

Transportation in Canada

2019

OVERVIEW REPORT



Transport
Canada

Transports
Canada

Canada

NATIONAL TRANSPORTATION INFRASTRUCTURE OF CANADA





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TABLE OF CONTENTS

» » » » »

PREFACE

MINISTER'S MESSAGE	1	HIGHLIGHTS	5
TRANSPORTATION MODERNIZATION ACT	3	PURPOSE OF THIS REPORT	7
TRANSPORTATION 2030	4	COVID-19 & TRANSPORTATION IN CANADA	8

» » » » »

TRANSPORTATION'S **ROLE** IN THE **ECONOMY**

» TRANSPORTATION HELPS THE ECONOMY GROW	14
» TRANSPORTATION SUPPORTS TRADE	16
» TRANSPORTATION MOVES PEOPLE	17

» » » » »

CANADA'S **TRANSPORTATION SYSTEM**

» CANADA'S NATIONAL TRANSPORTATION SYSTEM	18	» REGIONAL TRANSPORTATION SYSTEMS	
» ROAD SYSTEM	19	» WESTERN CANADA	28
» RAIL NETWORK	21	» CENTRAL CANADA	29
» MARINE NETWORK	23	» EASTERN CANADA	30
» AIR NETWORK	25	» NORTHERN CANADA	31
» PUBLIC TRANSIT NETWORK	27	» NATIONAL TRADE CORRIDORS FUND	31

» » » » »

RECENT WORK IN THE **TRANSPORTATION SECTOR**

» ROAD TRANSPORTATION	33	» AIR TRANSPORTATION	49
» RAIL TRANSPORTATION	38	» TRANSPORTATION OF DANGEROUS GOODS	54
» MARINE TRANSPORTATION	41	» PUBLIC TRANSIT TRANSPORTATION	57
» OCEANS PROTECTION PLAN	46		

» » » » »

THE CANADIAN TRANSPORTATION SYSTEM'S PERFORMANCE IN 2019

» PERFORMANCE MEASUREMENT	60	» SAFETY & SECURITY PERFORMANCE	69
» FREIGHT TRANSPORTATION	63	» GREEN TRANSPORTATION PERFORMANCE	69
» PASSENGER TRAFFIC FLOWS	68		

» » » » »

TRENDS IN **INNOVATION**

71

ANNEXES

A MAPS	75	B LIST OF ADDENDUM TABLES AND FIGURES	83
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THE HONOURABLE

MARC GARNEAU



MINISTER OF TRANSPORT

As Minister of Transport, I am pleased to present Transportation in Canada 2019 to provide Canadians with an overview of their transportation system at work. Each year, Transport Canada reports on the key policies it has implemented, along with performance indicators and major developments that have shaped the transportation landscape. We do this in an effort to provide greater transparency and accountability to transportation partners, stakeholders and Canadians.

In 2019, we delivered an unprecedented number of policies and regulatory initiatives, in line with our Transportation 2030 plan. These initiatives make Canada's transportation system safer, more secure, efficient, and environmentally sustainable.

To protect Canada's coasts for future generations and to grow the economy, we continue to collaborate with other federal departments, as well as local and Indigenous communities, to deliver the \$1.5 billion Oceans Protection Plan. Thanks to the Plan, our marine safety system is stronger, and our coastal ecosystems, including endangered whale populations, are more protected than ever before.

Building on this success, we also met some major transportation-related milestones in 2019, with two important bills receiving Royal Assent. The *Oil Tanker Moratorium Act* introduced a moratorium on oil tanker movements on the north coast of British Columbia. The *Abandoned or Hazardous Vessels Act* prohibits vessel abandonment, a practice that can threaten the marine environment and negatively affect tourism, fisheries infrastructure, and navigation.

Keeping Canadians safe remains our top priority, so I'm pleased that Canada has an enviable transportation safety record. We were one of the first countries to ground the Boeing 737 MAX-8 based on scientific evidence after the tragic Ethiopian Airlines accident. This action built on the additional safety measures the department had introduced following the Lion Air accident the previous year – measures that exceeded the steps other nations had taken.

The first phase of the Air Passenger Protection Regulations also came into effect in July 2019, and the second and final phase came into effect in December. The regulations provide greater protection to Canadians by ensuring better communication, treatment and compensation in case of delays. In other words, travellers now have enhanced rights when things don't go as expected.

The department also took several steps to improve rail safety in Canada. These include:

- An investment of \$16.5 million under the Rail Safety Improvement Program to support 136 new projects and

initiatives, including improvements to 104 grade crossings and rail infrastructure across the country.

- A Ministerial Order issued under the *Railway Safety Act* to all railway companies to mandate the use of handbrakes should a train be stopped on a mountain grade after an emergency use of the air brakes. The order took effect immediately and will remain in effect as long as necessary.
- The publication in the *Canada Gazette*, Part I, of proposed regulations for locomotive voice and video recorders that specify the technical requirements for rail companies to install these devices on board their locomotives.

We also proposed regulations to improve road safety by requiring federally regulated motor carriers and commercial vehicle drivers to use electronic logging devices. These devices more accurately track driving time, helping drivers remain within regulated allowable driving hours and preventing them from driving while fatigued.

Canadians' quality of life – and Canada's future growth – are deeply tied to the environment. Transport Canada is working to increase the number of zero-emission vehicles (ZEV) in Canada through the Incentives for Zero-Emission Vehicle program. This program reduces the environmental impacts of transportation by offering incentives to encourage Canadians to buy or lease ZEVs.

The quality of Canada's transportation infrastructure and the efficiency of our trade corridors are key to the success of Canadian firms in the global marketplace. To support the efficient movement of goods, we have continued to invest in transportation infrastructure through the National Trade Corridors Fund. In 2019, we announced funding for 42 projects, which represents an investment of \$897 million in infrastructure. Since the program's launch in 2017, we have funded more than 80 projects, for a total federal investment of \$1.7 billion. Through this fund, we are improving transportation, growing the economy, diversifying trade, and creating quality jobs to support the middle class.

At Transport Canada, we recognize the value of many perspectives. That's why we are committed to gender equality and actively work to ensure our workforce is diverse and inclusive. We also continue to lead in applying gender equity to our policies, programs and services.

Canada faced extraordinary challenges in 2019 and 2020 which have already tested the strength, resilience and capacity of our transportation system.

The year began with more than 50 rail blockades and their effects were felt on the economy and the transportation system across the country.

And now, the world-wide COVID-19 outbreak has required unprecedented measures to protect the safety and security of the public and transport workers. These measures include improved screening practices in the aviation, marine, and rail sectors, and restrictions on who can enter the country. At the same time, we are working to ensure that the supply chain continues to provide Canadians with essential goods.

These measures are a critical part of the Government of Canada's plan to help slow the spread of the disease and flatten the curve. I am grateful for the patience and support Canadians have shown as this unprecedented situation evolves. Moving forward, Transport Canada remains dedicated to creating a smarter, environmentally friendly, safe, and secure transportation system that maintains our position as a world leader.

I trust this report will provide you with useful information on Canada's transportation system and the work we are doing to continue improving it.

Sincerely,

The Honourable Marc Garneau, P.C., M.P.
Minister of Transport

ON MAY 23, 2018, THE *TRANSPORTATION MODERNIZATION ACT* (THE *ACT*) RECEIVED ROYAL ASSENT.

This put into place measures that will help grow the economy and improve safety and security for Canadians. The *Act* is the first legislative step to deliver on Transportation 2030.

THIS IS HOW THESE CHANGES AFFECT CANADA'S TRANSPORTATION SYSTEM:



The Canadian Transportation Agency created a set of clear rules about how airlines in Canada must treat passengers

Passenger airline ownership rules have changed in a way that will likely result in lower air fares

Airports can pay the Canadian Air Transport Security Authority for other services to improve the security screening experience for passengers



Canadian railways will put recording devices in their locomotives that will record information about accidents, while protecting the privacy of railway employees



Vessel owners can move shipping containers between locations in Canada (on a non-revenue basis), which will help address the current shortage of containers and lower the cost of trade

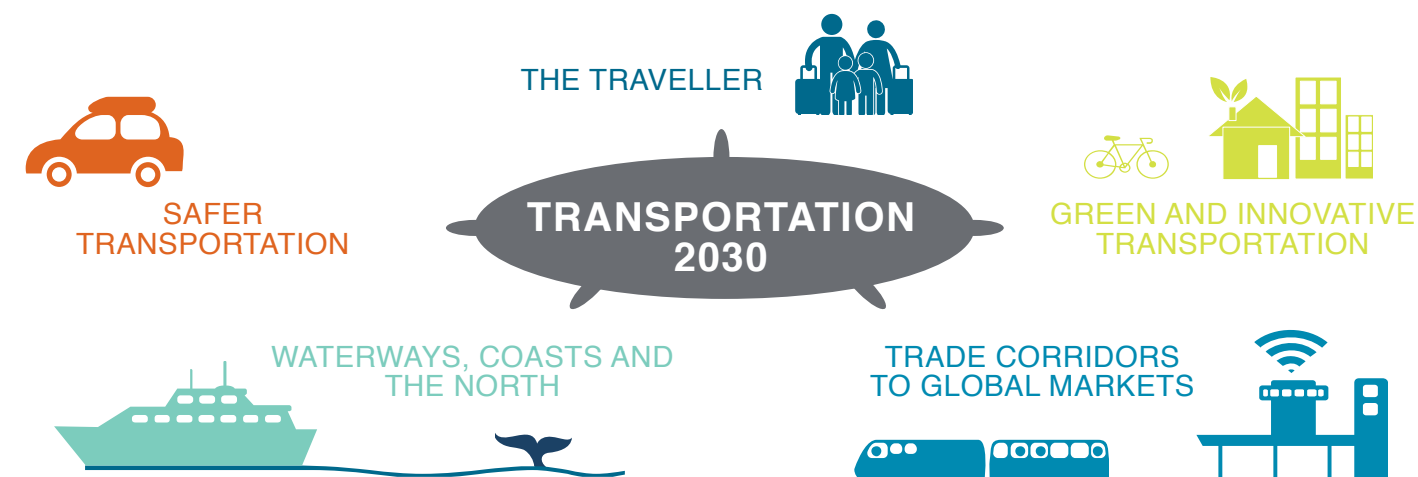
Canadian Port Authorities can now access funding from the Canada Infrastructure Bank



THE GOVERNMENT OF CANADA'S STRATEGIC PLAN FOR THE FUTURE OF TRANSPORTATION IN CANADA

Transport Canada continues to make progress in putting in place Transportation 2030, a strategic plan for a safe, secure, green, innovative and integrated transportation system that supports trade and economic growth, a cleaner environment and the well-being of Canadians.

TRANSPORTATION 2030 IS BASED ON 5 THEMES:



TRANSPORT-RELATED PROJECTS

This year, Transport Canada launched and developed activities that support Transportation 2030.

THE OCEANS PROTECTION PLAN

\$1.5 billion over five years to improve marine safety and responsible shipping, protect Canada's marine environment, and create new opportunities for Indigenous and coastal communities.

NATIONAL TRADE CORRIDORS FUND

Investing \$2.3 billion over 11 years to strengthen Canada's trade infrastructure (ports, waterways, airports, bridges, border crossings, rail networks).

MODERNIZE CANADA'S TRANSPORTATION SYSTEM

Developing strategies, regulations and pilot projects to safely use automated and connected vehicles, and remotely piloted aircraft systems (drones).

CANADIAN CENTRE ON TRANSPORTATION DATA

A single location for authoritative, timely and accessible transportation data. The Centre links to both international and national transportation data, information on how the transportation system is performing, and a map with links about Canada's larger land border crossings, airports and ports. The Centre supports evidence-based decision-making by addressing transportation data gaps, strengthening partnerships, and making strategic transportation information more transparent.

THE PAN-CANADIAN FRAMEWORK ON CLEAN GROWTH AND CLIMATE CHANGE

The Framework includes measures like the federal carbon pricing benchmark and clean fuel standard, as well as researching and testing of clean transportation technologies for all modes of transportation. In addition, in 2019, the \$300 million Incentives for Zero-Emission Vehicles program to make zero-emission vehicles more affordable for Canadians was launched and we continue to roll-out Transport Canada's two transportation adaptation projects: the Northern Transportation Adaptation Initiative and the Transportation Assets Risk Assessment initiative.

GOVERNMENT OF CANADA ACTIONS

In 2019, Transport Canada worked on many projects that support our Transportation 2030 strategic plan. A key piece of this plan is the *Transportation Modernization Act*, which received Royal Assent in May 2018. Changes made under the *Act* will help make Canada's transportation system safer, more secure and efficient.

One of Transportation 2030's priorities, the Air Passenger Protection Regulations, came into effect in 2019. Released in two phases, these regulations offer clear, consistent, fair and transparent protection for passengers. They also outline clear standards for how passengers should be treated and repaid when they face common issues, like delays.

In 2019, Transport Canada carried out many major projects, including work under the Oceans Protection Plan and the National Trade Corridors Fund. In 2019, under the National Trade Corridors Fund, Transport Canada completed the Northern call for project proposals which focused on dealing with the specific needs of Canada's North and launched a continuous call for proposals targeting trade diversification projects.

Making the transportation system safer and more secure is extremely important. In August 2019, changes to the *Navigation Protection Act* came into force, which became the *Canadian Navigable Waters Act*. These changes restored lost protections for navigable waters and incorporated modern safeguards. To improve school bus safety, most notably the use of seatbelts, an expert Task Force on School Bus Safety was formed, co-chaired by Transport Canada and Saskatchewan.

In the air sector, Canada was one of the first countries to ground the Boeing 737 MAX-8 after the tragic Ethiopian Airlines accident and added extra safety measures beyond what other nations have done. In June 2019, legislation received royal assent that will see the Canadian Air Transport Security Authority (CATSA) transition to an independent, non-profit company. In terms of rail safety, Minister Garneau responded to the statutory review of the *Railway Safety Act* that was released in April 2019. His response accepted the report's 16 recommendations and described a series of actions to implement many parts of them.

In 2019, the Government of Canada stayed committed to dealing with the environmental impacts of transportation. Among other projects, Canada supports the mandate of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). Throughout 2019, Transport Canada worked on new, broader regulations that place the carbon offsetting obligations of CORSIA into Canadian law. As well, the Incentives for Zero-Emission Vehicle program came into effect in May 2019, offering an incentive to anyone who buys or leases eligible zero-emission vehicles. Transport Canada also continued its efforts to develop and implement enhanced measures to protect endangered whale populations from the impacts of marine shipping.

TRANSPORTATION VOLUME AND PERFORMANCE

2019 saw slower growth in both the economy and trade. This is reflected in transportation demand, where traffic stayed relatively flat in 2019, compared to 2018. In turn, the lack of demand reduced the pressure on the network and contributed to strong performance indicators over the year.

