest, the tests are different and the mechanism has rarely been used in the last decade. There is no uniform approach to evaluating the reasonableness and cost competitiveness of fees across the system.

Canada could not be in the same league as the United States and Mexico in terms of the cost competitiveness of marine transport without heavy public subsidization of the sector. In this respect, marine transport is similar to air transport. Subsidies would be required not only to match those offered by some competitors, but also to overcome the naturally high-cost operating conditions in Canada and lack of economies of scale. In addition to potential cargo loss to United States ports, these shortcomings can also reduce Canada's attractiveness as a commodity exporter.

Since heavy subsidies are not an option, the better strategy is to emulate those jurisdictions whose marine infrastructure and services pay for themselves. Such an approach would allow limited government intervention and promote greater use of short sea shipping to maximize capacity and thereby reduce congestion and emissions.

- 1. The Review recommends that the Government of Canada maintain a user-pay approach to ensure continued financing for infrastructure and operational needs, while also taking steps to improve cost competitiveness with comparable jurisdictions by:**
 - a. establishing a uniform and timely process for publicly filing rate and charge increases for all federally-mandated marine services (pilotage, towing, dredging, port charges, etc.); and,
 - b. authorizing the Canadian Transportation Agency to review all marine fees on a regular basis in terms of their reasonableness and cost competitiveness, as well as in response to complaints.

- 2. The Review also recommends that the Government of Canada work with the provinces to further improve cost competitiveness by ensuring that payments in lieu of municipal taxes required of individual port authorities are no greater than for comparable industries.**

Ports Governance and Capitalization

Like airports, marine ports play a significant role in the competitiveness of the transportation sector as a whole. Port authorities were established under the *Canada Marine Act* to handle diverse commodities and to work for the long-term interests of users and surrounding communities. To pursue this agenda, they must be competitive internationally, as well as transparent and accountable.

Global alliances have supported the trend to mega-ships that aggregate ever-larger quantities of freight. Around the world, this trend is producing significant surges in gateway activity; these surges can create congestion and undermine the region's trade growth. In addition, there are significant pressures to mechanize port facilities and improve efficiencies. As a consequence, capital investment decisions of significant magnitude are facing some ports, and these decisions need to be made in a timely manner, weighing all the various factors. Given these pressures and trade growth over the longer term, there is a need to change the governance structure of ports. Securing equity participation will ensure market support for volume forecasts and assist the analyses required to decide among the trade-offs between accommodating incremental growth and building long-term capacity. Also, container carriers point to a lag in port productivity requiring more automation and supply chain integration as a solution to congestion, and they call for ports to increase their gateway-wide investments.

International Transport Forum research has found that large-scale port projects have multiple impacts on the local economy and local community, spurring major investments in regional and national transport systems that ultimately improve the way regional and national economies operate.⁴⁰ Experts agree that port planners make better decisions when these broad impacts are examined as part of the development of a national freight transport and logistics strategy. Investment by the private sector in port terminals also tends to flow to gateways that are prioritized in such strategies; there is a greater degree of confidence when decisions to proceed with costly expansions are made within a known framework.

“Given the high level of uncertainty about Canada’s role in global trade as the world trading patterns restructure, it is important to make the right long-term port and hinterland infrastructure investment decisions in this environment that has an increasingly volatile nature of demand. Good investment decisions by both government and industry require better data be collected, and that all Canadian businesses and governments have the right data for future investment decisions.”

— Mary R. Brooks, *Prepared for the Canada Transportation Act Review*
July 16, 2015

The Asia-Pacific Gateway and Corridor Initiative was a highly effective example of such a strategy. However, Canada lacks a comprehensive national framework, and so port development tends to proceed unevenly. The Canada Port Authority model has been able to strike a reasonable balance between commercial discipline and the public interest in ports as enablers of trade development. Nonetheless, there are a number of limitations

with respect to financing and strategic adaptations that will make it increasingly difficult for the Canada Port Authorities to respond to evolving trade trends. In particular, the need for certain ports to expand to meet projected demand and to adapt to changing technologies and trade patterns will require ever-higher scrutiny of the returns on investment. The current model limits the activities and access to capital of some authorities and may inhibit good development ideas.

The Canada Port Authorities have all played a role in economic development and international trade, some to a greater degree than others. The model has worked well, but with the post-Panamax vessels, the widening of the Suez Canal, collaboration between United States ports, the advent of Mexican port capacity, the raising of the Bayonne Bridge,⁴¹ and other game-changers, Canada needs to go to the next level and position itself for the longer term. That means it must make some hard choices and inject private sector discipline into the process.

Quebec's \$9 billion Maritime Strategy recognizes the importance of the marine sector (partly paid by the private sector) by developing maritime infrastructure and supporting 30,000 jobs over the long term. The Review notes the success of the amalgamation of the three ports in Vancouver and surrounding area. In contrast, different regional priorities and strategies were at play in respect of the Atlantic and Continental Gateway and Trade Corridor initiatives, which account for its comparatively weak performance. Amalgamation or strategic alliances may be the best platform for future success; however, there is a need for all governments and the private sector to be strategic and coordinate efforts, so that ports can take advantage of opportunities when they come along.

Completing the movement towards the commercial, market-based operation of ports that began with the *Canada Marine Act* would grant ports the necessary flexibility to adapt to long-term trends and impose private sector discipline. Amendments to the legislation could also incorporate provisions to further recognize and protect the public interest and the common use of the infrastructure. The federal government may have an opportunity to monetize its equity and use the proceeds to fund new infrastructure or increase services, such as aids to navigation, ice breaking, and gateway and corridor investments.

3. The Review recommends that the Government of Canada strengthen the viability, accountability, and competitiveness of marine ports in Canada by:

- a. examining the feasibility and viability of adopting a share-capital structure for Canada Port Authorities, including receiving proposals from institutional investors or private equity investors, accompanied by legislation to enshrine the economic development and trade mandate of ports and to protect the public and national interests;
- b. encouraging regional amalgamation of Port Authorities guided by common-user and other principles embodied in the *Canada Marine Act*;
- c. introducing light-touch regulation⁴² covering fees, charges, common use of the facilities, and unfair competition by the port against its tenants to protect users;
- d. conferring oversight and enforcement of the measures in (c) on the Canadian Transportation Agency.

Short Sea Shipping

Overall, the policy, economic, and operating environments for marine transport are restricting freight from accessing international shipping capacity in domestic waters. Few, if any, new business models or innovations appear able to overcome these barriers. The impacts are spread across the economy: congested highway and rail corridors, inability to adapt to surge requirements, and increased emissions from transport.

Establishing conditions that would make Canadian-registered vessels internationally competitive would allow them to be redeployed to other trades during the winter months. A second Canadian international ship registry⁴³ would allow vessels to move freely in and out of Canadian domestic trades. This would open new commercial opportunities for ship owners and, by offering experienced foreign nationals preferred access to the Canadian immigration process, would enlarge the pool of Canadian seafarers.

“To implement the favourable conditions enabling Canadian businesses to be more competitive internationally, Canada works to negotiate and conclude trade agreements with many partners. St. Lawrence Shipoperators and its members feel that, overall, these agreements are favourable for the Canadian economy. However, certain clauses may adversely affect our domestic shipping industry, like those allowing foreign vessels to carry out cabotage in Canadian waters. It is important to mention that the *Coastal Trade Act* seeks to support “domestic marine interests by reserving the coasting trade of Canada to Canadian registered vessels”. Giving foreign ship operators access to the Canadian market, especially in the absence of reciprocity in an agreement, favours them and harms the competitiveness of their Canadian counterparts.”

— *St. Lawrence Shipoperators, Submission to the CTA Review*
March 2015

The current policy of prohibiting access to Canadian domestic operations by foreign-owned and registered vessels is restrictive and protectionist. The Review asked frequently for evidence of the negative impacts of liberalization, but none was forthcoming, apart from objections on the basis of the investments already in place. We believe it is time to remove the impediments inherent in the *Coasting Trade Act* and to offer shippers an expedited process, based on market-oriented criteria, that responds to demand.

“More needs to be done, however. A relaxation of Canadian and U.S. cabotage restrictions would support the development of short sea shipping for the benefit of both countries. In addition, enhancing the short sea shipping regime could help handle surges in demand by providing an alternative means of moving goods.”

— *Association of Canadian Port Authorities - White Paper - ACPA Response to the CTA Review*
May 2015

Canadian ports have 80 percent of the operations and traffic in the Seaway, including international voyages of foreign vessels.⁴⁴ During the Review, we heard that international ship operators were willing to offer services for Canadian companies. However, current regulations prohibit them from transporting cargo between two Canadian points. Given the importance of transportation and logistics to the economy, it would be in Canada's interest to adopt a more open approach.

Canadian ship owners have been operating under a protected market for a long time and have only just begun renewing their operations and fleets since the elimination of the duty on foreign-made ships. As a result, it is suggested that Canada allow for a transition period in which it narrows the cost gap by reducing the cost of services, while opening the domestic market in phases. The loosening of restrictions should begin immediately with container trade, where there are no international feeder services on the Great Lakes-St. Lawrence Seaway System to displace. Transition will also allow ports and the St. Lawrence Seaway Management Corporation to collaborate with Canadian ship owners to re-examine options for increasing marine capacity utilization through the Seaway's "Highway H2O" as part of a national transport corridor strategy.

4. The Review recommends that the Government of Canada act to increase the competitiveness of Canadian shipping and competition in the short sea shipping market by:

- a. promoting short sea shipping as a mechanism to alleviate congestion in urban areas and reduce Canada's growing greenhouse gas and air pollutant emission levels, especially through ports along the Great Lakes-St. Lawrence Seaway System;
- b. modernizing recruiting and training of Canadian seafarers, and improving processes for attracting and certifying foreigner workers with needed skill sets;
- c. phasing-out the operating restrictions on the basis of reciprocity in the *Coasting Trade Act*, beginning immediately with container services; eliminating restrictions altogether within a transition period of no more than seven years;
- d. phasing-out all remaining duties on imported vessels within a transition period of no more than seven years to respect Canadian ship-owners' recent investments in specialized vessels;
- e. aligning regulations governing Canadian-flagged ship operators to put them on a competitive basis with international operators who would be gaining access to Canada's domestic trades.

The Canadian Coast Guard

It was very clear in consultations and from submissions that the Canadian Coast Guard is a first-class organization that does the best it can with the resources available to it. However, a number of stakeholders expressed genuine concern that Canada is not meeting the mark: the Canadian Coast Guard has insufficient resources to fulfill its mandate and operates a very old fleet. With traffic increasing in all areas, it is time that the Canadian Coast Guard be properly resourced and equipped to meet the growing challenges that lie ahead. The following recommendations build on those of the Tanker Safety Expert Panel in 2014 with respect to strengthening safety for Arctic shipping and the movement of hazardous and noxious substances.

As the marine sector is fundamental to the movement of freight and people in the South and, increasingly, in the North, the Canadian Coast Guard would be better suited to a policy environment that focuses on transportation and transportation infrastructure rather than fisheries issues. The Canadian Coast Guard is an operational arm; it delivers key services, such as marine navigation and icebreaking, and is a transportation enabler. Moving the Canadian Coast Guard to the Transport Canada portfolio would better align with its mandate and the approach taken by other jurisdictions, such as the United Kingdom. In addition, Transport Canada's strong linkages to the United States and other key allies would allow for closer collaboration with enforcement agencies. Canada would be better able to enforce national and international legislation to protect its waters.

“We have been concerned for some time that the separate and distinctive roles of Transport Canada and the Canadian Coast Guard [make for] a less than efficient model for a coordinated and timely response to a maritime emergency. The situation is further compounded by CCG having been placed under the administration of the Department of Fisheries and Oceans whose role has little in common with that of CCG.”

— Chamber of Shipping of British Columbia, Submission to the CTA Review
July, 2015

5. The Review recommends that the Government of Canada reform and strengthen the Canadian Coast Guard delivery model to ensure it has the mandate, equipment, operations, and sustainable funding to support marine commerce and enforce safety, security, and sovereignty, by:

- a. situating the Canadian Coast Guard to the portfolio with which it is most closely aligned, such as the Minister of Transport, with service agency status;
- b. augmenting and clarifying its mandate by:
 - i. giving it clear oversight and enforcement responsibilities for safety, security, and environmental protection in Canadian waters to improve efficiency and cost-effective delivery of these services;
 - ii. focusing on key activities such as search and rescue, environmental response, icebreaking, pilotage, navigation aids, and charting services, among others, with revenue collection where appropriate, and allowing industry to provide and be responsible for ancillary services, such as vessel traffic services;
 - iii. conducting a review of the roles of the Canadian Coast Guard in the Arctic (including its policy and enforcement roles) to ensure they are adequate to meet future challenges and harmonize with the roles of the Royal Canadian Navy and the RCMP;
- c. increasing funding for the Canadian Coast Guard and:
 - i. providing a clear plan for accelerated fleet renewal and services, including the purchase of a minimum of one polar and two heavy icebreakers, and provision of associated operating costs;

- ii. providing the Canadian Coast Guard with flexibility in the application of the National Shipbuilding and Procurement Strategy so that, until fleet renewal is achieved, it has some discretion in leasing and procurement of foreign vessels to augment capacity;
- iii. ensuring that the Canadian Coast Guard has the resources to meet an enhanced mandate, and to satisfy current and future needs in respect of crisis response, fleet operations, increased traffic in all regions, interoperability with our maritime neighbours, and technology-based solutions. With regard to the latter, it requires funds to be able to invest in innovative technologies such as satellite-based navigation.

Modernization of Pilotage⁴⁵

There is no question of the need for pilotage in bad weather, in and around ports, through locks, other challenging navigational channels, and for extra safety with respect to guiding specialized vessels such as tankers, as well as foreign vessels and crews new to Canadian waterways. The *Pilotage Act*, which establishes four separate pilotage authorities, should be modernized to take into account new vessel and navigational capabilities to reflect circumstances where risk is reduced, as well as technological advances such as electronic charting, GPS and Automatic Identification Systems (AIS), and other innovations (shore-based pilotage, tracking etc.). The Review heard during consultations, both in Canada and internationally, that pilotage was expensive and unnecessary in certain waters, such as a large part of Lake Superior.

Marine Exchange – Case Study

The Marine Exchange of Alaska has been operating as a non-profit, industry-led organization that monitors and tracks vessel traffic in Alaska. Its greatest contribution to maritime safety has been an extensive vessel-tracking network comprising over 140 Automatic Identification System (AIS) and marine safety stations in Alaska, each with satellite tracking systems. Marine Exchange of Alaska also serves the maritime community by assisting vessels, facilities, and ports to comply with state and federal environmental, safety, and security regulations. In addition, it installs and maintains weather stations at remote locations across Alaska.

Vessels are required to comply with U.S. Coast Guard regulations on emergency spill response and, as a compliance measure, can sign up with the Exchange at a nominal fee. The Exchange is able to share open-source information among member companies and fills a niche by providing authorities (U.S. Coast Guard) with timely information on when and where vessels may be in trouble. In this way, U.S. Coast Guard can focus on its core activities, but can respond should the need arise.