For example, the growth of rail traffic slowed down a lot compared to 2018. In 2019, volumes increased by 0.4% compared to 5.4% in 2018. Forest products and potash volumes declined, while petroleum products and iron ore grew compared to 2018. Port volumes increased by only 1.1% in 2019, aligned with the overall trend. There were around 3% fewer trucks crossing the border between Canada and the US compared to the previous year. Air cargo traffic at major airports declined as well.

In 2019-20, the transportation system faced challenges that affected Canada's supply chain. The network

recovered quickly from these disruptions, indicating the capacity of the transportation system to regain momentum. A week-long strike at the Canadian National railway in November 2019 disrupted the flow of goods across Canada. Challenging weather conditions like extreme cold and heavy rain during the winter 2019-20 affected operations at ports and along railway lines. Blockades in February 2020 also challenged the transportation system. Despite these events, as well as other occasional outages, container end-to-end transit time and port dwell time stayed below the three-year average for most of 2019.

In Canada, the number of international passengers across all modes increased to 22.1 million trips of one or more nights, from the record high of 21.1 million trips of the previous year. The number of domestic air passengers in 2019 was flat while the number of air passengers flying internationally rose by 2.5% compared to 2018.

ENVIRONMENT, SAFETY AND SECURITY

From 2008 to 2017, greenhouse gas emissions from the transportation sector increased by 4%, but there have also been some notable improvements in each mode. For instance, the emissions intensity of Canadian air carriers has decreased by 18.4% between 2008 and 2018. The rail sector's emissions growth was 3% while freight traffic increased by 19.4% over the 2011-2017 period. Emissions from road transportation, which represent 21% of total Canadian greenhouse gas emissions, have increased by 12% from 2005 to 2017, largely due to an increase in the number of vehicles on the road and more reliance on heavy duty trucks.

Canada continues to have one of the safest and most secure transportation systems in the world. Road accidents that caused deaths decreased steadily over the last ten years to another low in 2018, even with more vehicles on the road. In marine transportation, the number of accidents involving at least one Canadian-registered vessel was much lower than the ten-year average, and the number of aviation accidents was lower than the ten-year average. However, the number of railway accidents in 2019 was a bit higher than the ten-year average.



Transportation contributes to the economy and plays an important role in the wellness of Canadians. It supports the economic development of many industries like the manufacturing and tourism sectors. Transportation not only helps move finished Canadian goods to domestic and international markets, it also moves the raw materials that Canadian businesses need to make goods. Transportation moves people within and between different communities, provinces and countries, by overcoming distances and geographical barriers. Canada is a vast and sparsely populated land, with extreme weather conditions and a climate that is warming at twice the global rate.^[1] These factors can challenge our ability to make sure that people and goods move safely, securely and efficiently.

In this context, Transport Canada monitors and reports on the state of Canada's transportation system by sharing data and information with the public through its main vehicle, the annual "Transportation in Canada" report.

As required by the *Canada Transportation Act* of 2007, subsection 52, each year the Minister of Transport must table to both Houses of Parliament, an overview of the state of transportation in Canada. This report, submitted by the Minister under the act, provides an overview of transportation in Canada based on the latest information for all modes.

The report highlights the role of transportation in the economy and offers an overview of national and regional transportation infrastructure. It describes major industry and policy developments during 2019 from an efficiency, safety and security, and environmental perspectives. The report also assesses the Canadian transportation system's performance in 2019, by looking at the use and capacity of the system. It ends with an outlook on trends to expect in terms of innovations in the transportation sector.

An appendix with statistics from this report is also available. It has information on freight and passenger traffic for each mode, as well as infrastructure statistics. The transportation and economy section shows economic indicators, statistics on labour in the transportation industry, price and productivity indicators, and data on freight trade by mode and country. It also details reported accidents and greenhouse gas emissions.

More data and analysis are also available online through the Canadian Centre on Transportation Data and its [Transportation Data and Information Hub](#).

USING DATA TO SUPPORT DECISION-MAKING

The Canadian Centre on Transportation Data promotes discussion and collaboration among key stakeholders from both the public and private sectors, to support decision-making at all levels. The Canadian Centre on Transportation Data also provides access to authoritative multimodal transportation and system performance data through the Transportation Data and Information Hub. The hub provides public access to over 600 data sets, national traffic and performance indicators, interactive maps, and analytical reports and tools.

Transport Canada will continue developing the Canadian Centre on Transportation Data and the Transportation Data and Information Hub to add new content including better analytics, interactivity and visuals, and more detailed projections on transportation demand to help make investments decisions on future physical and digital infrastructure.

The centre will continue to serve Canada and Canadians by working with industry stakeholders to improve access to authoritative data that will support decision making to improve the transportation network, to identify risks and vulnerabilities.

¹ <https://changingclimate.ca/CCCR2019/chapter/headline-statements/>

Canadians and governments are being tested by an unprecedented public health crisis where many of the best ways to preserve health also severely impact the economy. Although this report provides an overview of the state of the transportation system in Canada in 2019, the impacts of the global COVID-19 pandemic in 2020 can't be ignored. The International Monetary Fund has predicted that the pandemic will lead to the worst global economic downturn since the Great Depression, reversing decades of gains from globalization and growth.

The following impact analysis is based on the latest developments at the time of writing the report. This complex environment continues to rapidly evolve every day and the impacts and government responses are very hard to predict.

IMPACT ON CANADIAN TRADE AS OF APRIL 2020

COVID-19 has impacted all areas of Canada's economy, including retail trade, transportation services (notably the air sector), energy, tourism, and manufacturing, which saw many business closures, high job losses and a sharp drop in production.

While countries have restricted the movement of people regionally, nationally, and cross-border, in general they haven't been building barriers to restrict trade. Nevertheless, trade in Canadian goods has declined, mainly due to changes in consumer demand.

Our bulk exports, like grain and fertilizers have been mostly unaffected as they help in the production of essential goods. In contrast, other Canadian supply chains, like manufactured products and energy, have seen a sharp decline. On the import side, lower foreign production combined with lower Canadian demand for foreign products, whether for business or direct consumption, have led to a drop in the inbound flow of goods to Canada.

Since February 2020, China's economy has ground to a near stop, which is unheard of, and has seen manufacturing drop to the lowest levels since at least 2009. China is Canada's second largest trading partner and second largest supplier of intermediate inputs and capital goods (goods and services used by Canadian companies to produce other goods and services). Europe, Japan and South Korea, which also saw large drops in goods production, are also some of Canada's largest suppliers.

IMPACT AND CHALLENGES FOR THE TRANSPORTATION SYSTEM AS OF APRIL 2020

Canada's response to the pandemic and slowing economy has led to far lower demand for transportation across the network. This has created different challenges for carriers.

AIR TRANSPORTATION

With a variety of limits on international and domestic travel in March 2020, air travel decreased by more than 95% compared to normal levels. Canadian carriers cut operations significantly, with Air Canada ending almost all international flights and more than half of its flights within Canada. Similarly, WestJet, Air Transat, Porter and Sunwing cut some or all of their international and domestic flights. There were also far fewer flights to the North.

Canadian airlines' cash flows declined to near-zero, forcing them to park planes and lay-off over 30,000 employees. Some airlines used the Canadian Emergency Wage Subsidy Program to rehire employees while the Program is available.

Airport revenues were also significantly reduced. This led many airports to close, layoff staff, delay capital spending, and shut down terminals. Some airport service providers faced similar challenges.

Since passenger planes usually carry cargo in their bellies, the drop in passenger travel led to less capacity for air cargo, which caused freight rates to increase. This has seriously affected some industries like the generic drug industry which operates with thin margins and depends on air transportation. Passenger

COVID-19 AND TRANSPORTATION IN CANADA

COVID-19 AND TRANSPORTATION IN CANADA

airlines adjusted to this change and began flying cargo-only flights. The loss of passenger traffic has meant that northern air carriers are losing money when they provide freight services to the Arctic.

MARINE TRANSPORTATION

Despite lower demand in February and March, most of Canada's major ports reported mostly normal operations and finances. However, in April, the number of announced blank sailings (a sailing that has been cancelled by the carrier) at both western and eastern ports continued to increase, with vessels cancelling on even shorter notice.

On the West Coast, traffic decreased in late February and through March due to a manufacturing slowdown in Asia. March container volumes were down 40% at the Port of Prince Rupert, and 13% at the Port of Vancouver. Due to the decline in container imports, there were fewer empty containers. This affected containerized exports like forest products and specialized grains. In April, the number of inbound containers from key ports in China and elsewhere in Asia started ramping up. This indicates a recovery in production and shipping to western Canadian ports.

In Eastern Canada, activity was normal at the Port of Montreal as of mid-April, and volumes were stable. In contrast, the Port of Halifax, which receives a large number of containers from Asia and Europe started to see less incoming cargo from Europe. As for the domestic shipping industry, there has been little impact on traffic and operations in the St. Lawrence Seaway.

Social distancing affected the productivity of some ports. At the Port of Prince Rupert, distancing meant that only one grain vessel could be loaded at a time, which delayed reducing the vessel line-up.

As for domestic ferries, operators on both West and East Coasts have seen a major drop in demand. This has led to reduced service, financial challenges and layoffs.

ROAD AND RAIL TRANSPORTATION

Surface transportation has been affected by the slowing of North American production and decline in demand for manufactured goods. As a result, freight rail traffic, commercial truck volume at the US-Canada border and road traffic in major urban areas were all well below 2019 levels.

Similar to other modes, railways had to lay off part of their workforce. They also had to store railcars and locomotives. Many trucking companies experienced financial hardship due to the sharp decline in revenue.

On the passenger side, bookings with VIA Rail were down over 95%, with only ten trains a day operating in the Quebec-Windsor Corridor. Cross-country service was cancelled until May and remote services operated on a reduced schedule. Amtrak made similar decisions, reducing or suspending services. Other intercity passenger rail carriers have been impacted as well, notably those who operate in the tourism sector. In the West, the Rocky Mountaineer expects to fully or partially suspend operations for the 2020 season.

Intercity bus operators have had to seriously reduce or suspend services as well. The ridership has been declining for decades, so the economic effect of the pandemic is expected to further challenge the ability for bus companies in Canada to make money.

ACTION BY THE GOVERNMENT OF CANADA AS OF APRIL 2020

To make sure that the public and the transportation system stay safe and secure, the Government has put strict rules in place to limit the spread of the virus. Transport Canada has been working with provincial and territorial governments to put in place steps to make sure that the transportation network can support the supply of essential goods.

TRAVEL AND BORDER MEASURES

On March 16, Canada closed its borders to non-essential foreign travel. On March 18, Canada and the United States announced that they had agreed to close their shared border to non-essential travel.

Travelers who are considered essential are screened for symptoms before boarding a flight to Canada. All international flights are routed to one of four major airports:

- Toronto-Pearson
- Montreal-Pierre Elliott Trudeau
- Calgary International
- Vancouver International

These measures were introduced to make sure everyone is properly screened to limit the spread. As well, everyone must self-isolate for 14 days once they enter the country. Transport Canada continues to monitor and assess travel risks for Canadians.

In order to make sure essential goods move quickly and safely across the Canada-US border, all classes of truck drivers (Canadian citizens, permanent residents, temporary foreign workers and drivers with work permits) are exempt from the 14-day self-quarantine rule, and can cross the Canada-US border. Transport Canada developed a Regional Operational Maritime Plan to support a broad and coordinated approach to identify and manage the threat of COVID-19 for vessels operating in the Great Lakes – St. Lawrence Seaway.

To limit the spread of the virus, on March 30 railways were told to screen passengers for symptoms before boarding and to notify them that they may be subject to a health check on arrival.

HELPING CANADIANS ABROAD

Canadians abroad who are facing challenges coping with the crisis or returning home were offered support from the Government through the COVID-19 Emergency Loan Program for Canadians Abroad. The Program offers loans to those affected, and provides immediate financial help to return them to Canada, or if not possible at this time, provides money to cover day-to-day expenses until they can return home.

Through these difficult times the government has worked to repatriate Canadians stuck abroad. With borders and airspace closed in many countries, every possible solutions has been explored, and over 16,000 Canadians have successfully returned on more than 119 flights from 65 countries.

Global Affairs Canada is also offering around-the-clock consular services to Canadians abroad through the Emergency Watch and Response Centre and its network of missions.

SAFETY AND SECURITY MEASURES

New temporary regulations

Based on the approach taken across the Government, Transport Canada has temporarily delayed seeking Governor in Council approval of regulatory proposals unless they fell into one of three categories:

- proposals that could manage the risks related to COVID-19
- proposals that could provide relief from the impacts of COVID-19, or
- time-sensitive proposals related to safety, security, or the environment

Looking ahead, Transport Canada is looking at its Forward Regulatory Plan to decide how to best prioritize work on regulatory projects. In all cases, equal attention will be given to the impacts that proposed

COVID-19 AND TRANSPORTATION IN CANADA

COVID-19 AND TRANSPORTATION IN CANADA

regulations could put on Canadians and the economy.

AIR SAFETY

A series of aviation regulatory measures were introduced in March 2020 to deal with the significant risks that COVID-19 poses to aviation safety and the public. These measures included:

- conducting a health check on all passengers prior to boarding and confirm that they have in their possession an acceptable face covering prior to boarding;
- requiring all travellers to wear non-medical masks or face coverings during security screening and in-flight;
- denying boarding to symptomatic passengers and those individuals who do not have in their possession an acceptable face covering;
- requiring air operators operating transborder flights to:
 - notify every foreign national boarding a flight from the United States that they may be prohibited from entering Canada under an emergency order made pursuant to the *Quarantine Act*;
 - obtain confirmation from travellers that they read and comply with the emergency orders;
- requiring air operators to deny boarding to foreign national departing from any country other than the United States unless they meet one of the approved exceptions;
- requiring air operators operating domestic flights to:
 - notify passengers that they may be subject to a measure to prevent the spread of COVID-19 taken by the provincial or territorial government;
 - deny boarding to passengers who are the subject of a provincial or local public health order;
- redirecting commercial passenger flights from overseas to Vancouver, Calgary, Toronto-Pearson, and Montreal-Trudeau airports; and
- issuing regulatory exemptions of the Canadian Aviation Regulations in response to changing industry needs.

Transport Canada is actively engaged with stakeholders to manage the challenges being faced with while continuing to ensure the safe delivery of essential services, the reunification and essential travel of Canadians, and maintaining vital supply chains. To support the aviation industry in the implementation of these measures, Transport Canada had continuous communication with air operators, aerodromes, and associations provided communication material, including guidance material, posters, and frequently asked questions, that could be shared with air travellers. The Department's measures complemented those developed by other government departments, such as the Public Health Agency of Canada, Canada Border Services Agency, Immigration, Refugees and Citizenship Canada, and Global Affairs Canada.

ROAD SAFETY

Transport Canada, in collaboration with other government departments, industry representatives, and provincial and territorial road safety administrators acted to protect Canadians that needed to travel by road. These actions included:

- Holding regular calls with industry associations, other government departments, provincial and territorial governments through the Canadian Council of Motor Transport Administrators to identify and work together to deal with issues related to commercial motor vehicles including logistical challenges posed by the closure of restaurants and rest-stops, and access to personal protective equipment
- Speaking regularly with officials at the US Department of Transportation to deal with cross-border issues
- Speeding the approval of Canadian returning to Canada in their US registered vehicles, following restrictions on non-essential travel between the United States and Canada

- Providing guidance to auto sector stakeholders on possible non-compliance with motor vehicle safety requirements (i.e. defect notification and repairs) due to COVID-19
- Issuing the [Essential Freight Transportation Exemption](#) to support Canada's response to COVID-19 (March 24, 2020)
- Issuing [Federal safety guidance to protect drivers and limit the spread of COVID-19 in commercial vehicle operations](#) (April 2, 2020)
- Developing a standard [employment confirmation letter for essential transportation workers](#) for travel through community or interprovincial check-points, and the Canada-US border (April 8, 2020)
- Issuing guidance: [Considerations Relating to the Use of Face Coverings by Commercial Vehicle Drivers and Motor Carrier, and Intercommunity Bus Passengers](#) (April 17, 2020)

MARINE SAFETY AND SECURITY

Transport Canada has implemented a series of measures to minimize the risk of COVID-19 spread, and to maintain the essential movement of goods and people, while balancing the safety of the marine sector, including:

- Deferring the start of the cruise ship season in Canada from April 2 to July 1, 2020 outside of Arctic waters (with the possibility of extension if required)
- Prohibiting any commercial vessels certified to carry more than 12 passengers from performing non-essential activities until July 1 in Canadian southern waters and until November 1 in Arctic waters (with the possibility of extension if required)
- Requiring essential passenger vessels and ferries to either reduce their carriage capacity by 50% or implement alternative measures, outlined by the Public Health Agency of Canada, to prevent the spread of COVID-19 among passengers and crew
- Extending the validity period of marine personnel certificates, to accommodate workers who may not have access to renewal processes due to community based mitigation measures surrounding COVID-19

RAIL SAFETY

The outset of the pandemic, Transport Canada, took a number of steps to mitigate the impacts of COVID-19 on Canada's railway industry and workers, which provides an essential service transporting consumer goods and our products to markets. These steps included:

Coordination and Engagement:

- Establishing regular calls with industry stakeholders, provinces, and other federal departments including the Public Health Agency of Canada, Canada Border Services Agency and Labour Canada to identify and address issues as they arose
- Holding bilateral calls with companies as necessary to address specific issues
- Conducting regular calls with provincial counterparts to discuss jurisdictional issues emerging from COVID -19
- Engaging in regular conversations with international authorities (US Federal Railroad Administration) to address cross-border issues
- Providing guidance to inter-city passenger rail companies in Canada regarding COVID-19 restrictions and face coverings
- Publishing a common letter to allow those employed in the railway industry in essential service capacity to have freedom of movement and work both within and across provincial territories

Regulatory Measures:

- Providing companies with regulatory flexibility to ensure guidance from public health authorities

COVID-19 AND TRANSPORTATION IN CANADA

- concerning travel and assembly in numbers was respected
- Enacting a [Ministerial Order](#) regarding health checks for passengers on inter-city passenger rail in Canada
- Issuing [temporary exemptions](#) regarding health risks involved with railway personnel assembling in groups to renew their qualifications and reduce the risk of safety critical workers
- Issuing temporary exemptions to certain rules that are conditioned on the existence of workforce shortages and other constraints resulting from direct impact of COVID-19 on railway companies operations

STIMULUS AND OTHER FINANCIAL SUPPORT

The Government has taken many steps to make sure that Canadians and businesses affected by COVID-19 are supported through these difficult and unprecedented times. As part of the COVID-19 Economic Response Plan, over \$27 billion will be available in direct support. Numerous supports are currently in place for those who need help. Key examples include:

SUPPORT FOR INDIVIDUALS

- The Canada Emergency Response Benefit (CERB) provides \$2,000 every 4 weeks for up to 16 weeks for eligible workers who have lost their jobs, are earning less than \$1,000 a month, have run out of EI benefits or can't find work due to COVID-19
- Essential workers earning less than \$2,500 a month can apply for a salary top-up. This provides a much-needed boost to those working hard to keep Canadians safe, healthy, and fed during the pandemic
- Around \$550 per family through an increase to the Canada Child Benefit
- The Indigenous Community Support Fund offers \$305 million to meet the immediate needs of First Nations, Inuit and Métis communities
- More financial support is available through various channels to those who need it most, like women's shelters, food banks, organizations that support youth and those experiencing homelessness

SUPPORT FOR BUSINESSES

- Any employer who has lost 15% or more of gross revenues can apply for the Canada Emergency Wage Subsidy (CEWS), which will cover up to 75% of employee's wages – up to \$847 per week. This support is in place from March 15 until June 6
- The Business Credit Availability Program is available to businesses that offer direct lending and other forms of financial support. This program can be accessed by contacting a primary lender
- The Temporary 10% Wage Subsidy is another relief program, available for three months, which allows eligible employers to reduce the amount of payroll reduction remitted to the Canada Revenue Agency
- The Work-Sharing Program is being extended from 36 to 72 weeks. The Program offers income support to employees that are eligible for EI who voluntarily reduce their work hours due to things beyond the control of their employers

Support of up to \$17.3 million for Sair carriers was announced to make sure that remote and fly-in communities have a steady supply of food, medical supplies and other essential goods and services.

The Government continues to monitor and take action on the hardships faced by Canadians and businesses effected by Covid-19.

[Read how Canada is dealing with COVID-19's impact on the economy](#)



TRANSPORTATION'S ROLE IN THE ECONOMY

IN THIS SECTION

- TRANSPORTATION HELPS THE ECONOMY GROW
- TRANSPORTATION SUPPORTS TRADE
- TRANSPORTATION MOVES PEOPLE

HIGHLIGHTS

- In 2019, the transportation and warehousing sector's gross domestic product increased faster (3.2%) than all other industries in Canada (2.0%).
- In 2019, Canadian household's spent \$205.8 billion on transportation (including insurance). This is the second largest expense, second only to shelter.
- In 2019, international merchandise trade was \$1,195 billion, a 1.2% increase from 2018.

TRANSPORTATION HELPS THE ECONOMY GROW

Transportation and warehousing is important to the Canadian economy. The traditional way of measuring gross domestic product (GDP) only includes economic activity linked directly to for-hire or commercial transportation. Transportation is key to activities not included in economic measures, like the value of personal travel and of own-account transportation activity (in other words the shipper using his own vehicles to move the goods). According to the Canadian Transportation Economic Account data from 2014, the transportation sector contributed \$153.4 billion or 8% of GDP.

In 2014, household production of transportation services (in other words the production of transportation services by the members of a household for their own consumption, such as driving a car to work) increased the Canada's GDP by \$58.3 billion. Non-transportation industries (like manufacturing, wholesale trade and construction) produced \$41.5 billion of own-account transportation services, or 30% of the total domestic supply of transportation.

Using traditional measures of GDP, the sector made up 4.5% of GDP (\$89 billion) in 2019. In the past year, the sector grew 1.2% in real terms, falling just below the growth rate for all industries (1.5%). However, the total annual growth rate of GDP in the transportation sector over the previous five years (3.4%) exceeds that of the entire economy (2.0%).

TRANSPORTATION'S ROLE IN THE ECONOMY

Although the transportation and warehouse industry accounts for only 4.5% of GDP, it supports activity in other industries. The manufacturing sector for example relies heavily on transportation services to bring input and deliver goods to markets. It is also the case for the wholesale and retail industries.

In 2019, total household spending on transportation (including insurance) amounted to \$205.8 billion, second only to shelter in terms of major spending categories. Household consumption of transportation grew around 2.4% every year on average between 2014 to 2018, with overall spending growing at the same rate. Household spending for personal travel accounted for about 11% of the GDP.

In 2019, 972,600 employees (including self-employed people) worked in the transportation and warehousing sector, up 5.7% from 2018. Employment in the transportation and warehousing sector accounts for about 5% of total employment, a share that has stayed stable over the past two decades.

LABOUR SHORTAGES

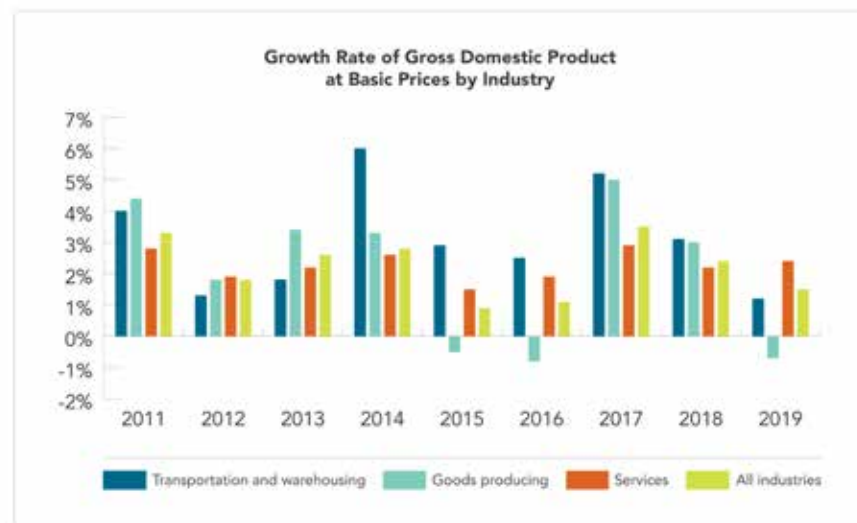
The World Bank reported that skill shortages are a major threat for the transportation and warehousing sector. An aging workforce and retirement of baby boomers will likely add to labour shortages for certain jobs. Stakeholders have already raised these concerns and how it could negatively affect their ability to stay competitive.

The sector's labour market is tightening with jobless rates declining and staying below the national average in 2019 (3.2% compared to 5.7%) and over the last 10 years. The unemployment-to-job vacancy ratio in the transportation sector also declined over the previous years and stayed below the national average in 2018 (1.9 compared to 3.4).

This ratio is used to judge whether labour supply exceeds or falls short of demand. Lower values mean that there are fewer unemployed people per job opening. The tight labour market didn't result in significant growth in earnings, with average hourly wages increasing at a lower rate than the industrial average in 2019 (1.9% compared to 3.4%) and over the past five years (2.4% compared to 2.6%).

According to Employment and Social Development Canada, major gaps between labour demand and supply for some transportation occupations will develop in the next 10 years, especially for truck drivers. This is due to, among other things, older demographics of the industry. Truck drivers tend to be older than the national average, so a large number will retire in the next ten years.

According to the 2016 Census, 40% of the national labour force was between 45 and 64 years old, compared to 50% in the transportation sector. Workers under 25 made up 14% of all workers across all industries, although this share dropped to 7% in the transportation and warehousing sector. Women are also significantly underrepresented in the transportation industry, with men making up more than



TRANSPORTATION'S ROLE IN THE ECONOMY

75% of the workforce. Immigrants, especially recent immigrants, and Indigenous people were also underrepresented in most jobs at risk of labour shortages including trucking, transit and air transportation.

The failure to fill jobs could negatively impact the transportation industry, but also Canadian industries that rely on the sector to access domestic and international markets.

COMPETITIVENESS

The World Economic Forum's Global Competitiveness Index is a yearly indicator of a country's performance, based on measures of productivity and economic growth. Transportation infrastructure is included in calculating the Index, and helps compare the quality of transportation infrastructure in Canada to other countries.

Overall, Canada ranked 14th in 2019 with a score of 79.6, close to the best performer's score of 84.8, Singapore. Canada slipped two spots and lost 0.3 points compared to 2018. This is partly due to trade issues that have affected Canada's ability to stay competitive.

In terms of transportation infrastructure, Canada ranked 32 and scored 65.7 (far below the 100 level, an ideal state where an index component ceases to be a constraint to productivity growth). This score highlights areas that need improvement, including the quality of roads, as well as the efficiency of train and seaport services. On the other hand, road connectivity (98.7) and airport connectivity (96.3) both scored very high with little room for improvement.

PRODUCTIVITY

Multifactor productivity measures how efficiently production inputs, like labour and capital, are being used in production. Statistics Canada monitors Canada's multifactor productivity.

Recently, multifactor productivity in the transportation and warehousing sector has plateaued. Between 2010 and 2018, multifactor productivity decreased around 0.2% per year, compared to the 0.7% increase for the business sector as a whole.

In contrast, labour productivity in transportation and warehousing increased faster than in the business sector, 1.9% compared to 1.2%. Labour productivity for some sub-sectors, like air and rail transportation, greatly outperformed the business sector with average annual growth rates of 5.7% and 5.1%.



TRANSPORTATION SUPPORTS TRADE

Transportation is important for trade. It allows natural resources, agricultural products and manufactured goods to reach domestic and international markets.

The value of interprovincial merchandise trade totaled \$168 billion in 2018, up 4.0% from 2017.

TRANSPORTATION'S ROLE IN THE ECONOMY

In 2019, international merchandise trade equalled around \$1.2 trillion, a 1.2% increase over 2018 and the highest value on record. The US remains Canada's top trading partner, with \$752 billion in total trade (\$447 billion exported, \$305 billion imported), up 1.3% from 2018. The US made up 63% of all Canadian trade in 2019, and its share didn't change much over the last ten years.

Other than the US, in 2019, Canada's top five trading partners included China, Mexico, Japan and the United Kingdom. These four countries represented 16.8% of Canada's total international trade in 2019.

The department supports Global Affairs Canada in advancing Canada's trade policy priorities and interests, including the negotiation of a number of trade and investment agreements. Transport Canada plays an important role to ensure that Canada has the transportation services and infrastructure needed to connect Canadian products and businesses to international markets, without compromising the safety and security of the traveling public. Recently concluded free trade agreements include the Canada-US-Mexico Agreement, the Canada-EU Comprehensive Economic and Trade Agreement, and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership. As of March 2019, Canada had 14 free trade agreements in force with 51 countries, representing two-thirds of the global economy. Canada is also the only Group of Seven (G7) country to have free trade agreements with every other member of the G7, connecting Canadian businesses to over \$1.5 billion of the world's consumers.