A marine exchange such as the one in Alaska or Northern California could provide a useful model for Canada. Coast Guard could be provided with timely information, but would not need to expend scarce resources on this type of service. Vessel traffic is increasing, particularly in the North, and there is a need for some mechanism to actively monitor and track vessels. An Exchange could utilize a hybrid system of land-based and satellite tracking systems to enable information sharing with vessels on hazards and conditions, as well as faster responses for vessels in distress.

Consultation discussions revealed that these advances offer the opportunity to maintain Canada's safe system as trade brings more activity. According to the Canadian Marine Pilots Association, the pilotage framework allows the system to adapt to changing circumstances by modifying areas designated for compulsory pilotage, reviewing pilotage requirements and practices and allowing exemptions.⁴⁶ However, the Review also heard that a reframed, modernized approach was required. The authorities, pilots, and pilot corporations have been slow to introduce any changes to the current rules, citing safety risks. The Review acknowledges that safety is paramount. The Review also supports the necessity of pilotage in high-risk areas such as busy waterways, ports, and guiding tankers. However, it also sees the benefits of a more frequent federal review of operating practices, mandatory pilotage areas, and operating circumstances. The goal is to support growth safely while keeping costs down, by facilitating quality pilotage skills development and officer exemptions, and increased administrative efficiency.

As in air transportation, international ship operators supporting Canada's trade are looking for seamless service delivery provided in a consistent manner across the country. The Review is convinced that it is an opportune time to modernize pilotage requirements and their accompanying regulations to reflect these innovations, so that pilotage enhances rather restricts competition and provides valued services to mariners.

For these reasons, the Review supports the immediate and short-term improvements that will result from integrating the four pilotage authorities into one national pilotage board, while maintaining the sound regional stewardship of day-to-day pilotage operations. With representatives from across Canada, it can be a strong modernizing force for creating pilotage services for the future. Objectives should include aligning pilotage practices and procedures across the regions and into the North without unduly affecting the local and regional operations that have kept our waterways safe. The Review envisages that, over time, this body will harmonize the way regions contract for and provide services and will ensure greater efficiency in service delivery. One single authority that can manage the convergence of technologies and streamline processes and procedures will produce the best selection of user-supported services at the right cost. Further, as Canada looks at its emerging pilotage and ice management needs across the North, it will be important to have a national direction as well as common, streamlined processes and procedures.

The Canadian Coast Guard is a national institution that already has established operations in each of the regions in question, and complementary capabilities in the know-how and equipment required to deliver marine services. And, similar to pilotage authorities and ship owners, it is required to recruit, train, and retain skilled seafarers. Anchored in its mission to support safe and efficient marine navigation throughout Canada, it is uniquely positioned to oversee all marine services, including pilotage and hydrographic services.

Our goal in addressing these issues is to transform the delivery, governance, and service requirements for pilotage and other marine services in Canada in order to improve their cost competitiveness, and to set Canada on the right course for the next 30 years. Canada needs to take a more strategic and holistic approach to marine services by improving efficiencies without compromising safety. Canada requires a more nimble, more responsive marine system that includes streamlined approaches, with one strategic board that can respond as services and needs change—in particular as the country experiences expansion in the North.

6. The Review recommends that the Government of Canada:

- a. immediately integrate the four pilotage authorities within one National Pilotage Board to enable a strategic and holistic approach to pilotage for better alignment and harmonization in the way regions contract for and provide services;
- b. complete a full assessment of the governance framework for marine navigation services within three years;
- c. formally review compulsory pilotage areas, circumstances, and processes every three to five years minimum, in consultation with users and the international pilotage community, taking into account new technologies and best practices and including a re-assessment of navigational safety risks.

Notes

¹ United Nations Conference on Trade and Development (UNCTAD), *Review of Maritime Transport, 2013* (Geneva: United Nations Publication, December 6, 2013), accessed on November 23, 2015, online: http://unctad.org/en/PublicationsLibrary/rmt2013_en.pdf.

² According to Transport Canada, *Transportation in Canada 2014*, as of December 2014, there were 567 port facilities, 902 fishing harbours, and 202 recreational harbours in Canada. Note 499 of the 549 Transport Canada port facilities across Canada had been transferred, demolished, or had their public harbour status terminated. Available online: https://www.tc.gc.ca/media/documents/policy/2014_TC_Annual_Report_Overview-EN.pdf.

³ Source: Transport Canada, *Transportation in Canada, 2013*, (Minister of Public Works and Government Services, Canada: 2014), accessed on November 23, 2015, online: https://www.tc.gc.ca/media/documents/policy/Transportation_in_Canada_2013_eng_ACCESS.pdf.

⁴ Transport Canada, *Transportation in Canada 2014*, (Minister of Public Works and Government Services, Canada: 2015), accessed on November 23, 2015, online: https://www.tc.gc.ca/media/documents/policy/2014_TC_Annual_Report_Overview-EN.pdf.

⁵ Transport Canada, *Transportation in Canada 2013*.

- ⁶ *Ibid.*
- ⁷ Deep draft navigation is geographically connected to the coasts and Great Lakes, whereas inland navigation is located in the interior of the country, usually along rivers and narrower water corridors with harbours, locks, and channels that function as an interacting system.
- ⁸ A duty-paid ship is one for which the seller has paid all costs related to the transport of goods, including duties, and that is responsible in full for the goods until they have been received and transferred to the buyer.
- ⁹ MariNova Consulting Ltd., *Final Report: Analysis of Short Sea Shipping and Extending the Seaway Season*, prepared for CTA Review, (September 21, 2015).
- ¹⁰ Lloyd's Register, *Global Marine Trends 2030*, cited in the ACPA submission to the CTA Review.
- ¹¹ Transport Canada, *Transportation in Canada 2014*, *Op. Cit.*
- ¹² Limits on borrowing, approvals by the government on land use, etc.
- ¹³ Statistics Canada, *Shipping in Canada*, 2011 was the last year in which data was collected. Revised numbers for 2014 provided by Transport Canada.
- ¹⁴ Transport Canada, *Transportation in Canada 2013*, *Op. Cit.*
- ¹⁵ Great Lakes St. Lawrence Seaway System, *The Seaway – Economic Impacts* (January 2015), accessed on November 18, 2015, online: http://www.greatlakes-seaway.com/en/seaway/facts/eco_impact.html.
- ¹⁶ Transport Canada, *Transportation in Canada 2013*, *Op. Cit.* [Table M13].
- ¹⁷ Martin and Associates, *The Economic Impacts of Great Lakes-St. Lawrence Seaway System* (October 18, 2011) , accessed on November 23, 2015, online: http://www.greatlakes-seaway.com/en/pdf/eco_impact_full.pdf.
- ¹⁸ User charges on eligible vessels in Canadian waters include fees applied by Canadian Port Authorities, Canadian Pilotage Authorities, St. Lawrence Seaway tolls, Marine Regulatory Fee (Transport Canada), and the Marine Services Fee (Canadian Coast Guard).
- ¹⁹ *Ibid.*
- ²⁰ World Economic Forum, *Global Competitiveness Report 2015-16* (Geneva: September 2015), at 147, accessed on October 15, 2015, online: <http://reports.weforum.org/global-competitiveness-report-2015-2016/competitiveness-rankings/>.
- ²¹ See Volume Two, Appendix K, Figure 3.
- ²² Countries including Netherlands and Denmark.

- ²³ Fisheries And Oceans Canada, *Evaluation Of Fleet Operational Readiness Program: Fleet Maintenance And Fleet Procurement Sub-Programs*, Final Report (March 2014); updated by the Canadian Coast Guard.
- ²⁴ *Ibid.*
- ²⁵ Source: Canadian Coast Guard.
- ²⁶ Office of the Auditor General of Canada, *Report of the Commissioner of the Environment and Sustainable Development*, Chapter 3, at 14, (Ottawa: Fall 2014), accessed on October 29, 2015, online: http://www.oag-bvg.gc.ca/internet/docs/parl_cesd_201410_03_e.pdf.
- ²⁷ However, it does not include ice breaking.
- ²⁸ John Butler, *Independent Review of the M/V Marathassa Fuel Oil Spill Environmental Response Operation Report*, (July 31, 2015).
- ²⁹ By way of comparison, the average age of icebreakers is 33.8 years for Canada, 20.6 for the U.S., 18.1 years for Russia, and 27.6 years for Sweden. Source: Canadian Coast Guard.
- ³⁰ Paul Pryce, "An Arctic Accord and the Canadian Coast Guard," NATO Association of Canada, November 16, 2015, accessed on November 19, 2015, online: <http://natocouncil.ca/an-arctic-accord-and-the-canadian-coast-guard/>.
- ³¹ *Ibid.*
- ³² Transport Canada, 2013, *A Review of Canada's Ship-source Oil Spill Preparedness and Response Regime – Setting the Course for the Future: Report of the Tanker Safety Expert Panel* (Ottawa: 2013), at 6, accessed on November 18, 2015, online: https://www.tc.gc.ca/media/documents/mosprrr/transport_canada_tanker_report_accessible_eng.pdf.
- ³³ Government of Canada, *World-Class Tanker Safety System: New measures to strengthen oil spill prevention, preparedness and response, and the polluter pay principle*, accessed on November 18, 2015, online: <http://news.gc.ca/web/article-en.do?nid=847489>.
- ³⁴ Transport Canada, *Emergency Response Assistance Plans (ERAPs)*, accessed on November 18, 2015, online: <https://www.tc.gc.ca/eng/tdg/erap-menu-72.htm>.
- ³⁵ Transport Canada, *Port State Control*, accessed on November 18, 2015, online: <https://www.tc.gc.ca/eng/marinesafety/oep-inspection-psc-menu-1120.htm>.
- ³⁶ Tanker Safety Expert Panel, *A Review of Canada's Ship-source Spill Preparedness and Response: Setting the Course for the Future, Phase II - Requirements for the Arctic and for Hazardous and Noxious Substances Nationally*, (Ottawa: September 2014/Released April 2015), at 2, accessed on October 28, 2015, online: <https://www.tc.gc.ca/media/documents/mosprrr/TC-Tanker-E-P2.pdf>.
- ³⁷ The European Maritime Pilots Association definition of shore-based pilotage: "Shore Based Pilotage is an act of pilotage carried out in a designated area by a pilot licensed for that area from a position other than on board the vessel concerned to conduct the safe navigation of that vessel."

- ³⁸ Danish Maritime Authority, *Technological Assessment on the Possibility of Shore Based Pilotage in Danish Waters: Final Report*, (November 2014). [Cited by the Marinova Report to the CTA Review, September 21, 2015].
- ³⁹ Keith Michel and Peter Noble, *Technological Advances in Maritime Transportation*, "Transportation Infrastructure (Vol. 38, No 2, Summer 2008), accessed on November 23, 2015, online: <https://www.nae.edu/Publications/Bridge/TransportationInfrastructure/TechnologicalAdvancesinMaritimeTransportation.aspx>.
- ⁴⁰ OECD/ITF *Port Investment and Container Shipping Markets*, ITF Round Tables, No. 157, (OECD Publishing, Paris, 2015), available online: <http://dx.doi.org/10.1787/9789282107850-en>.
- ⁴¹ The Bayonne Bridge is the fifth-longest steel arch bridge in the world, and was the longest in the world at the time of its completion in 1931. Spanning the Kill Van Kull, it connects Bayonne, New Jersey with Staten Island, New York. It is one of three bridges connecting New York to New Jersey. Because the bridge was originally only 151 feet above water, larger container vessels often could not pass under it to reach nearby marine terminals, forcing shippers who relied on New York and New Jersey ports for access to a regional transportation network to use smaller and less efficient ships to bring goods into the region. To that end, in December 2010, the Port Authority of New York and New Jersey announced its decision to take action to "Raise the Roadway" of the Bayonne Bridge to 215 feet (Bayonne Bridge Navigational Clearance Project) to allow larger, more efficient vessels to access its ports. Project completion is expected in late 2017.
- ⁴² "Light-touch" regulation means the introduction of regulatory measures intended to instill a degree of discipline on the ports to protect their tenants and users. They are to be performance-based and are not meant to increase regulatory burden on the system.
- ⁴³ Ship registration is the process by which a ship is documented and given the nationality of the country to which the ship has been documented. The nationality allows a ship to travel internationally, as it is proof of ownership of the vessel. International law requires that every merchant ship be registered in a country, called its "flag state." A ship is bound to the law of its flag state. A ship's flag state exercises regulatory control over the vessel and is required to inspect it regularly, certify the ship's equipment and crew, and issue safety and pollution prevention documents. The organization that actually registers the ship is known as its registry. Registries may be governmental or private agencies. An international ship registry is open only to foreign-owned ships.
- ⁴⁴ Algoma /CTA Review submission.
- ⁴⁵ Pilotage in the United States shares many similarities with pilotage in Canada. Pilotage of international trade vessels in the United States is regulated by the individual states, each of which maintains a pilotage system that is suited to its particular needs and circumstances. Although each state has its own pilotage statute and regulatory system, there are substantial parallels across all systems. In all but one state, pilots are licensed and otherwise regulated by a pilot commission, a state-recognized governmental entity that is part of a state agency, or of a local municipality or port authority.
- ⁴⁶ Canadian Marine Pilots' Association Submission to the CTA Review, (December 2014), at 7.

Chapter 11: Canadian Transportation Agency

Many of the recommendations in this Review have an impact on the Canadian Transportation Agency (the Agency) either directly, through a reliance on the Agency to execute them, or indirectly, as a result of increased responsibilities and workload. In addition, recommendations have been made respecting changes to the National Transportation Policy statement, as set out in section 5 of the *Canada Transportation Act*, the Agency's enabling legislation. Given the number of recommendations to be implemented by the Agency, it is germane to discuss how the Agency has evolved, the role it plays in the national transportation system, some of the challenges it now faces, and what is required to equip the Agency with the appropriate tools and resources to effectively support these recommendations and bring Canada's transportation system to where we want it to be in the next 20 to 30 years: nimble, resilient, and internationally competitive.

A number of recommendations requiring regulatory intervention and decision making have been put forward throughout this Review to resolve conflicts and power imbalances, and, generally, to improve the way transportation markets serve Canadians. On the basis of advice and information received from stakeholders, review of international best practices and research carried out for the Review, it is clear that the Canadian Transportation Agency continues to have an important role to play. To be effective, the Agency must be modernized. It must be given the legal mandate and resources necessary to support a transportation system right for a Canadian economy facing unprecedented competition.

Where we've been – Evolution of Transportation Regulation in Canada in the Last 30 Years

The deregulation of the Canadian transportation system began in earnest in the late 1970s. The passing of the *National Transportation Act* in June 1987, replacing one of the same name that had been in place for 20 years, was a continuation of efforts to make government more business-like, both to enhance responsiveness and effectiveness, and to generate efficiencies contributing to deficit reduction. This was a major theme of the federal government of the time.

Freedom to Move: A Framework for Transportation Reform, the discussion paper issued in June 1985 by Don Mazankowski, then Minister of Transport, to initiate the process of revising the 1967 *National Transportation Act*, outlined extensive reforms to regulatory practices and provided a fairly clear view of the intended direction that Canadian transportation policy was to take. The paper argued that the structure of detailed regulation that had built up over the years now formed a barrier to efficiency and global competitiveness and that government needed to do less as a detailed regulator and more as a facilitator.¹ In addition, it articulated sweeping revisions to transportation policy that involved reduced economic regulation and greater reliance on market forces. Bill C-18 (the proposed new *National Transportation Act*) contained virtually all the ideas that had been articulated in *Freedom to Move*. Key changes from the 1967 legislation included provisions for confidential contracts for rail shippers; increased intra-modal competition; reduced regulation governing the commercial airline sector; rate arbitration for shippers and carriers; and protection of the unique nature of the North's air and marine transportation. (For more information on the history of transportation regulation in Canada, please refer to Volume Two, Appendix M).