TRANSPORTATION MOVES PEOPLE

According to the 2016 census, Canadians spent 5% of their day (around 1.2 hours) travelling to and from activities.

The number of people commuting to work has increased by 30.3% between 1996 and 2016, reaching 15.9 million. In 2016, the average commute lasted 26.2 minutes, up nearly one minute from 2011. Since then, the number of workers who spent more than 60 minutes commuting to work rose by almost 5% due to a number of reasons, including more time in traffic.

Canadians travelled more in 2019. The number of passengers traveling to international destinations increased 18% from 2009. Although the US is still the most popular international destination for Canadians, trips to other countries increased by 50%, compared to 12% for US destinations.

When looking at Canada as a travel destination, tourism arrivals increased by 21%. The use of surface transportation has slowly decreased, while the use of air transportation has gone up.



CANADA'S TRANSPORTATION SYSTEM

IN THIS SECTION

CANADA'S NATIONAL TRANSPORTATION SYSTEM

- » Road Transportation
- » Rail Transportation
- » Marine Transportation
- » Air Transportation
- » Public Transportation

REGIONAL TRANSPORTATION SYSTEMS

- » Western Canada
- » Central Canada
- » Eastern Canada
- » Northern Canada

NATIONAL TRADE CORRIDORS FUND

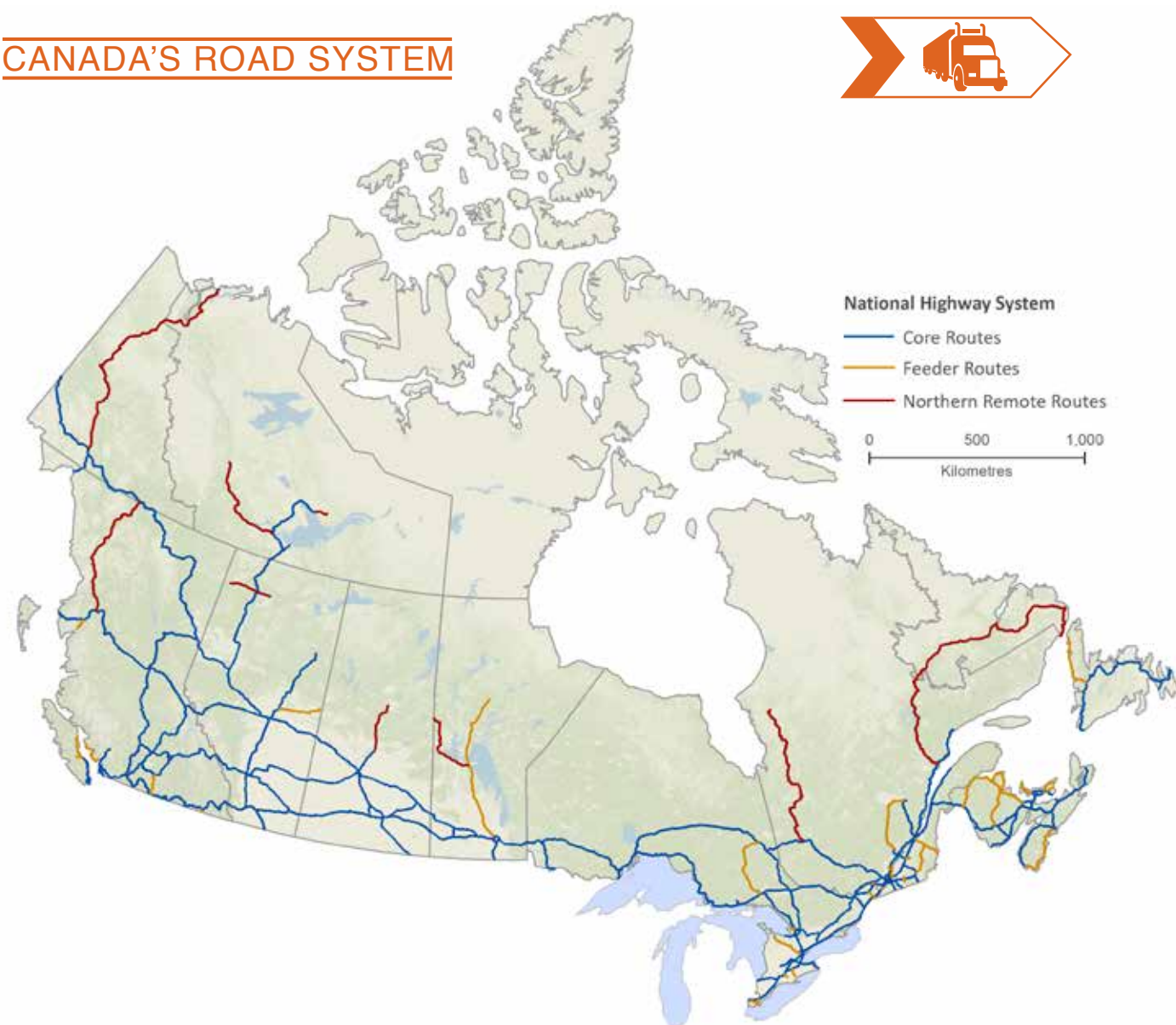
HIGHLIGHTS

- » Canada's transportation network relies on key infrastructure to safely and quickly move goods to markets and people between countries, regions and communities.
- » In 2019, there were two calls for proposals under the National Trade Corridors Fund: a northern call focused on the unique needs of the North and a continuous call focused on diversifying trade.
- » The unique geography of Canada's North creates challenges for transporting passengers and cargo, and needs an equally unique transportation system.

Canada's vast transportation network consists of rail lines, roads, waterways and airports. This transportation infrastructure allows people and goods to move across the country, between urban and rural communities, as well as to and from international destinations. This section presents an overview of Canada's national and regional transportation networks.

ROAD SYSTEM

CANADA'S ROAD SYSTEM



Road transportation is the main mode for moving freight and passengers across Canada. Canada is connected from the Pacific to Atlantic coasts by a network of highways anchored by the Trans-Canada Highway. Canada also has extensive road networks across more populated areas in the south.

As shown on the map on the previous page, the national highway system is mostly made up of interprovincial and international links.^{[2][3]}

In 2018, 25 million motor vehicles were registered in Canada, up 2.0% from 2017 and 17.2% from a decade ago.

- Around 92% were vehicles weighing less than 4,500 kilograms, mainly cars, pickups, SUVs and minivans
- 4.4% were medium and heavy trucks weighing 4,500 kilograms or more, and
- 3.3% were other vehicles like buses, motorcycles and mopeds

As of December 2019, there were 220,196 Canadian businesses whose main activity was trucking, 72,150 companies with employees and 148,046 without. The trucking industry includes many small for-hire carriers and owner-operators, and some medium and large for-hire companies that manage fleets of trucks and offer logistic services.

Trucking companies are mostly located in four provinces:

- Ontario (44.0%)
- Quebec (18.1%)
- Alberta (14.1%), and
- British Columbia (12.9%)

The trucking industry has three main types of trucking activities:

1. For-hire services, that fall into two categories:
 - a. "less-than truckload" that transports mostly small freight from different shippers in a truck
 - b. "truckload" that transports a shipment from a single shipper in a truck
2. Courier operators who specialize in transporting parcels. As of December 2019, 16,909 companies focused mostly on courier or messenger services
3. Private carriers, like Walmart and Costco, who keep a fleet of trucks and trailers to carry their own goods. Transport Canada doesn't currently track this part of the trucking industry (as trucking isn't the primary activity of these companies)

In 2017, Canada's National Highway System (NHS) had over

38,098

lane-kilometres, including:

- › 72.8% classified as "core" routes
- › 11.7% classified as "feeder" routes
- › 15.5% classified as "Northern and remote" routes

more than

1.13 MILLION

two-lane equivalent lane-kilometres of public roads in Canada

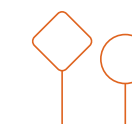
Ontario, Québec, Saskatchewan, and Alberta account for over

75%

of the total road length

40%

approximately of the road network is paved

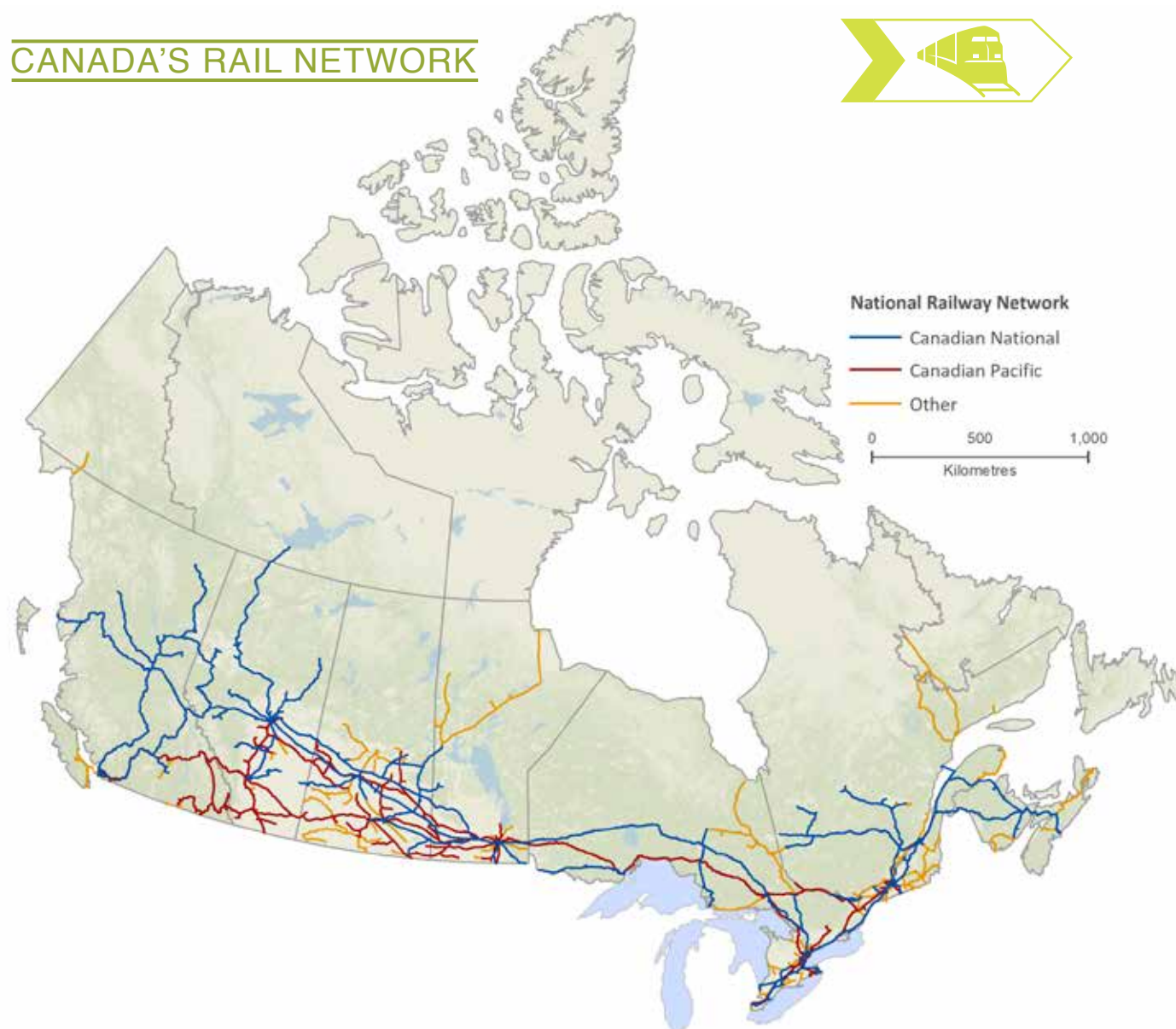
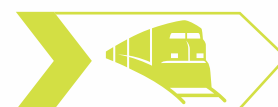


² The NHS was established in 1988 as a result of a federal-provincial-territorial cooperative study, and was made up of 24,459 km of highway across Canada.
³ A lane-kilometre measures the number of traffic-lanes on each section of road.



RAIL NETWORK

CANADA'S RAIL NETWORK



Rail companies serve nearly every part of the Canadian economy, including manufacturing, agricultural, natural resources, wholesale and retail sectors, and the tourism industry. Canada has a large railway system used mainly to transport freight to and from the US, and international markets via coastal ports, as well as passengers across the country.

FREIGHT SECTOR

The freight sector specializes in moving heavy, bulk goods and containers over long distances.

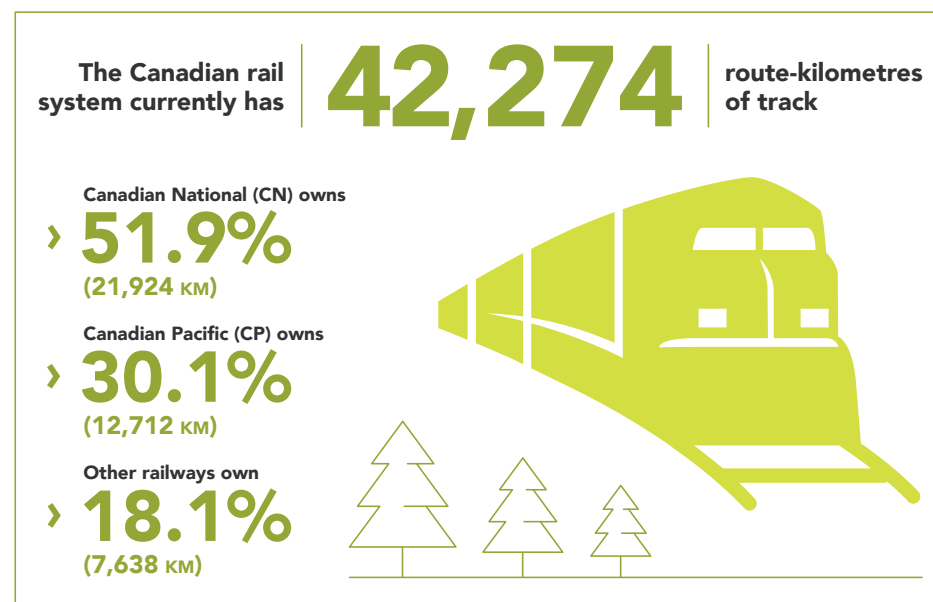
Canada has two major Class I freight railways: CN and CP. Some large US-based carriers also operate in Canada including the Burlington Northern Santa Fe (BNSF) Railway Company and CSX Transportation Inc. Together, CN, CP and BNSF link trade route between Canada, the US and Mexico.

BNSF's service to Canada's Pacific Gateway gives Vancouver the advantage of being the only port on the West Coast served by three Class I railroads.