The 1987 *National Transportation Act* was likewise the enabling legislation for the creation of the National Transportation Agency, the predecessor to the current Canadian Transportation Agency and successor to the former Canadian Transport Commission. Replacing the Canadian Transport Commission represented just one component of the move to deregulate parts of Canada's transportation sector, as described above. In a speech, Minister Mazankowski stated: "It is the federal government's view that the changing environment of regulatory administration, coupled with the determination to reduce government interference in the marketplace, requires the establishment of a new regulatory agency as a successor to the Canadian Transport Commission."

The National Transportation Agency was accorded less regulatory authority and fewer powers than the Canadian Transport Commission. It could continue to hold public hearings into transportation matters and settle disputes between shippers and carriers, but in keeping with the emphasis on minimal regulation, it could only do so in response to specific complaints, or at the government's request. The National Transportation Agency no longer had a proactive role in policy-making and was bound to follow the policy directives of government.

In 1995, recognizing that large segments of Canada's transportation system were overbuilt, inefficient, and heavily reliant on subsidies, Transport Minister Doug Young proposed a comprehensive strategy to further modernize Canadian transportation and prepare it for the 21st century.² As the new transportation legislation was being developed and reviewed, efforts were made to strike a balance between commercialization and the public interest: what the parties could and should do of their own accord in the marketplace, what matters were for Parliament to decide as questions of public policy, and what issues should involve the regulator. The main consideration was that economic regulation was to be used only where market forces were insufficient to foster competition and commercial solutions. Respecting the latter, the view was, and still is, that interventions are not always a substitute for the market; sometimes they are designed to strengthen market dynamics.

In the spirit of on-going deregulation, the *Canada Transportation Act* was enacted on July 1, 1996 to replace the 1987 legislation, and it created the Canadian Transportation Agency to replace the National Transportation Agency. Because it remained government policy that market forces should play a greater role in the sector than regulation, and because the federal government was fiscally constrained and under pressure to eliminate the deficit, the Canadian Transportation Agency's mandate as an economic regulator was further circumscribed.

Where we are today — the Current Context

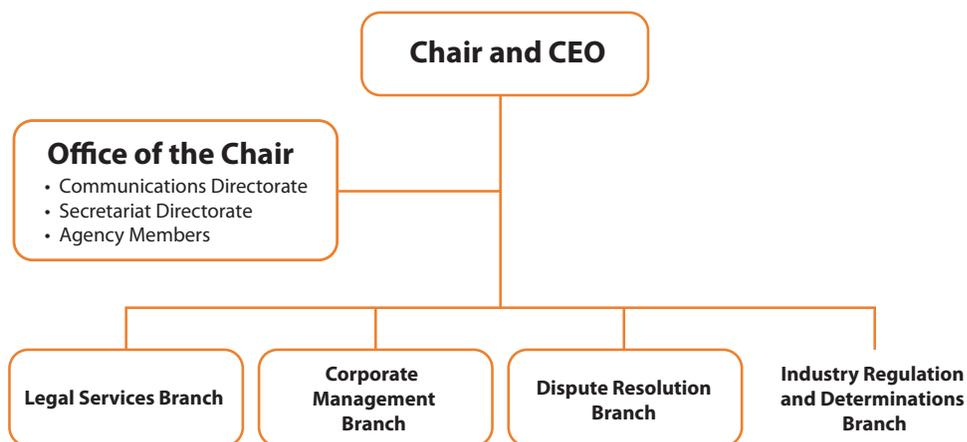
As were its predecessors, the Canadian Transportation Agency is an independent, quasi-judicial administrative tribunal and economic regulator that makes decisions and determinations on a wide range of issues involving air, rail, and marine transportation modes under the legislative authority of Parliament, as set out in the *Canada Transportation Act* and other legislation. The Act also determines the Agency's jurisdiction and specifies its powers, duties and functions.

The Agency reports to Parliament through the Minister of Transport, but operates at arm's length from Transport Canada. The Agency's role with respect to major legislative change is limited to providing analysis and advice, based on its experience and expertise, at the request of Ministers, Parliamentarians, or other government officials. Transport Canada serves as the main source of public service policy advice to the Minister of Transport, who is responsible for bringing proposals for legislative change before Cabinet which, in turn, may approve them for introduction and consideration in Parliament.

In its role as a quasi-judicial tribunal, the Agency, largely through the issuance of decisions and orders, resolves commercial and consumer transportation-related disputes (e.g. complaints about federal transportation services, rates, fees, and charges), including accessibility issues for persons with disabilities. It addresses disputes through a variety of mechanisms such as facilitation, mediation, arbitration, and adjudication. As an economic regulator the Agency makes determinations, provides approvals, and issues licences, permits, and certificates of fitness to carriers. It also has regulation-making functions.

The Agency's five permanent members (the number is specified under the Act) are appointed by Governor-in-Council (GiC) to terms of up to five years. The GiC may also appoint any individual to a roster of candidates from which the Minister of Transport may select up to three temporary members of the Agency. Temporary members are appointed for one-year terms only, and generally have expertise in a specific transportation mode or issue. There are currently seven Agency members: five permanent and two temporary. Members are responsible for rendering decisions and orders related to formal complaints or applications, as well as addressing other issues affecting the transportation system that fall within the Agency's current mandate. Although many issues are disposed of by only one presiding member, The Chair of the Agency is empowered under legislation to determine the number of members that are required to hear any matter or perform any of the functions of the Agency. In some instances, therefore, the Chair appoints a Panel to hear a case.

The deregulation of the transportation system created an Agency with fewer legislative authorities and reduced functions relative to previous Agencies and Commissions and resulted in a smaller organization and budget. Today, the Agency has a staff of about 230 people (see the organization chart in Figure 1, below), composed of economists, engineers, lawyers, financial analysts, human resources officers, communications specialists, and mediators, as well as case management, licensing and enforcement officers, and other support staff.



**FIGURE 1 —
CANADIAN
TRANSPORTATION
AGENCY
ORGANIZATIONAL
CHART**

The Agency's planned departmental spending for 2014–15 is approximately \$29 million.³ In contrast, the former Canadian Transport Commission had over 800 employees in 1986, with an administrative budget of \$43 million, while the National Transportation Agency had a staff of 508 employees in 1992-93 and a \$35 million budget in the currency of the day.⁴

Current Challenges

The Agency is reactive rather than proactive. It can take action only on the basis of individual complaints. It lacks own motion, *ex parte*, and systemic powers, and has very limited ability to issue orders of general applicability. In terms of its adjudicative function, the Agency must wait for a formal complaint to be made before it can investigate a matter.⁵ Therefore, a case before the Agency is limited to the issues specific to the complaint.

The Review heard criticisms from transportation service providers that the “case-by-case” approach places a burden on the specific service providers named in a complaint who must often defend on their own a common industry policy or practice that has a broad public interest component. Furthermore, a carrier who is the subject of an Agency corrective measures order is required to change the practice that gave rise to the complaint, whereas other carriers who engage in the same practice are not obliged to do so. Depending on the Agency order, this can create a competitive and cost disadvantage in relation to other carriers.

This “case-by-case” approach can also have a negative impact on the users of a transportation service who may benefit from an Agency decision against one transportation service provider, yet may risk encountering the same problem when using the services of another (e.g. travelling with another airline). Although the Agency might wish, on grounds of efficiency and practicality, to expand the scope of a complaint to address a common industry practice, it does not currently have the power to do so. To illustrate: an accessibility-related complaint was filed with the Agency regarding the issue of cats travelling with their owners in the cabin of an aircraft and the detrimental effect this had on adjacent passengers with allergies to cats. The Agency wanted to expand the scope of the complaint to include other pets, so as to address the systemic issue. However, the carriers named in the complaint objected, so the Agency could issue a decision only with respect to cats. Soon after the Agency issued its decision, it received a similar complaint regarding the carriage of dogs.

The Agency's current inability to fend off problems such as this by moving proactively to address systemic issues, or issues with broad application, means that problems linger. This is especially troublesome when action is urgently required to prevent commercial damage to shippers or receivers, either directly, through loss of business, or indirectly, through damage to Canada's reputation as a reliable supplier.

Moreover, the Agency's lack of own motion powers prevents it from examining overall network failures and issues. This can be frustrating when the Agency is aware of a widespread problem but can do nothing to address it. Even when a complaint is filed, as described above, the Agency can address only the specifics of that particular case. The benefits of conferring own motion and *ex parte* powers on the Agency are especially evident in the context of freight rail transportation. Insight into the freight rail transportation network solely from the perspective of an individual complaint may not provide the

Agency with enough information on the operations of the network as a whole as it arrives at its decisions and directives. Rulings based on having examined an issue through the narrow lens of a single complaint may have undesirable or unintended consequences for the parties operating on the rest of the network.

One has only to look to the grain transportation challenges that surfaced during the winter of 2013–14 for examples of such consequences. In *Louis-Dreyfus Commodities (LDC) Canada Ltd. v. CN*, LDC filed a level of service complaint with the Agency, claiming CN had failed to fulfill its statutory obligations under sections 113 to 116 of the *Canada Transportation Act*, as well as a confidential contract it signed with CN in 1999, relating to the railway's failure to supply as many cars as the shipper had requested in the preceding winter to carry all of its grain to destination. The Agency looked at the evidence before it, including the car orders left unfilled by CN, and decided in favour of LDC.⁶ The Agency ruled that CN had to provide LDC with the number of railcars the shipper ordered.

However, the 2013–14 winter was a particularly harsh one and, for many reasons, not all of them the fault of the railways, the railways were unable to provide their grain shipper clients with all the railcars ordered at the time they were requested. The view from industry was that the Agency's ruling resulted in the railway having to ration railcars to comply with the Agency order, which meant that other grain companies would receive fewer cars than before. Some have argued that the Agency's ruling in this case gave LDC an important increase in market share at the expense of its competitors. In fact, Viterro Inc. and Richardson International, two other grain companies, requested intervener status in the initial complaint with a view to arguing against LDC's position because of its effect on them, although the Agency denied the request. The fact that the Agency came to the decision it did, according to industry, demonstrates that it knew a transportation problem existed in the supply chain. However, given the way the regulatory system is presently structured, the Agency was prevented from addressing a system-wide problem with a system-wide solution and the ripple effects negatively impacted the sector. In this case, the Agency was only able to address LDC's specific complaint.

It's interesting to note that the constraints on the Agency's investigative abilities and legislative authorities are not shared by the Surface Transportation Board,⁷ the economic regulatory agency for railroads in the United States (equivalent to the Canadian Transportation Agency in respect of its role in the rail sector). At roughly the same time, the grain sector in the United States experienced transportation problems similar to those felt in Canada during the winter of 2013–14. However, in response to a number of rail service issues and problems raised by shippers in the United States (i.e. months of significant railway congestion), the Surface Transportation Board studied the overall railway network and level of fluidity and ruled on October 8, 2014 that all Class 1 railroads must report detailed freight service statistics weekly to promote industry-wide transparency and accountability, and to demonstrate that concrete action was being taken by the railroads to address the issues raised by shippers. Prior to reaching its decision, the Surface Transportation Board held public hearings on the grain transportation challenges that were being faced by shippers in the United States. The Canadian Transportation Agency has held public hearings on certain issues, as did its predecessors, but it no longer has the budget to do so.

The United States is taking steps to broaden the powers of its rail transportation regulator. The *Surface Transportation Board Reauthorization Act of 2015 (S.808)*, which was passed by the Senate in June 2015, is an attempt to further strengthen the powers of this organization and make it more independent from government. For example, once it becomes law, the Surface Transportation Board will be able to initiate investigations on its own initiative (i.e. not only in response to a complaint), and its role as an independent organization distinct from the United States Department of Transport will be reinforced. The STB's board will also increase in size from three members to five.

The Agency lacks sufficient network data and information.

The Review also found that the Canadian Transportation Agency does not have the relevant transportation data it requires to effectively execute its regulatory mandate. This jeopardizes its ability to make decisions that take into consideration the impacts on the entire network and supply chain. The problems experienced by the grain-handling-and-transportation system during the winter of 2013–14 exemplify how the paucity of relevant railway network information, combined with its narrow legislative authority, can exacerbate an already difficult situation. Had the Agency possessed timely network information and own motion and systemic powers, it could have prescribed certain corrective measures on the industry to prevent a very bad winter from becoming a major transportation “crisis.”

The Agency needs to modernize to reflect the evolution of transportation industry practices.

The Agency has an adjudicative function and, as an economic regulator, it makes determinations and issues authorities, licenses, and permits to federally regulated transportation carriers. These two roles are distinct, yet the Act does not clearly distinguish between them. Consequently, there is no recognition that each of these functions might require different approaches from the Agency in relation to the allocation of resources and decision-making responsibilities. This has important implications for the ability of the Agency to delegate tasks, recognize the distinct role of the Agency Chair, and manage the expectations of stakeholders when dealing with the Agency (such as the timely issuance of permits). As a result, Agency members are sometimes forced to deal with very routine matters that involve little or no discretion and that could be successfully, and much more quickly, handled by Agency staff.

Where we want to be

Information gathered through consultations, from the review of stakeholder submissions, and from observing how the supply chain operates, suggest that the streamlining of the Agency's operations as the industry underwent further deregulation may have actually reduced its ability to counter the imbalance between shippers and consumers and the dominant corporate service providers across the transportation landscape. It also eroded the Agency's ability to ensure timely decisions informed by all relevant evidence.

Several stakeholders have urged reform of the operation and functions of the Canadian Transportation Agency and some recommended that the Agency be given an expanded mandate with explicit and well-defined roles spelled out in legislation. The authority to

launch independent investigations, to be proactive with access to better knowledge and information on how the transportation system is functioning in “real-time” (a complete picture of the network), would better position the Agency to make timely decisions and tackle system-wide issues. Many have complained the Agency is too constrained in its ability to make meaningful and informed decisions that can advance the over-arching policy goal embedded in the Act—that of creating an effective, efficient, competitive, and safe transportation system in Canada.

How we get there

In addressing these limitations, the Review aspires to a healthy, market-driven transportation system supporting important Canadian supply chains—one that is safe, nimble, logistically efficient, and national in scope. Imbalances in market power will continue to be a constant source of friction to be managed. Nonetheless, the Review is recommending a series of improvements aimed at modernizing the system, along with a number of changes designed to clarify and strengthen the Agency’s mandate and ensure that it is properly resourced. The intent is to equip the Agency with better tools and the legislative and regulatory capacity to work in the best interests of Canadians as they take on the challenges of the next 20 to 30 years of global change. As it is now, the Agency provides a solid foundation on which to build: it possesses exceptional technical expertise on transportation issues and its arm’s-length relationship to government enhances its ability to make impartial, evidence-based decisions.