In terms of equipment, in 2018, Class I railway carriers had:

- 2,419 locomotives in 2017
- 52,396 freight cars, mainly hopper cars, boxcars, flatcars and gondolas, and
- 480 passenger cars

Seventy companies fall under the authority of the *Railway Safety Act*. Twenty-six are federal railway companies, who must also hold a Certificate of Fitness from the Canadian Transportation Agency. There are also multiple federally or provincially regulated shortline railways that connect shippers with Class I railways or with other shortlines and ports. On average, shortline railways move \$20.3 billion worth of freight to and from continental rail networks, like CN and CP, and to ports and terminals.



PASSENGER SECTOR

The passenger sector provides commuter, intercity and tourist transportation services. Most national rail passenger services are offered by VIA Rail on behalf of the Government. VIA is a Crown corporation that was created in 1977 and operates passenger rail service from coast to coast. It travels mostly over infrastructure owned by freight rail companies. Most of its services are in central Canada along the Quebec-Windsor Corridor. VIA also operates long-haul passenger routes between Toronto and Vancouver, and Montreal and Halifax, as well as regional routes like Jasper to Prince Rupert, and Winnipeg to Churchill. In 2019, VIA ran 458 weekly train departures on a 12,500 kms network.

In addition to shortlines that move freight, other shortlines provide passenger or tourism service like the Rocky Mountaineer Railway.



CANADA'S MARINE NETWORK



Canada’s ports are the main point of exit of Canadian goods to overseas markets and the main point of entry for imported containerized manufactured goods. Ports are also hubs that connect coastlines to inland domestic and US markets where goods are shipped by railway and truck.

Transport Canada’s mandate covers two groups of ports: 17 ports independently managed by Canada Port Authorities (as shown on the map on the previous page), and 40 ports that are owned and operated by Transport Canada.

Canadian registered vessels are active in domestic commercial activities, carrying around 98% of domestic tonnage. Canadian vessels also support trade between Canada and the US. In contrast, foreign registered fleets carry goods to and from non-US international destinations. The domestic marine sector mainly transports bulk cargo. This sector is also key for northern resupply and offshore resource development.

AS OF DECEMBER 2019, CANADA HAD

- › 555 port facilities
- › 883 fishing harbours
- › 127 recreational harbours



There is a lot of diversity within the services offered by vessels tailored to serve each market.

In 2019, Canada’s commercial registered fleet (1,000 gross tonnage and over) had 203 vessels, with a total of 2.3 million gross tonnes.^[4]

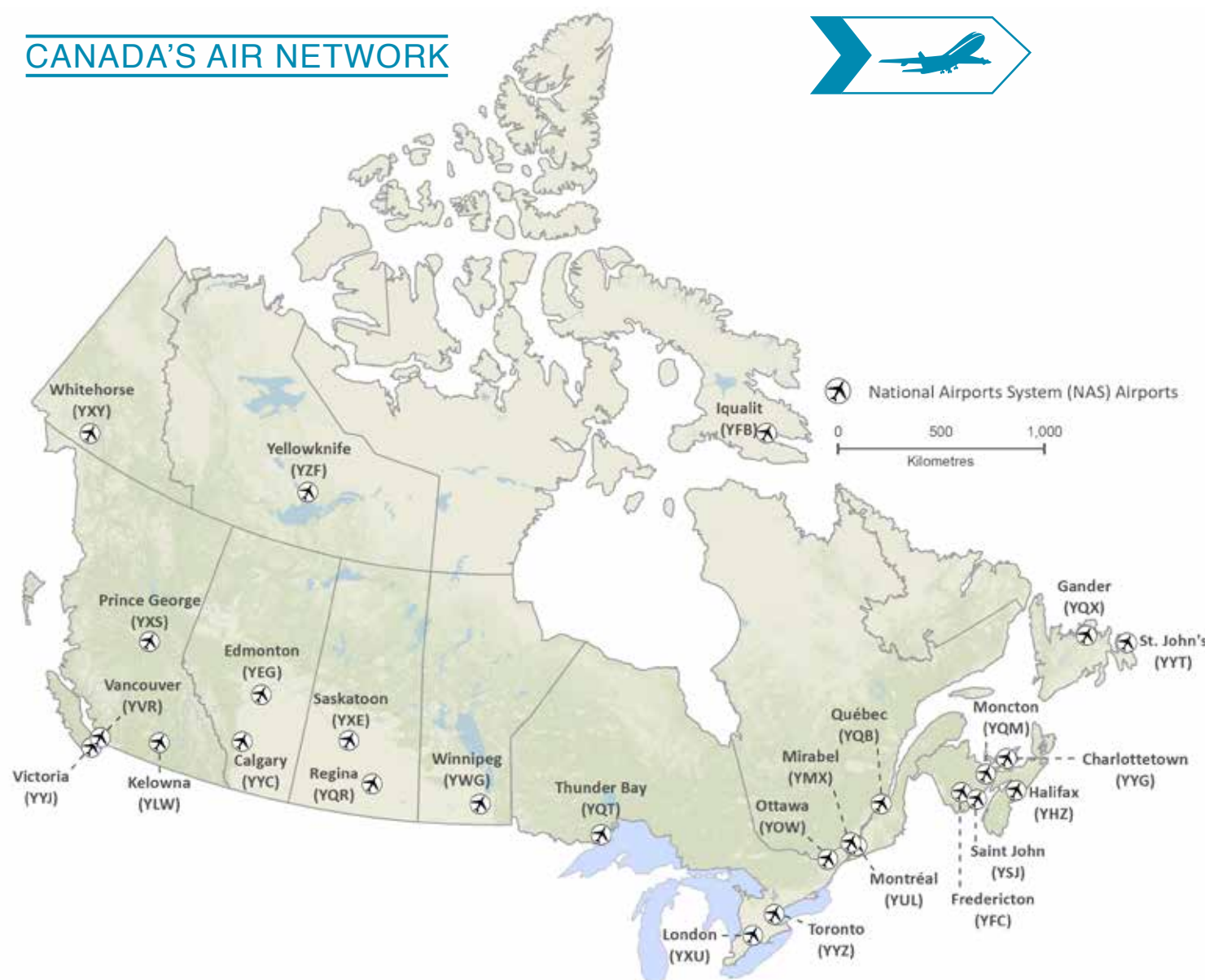
There are also a number of coastal passenger services across Canada. Ferries are an important resupply and transportation link, and play a vital role for coastal and island communities, as well as those separated by river or lakes without land-based crossings. The members of the Canadian Ferry Association, which includes all major ferry companies in Canada, carry around 53 million passengers and more than 21 million vehicles every year.

4 As of September 15, 2019 including: active self-propelled passenger and cargo vessels. Does not include fishing vessels, platforms, working vessels, barges and tugs, pleasure craft or unclassified vessels.

AIR NETWORK

AIR NETWORK

CANADA'S AIR NETWORK



Canada's air transportation system connects Canada to the world, and moves passengers across 18 million square kms, or six time zones.

Canada's airspace is managed by NAV CANADA, a privately run, not-for-profit corporation that owns and operates Canada's civil air navigation system. It runs air traffic control towers at 40 airports and flight service stations at 55 airports.

Refer to the map on the previous page for a detailed representation of the National Airport System.

The Canada Flight Supplement and Canada Water Aerodrome Supplement listed 1,994 certified and registered sites in 2019, as well as 12 military landing sites.^[5] These sites fall into three categories:

- 341 water aerodromes for float and ski planes
- 417 heliports for helicopters
- 1,248 land aerodromes for fixed-wing aircraft

AIR CANADA

In 2019, Air Canada's domestic network, operated by its mainline and Air Canada Express, represented 54% of available seat-kilometres in the domestic air market.^{[6][7]} Air Canada, Air Canada Express and Air Canada Rouge make around 1,531 flights per day. The Air Canada network has three hubs (Toronto, Montreal and Vancouver). It services 62 Canadian destinations, 56 US destinations and 99 other destinations on six continents.

As of December 2019, Air Canada had a fleet of 188 aircrafts, while Air Canada Express operated 146 aircrafts and Air Canada Rouge operated 64 aircrafts.

WESTJET

In 2019, WestJet and WestJet Encore represented 32% of available seat-kilometres in the domestic air market. WestJet and WestJet Encore operated an average of 669 scheduled flights per day. WestJet's network has also three hubs (Toronto, Calgary and Vancouver). In 2019, the airline serviced 39 Canadian destinations, 28 US destinations and 39 foreign destinations. As of January 2019, WestJet had 121 aircrafts, while WestJet Encore had 50 aircrafts.

OTHER CARRIERS

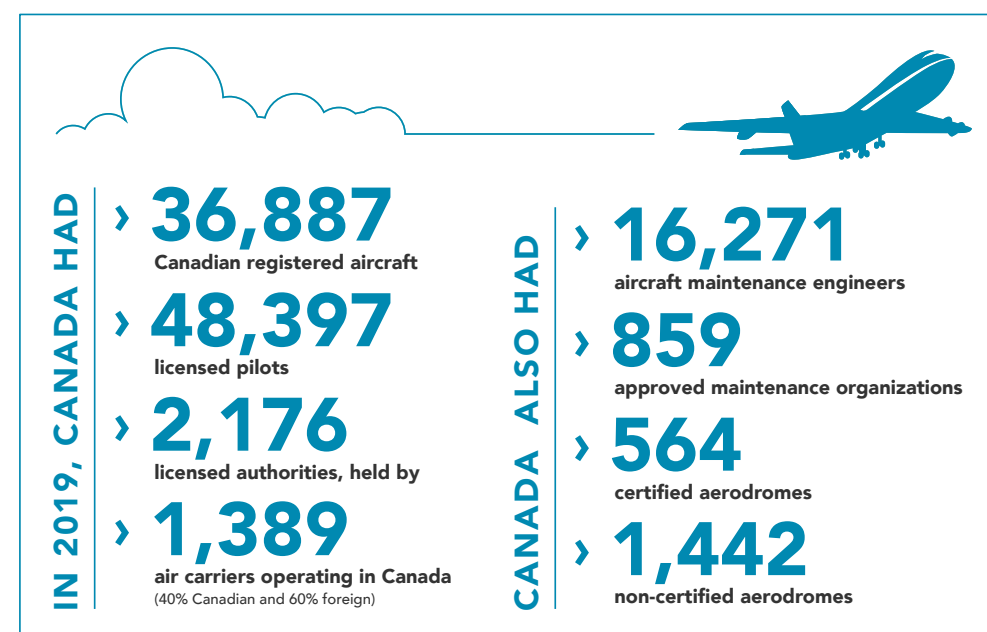
In 2019, Porter Airlines, a regional carrier based at Toronto's Billy Bishop airport, used a fleet of 29 turboprop aircrafts to provide direct, non-stop passenger services to 28 destinations in Canada, and 7 in the US.

Air Transat is Canada's largest leisure carrier with a fleet of up to 48 aircrafts, depending on the season. Air Transat serves 53 international destinations in 23 countries.

Sunwing Airlines is Canada's second largest leisure carrier. It flies over 30 aircrafts, depending on the season, and serves 33 international destinations in 14 countries.

INTERNATIONAL AIR SERVICES DEVELOPMENTS

In 2019, foreign operators offered 14.6 million scheduled seats from Canada, or about 306 flights a day.



⁵ The methodology has changed from 2018 to 2019.

⁶ Air Canada Express is comprised of Chorus (Jazz), Sky Regional and Exploits Valley Air Services.

⁷ Represents the number of seats available multiplied by the number of kilometers flown.



PUBLIC TRANSIT NETWORK

CANADA'S PUBLIC TRANSIT NETWORK



In 2016, there were 315 government organizations across Canada who owned public transit assets. This includes 292 municipal governments.

They also owned:

- 28,140 transit shelters
- 13,937 bicycle racks and shelters
- 740 passenger stations and terminals
- 375 maintenance and storage facilities
- 334 park and ride parking lots
- 255 passenger drop-off facilities, and
- 207 exclusive rights-of-ways

The public transit network was made up of 7,103 single-track kms of roads and 1,573 single-track kms of rail.

Most of the railcars and buses owned by government organizations were in Ontario (38.8% bus and 49.4% railcars) or Quebec (21.9% bus and 32.5% railcars).

The majority of park and ride parking lots (75.7%) and passenger drop-off facilities (94.9%) were built in Ontario, Alberta and Quebec.

According to Statistics Canada, in 2016 government organizations reported that 66.4% of all buses were in good or very good condition. For railcars, 61% of assets were found to be in good or very good condition while only 12% of streetcars (all found in Toronto) were reported to be in good condition.



In 2016, government organizations across Canada owned

› **17,852** buses of various types



› **3,479** railcars



› **1,281** specialized transit vehicles

› **247** streetcars

› **12** ferries

REGIONAL TRANSPORTATION SYSTEMS

Canada's transportation system is made up of regional transportation networks which have their own characteristics, challenges and opportunities. For more detailed regional maps (1 to 4), refer to [Annex A](#).

WESTERN CANADA

One in three Canadians live in Western Canada, with most of the population in urban centers like Greater Vancouver, Calgary, Edmonton, Regina, Saskatoon, and Winnipeg. Outside of these centres, the rest of the West is sparsely populated. This requires a large network of roads, railways and airports to connect people and resources to domestic and international markets.

Highways help connect the region's scattered communities. A network of low-volume highways is anchored by the Trans-Canada Highway, and stretches east-west from Vancouver to Regina through Winnipeg and the Yellowhead Highway. There are also 6 highways to the north that run east-west between Winnipeg and Prince Rupert.

BC is Canada's gateway to the Asia-Pacific region and home to Canada's largest port and second busiest airport. With the largest amount of international trade infrastructure in Canada, BC's Lower Mainland supports trade activities with key international markets. Ports in BC help make trade possible, and handle over half of shipping from all Canadian Port Authorities.

The Port of Vancouver is Canada's largest in terms of traffic volume. In 2019, it handled 142.1 million metric tonnes of traffic, which equaled over \$240 billion in trade with over 170 economies. With 27 major terminals, the Port is around the same size as the next five largest Canadian ports combined and handles a wide range of cargo, including: coal, crude oil, wood products, potash, grain, containers, cars, other general cargo, as well as cruise ships.

The Port of Prince Rupert, Canada's other main western port, handled 29.9 million metric tonnes of traffic in 2019, 12% more than in 2018. Prince Rupert offers the shortest route between China and North America, which gives Canada a competitive geographic advantage. The port and region are expanding quickly, with several infrastructure and capital expansion projects underway.

The West Coast is also the main point of entry for containerized manufactured goods from Asia which are then shipped to inland destinations in Canada and the US by railways and long-haul trucks. CN Rail and CP Rail are vital to transporting goods to and from marine gateways, and moving bulk commodities from the inland to BC ports.