Jurisdiction and Administrative Governance

The Minister of Transport is a member of Cabinet and accountable to Parliament. The Minister has the ability directly, or through the Governor in Council, to refer matters to the Agency and review decisions of the Agency, as stated in section 49 of the *Canada Transportation Act*:

The Minister may direct the Agency to inquire into any matter or thing concerning *transportation to which the legislative authority of Parliament extends and report the findings on the inquiry to the Minister as and when the Minister may require* [emphasis added].

Further, section 43(1) of the Act states that:

The Governor in Council may, at the request of the Agency or of the Governor in Council’s own motion, issue policy directions to the Agency concerning any matter that comes within the jurisdiction of the Agency and every such direction shall be carried out by the Agency under the Act of Parliament that establishes the powers, duties and functions of the Agency in relation to the subject-matter of the direction.

The GiC mechanism can be used to vary or overturn Agency decisions, as section 40 of the Act states:

The Governor in Council may, at any time, in the discretion of the Governor in Council, either on petition of a party or an interested person or of the Governor in Council's own motion, vary or rescind any decision, order, rule or regulation of the Agency, whether the decision or order is made *inter partes* or otherwise, and whether the rule or regulation is general or limited in its scope and application, and any order that the Governor in Council may make to do so is binding on the Agency and on all parties.

These provisions are meant to ensure that Parliament, through the Minister of Transport and Executive Council, is ultimately able to ensure that Agency actions are aligned with broad policy and public interest considerations. That said, in the interests of preserving Agency objectivity, neutrality, credibility, and greater certainty and predictability for the public, Ministerial and GiC powers should be used in a cautious and considered manner. Dissatisfied parties have other means of challenging the actions of the Agency, such as appeal of Agency decisions, orders, rules or regulations on a question of law or jurisdiction (section 41 of the Act) to the Federal Court of Appeal; judicial review at the Federal Court (section 18.1 of the *Federal Courts Act*); and revision and variance of decisions and orders by the Agency itself (section 32 of the *Canada Transportation Act*). The Review believes there would be merit in considering the elaboration of clear criteria to better define the circumstances in which the Minister and the GiC should direct Agency activities, or override Agency decisions, always bearing in mind that they already possess such powers and can exercise them at their discretion.

As the role of the government and industry practices have evolved, it would also be appropriate to examine whether the traditional delivery model of the Agency remains effective to meet the requirements of transportation today, or whether modernization is warranted. As the Agency is directed to assume additional responsibilities, greater flexibility to realign existing resources is required. The Chair of the Agency should be able to delegate identified, routine regulatory approvals to Agency staff, who could assume a greater level of accountability. This would facilitate better and more timely service delivery. Agency Members would then be able to concentrate on their core role as adjudicators, and on more substantive and complex economic and regulatory matters that require the application of discretion and judgement.

As indicated earlier, the Agency's mandate was narrowed in the 1980s and 1990s through the elimination, removal, or transfer to Transport Canada of a number of its activities and powers. A refrain throughout this Report is that change brought on by global forces will continue. It is imperative that the Agency be appropriately mandated and resourced to keep the transportation system and its important supply chains functioning efficiently, while respecting Transport Canada's primary role in delivering public services and providing policy advice to the Minister of Transport.

Procedural Tools and Processes

Providing the Agency with the authority to act on its own motion⁸ and on an *ex parte* basis, and to address systemic issues and issue general orders will be a significant step toward ensuring the ongoing fluidity of the Canadian transportation supply chain, mitigating uncompetitive behaviours and market failures, and protecting vulnerable travellers. The Agency would execute these new authorities exclusively in the interests of ensuring fairness and to address issues that are clearly systemic across the transportation supply chain; the intent is not to actively monitor and intervene in all possible situations. Operating within its legislated mandate, the Agency would act on its own motion and initiate a review or investigation on issues pertaining to its mandate (service levels, access, fees) only on a reasonable basis. The power to issue *ex parte* orders would be very rarely exercised, and only in emergency situations where drastic change would occur if there were no intervention.

This broader legislative and regulatory tool kit would allow the Agency to deal expeditiously with pressing problems as they arise without the need to wait for complaints to be filed. The Agency could subsequently launch a process to examine a particular problem in greater depth and bring forward possible longer-term solutions. Delays in implementing remedies would be minimized under this approach and network fluidity would not be adversely affected.⁹ In addition, the new provisions could prevent opposing parties from engaging in adversarial processes and, in the case of disputes between users and service providers, eliminate the possibility of retribution by the dominant player. The advantages would extend to other modes too, such as marine (excessive fees) and air (consumer protection of airline passengers), and would assist in the resolution of accessibility complaints and other accessibility-related matters.

As the Agency's mandate is adjusted and its activities modernized, it would be instructive to review the progress the United States Surface Transportation Board is making as it strengthens and reforms its organization. While the Canadian context is different in some ways, there are likely valuable lessons to be learned from the Surface Transportation Board's processes, including around dispute resolution and management in general, and data collection methodologies for such matters in particular. A revised mandate of the kind proposed for the Agency will have the effect of bringing the Agency into closer alignment with the United States Surface Transportation Board.

Information and Data

Being an effective regulator depends not only on having a clear mandate and enhanced legislative authorities, but also the necessary network information upon which to make decisions and the resources to successfully execute the Agency's mandate. Decisions and regulatory actions will be less robust if the Agency operates under a cover of darkness, without access to data and complete information on the operation of the transportation supply chain. In future, the Agency will be more efficient and better able to do its regulatory work, including discharging its new responsibilities, once the recommendations in this Report are implemented.

A common thread throughout the Report is the need for the Agency to move away from largely reactive and complaint-based processes for enforcing prescriptive legislation (or even worse, for enforcing an ad-hoc accumulation of prior Agency rulings). The preferred model is that of a nimble and forward-looking Agency, equipped with own motion power

to investigate systemic issues related to its mandate, in a context of light-touch regulatory oversight of a more market-based and competitive system. High-quality, timely, published data and information on supply, demand, performance, and impacts would be a key condition for the success of such a system. A centralized mechanism for data/information collection, aggregation and publication functions would improve decision making by the Agency and throughout the system of shippers, travellers, and carriers, all in support of more efficient supply chains downstream. This would support at least three outcomes:

- (1) More effective oversight by the Agency, including for tracking systemic issues;
- (2) Transparency and visibility for shippers, travellers, and carriers for more efficient commercial/consumer decisions and optimal results within the market, (i.e. outside of regulatory/complaints processes); and,
- (3) An invaluable tool for independent researchers to improve the overall understanding of the supply chain, and drive future innovation (including the development of improved performance measures that would feed back into the process).

The Review envisages the Agency of the future as the custodian of pertinent and strategic transportation system data. This can only come to pass if the Agency is granted the legislative authority to access and obtain such data and information in support of its regulatory, systemic, and own motion powers.

Broader information-gathering powers would not only provide a solid foundation to support Agency decisions and regulatory functions, but could be used to support the development of robust and evidence-based transportation and economic policy by other decision and policy makers, such as Ministers, Parliamentarians, and stakeholders at large. As a government institution, the Agency is best placed to house and protect all data and information of a confidential and commercially sensitive nature, or for the purposes of national security. It is not anticipated that data collected and/or analyzed by the Agency would be made public.

A modernized, proactive Canadian Transportation Agency equipped with relevant, real-time, system-wide data and the legislative mandate to undertake research and analyze system-wide trends will be in a position to understand how the Canadian transportation system is operating as a whole. It will know how its users and service providers are faring, and will be able to take action as appropriate to ensure on-going system efficiency and fluidity.

1. The Review recommends that the Government of Canada modernize the mandate of the Canadian Transportation Agency, giving it greater legislative and regulatory authorities by:

- a. amending the *Canada Transportation Act* to confer upon the Agency investigative powers, and the authority to act on the Agency's own motion and on an *ex parte* basis, as well as to address issues on a systemic basis and to issue general orders (these new powers would only be executed on reasonable grounds, on issues related to the Agency's mandate);

- b. adding provisions to the *Canada Transportation Act* that better define the power for Ministers and the Governor in Council to direct Agency activities or override Agency decisions, establishing clear criteria for such action;
- c. amending the *Canada Transportation Act* to allow the Chair of the Agency to delegate identified, routine regulatory approvals to Agency staff;
- d. establishing the new Integrated Data Platform and Multimodal Data Dashboard within the Agency, in accordance with Chapter 2, Recommendations 1 and 7, and providing the legislative authority to access and obtain relevant and strategic data consistent with its mandate; this new authority would also bestow the responsibility to do research, analyze system-wide trends, provide expert advice to Ministers, and take action where necessary to ensure on-going system fluidity and protect the well-being of Canadians;
- e. in accordance with Recommendation 5 in Chapter 8.1: Freight Rail, establishing a specialized rail unit, staffed by Agency experts, to lead and advise on informal dispute resolution issues, including level of service issues, and to provide support, or lead, alternate dispute resolution focussed on level of service complaints;
- f. providing the Agency with adequate financial resources and expertise commensurate with its enhanced mandate and legislative authorities.

FIGURE 2 — RECOMMENDATIONS WITH SIGNIFICANT DIRECT IMPACT ON THE AGENCY OF THE FUTURE

| New Measure or Mandate Change | Policy Rationale / Impacts on Agency |
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| Systemic and own motion powers, <i>ex parte</i> , ability to issue general orders. | <ul style="list-style-type: none"> • New mandate. • Permits the Agency to address issues systemically, rather than on a case-by-case basis, and to do so efficiently. Of common import for stakeholders, for example, are issues related to accessibility and to the grain-handling-and-transportation supply chain; measures to protect airline passengers; oversight of fees at air and marine ports; and overall rail network fluidity. • Provides the Agency with the ability to initiate investigations without waiting for a complaint to be filed. This would only be undertaken on reasonable grounds on issues related to its mandate, such as service levels, fees, and access. • Addresses concerns that the current, case-by-case approach leads to an uneven playing field in relation to transportation service providers who are not subject to complaint-specific Agency decisions. • Provides greater certainty to users of similar service standards across service providers. |
| Amendments to section 5 of the Act, the National Transportation Policy. | <ul style="list-style-type: none"> • Agency interpretations will reflect changes to the national policy statement: recognition of the importance of trade and transportation corridors; access for all including persons with disabilities to better align with foreign jurisdictions; and recognition of the importance of transportation to international trade and Canada’s ability to compete in global markets. |
| Creation of an Integrated Data Platform and Multimodal Dashboard, to be located in the Agency. | <ul style="list-style-type: none"> • Agency will acquire new power to require the filing of any information relevant to its new mandate. • Will permit greater visibility, accountability, and transparency across the transportation network and, by giving the Agency a comprehensive view of the transportation system, will enable quicker, more effective response to problems affecting it. • Will provide access to more data and information of importance for the execution of the Agency’s new mandate (including airline passenger data, such as the number of passengers denied boarding; on-time performance; lost baggage rates, etc.), making it easier, for example, to protect airline consumer rights and to produce railway performance metrics. • Will facilitate enhanced transportation data collection and processing. |

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| Regulatory mandate to enforce and monitor new <i>Accessibility Regulations to replace Codes of Practice</i> . | <ul style="list-style-type: none"> • Will provide for greater harmonization with other jurisdictions (e.g. the U.S. and the European Union) by defining standards and levels of service in legislation. Currently, these standards and services are set out in codes of practice, which do not have the same regulatory force. • The Agency's focus will shift from adjudicating complaints to enforcing and monitoring the new regulations. |
| <i>Intercity Bus Code</i> transferred to, and administered by the Agency. | <ul style="list-style-type: none"> • Will increase efficiency and reduce costs as the Agency has the resources and expertise to address complaints related to extra-provincial bussing through mediation, facilitation, and adjudication. |
| Exclusive jurisdiction over disability-related cases in the federal transportation network, including a new mandate providing the ability to award compensation for pain and suffering. | <ul style="list-style-type: none"> • Eliminates uncertainty as to the extent of the Agency's jurisdiction in relation to the Canadian Human Rights Commission (CHRC). • Recognizes the Agency's expertise in accessible transportation issues that mirrors the courts' acknowledgment of this expertise. • Allows the Agency, in appropriate cases, to order compensation for pain and suffering (currently provided by the CHRC) in addition to expenses, the only form of compensation the Agency can currently order. • Exclusive jurisdiction obviates the need for persons with disabilities to address their complaint to two different agencies. |
| Reporting every three years on the status of accessibility through the use of a scorecard. | <ul style="list-style-type: none"> • New Agency mandate. • Will assist persons with disabilities by providing them with information on the degree of accessibility of certain means of transportation, as well as what means of transportation are accessible and meet their particular needs. • Aligns with recommendation to increase the Agency's investigative powers (own motion, general order) and provides the Agency with a thorough understanding of the current state of accessibility of transportation modes and services, and whether certain areas require investigation and correction. |
| Establishment of a specialized rail unit, staffed by experts to lead and advise on informal dispute resolution. | <ul style="list-style-type: none"> • Specialized rail unit housed in the Agency to address level of service issues, and to provide support, or lead, alternate dispute resolution centred on level of service complaints. • Unit's objective is to encourage stakeholders to tap into the expertise of Agency staff with specialized understanding of rail network issues in order to encourage dispute resolution and decrease the number of cases going to the Agency for adjudication or arbitration. • Similar to a former Industry Monitoring Group that once existed at the Agency, with the current proposal adapted from an effective model used within the U.S. Surface Transportation Board (there referred to as "shuttle diplomacy"). |
| Modernization and elimination of the MRE. | <ul style="list-style-type: none"> • Will enhance competition and improve railway service; will level the playing field with other commodities. • Should encourage railway investment. • Agency to set parameters around MRE, monitor and help guide the transition to its elimination (if deemed appropriate under the prevailing circumstances). |
| Compensatory inter-switching rates. | <ul style="list-style-type: none"> • Intended to reduce commercial harm on railways, thereby fostering railway competition through greater use of this competitive access provision. • Agency to set interswitching rates annually—rate determinations will be divorced from regulatory process. • Agency to review its interswitching rate determination methodology, determine whether rates are compensatory (in all instances and in all regions to the railways performing the movements), and modernize and make adjustments as needed.. |

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| <p>Agency to enforce new airport fee principles and ensure airports grant access to any licensed carrier making a request (i.e. common use and non-discrimination).</p> | <ul style="list-style-type: none"> • New Agency mandate. • Intended to improve airport governance, protect competition, improve service, and reduce costs. • Provides the Agency with oversight authority over airport fees and non-discrimination over access to landing rights, gates and slots. This is similar to the Agency's expanded authority over marine fees, as proposed, and to Agency power already in place for air navigation service charges under the <i>Civil Air Navigation Services Commercialization Act</i>. |
| <p>Legislative amendments and/or new regulations establishing passenger rights and obligations, enforceable by the Agency.</p> | <ul style="list-style-type: none"> • Will enhance consumer protection for airline passengers. • Provides an expanded air mandate for the Agency. • Currently the Agency decides passenger rights issues on a case-by-case basis, with the result that many such decisions are issued against some, but not all carriers. This would change if passenger rights were enshrined in legislation and/or regulation and the Agency had own motion and systemic powers. Carriers would have clear direction under the new legislation as to their obligations to passengers, and passengers would aware of their rights. |
| <p>Agency given expanded oversight and enforcement powers respecting marine fees, charges, and common use of facilities; and, over unfair competition by ports against its tenants. The Agency must review marine fees on a cyclical basis.</p> | <ul style="list-style-type: none"> • Intended to enhance the cost competitiveness of the marine sector and increase the viability and accountability of marine ports. • Expected to reduce unfair competition at ports. |
| <p>Repeal of the <i>Coasting Trade Act</i> following a transition period.</p> | <ul style="list-style-type: none"> • Elimination of the Agency's mandate respecting coasting trade removes its statutory obligation to make suitable vessel determinations. |