Domestic marine activities also play an important role in British Columbia's economy. Many coastal communities and ports rely on domestic tug and barge companies. Marine carriers are also active in cross-border trade to Alaska, Oregon and Washington states. Freight carried along the West Coast includes general cargo, wood products, gravel and stones, construction materials and coal.

International airports in each major city offer cargo services to domestic and international markets.

In 2019, Vancouver International Airport handled 303 thousand tonnes of cargo traffic, or 22% of Canada's total air freight traffic.

In 2019, \$120 billion worth of goods were exported from Western Canada for all modes (except pipelines), with 53% going to the US, 35% to Asia and 2% to Mexico.

When it comes to passenger travel, Western Canada is home to three of Canada's top five busiest airports. In 2019:

- Vancouver International Airport handled 22.5 million passengers

REGIONAL TRANSPORTATION SYSTEMS

REGIONAL TRANSPORTATION SYSTEMS

- Calgary International Airport handled 17.2 million passengers, and
- Edmonton International Airport handled 7.9 million passengers

Vancouver International Airport and Calgary International Airport serve as regional hubs for both Air Canada and WestJet, Canada’s two biggest airlines.

VIA Rail’s passenger service in Western Canada is long distance and intercity. VIA Rail runs a long distance passenger route between Toronto and Vancouver, stopping at major cities like Edmonton, Saskatoon and Winnipeg along the way. This route carried 99 thousand passengers in 2019. Other western routes operated by VIA Rail include Jasper to Prince Rupert, and Winnipeg to Churchill.

In British Columbia, BC Ferries provides passenger and vehicle ferry service for coastal and island communities, as well as access to Victoria, where the provincial legislature is located. In 2019, the operator carried 7.3 million vehicles and 18.3 million passengers.

CENTRAL CANADA

Central Canada is the most densely populated and industrialized region in the country. Its transportation makes trade with the US possible through its connections to the US Midwest and Northeast. The Great Lakes and St. Lawrence Seaway System is also used to move goods to and from Europe and other international markets. Key exports from Central Canada include car products and parts, wood products, and metal and minerals. In 2019, the total value exported for all modes (except pipelines) through Ontario and Quebec totaled \$347 billion. 77% of this value was slated for the US, 13% to Europe, 5% to Asia, and 2% to Mexico.

Central Canada is the busiest region when it comes to surface traffic. Trucking plays an important role, mostly moving food, manufactured and other processed goods within the Quebec City - Windsor corridor and to American states around the Great Lakes. Ontario and Quebec have the busiest road border crossings in Canada. In Central Canada, 53% of merchandise was exported by road in the last five years, compared to 33% and 21% in the Western and Eastern Canada, which rely on marine transportation.

In the Great Lakes, shipping supports manufacturing and grain exports. They are served mostly by lake or seaway-sized bulk carriers that stay in the Great Lakes during the winter. The St. Lawrence Seaway is used for shipping bulk materials, transshipments of exports and container imports. Grain from the Prairies is usually shipped from Thunder Bay and carried to different Quebec ports for export. In 2019, 38.4 million tonnes of product moved through the Seaway. The following products represented two-thirds of traffic in 2019:

- grain (10.4 million tonnes)
- iron ore (6.9 million tonnes)
- salt (3.9 million tonnes)
- liquid petroleum (3.4 million tonnes)

The Port of Montreal is important as it’s the entrance to the Seaway, which connects the lower St. Lawrence River to the Great Lakes. The Port is a major hub for container and bulk traffic, mainly serving Quebec, Ontario and the US Midwest. In 2019, 38.7 million tonnes of merchandise including 1.7 million TEUs was handled at the Port of Montreal.

In terms of air cargo, Toronto (Pearson), Hamilton and Montreal (Trudeau and Mirabel) represented 58% (781.5 thousand tonnes) of Canadian air freight traffic in 2019. This cargo travels mostly to the US, the United Kingdom and China.

On the air passenger side, central Canada is home to the country’s busiest airport, Toronto Pearson

International, which recorded 49.1 million passengers in 2019. Most popular destination included: the US (27.7%), Europe (14.9%), Asia (5.5%) and other international destinations (51.9%). Montreal-Pierre Elliott Trudeau International Airport, Canada’s third largest airport, served 19.6 million passengers in 2019. Most popular destinations included: the US (22.4%), Europe (20.9%), Asia (2.0%), and other international destinations (54.6%).

VIA Rail operates mostly in two corridors in Central Canada:

- The eastern corridor runs trains between Quebec City, Montreal, Ottawa, and Toronto. This is the busiest corridor, with 2.8 million passengers in 2019
- The southwestern corridor runs trains between Toronto, London, Sarnia, Windsor and Niagara. It carried 953 thousand passengers in 2019

VIA Rail also operates mandatory services in Central Canada, including trains between Montreal and Senneterre, Montreal and Jonquière, Sudbury and White River.

EASTERN CANADA

The Atlantic region is less populated than other regions. It’s home to 2.3 million people, mostly located in small and scattered urban areas. Regardless, its network plays an important role in domestic and international trade.

Key exports from Atlantic Canada include petroleum products and seafood. In 2019, \$33 billion of merchandise was exported via all transportation modes (excluding pipelines), with 67% of the value headed to the US, 15% to Europe and 9% to Asia.

Connection to international and domestic markets is made possible due to a series of ports anchored by the Port of Halifax (4.5 million tonnes in 2019), the largest container handling port in Atlantic Canada and an important hub for petroleum products and motor vehicles. The Port of Halifax is one of the few ports on the east coast of North America that can handle fully laden post-Panamax container vessels. It’s also North America’s closest point of ice-free access to Europe and Asia (via the Suez Canal).

The Port of Saint John in New Brunswick is Atlantic Canada’s largest port in terms of tonnage (25.4 million tonnes in 2019). Saint John is an important port for processing, refining and shipping crude oil. Similarly, the Port of Come-by-Chance in Newfoundland and Labrador handles a large quantity of petroleum products from the province’s offshore oil development project sites.

Atlantic Canada’s highway network is defined by the Trans-Canada Highway, the region’s east-west backbone that runs from the Quebec border to St. John’s, NL.

In 2019, CN Rail offered freight services to and from Central Canada to Halifax. A number of shortline railways also provided feeder service in Nova Scotia and New Brunswick.

On the passenger side, VIA Rail operates the Ocean train, a long-haul passenger route that operates between Montreal and Halifax. The Ocean carried 78 thousand passengers in 2019.

The region is well served by 26 airports that each offered at least 100 annual scheduled passenger flights in 2019, with the largest airports located in Halifax and St John’s, NL.

The Marine Atlantic Crown corporation provides ferry service between Newfoundland and Nova Scotia, transporting more than 307,000 passengers. Private operators, on behalf of Transport Canada, provide inter-provincial ferry services including service between:

- Îles-de-la-Madeleine, QC and Souris, PEI
- Saint John, NB and Digby, NS
- Wood Islands, PEI and Caribou, NS

NATIONAL TRADE CORRIDORS FUND

NATIONAL TRADE CORRIDORS FUND

In 2019, the Government announced that it would help Marine Atlantic Inc. modernize its fleet by buying three new ferries, including two that will replace the MV Madeleine, which travels between Îles-de-la-Madeleine, QC and Souris, PEI and the MV Holiday Island, that travels between Wood Islands, PEI and Caribou, NS.

NORTHERN CANADA

Canada's North is made up of a massive, varied landscape with the three territories that represent around 40% of Canada's total land mass, but a very small amount of the population. The geography includes the taiga (boreal) forests of the subarctic region, the tundra, permafrost and barren landscape.

Transportation varies across the North as the region's unique geography creates challenges for transporting passengers and cargo.

Many remote northern communities rely on summer sealifts. Arctic sealifts resupply coastal communities in Nunavut, Nunavik (Northern Quebec) and the Northwest Territories that have limited or no permanent road connections to southern Canada. The sealifts are a system of tanker and dry cargo ships that resupply Baffin, Kivalliq and Kitikmeot. It also includes deep draft barge to Kitikmeot and coastal communities in the Northwest Territories, and a barge system through the Mackenzie River.

In the North, air transportation is crucial for travel, essential services (like medical emergencies), all-season resupply (including food and mail), tourism, and other economic activities. The northern air system has air carriers that offer service between southern Canada and four communities – Whitehorse, Yellowknife, Rankin Inlet, and Iqaluit. The northern airport system supports the service through 80 airports operated by the territorial governments, as well as other airports operated by resource companies, tourist operators, and federal departments.

The infrastructure for surface transportation varies a lot in the North. Yukon has the largest highway system that includes the Alaska Highway, Klondike Highway and Dumpster Highway connections to both Inside Passage and Arctic Ports. This system links most mineral areas to tidewater at the Alaska Inside Passage Port of Skagway. It also provides direct trucking access from Watson Lake via Cassiar Highway 37 in British Columbia to the BC Inside Passage Ports of Stewart, Kitimat and Prince Rupert.

The Yukon Highways carry the most traffic in terms of tonnage. Surface transportation in the Northwest Territories tends to vary with people and cargo travelling by all-weather and winter roads in the West, and by rail along the Mackenzie Valley in the South (i.e. Hay River). In contrast, Nunavut and Nunavik (Northern Quebec) have a permanent road system.

NATIONAL TRADE CORRIDORS FUND

Canada's economy is very trade-focused, and depends on an efficient and reliable transportation system to move goods and people. Budget 2017 announced the National Trade Corridors Fund (NTCF), a program to invest in projects that address capacity constraints and freight bottlenecks at major ports of entry, and improve connectivity of rail and highway infrastructure. Other key program objectives are to increase the resilience and adaptability of the Canadian transportation system in a changing climate and ensure deployment of new technologies and future innovation.

The Fund was created in 2017 with a plan to invest \$1.9 billion over 11 years, including \$400 million for projects that address key transportation needs in the Northwest Territories, Nunavut, and Yukon. Budget 2019 included another \$400 million for projects in Arctic and northern regions, which increased the Fund to over \$2.3 billion.

The first open call for proposals ran in 2018. In 2019, Transport Canada completed a second call for proposals targeting projects in the North, and opened a third continuous call for projects to diversify trade. This call for proposals will stay open until all NTCF funding is spent. From these processes, over 95% of the initial \$1.9 billion in funding has been set aside for transportation projects that support trade and growth.

By the end of 2019, \$1.7 billion in funding had been announced to 81 projects across the country, with more than \$3.6 billion in total investments by public and private sector partners.

In Western Canada, 32 projects were awarded \$794 million in funding, leveraging total investments of \$1.9 billion, to build stronger trade corridors to Pacific markets. This include projects to:

- support fluidity at western ports
- expand inland transportation connections
- help producers to export , and
- improve north-south highway corridors

In Central Canada, 20 projects were awarded with more than \$278 million in NTCF funding, leveraging total investments of \$619 million to support increased marine traffic through the Great Lakes and the St. Lawrence Seaway System, reduce delays at border crossings in Ontario, and improve fluidity at ports across Quebec and Ontario.

In Eastern Canada, 14 projects were awarded more than \$253 million in funding, leveraging total investments of \$627 million to strengthen trade corridors through gateways to Europe, Africa and Asia. This includes projects to:

- improve fluidity at East Coast ports
- expand air cargo capacity at airports, and
- explore options for protecting and sustaining the critical Chignecto Isthmus trade corridor

In Northern Canada, 15 projects were awarded more than \$379 million in funding, leveraging total investments of \$528 million. This includes projects to:

- build resilient transportation corridors between Arctic communities
- position the North for future trade opportunities
- support air transportation and highways, and
- explore building an all-season road through the Northwest Territories and Nunavut to the Arctic Ocean

In 2020, Transport Canada will continue to oversee the Fund's continuous call for proposals. The department will also work with federal, provincial, territorial and Indigenous partners to identify priorities for the extra \$400 million in funding set aside in Budget 2019 for Arctic and northern regions.



RECENT WORK IN THE TRANSPORTATION SECTOR

IN THIS SECTION

» ROAD TRANSPORTATION

» RAIL TRANSPORTATION

» MARINE TRANSPORTATION

» OCEANS PROTECTION PLAN

» AIR TRANSPORTATION

» TRANSPORTATION OF DANGEROUS GOODS

» PUBLIC TRANSIT TRANSPORTATION

ROAD TRANSPORTATION



HIGHLIGHTS

- » Following the January 2019 meeting of the Council of Ministers Responsible for Transportation and Highway Safety, an expert Task Force on School Bus Safety was created in collaboration with the province of Saskatchewan, federal-provincial-territorial representatives, and stakeholders to identify and assess ways to improve school bus safety.
- » Federal, provincial and territorial governments agreed to set a process to deal with differences in regulations across jurisdictions that create trade barriers for the trucking industry.
- » To prevent driver fatigue, commercial carriers will replace paper-based daily logbooks with electronic logging devices. Changes to the Commercial Vehicle Drivers Hours of Service Regulations also limit driving time and sets minimum rest periods.

WORK TO IMPROVE EFFICIENCY

In January 2019, the Council of Ministers Responsible for Transportation and Highway Safety approved the final report of the Task Force on Trucking Harmonization. The report analyzed key issues identified by the industry, and suggested ways to address issues that affect the inter-jurisdictional movement of trucks. The Council referred these issues to the appropriate longstanding federal-provincial-territorial groups for

more thought. By working together, these forums continue to look for ways to make regulations more harmonious and efficient across Canada.

Under the Canadian Free Trade Agreement, the federal, provincial and territorial governments agreed to create a regulatory reconciliation process to address regulatory differences and internal trade barriers for the trucking industry. To work towards that goal, one of the first items put forward was a provision to align weight limits within jurisdictions for wide base single tires and the more traditional dual tires. Aligning weight limits would make using wide base single tires more practical, allow trucks to carry a slightly higher payload, and increase fuel economy.

In January 2019, the Council updated the federal-provincial-territorial agreement on vehicle weights and dimensions to allow the same weight limits for wide base single tires and dual tires on a designated highway network across Canada. Although not all jurisdictions have signed the reconciliation agreement, the item is mostly implemented as all jurisdictions now have measures in place to allow wide base single tires at weight limit parity with dual tires.

WORK TO IMPROVE SAFETY AND SECURITY

The motor vehicle sector is transforming and Transport Canada's safety and security regime is keeping pace with this change.