Notes

- ¹ Transport Canada, *Freedom to Move*, (July 1985), foreword, at 2.
- ² This initiative can be linked to the federal government's 1995 Program Review, which resulted in a marked shift in the role and responsibilities of Transport Canada. Instead of owning, operating, and subsidizing the transportation system, Transport Canada began developing policies, regulating transportation, and enforcing safety standards. Some of the reforms included transferring airport management and ownership to local authorities, privatizing the Air Navigation System (NavCan), and eliminating subsidies for farmers and transportation companies. Source: Niels Veldhuis, Jason Clemens, and Milagros Palacios, *Budget Blueprint: How Lessons from Canada's 1995 Budget Can Be Applied Today*, Fraser Institute (2011).
- ³ Canadian Transportation Agency, *Report on Plans and Priorities 2014-2015*, (Treasury Board of Canada, 2014) accessed on November 23, 2015, online: <https://www.otc-cta.gc.ca/eng/report-on-plans-and-priorities-2014-2015>.
- ⁴ Canadian Transportation Agency, *100 Years at the Heart of Transportation – An Historical Perspective*, (Ottawa: February 2015), accessed on November 23, 2015, online: <https://www.otc-cta.gc.ca/eng/publication/100-years-heart-transportation-historical-perspective>.
- ⁵ The exception is in international tariffs where there is no similar complaint-driven constraint and the Agency can act on its own motion. However, in almost all areas of the Agency's mandate, it can only investigate a matter upon the filing of a complaint.
- ⁶ At the time this report is being written, this Agency decision is under appeal.
- ⁷ The Surface Transportation Board (STB) of the United States is a bipartisan, adjudicatory body housed within the U.S. Department of Transportation, but independent in terms of its decision making. It was established in 1996 to assume some of the regulatory functions that had been administered by the Interstate Commerce Commission when the ICC was abolished. The STB has broad economic regulatory oversight of railroads, including rates, service, the construction, acquisition and abandonment of rail lines, carrier mergers, and interchange of traffic among carriers. The Board has wide discretion, through its exemption authority from certain federal, state and local laws, to tailor its regulatory activities to meet the nation's changing transportation needs.
- ⁸ Own motion is not meant to be a substitute for the filing of complaints by shippers. It is more a means of expanding a complaint and taking a broader policy approach.
- ⁹ At present the Agency can issue interim orders, but can do so only after pleadings from the parties.

Chapter 12: Summary

The preceding chapters are the culmination of an 18-month examination of the economics of transport in this country. They detail the rationales for the specific measures that the Review has identified to strengthen the transport system, and in turn, drive our global competitiveness for the next 30 years. The Review has confirmed that transportation is fundamental to our economic success and our quality of life. The approaches proposed offer the greatest potential to support Canadians' long-term prosperity.

The extent to which slowing economic growth, volatile markets in Asia, and slumping commodities prices have buffeted Canada's economy and public finances over the past year is a strong reminder that ours is a small, open economy, more likely to be influenced by global events than to shape them. And though the value of our dollar has declined recently and interest rates are low—which helps to improve Canada's cost competitiveness in international trade and encourages new investment—Canada should not base its economic growth forecasts on this situation remaining static. Over time, global development will continue to drive demand and competition for agricultural products, as well as energy and other natural resources. Subject to our ability to capitalize on new markets, these commodities represent huge export opportunities, and all are intense users of transportation.

Beyond these traditional advantages, Canada also has the expertise and potential to build a more innovative and higher-value economy on top of a strong base in commodities trade. We are strategically located on the shortest sea routes connecting many of the world's largest economies, but are dependent upon fluid and reliable inland transportation and logistics services to get our export products to tidewater and North American imports to market. Our transportation infrastructure and services can and must be of the highest quality if they are to become the global corridors for these trade flows. With the right governance, regulatory, and market frameworks, Canadian transportation infrastructure and services can be strategic assets that, along with sound fiscal and policy environments, and sufficient expertise and resources, will help to keep Canada relevant and competitive in international commerce.

The objective for the core national transportation system should be to provide mobility and connectivity for Canada's major centres and industries. The objective for transportation policy should be to ensure that all parts of the country and all types of users have access to the system, with choices of competitive services and options for redress if the market or policy fail.

But what makes up the core national transportation system? It is difficult to coordinate planning and action when the transportation system is taxed and regulated by multiple levels of government, and when it comprises the operations of a multitude of competing commercial entities. Governments have an important role to play in bringing parties together to address the needs of common assets. However, governments acting alone are not best placed to prioritize the actions and investments required to develop transportation facilities and services that connect our major centres to each other and to external destinations. Independent entities, disciplined by competition and market forces, financed by private investment and "user pay," and empowered to act accordingly, are able to develop and operate the components of the core transportation system—our largest airports, ports, and railways. Transportation policy should continue to push the system in that direction.

At the same time, the national interest extends beyond the core system; users—including smaller shippers, those without competitive alternatives, persons with disabilities, and Canadians in remote areas—also require fair and equitable access. In such cases markets may be too small to interest private investors, and it may be prohibitively expensive for users to pay the full cost of meeting their transportation needs. Governments are the only actors that can ensure that there are safe and affordable facilities and services connecting northern and remote regions, where the volumes are insufficient to finance the capital and operating costs based on user fees alone. Shippers and consumers should be able to expect predictable treatment from operators, according to clear rights and a transparent means of resolving complaints when a party does not meet its obligations. Transport must be accessible to Canadians with disabilities, whose numbers will nearly double in the next 20 years, and whose mobility is a right protected in law.

The key question underlying each of the Review's recommendations was: What changes in policy approach, actions, and/or investments are required to ensure that the system is prepared to meet the challenges envisaged for the next 30 years? It is essential to factor in the lead time needed for a major investment: not just a decade to complete the planning, design, environmental assessments, and construction, but often as much as an additional decade to build consensus and assemble partners and financing for the project.¹ In that context, a 30-year time horizon is not that long, and future success will depend to a large degree on the choices made and actions taken during the next five years.

At the highest level, the Review has found that Canada has been well served by transportation policies that emphasize competition and market forces in the development of infrastructure and services. However, there is also a critical role for government to play in ensuring that markets are providing the connectivity, competitive choices, and quality of services and infrastructure that Canadians and industry require. The Review's recommendations can be captured under three broad headings that reflect this duality:

- **Strengthened Market Approaches:** Areas where there is room to increase the scope of competition and market forces in transportation decision making; for example, by building on the processes of liberalization and privatization that have already been implemented to varying degrees in the different modes of transport over the past 30 years;
- **Renewed Regulatory Frameworks:** Areas where new approaches, better information and more effective oversight mechanisms would better ensure that access to transportation is predictable, fair, and equitable when compared with other jurisdictions and other sectors of the Canadian economy—for example, for persons with disabilities, and bulk commodity shipments;
- **Enhanced Leadership:** Areas where government leadership is required to strengthen the transportation system—for example, in long-term infrastructure investments, strategic coordination to develop trade corridors, and for the reduction of cost burdens on the sector.

The recommendations have been chosen to advance one or more of three ultimate outcomes: the interests of users (that is travellers, shippers and consumers), the health of the Canadian transportation sector, and the competitiveness of Canada as a whole. At times, there are necessary tensions between these three objectives; for example a measure that

would lower prices for users may come at a cost for carriers. So the health of the sector is an important consideration, but actions taken in one area that may have a deleterious effect on finances can be offset by measures in another to maintain and even enhance the sustainability and competitiveness of the whole sector. As a result, many recommendations have been designed to fit together as a kind of transportation ecosystem, such that only if they are implemented as a package would they advance all three outcomes.

Linking Trade and Transportation: With the right governance structure and better information, Canada can develop its trade and transport corridors into high speed, high capacity and high-tech conveyors for multiple modes of transport and types of goods. Over the long term, the market will respond to clear policy and investment signals. The government can support participation in global value networks by building and maintaining world-class transportation infrastructure; providing stable and business-friendly policy and regulatory and fiscal environments; developing knowledge and skills in supply chains and logistics; and promoting interprovincial and North American harmonization.

Supply Chain Resilience: For the most part, transport is an outdoor sport. Canada must strengthen the resilience of the transportation system, including its ability to respond to potential catastrophic events such as earthquakes, disruptions from weather events such as winter storms and fog, and climate change impacts that are becoming more evident. To ensure that the Canadian transportation system is prepared to respond and adapt to inevitable challenges, key elements such as mitigation measures, redundancy, and resiliency must be built into corridors and supply chains.

The North: Global demand for natural resources has driven renewed interest in Canada's North, but the challenge for exploiting potential new opportunities is the insufficiency of basic infrastructure. In addition, existing communities struggle to maintain cost-effective connections to the national transportation system. Overcoming these obstacles requires significant and sustained action and investment to narrow gaps in infrastructure, regulatory frameworks, and knowledge in northern and remote regions. The time is ripe for accelerating the development of transportation infrastructure, policies, and oversight to better serve the economic, safety, and security interests of northern and remote regions.

Innovation: Canada cannot be a global competitor without investments in innovation that enhance various aspects of the transportation system. Innovation drives improved outcomes in multiple areas including productivity, efficiency, safety, environmental protection, and noise reduction while also delivering long-term savings; however, the up-front costs may be significant. A national integrated approach that links the needs of the transportation industry with opportunities in innovation should form part of the renewed strategic approach to the transportation system.

Climate Change: Previous domestic and international initiatives to tackle specific environmental challenges have shown that industry will invest once government sends clear signals of the path forward. The international process on climate change has culminated at the 2015 United Nations Climate Change Conference (COP21) in Paris, with all members committing to new targets, a pre-approved financing mechanism to help meet greenhouse gas emission targets, and spurring the global transformation towards sustainable

development. A national, collaborative, and market-based approach to reducing greenhouse gas emissions can help Canada become an environmental steward while simultaneously growing its economy.

Accessibility: Canada's current approach to accessibility in the federal transportation network does not ensure a seamless, predictable, and consistent travel experience comparable to that offered by other jurisdictions. With an aging population, the number of persons with disabilities (including sensory and cognitive challenges) will increase dramatically. Canada must ensure access for all persons to the transportation system, and the system will need to respond to the population's evolving needs. Enhanced regulatory measures and a modernized mandate for the Canadian Transportation Agency is the recommended direction.

Freight Rail: Service performance, and not freight rates, has been a predominant concern highlighted over the course of the Review. Canada must intensify its efforts to close the gap between railways and rail customers about what constitutes realistic service expectations. This must recognize the inherent limitations of the technology itself and natural fluctuations of demand and supply, along with the financial imperatives of both railways and their customers. Failure to close this gap will hamper Canada's economic potential and long-term competitiveness, and impair its attractiveness as a destination for investment. Measures that promote investment, strengthen commercial reciprocity, improve dispute resolution, and ensure that policy makers, regulators, railways, and rail customers have access to the information they need, will all help to support the long-term health of the rail industry and those who depend upon it.

Transport of Grain: The grain sector is poised for continued growth in both bulk and value-added exports; this is evidenced by yield improvements, successes in crop diversification, and growing business for Canada's specialty and value-added agricultural products internationally. The grain-handling-and-transportation system must not be over-regulated. Roles and obligations must be clear to prevent network inefficiencies and maximize network fluidity. The Maximum Revenue Entitlement program must be modernized first, with a view to its elimination over the longer term, in the spirit of competition and market-based transportation. The Canadian Transportation Agency must be equipped to monitor and take action when potential market failures or network problems emerge, in order to maintain seamless transportation operations.

Passenger Rail: Demographic change, urbanization, and evolving preferences among transportation choices all point to significant growth opportunities for intercity passenger rail in the densest routes. Modernizing VIA Rail is long overdue: it must be allowed to operate as a commercial entity, empowered to construct and finance a dedicated track where viable. This will support sustainable and improved services and long-term separation of freight and passenger rail traffic, improving mobility and reducing congestion around Canada's largest cities. A National Corridor Protection Program would secure existing and new corridors and rights-of-way from incompatible development to meet future supply chain needs.

Air Transport: Canada has historical advantages in the air sector, and is globally recognized as a leader in the development and certification of safe aviation policies, products, and professionals, as well as for the quality of our airport and air navigation infrastructure, and for customer satisfaction with our airlines. But the world is changing, and many of the reasons that Canada has used to retain a protected market have largely disappeared. The cost of protectionism is borne by Canadians and business in terms of relatively high airfares, and a decade of lost market share for the travel and tourism sectors. A package of measures is recommended to reduce the cost burden on the sector, and ensure savings are passed on to users; these savings are achieved by reforming governance structures and increasing private sector direction at airports, embracing increased competition in the domestic and international markets, and facilitating the secure flow of international visitors and transit travellers.

Marine Transport: As in the air sector, trade volumes are growing faster than the economy, and Canada retains the shipping-time advantages that flow from the geographic proximity of their ports to their overseas counterparts. Trends towards larger vessels on the high seas and increasing road and rail congestion on land will challenge the transport sector's ability to handle surges in cargo. The governance frameworks for ports, cabotage, the Canadian Coast Guard, and marine pilotage are outdated, resulting in institutions that are ill-equipped to meet modern conditions. Canada should modernize the sector by reducing the cost burden on it, ensuring that savings are passed on to enhance governance structures, increase private sector direction of ports, and provide access to international competition in carrier markets.

System Governance: To modernize and significantly strengthen the national transportation system, the federal government must articulate a clear vision for the future of multimodal transportation and put in place a system to measure performance. Canada lags far behind competing jurisdictions in terms of long-term planning, targeting strategic investments to maximize overall results, and including the private sector as a partner. The development of a National Framework on Transportation and Logistics has been recommended, with the ongoing support of an Advisory Committee. The mandate would include developing a long-term vision for the transportation sector, guiding and prioritizing investments in innovation and infrastructure, and attracting greater involvement by the private sector. A Centre of Excellence in Transportation, Logistics and Innovation would be the leading institution in research and policy, and provide specific expertise for the committee. This forum for ongoing dialogue and problem solving could replace the current approach for extensive periodic reviews of the *Canada Transportation Act*.

Transportation Data: In Canada, the lack of sufficient data or common performance metrics makes it extremely difficult to analyze, forecast, or plan for efficient use of the system. At the same time, a new cohort is entering the transportation and logistics workforce, with a profoundly different perspective on how information and technology can be applied to tackle pervasive issues in ways that may be unimaginable today. Better information will support improved oversight and enforcement, and it is our recommendation that the Canadian Transportation Agency be mandated as the custodian of transportation data, with resources to collect, analyze and publish more accurate, comprehensive, and timely transportation data to provide effective oversight and enforcement.

The Canadian Transportation Agency: Our vision for the Canadian transportation system is a well-functioning supply chain that is nimble, logistically efficient, national in scope, safe, and equitable. The Agency is well placed to play a major role in helping get the transportation system to where it needs to be in 30 years. However, government must ensure that it has sufficient legislative and regulatory tools, independence, and a mandate to act on its own motion where this would be in the best interest of the system. Improving oversight of the system would include providing the Agency with authority to identify and proactively address and resolve system-wide problems in the transportation industry, before or as they emerge.

Conclusion

Transportation is fundamental to Canada's economic performance, and the transportation system requires the right policy foundations to ensure its ability to support the long-term needs of Canada. These foundations will change over time in conjunction with changes in the world around us. In this light, the recommendations proposed in this report seek to identify where changes might be implemented in the near term to enhance the transportation system's readiness to serve Canada well over the next 30 years.

The cost of inaction today will be felt for decades to come: during the next 30 years, the OECD forecasts that Canada's economy and labour efficiency will grow at a slower rate than the economy of many of our competitors. To reverse this trend, Canada should opt to lead the development of free trade blocks linking North America to Europe and like-minded nations around the Pacific and elsewhere,² opening new opportunities for Canadian industries to join global value networks. Seizing these opportunities will require transport corridors with the capacity to process imports and exports reliably and efficiently, offering fluid and competitive options for shippers to reach commercial and manufacturing centres.

In addition to freight, Canada also requires the international air access and competitive air carrier services to deliver investment and high-value trade in services around the world and back. Canada is geographically well situated to serve as a hub for global trade. Increased volumes of travellers and freight can be leveraged to lower transportation costs across Canada incrementally; they can also create new opportunities for related sectors of the economy, such as warehousing and logistics, manufacturing, communications and information technology, and insurance and finance.

Canada can learn from such countries as China, Denmark, and Turkey that have made transportation a national priority and that, through forward-thinking policies, have adopted different approaches to align resources and public and private sector initiatives to develop transportation hubs and carriers as strategic foundations of their economy.

In summary, Canada must embrace global markets, foreign investment, and international trade in the transport sector, as we have in most other sectors of the economy. To do so requires common standards, clear rules of engagement, and mutually recognized regimes for safety, security, and environmental protection. Canada should be a leader in the development of these regulatory frameworks for transportation and international trade. The long-term goal should be building toward common markets with like-minded trading partners in North America, across the North Atlantic, and around the Pacific Rim. In such a world, Canada is ideally located to compete as a hub and a platform for transportation, logistics, and other trade-supporting services. If we succeed, Canada will punch above its weight in global value networks and compete for generations to come, and Canadians will benefit through rising prosperity and improved quality of life.

Notes

- ¹ The continuing saga of the proposed Detroit-Windsor crossing is a poignant example. After decades of efforts and billions of dollars committed by successive federal, provincial, and state governments on both sides of the Canada-U.S. border, the bridge is not yet complete and already may be 20 years too late to stem the ongoing decline in Canada's manufacturing sector that had concentrated in complex supplier networks spread across the border.
- ² The CTA Review welcomes North American regulatory harmonization and progress on the Canada-European Union and Trans-Pacific Partnership trade agreements, even while encouraging greater efforts to harmonize and open markets with existing free trade partners, and pushing for free trade deals with fast-growing economies, such as India and Turkey.

Chapter 13: Recommendations

Chapter 2: Governance

- 1. The Review recommends that Transport Canada lead the development of a clear performance and evidence-based National Framework on Transportation and Logistics in collaboration with the provinces, territories, and industry.**

A variety of measures will be required to implement this recommendation :

- a. The Report of the Canada Transportation Act Review should provide the starting point for the National Framework on Transportation and Logistics.
 - b. The creation of the Framework should be enshrined in the Act, replacing the requirement to conduct a periodic statutory review of the Act.
 - c. The National Framework on Transportation and Logistics should include intermodal and sector-specific strategies and investment plans, as well as defined infrastructure projects for the next 10 to 30 years in a Transportation Infrastructure Plan and Projects Pipeline.
 - d. The Framework should make provision, through the creation of an Advisory Committee on Transportation and Logistics, for an ongoing dialogue on transportation that includes representation from the entirety of Canada's multimodal transportation system.
 - e. The Advisory Committee should be assisted in its work by a new Centre of Excellence in Transportation, Logistics and Innovation that provides expert policy advice aimed at enhancing the state of the transportation sector in Canada and marketing its position as an international hub.
 - f. A new Integrated Data Platform and Multimodal Data Dashboard should be established, preferably within the Canadian Transportation Agency, to support evidence-based decision making and a more efficient and responsive transportation network among public and private sector stakeholders.
- 2. The Review recommends that Transport Canada (through the proposed Advisory Committee on Transportation and Logistics) establish a mechanism to determine, on an ongoing basis and in collaboration with the provinces, territories, and the private sector, the state of Canada's transportation infrastructure, including gaps in Canada's long-term requirements. This new mechanism would be responsible for the following:**
 - a. Developing and implementing methods to track public and private maintenance spending and investments in new infrastructure;
 - b. Assessing the current state, deficiencies, risks, and required investments in the transportation system, with particular emphasis on changes in demand and pressures on the logistics supply chain;
 - c. Evaluating opportunities and options for improving essential trade-related infrastructure.

3. The Review recommends that the Government of Canada, with input from provinces, territories, and the private sector, develop a comprehensive long-term transportation infrastructure plan, by:

- a. articulating a strategic outlook, direction, and goals that would be used to set priorities for investment in existing and new transportation infrastructure;
- b. establishing a “projects pipeline,” comprising a continuously updated list of high-priority infrastructure needs over the next 20 to 30 years, selected on the basis of a factual analysis of the contribution to Canada’s long-term economic development and productivity. The list would highlight assets that support international trade and competitiveness, such as Canada’s trade corridors, as discussed in Chapter 3;
- c. providing targeted funding to support the economic development potential of Canada’s three northern territories;
- d. obligating project proponents, whether government or private sector, to pay particular attention in their funding applications to the opportunity to introduce user charges to encourage more productive use of existing infrastructure stock; incorporate innovative technology; ensure national and global inter-operability; introduce performance measurement and productivity targets; and assess environmental impacts and labour market risks.

4. The Review recommends that the Government of Canada act to attract increased private sector financing for transportation infrastructure projects by:

- a. using the Transportation Infrastructure Plan and Projects Pipeline (as per Recommendation 3 in Chapter 2) to identify national priorities (and assets that could be considered for privatization) and to highlight those projects and initiatives that may be of interest to private sector investors;
- b. working with institutional investors and pension funds to consider additional tools or mechanisms to attract and leverage private investment in transportation infrastructure. This will involve:
 - i. ensuring existing financial, policy and regulatory frameworks do not unnecessarily discourage private sector investment in Canadian transportation projects;
 - ii. legislative amendments to remove any barriers, such as the restrictive investment regulations on pension funds;
 - iii. encouraging and assisting private financial institutions to establish managed transportation infrastructure investment funds in which private investors (small and large) could reduce risk by pooling funds and investments;
 - iv. adopting policies and stable, predictable regulatory frameworks that de-risk investor cash flows and inspire greater confidence among institutional investors in P3 and private infrastructure projects.

5. **The Review recommends that Transport Canada incorporate the Commodity Supply Chain Table into the proposed Advisory Committee on Transportation and Logistics, chaired by the Minister of Transport and vice-chaired by the Minister of International Trade. This new Committee should have:**
 - a. the mandate to consider and provide advice on all modes of transport, with a view to, among other purposes:
 - i. addressing the systemic issues affecting Canada's transportation network;
 - ii. developing a long-term vision for transportation in Canada;
 - iii. advancing Canada's corridors and critical trade-enabling infrastructure through partnerships with the industry and other levels of government;
 - iv. further integrating Canada's corridors in a North American and international approach.
 - b. membership representative of federal, provincial, and municipal governments, as well as key stakeholders.
6. **The Review recommends the establishment of an independent Centre of Excellence in Transportation, Logistics, and Innovation.**
7. **The Review recommends that the Government of Canada create an Integrated Data Platform and Multimodal Data Dashboard to facilitate enhanced transportation data collection and processing. Consideration should be given to housing this new entity within the Canadian Transportation Agency.**

Chapter 3: Linking Trade and Transportation

1. **The Review recommends that the Government of Canada renew the Ministerial mandate for Gateway and Corridor strategies in order to provide leadership on efforts to link trade and transportation and consider budgetary allocations to support investment in transport corridors. This includes:**
 - a. mandating the Minister of Transport to work closely with the Minister of International Trade to strengthen the alignment of trade-related activities;
 - b. amending the *Canada Transportation Act*, s. 5, to recognize trade and transport corridor strategies as an ongoing priority to be regularly reviewed and updated.
2. **The Review recommends that the Government of Canada establish a National Corridor Protection Program within the next five years, with Transport Canada, Public Works and Government Services Canada, and provincial governments as partners. The purpose of this program would be to:**
 - a. protect trade and transport corridors. Efforts should include, but not be limited to, identification of potential corridor alignments and rights-of-way requirements, consultation with stakeholders and the public, and acquisition of required land along the corridor;
 - b. protect critical industrial land parcels for gateway facility expansion, with the aim of creating an inventory of, and preserving, port-related industrial areas that could be used to accommodate future trade growth.

The Review also recommends close collaboration with the provinces and territories to:

- c. add to the registered titles on the parcels of land that are located in close proximity to an existing or an established future trade and transport corridor;
- d. partner with municipal governments and the private sector to improve sound-barrier and anti-vibration standards in building bylaws for residential developments in neighbourhoods adjacent to an existing or future trade and transport corridor.

3. The Review recommends that the Government of Canada promote innovative supply chain technologies by:

- a. leading the development of national standards on technologies designed to improve the efficiency of supply chains along trade and transport corridors; creating standards to improve tracking and traceability of transportation assets and cargo; addressing interoperability issues that prevent the efficiency of containerized cargo flow along supply chains and at transfer points;
- b. establishing partnerships to deploy technologies along trade and transport corridors; this could include encouraging the private sector to implement real-time connectivity at various facilities along the supply chain;
- c. designing a Smart Corridor within three years to facilitate north-south goods movement in Western Canada in partnership with appropriate agencies. The design should incorporate Intelligent Transportation Systems and established best practices. It should be accompanied by an implementation plan with 10 to 15 years as the construction target. After the proof of concept, the design and implementation plan should serve as a model for other locations in Canada.

4. The Review recommends that the Government of Canada act to improve velocity and cost competitiveness along trade and transport corridors by:

- a. supporting technological innovations at key facilities—for example, automation at marine terminals and intermodal yards;
- b. working with industry and local governments to create needed capacity – for example, modification of local by-laws so as to lift all current restrictions on hours of operation. The goal should be to achieve a 24/7 integrated supply chain system within 10 years. This recommendation is particularly crucial to transfer facilities, often the only missing piece in achieving full 24/7 end-to-end supply chain operations, or where physical expansion is limited.

5. The Review recommends that the Government of Canada continue to work with provincial leaders to harmonize regulatory standards for trucking in order to ensure the ongoing fluid movement of interprovincial and international trade.

Chapter 4: The North

1. The Review recommends that the Government of Canada develop and implement an infrastructure strategy for all modes of transportation in the North by:
 - a. increasing the base level of funding in the federal government's infrastructure fund for the territories, and adapting funding initiatives and programs to take account of such northern realities as higher costs and longer time frames for planning and constructing infrastructure.
 - b. focusing federal corridor development efforts on transformative nation-building projects, based on territorial and CanNor recommendations, including immediate support for the following projects:
 - i. the Cassiar-Campbell Corridor, improving tidewater access from resource development areas in the Yukon and western Northwest Territories, with preference given to the port of Stewart, British Columbia;
 - ii. the Mackenzie Valley Corridor, from the Tuktoyaktuk Peninsula South to Yellowknife along the Mackenzie River, including immediate infrastructure investment in an all-season road from Yellowknife to Whatì;
 - iii. the Coronation Yellowknife Corridor, connecting resource development projects in the Slave Geological Province to the Arctic coast in the North and Yellowknife in the South; the intention is to facilitate the development of a central Arctic transportation corridor for both Nunavut and the Northwest Territories, beginning with funding for the Grays Bay Road and Port Project;
 - iv. Immediate paving and improvements to a few key northern airports that would set the groundwork for other economic and resource development.
 - c. Renewing responsibility for and increasing investment in navigational assistance and sealift infrastructure to facilitate fluid, safe, and environmentally sustainable marine transportation in Canada's North. This renewed commitment would include federal funds to support dredging in Hay River and marine infrastructure (i.e. harbours, docks and landings) on the Mackenzie River, Northwest Territories Arctic coast, and in Nunavut. In addition, increased resources should be made available to support the Canadian Hydrographic Service to significantly increase charting and surveying, including securing opportunities on private vessels and those of partner organizations. For hydrographic surveying, the procurement and construction of government-owned vessels should address the need to have surveying technologies integrated into the designs.
 - d. Providing targeted financial support for runway extensions and surfacing (e.g. paving), as well as for 24-hour automated weather systems and modern landing and approach systems in applicable communities in the territories. To facilitate these improvements, an investment of \$50 million per year over ten years is recommended to address the most significant infrastructure gaps, either by augmenting the Airports Capital Assistance Program, or by creating a new "Northern Airports Capital Assistance Program."

2. The Review recommends that the Government of Canada develop a new federal policy vision and regulatory regime to strengthen the safety and reliability of marine transport in the Arctic that includes:

- a. stricter regulations requiring vessel operators in the Canadian Arctic to have more experience than is currently required;
- b. consultations on whether and how a coastal pilot requirement should be established in the North;
- c. compulsory reporting to NORDREG for all vessels and small crafts, regardless of size or purpose;
- d. establishment of an Arctic-wide governance model for port development, including an appropriate timetable for a Port authority to be established, and in consideration of the Marine recommendation on port governance (see Chapter 10, recommendation 3);
- e. support for the Canadian Hydrographic Service, in consultation with government and Indigenous partners, to develop a program to engage, educate, and enable Northerners to undertake hydrographic surveying work in northern waters.

3. The Review recommends that the Government of Canada act to maintain and improve access to air transportation for communities and for the economic well-being of the North by:

- a. strengthening cooperation between southern- and northern-based airlines by seeking commitments from southern carriers or, in the absence of such commitments, the Government should consider monitoring, reporting and other mechanisms to encourage such cooperation. The purpose of a more collaborative system would be to ensure that customers are able to access global networks by paying a single fare, on a single itinerary or ticket, from place of origin to final destination. Other enhancements could include improved cooperation on schedules, baggage handling, and access to frequent flyer programs.
- b. adjusting policies for the federal public service procurement of northern air transportation:
 - i. upon renewal of the federal travel directive travel agency services contract, including as a requirement that northern carriers be considered for government travel to the *north* and be displayed by the travel provider on an equal basis, on the understanding that final travel decisions will continue to be based on price;
 - ii. using the federal government's purchasing power to give northern carriers equal opportunities to compete for government travel.
- c. adequately and consistently considering the unique needs and challenges of the North in respect of all regulatory changes. The federal government should ensure that its regulations are reasonable for northern circumstances and should compensate the territories for mandated safety and security measures.