Over the last few decades, there has been a drop in motor vehicle casualties. Deaths have decreased by almost 68%, while serious injuries have declined by 62%. This progress happened despite significant growth in Canada's population, number of licensed drivers (+122%) and number of registered vehicles (+124%). Safer vehicles, road infrastructure and road user behaviour have all led to this greater level of safety. Transport Canada has introduced or updated many vehicle safety regulations over the last decade. These include regulations for vehicle safety features like:

- electronic stability control
- door lock and door retention
- truck anti-lock brakes
- steering control systems
- head restraints
- child restraints
- seat anchorage strength
- occupant protection in frontal collisions
- tires
- headlights
- rear view mirror visibility
- electronic logging devices
- helmet and seatbelt use

Task Force on School Bus Safety

At the January 2019 meeting of the Council of Ministers Responsible for Transportation and Highway Safety, Ministers agreed to create an expert Task Force on School Bus Safety co-chaired by Transport Canada and Saskatchewan and made up of federal, provincial and territorial representatives. The Task Force also includes stakeholders, like safety associations, manufacturers or school board representatives. The Task Force will identify and assess possible ways to improve school bus safety, both inside and outside the school bus, with a focus on seatbelts. Throughout the year, the Task Force did a thorough



review, and confirmed that Canadian school buses have an excellent safety record and are the safest way to get children to and from school.

Even so, there are ways to make school buses even safer for our children. In particular, the Task Force found that the greatest risk to children is outside the bus. In keeping with these findings, the Task Force recommended that jurisdictions look at applying a series of safety measures to support the bus driver while driving, and help deter illegally passing motorists. These include infraction cameras, exterior 360°cameras, extended stop arms, and automatic emergency braking.

The Task Force’s report presented the evidence, advantages and disadvantages of seatbelts on school buses, noting that seatbelts can provide an added layer of protection in certain rare, but severe, collision scenarios, and explained a range of considerations related to installing and using seatbelts. Taking action in this area, pilot projects will be launched in 2020 to test the Task Force’s guidelines for using seatbelts on school buses.

[The Report of the Task Force on School Bus Safety: Strengthening School Bus Safety in Canada](#), was presented at the February 2020 meeting of the Council of Ministers Responsible for Transportation and Highway Safety. The Ministers endorsed its publication and it’s posted on their website.

Commercial motor vehicle safety

Transport Canada also worked closely with provinces and territories through the Canadian Council of Motor Transport Administrators on ways to improve commercial motor vehicle safety and prevent fatigue. In January 2019, federal, provincial and territorial governments agreed to finalize a Technical Standard on Electronic Logging Devices for commercial carriers. The electronic logging devices replace paper daily logbook, and reduce the risk of fatigue-related collisions.

The Standard was completed in December 2019 and was formally approved at the February 2020 meeting of the Council. Further, in June 2019, Transport Canada published changes to the [Commercial Vehicle Drivers Hours of Service Regulations in Canada Gazette Part II](#) to require federally-regulated bus and truck motor carriers and their drivers to use electronic logging devices. The regulations limit a driver’s on-duty and driving time and require minimum periods of rest or off-duty time to reduce fatigue-related crashes, injuries and deaths. The changes will help:

- reduce crashes
- reduce out-of-service detention time of drivers
- reduce administration costs, and
- improve compliance and greater harmonization with US regulatory requirements

To further improve commercial motor vehicle safety, the Council of Ministers Responsible for Transportation and Highway Safety agreed to build on and use the work done by several jurisdictions to develop a standard for entry-level training for commercial drivers in Canada by January 2020. Developing this standard is a key milestone and will help make sure that drivers have the right knowledge and skills to safely drive tractor-trailers on Canada’s roads and highways.

Canadian governments will add the standard to the National Safety Code for Motor Carriers and will also require training institutes and instructors to be licensed by the appropriate agency in each jurisdiction. The national standard for entry-level training for Class 1 (tractor-trailer) drivers was completed in December 2019 and was approved at the February 2020 meeting of the Council of Ministers Responsible for Transportation and Highway Safety.

Roundtable on Distracted Driving

In February 2019, Transport Canada published the [Guidelines to Limit Distractions from Visual Displays in Vehicles](#). The Guidelines help to make the visual displays in vehicles less distracting by recommending how to safely design, install and use in-vehicle visual displays.

Vulnerable road users

Transport Canada continues work on protecting vulnerable road users. In January 2019, the Council of Ministers approved next steps for the implementation of the [Safety Measures for Cyclists and Pedestrians around Heavy Vehicles – Summary Report](#) (October 2018), with an emphasis on pilot projects, knowledge exchange, and reviewing safety standards and regulations. Working with municipal partners, Transport Canada has launched on-road field trials to test the effectiveness of a detection and visibility system on commercial vehicles.

Manufacturers’ recalls

Transport Canada is also committed to improving Canada’s oversight and compliance system in order to keep all Canadian road users safe. On average, manufacturers issue around 650 recalls each year, affecting over five million vehicles. About 25% of vehicles don’t get repaired. This can put drivers, their passengers, and other road users at risk. To give Canadians better safety information and to support appropriate actions by all, in July 2019 Transport Canada introduced changes to the [Motor Vehicle Safety Regulations](#) that require manufacturers to share more details about safety-related vehicle defects.

Automated vehicles

Recognizing that automated vehicles could help improve safety, in March 2018, Transport Canada updated the *Motor Vehicle Safety Act* to make the department’s regulatory regime more flexible, in order to help the department keep pace with emerging technologies. The changes included modernized/new authorities to grant exemptions, take enforcement action, and modify or suspend outdated regulations. In 2019, Transport Canada released guidance and tools to further clarify Canada’s direction on automated vehicles:

- [Canada’s Safety Framework for Automated and Connected Vehicles](#), released in February 2019, explains the department’s vision for safety and provides a range of guidance and tools that support the safe testing and use of automated and connected vehicles in Canada
- [The Safety Assessment for Automated Driving Systems in Canada](#), also released in February 2019, helps industry to review the safety of highly automated vehicles they want to manufacture, import, operate or sell in Canada
- Process for Seeking Exemptions from the Canada Motor Vehicle Safety Standards to support the safe introduction of connected and automated vehicles, while encouraging the development and use of innovative technologies

In 2019, Transport Canada completed driving simulations that looked at driver interactions with advanced vehicle technologies, and field tests that looked at how advanced collision avoidance systems can help detect and protect vulnerable road users.

Transport Canada also completed public opinion research to better understand the Canadian public’s attitudes towards, and confidence in emerging vehicle technologies. The department continued its work with international partners to develop standards and other safety requirements that can improve road safety with advanced vehicle technologies.



WORK TO PROTECT THE ENVIRONMENT

Zero-emission vehicles

In January 2019, the Minister of Transport announced new targets for zero-emission vehicles in Canada. The targets are to reach 10% of new light-duty vehicle sales by 2025, 30% by 2030 and 100% by 2040. To meet these targets, Budget 2019 set aside \$700 million to encourage consumers to buy zero-emission vehicles in Canada. This includes \$300 million for point-of-sale incentives, \$265 million for a 100% tax write-off for businesses that buy zero-emission vehicles, and \$130 million to support increased deployment of charging and hydrogen refuelling stations. These funds are in addition to the more than \$180 million in investments for zero-emission vehicle infrastructure already set aside through Budgets 2016 and 2017.

Between May 2019 and December 2019, over 33,000 Canadians and Canadian businesses have benefitted from the federal point-of-sale incentives. Sales of zero-emission vehicles during that time period were up 30% compared with the same period the year before. Zero-emission vehicles made up about 3% of all new light-duty vehicles sold in 2019, compared to about 2% in 2018.

Heavy-duty Vehicle and Engine Greenhouse Gas Emission Regulations

The Government of Canada also continued to develop emissions standards for post-2018 model year, on-road heavy-duty vehicles and engines, building on the existing regulations covering model years 2014 to 2018. In May 2018, changes to the existing Heavy-duty Vehicle and Engine GHG Emission Regulations were published in *Canada Gazette* II.

These changes:

- set stricter standards to further limit greenhouse gas emissions from new on-road heavy-duty vehicles and their engines for 2021 to 2027 models
- introduce standards for new trailers hauled by on-road transport tractors in Canada, beginning with trailers manufactured on or after January 1, 2020

In June 2019, because of changes to the heavy duty vehicle regulations in the US, Canada published the Interim Order Modifying the Operation of the Heavy Duty Vehicle and Engine GHG Emissions Regulations (Trailer Standards) in the *Canada Gazette*, Part I. This standard delays the implementation of trailer standards until late-May 2020.

OTHER NOTABLE ROAD SAFETY PROJECTS

The Government of Canada continues to create various green freight projects to improve the fuel efficiency of trucking operations in Canada. These include SmartDriver Training, the SmartWay Transport Partnership, and the Green Freight Assessment Program, which are delivered by Natural Resources Canada.

The Pan-Canadian Framework on Clean Growth and Climate Change also committed the federal government to work with provinces, territories and industry to explore ways to retrofit heavy-duty vehicles with fuel-saving technologies to reduce emissions.

In 2018, a federal-provincial-territorial task force was created. The task force is working on a report on the heavy-duty vehicle sector in Canada and the uptake of fuel-saving technologies that can be retrofitted to heavy-duty vehicles, and which are still outside the scope of the new heavy-duty vehicle regulations.

RAIL TRANSPORTATION



HIGHLIGHTS

- Improved the transparency of Canada’s rail network as the *Transportation Modernization Act* requires Class 1 railways to publish weekly performance reports. In March 2019, Transport Canada launched consultations on improving reporting requirements.
- In June 2019, the Government of Canada announced that \$71.1 million would be available to continue to explore VIA Rail’s high frequency rail proposal.
- Transport Canada proposed the Passenger Rail Transportation Security Regulations to improve passenger rail transportation security. The regulations would give rail companies the flexibility to use practices in line with their operational and security risks.
- Under a series of Memoranda of Understanding with the Railway Association of Canada, Transport Canada has been working with the rail industry to address greenhouse gas emissions.

WORK TO IMPROVE EFFICIENCY

Transportation Modernization Act

In 2019, the department continued to implement the *Transportation Modernization Act*. The legislation introduced ways to make the performance of Canada’s rail network more transparent. This includes requiring Class 1 railways, like CN Rail and CP Rail, to submit weekly service and performance metrics.

In-line with Transport Canada’s work to improve the availability of transportation information, the department publishes these metrics on the Transportation Data and Information Hub. Transport Canada began consultations on the regulations in March 2019 to help the department create an improved suite of reporting requirements. These will be included in the Transportation Information Regulations, which will be replacing the transitional reporting requirements. Consultations are ongoing.

The *Transportation Modernization Act* also gave the Canadian Transportation Agency new powers. The agency can now start investigations to see if a railway company is meeting its service level obligations. This power is subject to approval by the Minister, with any terms or conditions that the Minister thinks are appropriate.

The Canadian Transportation Agency began its first ever investigation on its own accord in January 2019, into possible freight rail service issues in the Vancouver area. The investigation looked into:

- whether there was evidence of discriminatory treatment for certain commodities
- how freight rail permits and/or embargoes were being used, and
- whether railway companies operating in the Vancouver area were fulfilling their service obligations

The Agency issued its decision in April 2019.

High frequency rail

The Government announced in June 2019 that it would make \$71.1 million available to continue to explore



VIA Rail’s high frequency rail proposal. In September, a Joint Project Office was created to further explore VIA Rail’s proposal for dedicated tracks and high-frequency rail in the Toronto - Quebec City corridor.

So far, the Joint Project Office has:

- completed legal and regulatory work related to safety, and started an environmental assessment
- consulted with stakeholders and Indigenous communities
- examined what land and track would need to be purchased, and
- completed the technical, financial and commercial analysis

In December 2018, a contract was awarded to build new trains, which will enter into service between 2022 and 2024.

WORK TO IMPROVE SAFETY AND SECURITY

Railway Safety Act Review

On April 12, 2019, the Minister of Transport published Transport Canada’s response to the final report of the *Railway Safety Act* Review. This response followed a series of discussions after the report was published to discuss priorities and issues about the report’s recommendations. The response accepted the report’s 16 recommendations and described a series of actions to put many of them in place.

As part of its response, Transport Canada updated its rail safety website to make information more transparent. This included an interactive map that describes the location of grade crossings and accidents. Transport Canada has been working with the provinces and territories to address recommendations that deal with ongoing rail safety issues with shared responsibility between governments, like grade crossings.

The department began to develop a draft Safety Culture Statement in consultation with stakeholders and using expert guidance on current safety culture science and best practices. To address the report’s recommendation to improve transparency, Transport Canada drafted changes to its existing documents on the rule making process and its exemption provisions.

OTHER NOTABLE RAILWAY SAFETY PROJECTS

The department also worked with the provinces to renew and update the agreements to provide inspection services for provincially-regulated railways. By the end of 2019, the department signed agreements with New Brunswick, Nova Scotia and Manitoba.

To address longstanding recommendations from the Transportation Safety Board, Transport Canada pre-published the proposed Locomotive Voice and Video Regulations in the *Canada Gazette*, Part I in May 2019. The draft regulations balance the need to maximize safety while protecting the privacy of railway employees.

Work also continued to address fatigue management by updating the Work/Rest Rules for Operating Employees.

In 2019, the Minister announced funding as part of the Rail Safety Improvement Program to support 136 projects covering:

- safety improvements to rail crossings and along rail lines
- innovative technologies
- research to improve rail safety
- grade crossing closures
- public education and awareness

Proposed passenger rail transportation security regulations

In order to improve security for passenger rail, Transport Canada developed proposed Passenger Rail

Transportation Security Regulations, which fall under the *Railway Safety Act*. These regulations, which the department developed in consultation with the railway industry and its association, have been designed using a management-based approach. They would require passenger and host railway companies to proactively plan for and manage security risks.

The proposed regulations will give companies the flexibility to use security practices that are tailored to their operations and make sense based on their security risks. The proposed regulations were pre-published in the *Canada Gazette*, Part I on April 13, 2019. The industry remains generally supportive to the proposed regulatory approach.

In 2019, the department continued to engage with key stakeholders. These included regional multimodal classified security briefings, and the annual Canadian Surface Transportation Security Roundtable. These projects promote information-sharing and best practices, and will be further tailored to improve the security of Canada’s transportation system.

Transportation of Dangerous Goods by Rail Security Regulations

To improve the security of the transportation of dangerous goods by rail in Canada, Transport Canada published the Transportation of Dangerous Goods by Rail Security Regulations in the *Canada Gazette*, Part II on May 15, 2019. They apply to railway carriers and railway loaders that handle, offer for transport, or transport dangerous goods and require railway carriers and railway loaders to proactively plan for and manage security risks. Transport Canada also developed a new Transportation of Dangerous Goods by Rail Security Oversight Program based on these new regulations. The new program launched on April 1, 2020.

[More information on transporting dangerous goods by rail](#)

WORK TO PROTECT THE ENVIRONMENT

Rail transportation helps to make Canada’s transportation network more efficient by reducing congestion and wear-and-tear on roads and highways. A 100-car freight train carrying 10,000 tonnes of goods can replace 300 trucks.^[8] Railways can also support the Government’s 2030 greenhouse gas emissions reduction goal.