Chapter 5: Innovation

1. The Review recommends that the Government of Canada continue to collaborate with other countries through international organizations to ensure that Canada plays a strong role internationally in the development, adoption and regulation of new technologies and innovation that will enhance the performance of transportation systems.
2. The Review recommends that Transport Canada, in the context of the new governance arrangements proposed for federal involvement in the transportation sector, ensure that an action plan is developed, with specific objectives, implementation plans, and measurable outcomes, to guide Canada's long-term investments in transportation technologies and innovation. Inclusion of the following features could be considered:
 - a. Promotion of government incentive programs to stimulate R&D spending on transportation by the private sector;
 - b. Inclusion of an innovation lens in federal infrastructure investment decisions and assessment of the potential benefits and challenges resulting from innovation and disruptive technologies in all new projects;
 - c. Identification of Canada's top priorities in R&D and the implementation and integration of innovation in relation to transportation infrastructure and services, and a commitment to ensuring the necessary support is in place to pursue these initiatives. The list of priorities might include entries such as:
 - i. satellite applications in the North, remote areas, and along the key gateways and corridors;
 - ii. environmentally compatible engineering and technology solutions to the development challenges of the North;
 - iii. evolving navigational scenarios, particularly for the North and the Great Lakes-St. Lawrence Seaway System, and cost effective technologies for managing navigation and security;
 - iv. technologies for noise, visual, and environmental mitigation of high-volume freight corridors, particularly in urban areas; and
 - v. technologies and innovative approaches for the transport of dangerous goods.
3. With the advent of automated vehicles, the Review recommends that the Government of Canada develop a national regulatory framework that will harmonize Canada's approach with United States legislation with respect to the testing and operation of autonomous vehicles on public roads.

Chapter 6: Climate Change

1. The Review recommends that the proposed Advisory Committee on Transportation and Logistics work with Environment and Climate Change Canada to set objectives and report results impacting environmental stewardship in the transportation sector.
2. The Review recommends that the Government of Canada develop performance-based emission regulations for all modes of transportation, while providing support for technological innovation. North American harmonization should be the goal.

Chapter 7: Access and Accessibility

1. The Review recommends that the Government of Canada amend section 5 of the *Canada Transportation Act* (the National Transportation Policy) to reflect “access” for all, including persons with disabilities, and to better align with foreign jurisdictions.
2. The Review recommends that the Government of Canada incorporate a definition of disability into the *Canada Transportation Act* (including reference to the three determinants of disability in the World Health Organization’s *International Classification of Functioning, Disability and Health* model), to bring clarity to the legislation.
3. The Review recommends that the Government of Canada convert the *Codes of Practice for Accessibility* to Regulations, and that the *Intercity Bus Code* be transferred to, and administered by, the Agency.
4. The Review recommends that the Canadian Transportation Agency be given exclusive jurisdiction over disability-related cases in the federal transportation network, including the ability to award compensation for pain and suffering, up to a prescribed limit.
5. The Review recommends that the Canadian Transportation Agency be given the authority to address systemic issues, including the authority to investigate accessibility matters on its own motion and issue general orders.
6. The Review recommends that the Canadian Transportation Agency report every three years on the status of accessibility through the use of a Score Card, which would include an overall assessment of various accessibility elements, noting best practices, status of compliance, the number of complaints, and any highlights or comments.

Chapter 8: Rail Transport

8.1 Freight Rail

1. In order to deepen railway interconnectivity in Canada and foster a multi-jurisdictional approach to future rail expansion, the Review recommends that:
 - a. the National Transportation Policy declaration in section 5 of the *Canada Transportation Act* be amended to include more explicit recognition of the importance of transportation to international trade and our ability to compete in global markets.
 - b. Transport Canada formalize in policy the concept of a National Freight Rail System, inclusive of all interconnected railways in Canada;
 - c. Transport Canada, through an Advisory Committee on Transportation and Logistics, identify and designate, or set aside, land required for railway expansion within the National Transportation System. Priority consideration should be given to rail network bottlenecks in supply chain systems and major points of cargo consolidation or distribution, such as those around marine or inland ports.

2. Recognizing that investment will be required to meet future rail transportation demands, the Review recommends the following changes to the *Income Tax Act* or its regulations in order to ensure the incentives are in place to support growth and Canada's long-term competitiveness:
 - a. Reducing the number of railway asset categories to three, grouping together (1) rolling stock (including locomotives and railcars), (2) fixed physical assets (track, ballast, bridges), and (3) technological assets (including traffic control or signaling equipment, and other technologies that reduce the industries' environmental footprint); and,
 - i. increasing the capital cost allowance of category 1, rail rolling stock, on a permanent basis, to levels comparable to those in the United States; and,
 - ii. increasing the capital cost allowance for a period of five years for categories 2 and 3, fixed physical and technological assets, to levels comparable to those in the United States; following this period, and prior to considering more permanent changes, conducting an evaluation to assess whether the changes were successful in increasing investment.
 - b. Increasing the CCA rates for a period of five years for loading- or unloading-related capital investments for rail customers and transload facilities, including storage, warehousing, and track investments; this too would be followed by an evaluation, prior to considering more permanent changes, to assess whether the rate hikes were successful in increasing investment;
 - c. Implementing a tax-credit program for non-Class 1 railway operators to offset the costs of track rehabilitation, similar to the *45G Short line Railroad Track Credit Program* in the United States.

3. Recognizing that short line railways serve an important function in Canada's national rail network and support resource and manufacturing industries, along with remote communities, the Review recommends:

- a. modifying eligibility criteria for federal infrastructure programs to allow short line railways to apply for funding directly, without a government sponsor;
- b. creating a federal-provincial short line infrastructure program in order to support (through contributions, grants, or low-cost, long-term financing) capital infrastructure investments.

4. In order to enhance the efficiency of decision making and ensure that data are available to fulfill legislative and regulatory responsibilities and support commercial arrangements, the Review recommends that:

- a. supply chain performance metrics, including railway and shipper information, be calculated and published with the frequency (weekly, monthly, or quarterly) most responsive to public and industry needs, and that allows them to be used as key performance indicators within confidential contracts or service level agreements between railways and their customers;
- b. the process of railway data collection under the *Transportation Information Regulations* be streamlined and consolidated, and that consideration be given to the discontinuance of data collection in cases where the data are of little value for public policy or industry purposes;
- c. amendments be made to the mandate and powers of the Canadian Transportation Agency to provide sufficient authority for the Agency to access railway waybill records and any other data that the Agency requires in order to execute its mandate;
- d. Transport Canada publish an evergreen five-year rolling forecast of rail network demand in order that future capacity needs can be better anticipated.

5. In order to reinforce the functioning of alternative dispute resolution activities available to railways and shippers, to promote and provide consistency among formal and informal Agency processes, and to improve the effectiveness of commercial arrangements between railways and shippers, the Review recommends that:

- a. The Agency establish a dispute resolution unit and exercise its expertise on railway network operations within the organization in order to provide more effective and timely informal dispute resolution options that help to resolve operational issues between shippers and railways prior to them escalating into formal Agency proceedings;
- b. this unit include or advise Agency officials responsible for providing informal expert support, as noted above, when parties attempt to reach and conclude terms of negotiated arrangements;
- c. Agency officials providing alternative dispute resolution services (mediation, facilitation, arbitration) report within the new organizational unit noted above.

6. In order to provide greater clarity for railways and rail customers about the level of service provisions of the Act and improve the commercial tools available to both parties, the Review recommends that:

- a. the level of service provisions in the *Canada Transportation Act*, sections 113-116, be amended to recognize shippers and their collective needs, in the context of the optimal performance of the freight rail system;
- b. the Agency provide railways and shippers with access to in-house expert support if they are unable to conclude terms through informal negotiations;
- c. should railways and shippers be unable to conclude agreement terms through an informal process, the Canadian Transportation Agency will provide mediation services as requested in a manner that distinguishes between large and small shippers, with the understanding that:
 - i. failure to reach a mediated agreement may result in one being established through arbitration;
 - ii. arbitrated service level agreements will consider establishing parameters for the following elements: communications; provisions for internal escalation; protocols for local service changes; key performance indicators; performance standards; recovery plans; confidentiality; service contingency planning; and reciprocity.
- d. level of service arbitration will be conducted by arbitrators within the Agency who possess significant railway expertise, and concluded in a manner that provides consistency and comparability across agreements;
- e. When making level of service determinations, the Agency will consider acts of good faith undertaken in negotiations by either party, along with:
 - i. whether railways and shippers have shared their long-term plans with one another and identified long-term transportation needs;
 - ii. whether railways have maintained a degree of flexibility in their operations and have adequate resources to meet network demand, including a reasonable contingency for unforeseeable fluctuations in demand.

7. Further to the recommendation in Chapter 11: The Canadian Transportation Agency, that the Agency's mandate be modified and enhanced, so that it enjoys greater legislative and regulatory powers and has access to all relevant data and information to effectively execute its mandate, the Review recommends that:

- a. the Canadian Transportation Agency provide guidance (through clearer definitions) and undertake improvements to make the shipper dispute resolution mechanisms in the Act speedier, more efficient and effective, more predictable, and more accessible to all shippers;
- b. before they proceed to formal dispute resolution, shippers and railways be subject to conciliation or mediation;
- c. the \$750,000 freight charge limit on the less expensive summary FOA process be changed to \$2 million, to permit all rail shippers and those with non-complex cases to have greater access to the mechanism;
- d. in an FOA, shippers be given the option at the outset of the arbitration of having the Arbitrator's decision apply for up to three years.

8. Recognizing that level of service obligations include the requirement that railways must carry dangerous goods, and recognizing the importance of these goods to Canadian prosperity and the positive efforts undertaken to moderate risks to public health and safety, the Review recommends that:

- a. consideration be given to extending the revised liability and compensation regime established for crude oil transportation by rail, and enacted with the *Safe and Accountable Rail Act*, to all other dangerous goods;
- b. consideration be given to establishing a pooled insurance regime for federally or provincially regulated short line railways as an option for ensuring third-party liability insurance needs can be met and connectivity with Class 1 rail networks can be maintained.

9. In order to further clarify roles and responsibilities related to private crossings and enact changes that consider not only public health and safety, but also the impacts that at-grade crossings have on economic activity, the Review recommends that:

- a. the *Canada Transportation Act's* crossing provisions be amended, such that applications for the construction of new crossings include consideration of the impact a new crossing will have on a railway's local and regional performance;
- b. section 103 of the Act be amended to give a railway company the right to apply to the Agency to resolve cases where no agreement can be reached with a landowner regarding the terms and conditions governing the construction and maintenance of a crossing.

10. In order to strengthen the safety of the Canadian rail network, the Review recommends that Transport Canada work with the Canadian freight and passenger railway industry within the next year to determine the steps required to harmonize the deployment of safety technologies in Canada with those in the United States, including:

- a. developing a policy to adapt either emerging technology or existing on-board computer systems to provide fail-safe physical train control defences within the Canadian rail network that are interoperable with United States-based Positive Train Control systems, and identifying a source of funds to support implementation in Canada;
- b. developing a formal strategy for the implementation of in-cab video and voice recorders by 2020.

11. The Review recommends that in order to support the long-term health of Canadian urban municipalities and reduce the risks associated with public and freight rail interactions, the federal government use infrastructure funding leverage to:

- a. support the relocation of rail infrastructure outside of dense urban centres, and the implementation of technologies or infrastructure aimed at improving the safety of the rail/urban interface, with safer alternatives including road/rail grade separations, tunnels, and robust noise/visual barriers;
- b. encourage municipal governments to establish a buffer zone around new rail developments in order to provide separation from residential development and mitigate future concerns over rail and logistics operations.

8.2 Transport of Grain

1. The Review recommends that the Maximum Revenue Entitlement Program be modernized, in anticipation of its total elimination within a seven-year time horizon, as the Western Canadian grain-handling-and-transportation system evolves to a more commercially grounded framework. Modernization should consider, but not be limited to, all of the following:

- a. Excluding the movement of containerized grain from Maximum Revenue Entitlement calculations;
- b. Allowing railways to set aside up to one-third of their respective railcar fleets, for which shippers may pay “freight premiums” to guarantee railcar supply and service. These “premiums” would be excluded from the railways’ respective Maximum Revenue Entitlements and charged under specific programs or conditions (e.g. winter premiums from December to March, or an auction program, whereby a pool of grain hopper cars are set-aside for auction to the highest bidder, etc.); such programs should be designed to include the less than unit-train shippers;
- c. Excluding interswitching (i.e. revenues earned, costs, and tonnage moved) from the Maximum Revenue Entitlement calculations to prevent unfairness and financial harm to railways and to remove a barrier to the use of interswitching;

- d. Reforming the Maximum Revenue Entitlement methodology to allow for attribution of individual railway investments in capacity, and creating incentives for overall railway investment in new equipment and railcars for the benefit of all shippers;
 - e. Expanding the list of eligible crops subject to the Maximum Revenue Entitlement and listed in Schedule II of *Canada Transportation Act* to include chickpeas and soybeans, in recognition of their increased production in Western Canada.
2. **The Review recommends that the *Canada Transportation Act* explicitly define “producer car shippers” as “shippers” and therefore eligible for all shipper protection provisions enshrined in the Act, including its level of service provisions.**
 3. **The Review recommends that the Canadian Transportation Agency review its methodology pertaining to interswitching rate setting methodology to make them compensatory. The Review further recommends that the Agency be permitted to set interswitching rates annually, to better reflect actual costs, and not only when the *Railway Interswitching Regulations* are reviewed and published.**
 4. **The Review recommends that the Government of Canada allow the extended 160 km interswitching limits, as defined under the amended *Railway Interswitching Regulations* and related to the *Fair Rail for Grain Farmers Act* (Bill C-30), to sunset.**

8.3 Passenger Rail

1. **The Review recommends that the Government of Canada act to improve the fluidity of passenger railway services by:**
 - a. using federal legislative powers and infrastructure funding, with the long-term objective of separating freight rail and passenger rail networks, to enable connections between and within urban and suburban areas;
 - b. using infrastructure financing models that integrate the principle of direct user-pay pricing for rail and road modes of personal transportation in the interests of long term harmonization of pricing incentives; and,
 - c. collaborating now, and on a continuous basis, with provincial and municipal governments to plan for integrated commuter and other passenger rail networks and for dedicated passenger rail tracks that allow for eventual adoption of high-speed rail.
2. **The Review recommends that the Government of Canada increase the use of private sector approaches for federally-operated passenger rail services, including by:**
 - a. considering the elimination of subsidies for the Toronto–Vancouver service;
 - b. supporting the on-going feasibility of a dedicated corridor from Montréal to Toronto;
 - c. continuing the federal subsidy for the regional and remote, and the Montréal–Halifax services, in partnership with, and with contributions from, the provinces and communities concerned;

- d. developing a legislative framework that articulates government policy on passenger rail, clarifies roles and responsibilities, establishes overall funding arrangements, and sets rules for competition and cooperation with other transportation modes, such as air and bus services.

Chapter 9: Air Transport

- 1. The Review recommends that the Government of Canada act for the benefit of consumers to reform the user-pay policy for air transport and improve its cost competitiveness in relation to comparable jurisdictions, while ensuring continued and sustainable financing for infrastructure and operations by:**
 - a. linking fees predictably and transparently to the actual provision of services and infrastructure;
 - b. drawing on general government revenues, in addition to user fees, to support objectives that advance the national interest in a secure, accessible system that serves northern and remote regions;
 - c. phasing out airport rent and increasing capital funding available to smaller airports, as one of the airport governance reforms in Chapter 9, Recommendation 3; and
 - d. reducing the Air Travellers Security Charge as one of the airport security screening reforms in Chapter 9, Recommendation 8.

- 2. The Review recommends that the Government of Canada work with the provinces to further improve cost competitiveness by:**
 - a. committing to re-invest fuel tax revenues in safety, security and reliability improvements at smaller regional, remote and northern airports;
 - b. reducing or eliminating aviation fuel taxes on international traffic (where these still exist);
 - c. allowing all passengers arriving from international destinations to purchase duty free merchandise, as is increasingly the case around the world;
 - d. ensuring that payments in lieu of municipal taxes required of individual airport authorities in the National Airports System are no greater than for comparable job-creating industries.

- 3. The Review recommends that the Government of Canada strengthen the viability, accountability, and competitiveness of the National Airports System by:**
 - a. divesting the federal government of smaller federally owned airports in consultation with provinces, municipalities and First Nations, and provide one-time payments for needed safety investments, where appropriate;
 - b. moving within three years to a share-capital structure for the larger airports, with equity-based financing from large institutional investors, accompanied by legislation to enshrine the economic development mandate of airports and to protect commercial and national interests (including provisions that are currently spelled out in the airports' leases) by:

- i. establishing investment thresholds, foreign ownership limits, and tests of public interest and national security to be administered by Industry Canada and the Competition Bureau, under the *Investment Canada Act* and the *Competition Act*, similar to the controls in place for air carriers with passenger service proposed in Recommendation 4, below;
 - ii. maintaining protections against insolvency (currently contained in the airport leases), so that, in the event it should occur, all assets belonging to the insolvent airport authority would revert to the Crown without liability;
 - iii. enacting so-called light-touch regulations covering fees and charges to protect users and confer oversight on the Canadian Transportation Agency.
- c. To resolve issues applicable to airports regardless of the ownership/governance model, enacting legislation to implement following provisions for all Canadian airports with scheduled services:
- i. establishing a set of principles to guide all airports in Canada when determining fees, and requiring airport operators to grant reasonable access to any licensed airline who requests it; providing the Canadian Transportation Agency oversight and enforcement in both instances;
 - ii. tying airport improvement fees to specific projects with explicit sunset provisions;
 - iii. requiring airline expertise on the boards of directors of airport operators (current airline employees would not be eligible);
 - iv. ensuring meaningful and timely user consultation for major capital projects;
 - v. strengthening performance reporting and benchmarking;
 - vi. providing appropriate directive powers to the Minister in the event of extraordinary circumstances (legislation is currently silent on this, unlike for other modes).
- d. Significantly increasing funding for the *Airports Capital Assistance Program* to support safer, more efficient, reliable services at regional and local airports. This would require expanding the eligible investments to include lengthening and surfacing runways for modern jet service in northern and remote airports, and investing in more advanced navigation, weather, and landing systems.

4. Assuming bilateral agreements continue to form the basis of Canada's international air transport regime, the Review recommends that the Government of Canada amend the *Canada Transportation Act* and *Canadian Aviation Regulations* to:

- a. increase foreign ownership limits to at least 49 percent for air carriers operating commercial passenger services;
- b. increase foreign ownership limits to 100 percent for airlines operating all-freight and specialty air services;
- c. ensure legislation and regulations for granting licenses and air operator certificates to new entrants or growing carriers, as well as to specialty air service operators, are consistent with one another;
- d. transfer oversight for investment and competition issues to Industry Canada and the Competition Bureau, under the *Investment Canada Act* and the *Competition Act*, to apply the various public interest and national security tests (with the Canadian Transportation Agency retaining oversight over the ownership and control tests of air carrier licensing);

- e. review the approach used by the Canadian Transportation Agency to determine domestic control of an airline to ensure that it remains relevant and effective (i.e. focused on testing matters related to the strategic decision making of the airline, and taking into consideration the practices of comparable international jurisdictions for benchmarking);
- f. work with industry to review, clarify, and improve guidelines for testing financial fitness by the Canadian Transportation Agency when reviewing applications for licenses to operate air services.

5. The Review recommends that, as a starting point for negotiations, the Government of Canada commit to making more open international air services agreements, beginning with the following measures:

- a. a minimum allowance of seven flights per week (7/7 daily service) for each of the air carriers designated by all new and existing air services agreements with any safe and secure partner;
- b. all subsequent increases in air access in increments of at least seven flights per week, per designated air carrier;
- c. consider agreements that incorporate automatic planned increases in capacity to allow for stimulation of demand, with established timelines for moving towards “open skies;”
- d. include fair trade and competition requirements in all new and expanded air services agreements, providing for remedies and enforcement mechanisms should a party not meet its obligations;
- e. accord greater weight to trade policy objectives, such as the Global Markets Action Plan, Federal Tourism Strategy, and Study in Canada, along with the business objectives of Canadian airports and airlines, when developing negotiating strategies and priorities for new and expanded agreements.

6. The Review recommends that the Government of Canada look beyond transportation policy and take broader action to foster the development of global air hubs to position the Canadian air sector to compete internationally by:

- a. harmonizing immigration and trusted traveller programs with the U.S. and other trusted jurisdictions (e.g. the United Kingdom, the European Union, Australia, and New Zealand), with expanded eligibility;
- b. continuing to streamline immigration and customs processes by, for example, reducing the need for Canadian visas and increasing the use of Electronic Travel Authorization (eTA) for lower risk visitors, such as those from lower risk countries and/or with valid U.S. visas;
- c. allowing transit without a visa for citizens of all but high-risk countries at all Canadian airports with approved secure facilities;
- d. allowing travellers to connect from international to domestic and transborder flights without collecting their bags, at all airports with approved secure facilities;
- e. expanding trusted traveller programs and access to Automated Border Clearance systems, in parallel with the U.S., to include citizens from other trusted jurisdictions, such as the United Kingdom, the European Union, Australia and New Zealand.

- 7. The Review recommends that the Government of Canada ensure that there is strategic alignment between the priority markets for tourism promotion, immigration and border facilitation measures, and international trade and air services negotiations.**

- 8. The Review recommends that the Government of Canada overhaul the regulatory, financing, and delivery models for airport security, to maximize performance and service while delivering the highest standards of security and good value for money, by:**
 - a. establishing greater alignment and coordination between the regulatory and operational functions of aviation security. This could be achieved by replacing the Canadian Air Transport Security Authority with the creation of a single integrated aviation security agency with responsibility for both regulatory oversight and operations;
 - b. legislating a customer service mandate and regulated performance standards, benchmarked against those in competing international jurisdictions to ensure customer service transparency;
 - c. recognizing that the primacy of national security can cohabit with customer service through the provision of stable and predictable financing for aviation security, from both the Air Travellers Security Charge and general revenues, that meets the needs of growing traffic volumes, along with evolving security risks;
 - d. replacing the current “one size fits all” passenger screening approach, which treats all passengers equally, with an intelligence-driven, risk-based passenger screening process, similar to those employed in other jurisdictions that leverage technology and existing trusted traveller programs such as NEXUS and CANPASS.

- 9. The Review recommends that the Government of Canada enhance consumer protection for airline passengers by:**
 - a. enacting legislation or regulations that define rights and remedies that are as harmonized as possible with those of the U.S. and the European Union, and that apply to all carriers serving Canada;
 - b. providing the Canadian Transportation Agency with the power to undertake investigations on its own motion so that it may report on and resolve systemic issues, as well as general order powers so that rulings may be applied to all carriers;
 - c. amending the language of the *Canada Transportation Act* to require complainants to have been a customer of the operator against whom the complaint is being laid (the legislation currently defines a complainant as “any person”);
 - d. mandating the collection of relevant data, such as passenger denied boarding, on-time performance and lost baggage rates, and their publication, where possible, at point of sale;
 - e. clarifying the obligations of airports and airlines to provide service in both Official Languages, and work with industry and Official Language Minority Communities to improve consistency;
 - f. working with the Provinces to ensure that the existing all-inclusive airfare advertising rules also apply to charter services.

10. The Review recommends that the Government of Canada commit to strengthening its reputation as a world leader in aviation regulation and certification, in support of the findings of the 2012 Aerospace Review, by:

- a. investing in the necessary resources and systems to ensure that Canadian certification continues to be a globally recognized and sought-after seal of approval;
- b. implementing full cost recovery for certification, with world-leading service standards (e.g. response times);
- c. investing in the resources and expertise needed to properly assess risks and impacts when formulating new regulations and standards in Canada and at the International Civil Aviation Organization; regulations and standards should reflect an understanding of the differences between each aviation segment, including business aviation and small northern and remote operators, as well as large commercial carriers;
- d. working with industry and international partners to ensure that domestic and international regulatory frameworks and standards are tailored as much as possible to the needs and risks in each aviation segment;
- e. working with industry and international partners to develop protocols and technologies to strengthen protections of public safety, security, and privacy from inappropriate use of unmanned aerial vehicles, and to enforce violations, without unduly restricting the development of innovative and beneficial uses of this technology in Canada.

Chapter 10: Marine Transport

1. The Review recommends that the Government of Canada maintain a user-pay approach to ensure continued financing for infrastructure and operational needs, while also taking steps to improve cost competitiveness with comparable jurisdictions by:

- a. establishing a uniform and timely process for publicly filing rate and charge increases for all federally-mandated services (pilotage, towing, dredging, port charges, etc);
- b. authorizing the Canadian Transportation Agency to review all marine fees on a regular basis in terms of their reasonableness and cost competitiveness, as well as in response to complaints.

2. The Review also recommends that the Government of Canada work with the provinces to further improve cost competitiveness by ensuring that payments in lieu of municipal taxes required of individual port authorities are no greater than for comparable industries.

3. The Review recommends that the Government of Canada strengthen the viability, accountability, and competitiveness of marine ports in Canada by:

- a. examining the feasibility and viability of adopting a share-capital structure for Canada Port Authorities, including receiving proposals from institutional investors or private equity investors, accompanied by legislation to enshrine the economic development and trade mandate of ports and to protect the public and national interests;
- b. encouraging regional amalgamation of Port Authorities guided by common-user and other principles embodied in the *Canada Marine Act*;
- c. introducing light-touch regulation covering fees, charges, common use of the facilities, and unfair competition by the port against its tenants to protect users;
- d. conferring oversight and enforcement of the measures in (c) on the Canadian Transportation Agency.

4. The Review recommends that the Government of Canada act to increase the competitiveness of Canadian shipping and competition in the short sea shipping market by:

- a. promoting short sea shipping as a mechanism to alleviate congestion in urban areas and reduce Canada's growing greenhouse gas and air pollutant emission levels, especially through ports along the Great Lakes-St. Lawrence Seaway System;
- b. modernizing recruiting and training of Canadian seafarers, and improving processes for attracting and certifying foreigner workers with needed skill sets;
- c. phasing-out the operating restrictions on the basis of reciprocity in the *Coasting Trade Act*, beginning immediately with container services; eliminating restrictions altogether within a transition period of no more than seven years;
- d. phasing-out all remaining duties on imported vessels within a transition period of no more than seven years to respect Canadian ship-owners' recent investments in specialized vessels;
- e. aligning regulations governing Canadian-flagged ship operators to put them on a competitive basis with international operators who would be gaining access to Canada's domestic trades.

5. The Review recommends that the Government of Canada reform and strengthen the Canadian Coast Guard delivery model to ensure it has the mandate, equipment, operations, and sustainable funding to support marine commerce and enforce safety, security, and sovereignty, by:

- a. situating the Canadian Coast Guard to the portfolio with which it is most closely aligned, such as the Minister of Transport, with service agency status;
- b. augmenting and clarifying its mandate by:
 - i. giving it clear oversight and enforcement responsibilities for safety, security, and environmental protection in Canadian waters to improve efficiency and cost-effective delivery of these services;

- ii. focusing on key activities such as search and rescue, environmental response, icebreaking, pilotage, navigation aids, and charting services, among others, with revenue collection where appropriate, and allowing industry to provide and be responsible for ancillary services, such as vessel traffic services;
- iii. conducting a review of the roles of the Canadian Coast Guard in the Arctic (including its policy and enforcement roles) to ensure they are adequate to meet future challenges and harmonize with the roles of the Royal Canadian Navy and the RCMP;
- c. increasing funding for the Canadian Coast Guard and:
 - i. providing a clear plan for accelerated fleet renewal and services, including the purchase of a minimum of one polar and two heavy icebreakers, and provision of associated operating costs;
 - ii. providing the Canadian Coast Guard with flexibility in the application of the National Shipbuilding and Procurement Strategy so that, until fleet renewal is achieved, it has some discretion in leasing and procurement of foreign vessels to augment capacity;
 - iii. ensuring that the Canadian Coast Guard has the resources to meet an enhanced mandate, and to satisfy current and future needs in respect of crisis response, fleet operations, increased traffic in all regions, interoperability with our maritime neighbours, and technology-based solutions. With regard to the latter, it requires funds to be able to invest in innovative technologies, such as satellite-based navigation.

6. The Review recommends that the Government of Canada:

- a. immediately integrate the four pilotage authorities within one National Pilotage Board to enable a strategic and holistic approach to pilotage for better alignment and harmonization in the way regions contract for and provide services;
- b. complete a full assessment of the governance framework for marine navigation services within three years;
- c. formally review compulsory pilotage areas, circumstances, and processes every three to five years minimum, in consultation with users and the international pilotage community, taking into account new technologies and best practices and including a re-assessment of navigational safety risks.

Chapter 11: Canadian Transportation Agency

1. The Review recommends that the Government of Canada modernize the mandate of the Canadian Transportation Agency, giving it greater legislative and regulatory authorities by:

- a. amending the *Canada Transportation Act* to confer upon the Agency investigative powers, and the authority to act on the Agency's own motion and on an *ex parte* basis, as well as to address issues on a systemic basis and to issue general orders (these new powers would only be executed on reasonable grounds, on issues pertaining to the Agency's mandate);

- b. adding provisions to the *Canada Transportation Act* that better define the power for Ministers and the Governor in Council to direct Agency activities or override Agency decisions, establishing clear criteria for such action;
- c. amending the *Canada Transportation Act* to allow the Chair of the Agency to delegate identified, routine regulatory approvals to Agency staff;
- d. establishing the new Integrated Data Platform and Multimodal Data Dashboard within the Agency, in accordance with Chapter 2, Recommendations 1 and 7, and providing the legislative authority to access and obtain relevant and strategic data consistent with its mandate; this new authority would also bestow the responsibility to do research, analyze system-wide trends, provide expert advice to Ministers, and take action where necessary to ensure on-going system fluidity and protect the well-being of Canadians;
- e. in accordance with Recommendation 5 in Chapter 8.1: Freight Rail, establishing a specialized rail unit, staffed by Agency experts, to lead and advise on informal dispute resolution issues, including level of service issues, and to provide support, or lead, alternate dispute resolution focussed on level of service complaints;
- f. providing the Agency with adequate financial resources and expertise commensurate with its enhanced mandate and legislative authorities.