Under a series of agreements with the Railway Association of Canada, Transport Canada has been working with the rail industry to address greenhouse gas emissions.

Between 2011 and 2017, emission intensity from Class 1 freight and intercity passenger operations fell by 17% and 20% (kg CO2 equivalent per 1,000 revenue tonne kilometres), compared to the 2010 baseline year. These reductions happened despite an increase in both freight traffic (359.69 to 429.51 billion revenue tonne kilometers) and the number of intercity passengers (4.46 to 4.65 million). From 2010 to 2017 regional and shortline emissions intensity increased by 21%. This increase is mostly due to a uniquely high emission level in 2017 due to varying demand for bulk commodities which tend to be more fuel efficient on average. This segment of rail traffic made up under 5% of the rail total tonne-kilometers in 2017.

The Railway Association of Canada and Transport Canada signed a new agreement on March 20, 2019 to cover 2018-2022. This agreement make sure that emissions intensity levels will be tracked through annual reporting. It includes new emissions intensity reduction targets for the length of the agreement, including a 6% reduction for each of Class 1 freight and intercity passenger, and a 3% reduction for regional and shortlines. It also calls for the development of a pathway document for aligning government and industry efforts to reduce emissions produced by the railway sector.

Transport Canada continues to put in place the Locomotive Emissions Regulations, which entered into force on June 9, 2017. These regulations limit harmful emissions from locomotives operated by railway companies under federal jurisdiction, through mandatory emission standards and reduced idling. They align with the US regulations, which was a goal of the Canada-US Regulatory Cooperation Council Locomotive Emissions Initiative.

8 *Railway Safety Act* Review (May 2018). Enhancing Rail Safety in Canada: Working Together for Safer Communities.



MARINE TRANSPORTATION



HIGHLIGHTS

- In 2019, Transport Canada implemented another set of measures to address the impacts of vessel traffic on the Southern Resident killer whale and North Atlantic right whale, including actions to address acoustic and physical disturbance from underwater noise from vessels, reduce the risk of lethal vessel strikes, and increase surveillance of populations.
- The Canada Infrastructure Bank announced a \$300 million investment to build a container terminal in Montreal with a capacity of 1.15 million TEUs.
- The Minister of Transport announced over \$330 million of funding for projects at eight Canadian ports under the National Trade Corridors Fund.

WORK TO IMPROVE EFFICIENCY AND COMPETITIVENESS

In spring 2018, the Minister of Transport began the review of Canada Port Authorities with the goal of clarifying their current and future role in the transportation system to support growth and trade. In 2019, the Ports Modernization Review analysed the findings from stakeholders' engagement, online submissions and independent studies. Once completed, the Review will help update governance structures that promote investments in Canadian ports.

On May 30, 2019, the Governor in Council issued a certificate to form the Hamilton-Oshawa Port Authority, with the goal of driving growth and sustainability in southern Ontario. The Port Authority will also help streamline the movement of goods within a key, increasingly busy, market.

National Trade Corridors Fund

In 2019, the Minister announced more than \$330 million in funding for 13 projects at eight Canadian ports. These projects build on investments announced in 2018, and will help move commercial goods to their destinations, help the economy grow, create quality middle-class jobs, and make sure Canada's transportation networks stay competitive and efficient. Of this amount:

- Around \$259 million was committed to 8 projects at the Port of Vancouver, Nanaimo Port Authority and Prince Rupert Port Authority in British Columbia, to increase their capacity and efficiency
- \$24 million to the Halifax Port Authority to develop an integrated rail solution, in partnership with CN Rail, that will upgrade both rail and marine infrastructure. The Fund is also supporting a project with Halifax Regional Municipality, providing \$23.5 million in federal funding to upgrade the Windsor Street Exchange, a major commuter route and access road to the Fairview Cove Container Terminal. Together, these two projects will help improve the Port of Halifax's dwell time reliability and competitiveness
- \$18.5 million in funding to the Port of Montreal to put in place a set of measures and infrastructure to increase the mobility of goods and reduce congestion

- \$5.5 million in funding to the Hamilton Port Authority's Pier 10 Export Expansion project, to support the development of a dedicated agri-food cluster

The Minister also announced funding for marine projects in Canada's North under the northern call for proposals. For example, \$21.6 million in federal funding will help complete work for the first phase of the Grays Bay Road and Port project which is creating an all-season connecting road between a deep-water port at Grays Bay on Coronation Gulf and the Northwest Territories.

In December 2019, the Canada Infrastructure Bank announced a \$300 million backstop investment with the Montreal Port Authority to build a container terminal at Contrecoeur with an increased capacity of 1.15M Twenty Foot Equivalent Units (TEU). If it receives the necessary approvals, this new terminal will be in service by the mid-2020s.

WORK TO IMPROVE SAFETY AND SECURITY

Navigation Safety Regulations

To further improve marine safety, Transport Canada published the Regulations Amending the Navigation Safety Regulations (Automatic Identification Systems) on April 17, 2019. The goal of this project was to update Transport Canada's existing Navigation Safety Regulations to apply the requirement to carry automatic identification systems to more passenger vessels. This will help improve safety, and protect Southern Resident killer whales.

Another project that will improve marine safety is the Navigation Safety Regulations, 2020 where the proposed regulations were published in the *Canada Gazette*, Part I, on June 15, 2019. They should be published in the *Canada Gazette*, Part II, in spring 2020. These regulations will repeal nine navigation safety and radiocommunications regulations, and combine them into one new regulation, the Navigation Safety Regulations, 2020. Most of the requirements related to navigation safety from the Steering Appliances and Equipment Regulations will also transfer to the new regulation.

Along with this change, some provisions in the 10 regulations will be updated to:

- expand the requirements to carry distress alerting and communication equipment
- expand the requirements to carry equipment that improves the situational awareness of vessel operators
- incorporate Chapters IV and V of the International Convention for the Safety of Life at Sea (SOLAS Convention)
- bring the regulations in line with the *Canada Shipping Act*, 2001
- respond to recommendations from the Transportation Safety Board, the Chief Coroner for the Leviathan II marine incident, and the Auditor General
- deal with concerns from the Standing Joint Committee for the Scrutiny of Regulations about the Charts and Nautical Publications, 1995

Guidelines for assessing the operational risk of ice

To support the 2017 Arctic Shipping Safety and Pollution Prevention Regulations, Transport Canada wrote Guidelines for Assessing Ice Operational Risk which explain how to apply various regulations, incorporated documents, standards, and references to reduce the risk for vessels navigating in Canada's Arctic waters.

NAVIGATION PROTECTION PROGRAM

In August 2019, changes to the *Navigation Protection Act* came into force. These changes restored



protections for navigable waters, added modern safeguards, and renamed the legislation the *Canadian Navigable Waters Act*.

A key purpose of the act is to regulate “works” that could interfere with navigation. Works include any structure, device or thing — temporary or permanent — made by humans that is in, on, over, under, through or across any navigable water. They can be small works like docks or large works like dams.

Once the *Canadian Navigable Waters Act* came into force, Transport Canada:

- published the Minister’s [Major Works Order](#), which explains what types of works are likely to interfere with navigation and explains that owners are responsible for getting any work on a navigable water approved
- published the Minister of Transport’s [Order Amending the Schedule to the Canadian Navigable Waters Act](#), which added 25 navigable waters to the schedule of the act, including eligible heritage, wild and free-flowing rivers
- released the [Common Project Search](#), a registry where Canadians can find information and add comments on proposed works on navigable waters in their communities, and
- released a new [project review tool](#) to help owners of works understand their obligations under the act, and an [online submission site](#) where owners can submit applications

In 2019, Transport Canada’s Navigation Protection Program processed 1,798 applications, did 1,119 compliance verifications, and took 131 enforcement actions related to the act.

Finally, as a key member of the Marine Security Operations Centres, Transport Canada continues to partner with other government departments and agencies to improve Canada’s marine security.

WORK TO PROTECT THE ENVIRONMENT

Reducing sulphur emissions

Since January 1, 2015, vessels in Canadian waters and within the North American Emission Control Area must use fuel with a maximum sulphur content of 0.1%, or technology that results in equivalent sulphur emissions, to reduce air pollutants (like exhaust gas cleaning systems). In the Great Lakes-St. Lawrence Seaway system, progress continued under the Fleet Averaging Regulatory Regime to reduce sulphur emissions from domestic vessels. The government expects these measures to reduce emissions by up to 96% by 2020.

Ballast Water Regulations

Ballast water, which is important for the safety and stability of vessels, can also introduce aquatic invasive species (e.g. Zebra mussels) into receiving waters. In 2010, Canada acceded to the International Convention for the Control and Management of Ships’ Ballast Water and Sediments, 2004 (the Convention). In 2019, new ballast water regulations were published for public comment in the *Canada Gazette*. These regulations, which are intended to give effect to Canada’s obligations under the Convention and further protect Canadian waters from the introduction and spread of aquatic invasive species and pathogens would apply to Canadian vessels everywhere and vessels in waters under Canadian jurisdiction. Vessels subject to the regulations would be required to comply with a number of new provisions, including a performance standard that would limit the concentration of discharged organisms and the development and implementation of a ballast water management plan. The department is assessing the input received through the public consultation process.

Environmental Response Regulations

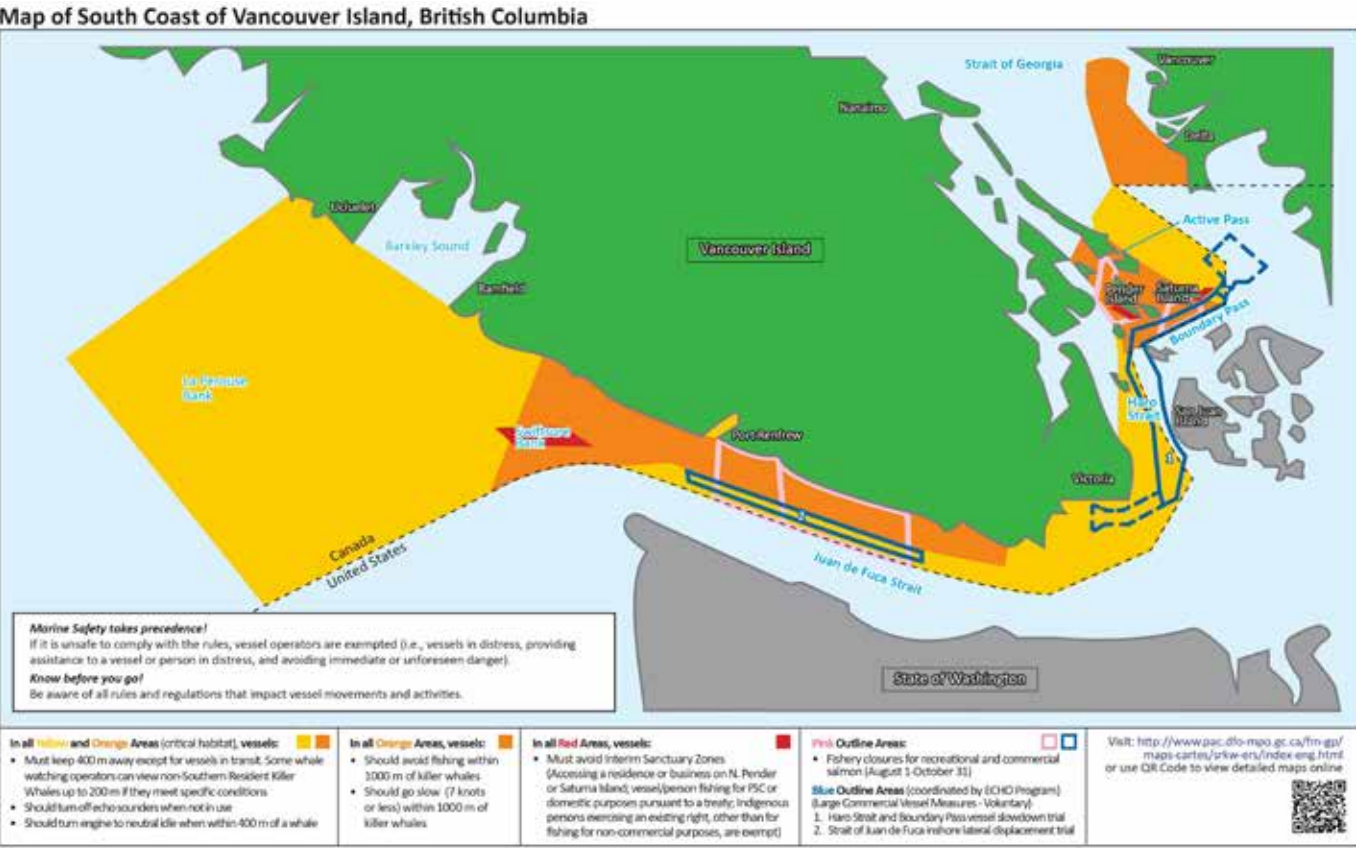
Transport Canada published the Environmental Response Regulations in *Canada Gazette* Part II on July 10, 2019. These regulations were developed to make Canada’s Oil Spill Preparedness and Response Regime more effective when oil is being transferred to and from vessels. Asking oil handling facilities to improve their prevention and planning activities, alongside more compliance and enforcement by Transport Canada, means that Canada is more prepared to deal with an oil spill. New requirements from the Oceans Protection Plan will manage the risks of polluting shorelines and sensitive areas, which are important to Indigenous and coastal communities.

WORK TO SUPPORT THE RECOVERY OF CANADA’S WHALE POPULATIONS

Southern Resident killer whales

In 2019, Transport Canada took a number of steps to reduce the impacts of vessel acoustic and physical disturbance on Southern Resident killer whales (SRKW) by issuing an Interim Order under the *Canada Shipping Act, 2001*. From June 1 – October 31:

- The introduction of mandatory Interim Sanctuary Zones, which prohibit the entrance of vessels in designated zones in Swiftsure Bank and off Pender and Saturna Islands, areas identified as important areas for SRKW.
- An extended mandatory approach distance of 400 m for all killer whales in SRKW critical habitat. Upon authorization by the Minister of Transport, whale watching and ecotourism companies that entered into a sustainable whale watching agreement were able to view non-SRKW at a distance of up to 200 m, and agreed to not offer or promote whale watching tours of SRKW.





In addition to these mandatory measures, additional voluntary measures to protect SRKW were implemented, including a 7 knot go-slow zone within 1 km of SRKW, turning off echosounders when not in use, and turning engines to neutral idle when within 400 m of a killer whale.

Transport Canada also continues to partner with the Vancouver Fraser Port Authority's ECHO Program to identify and implement measures to reduce underwater noise from large commercial vessel traffic. In 2019, the voluntary commercial vessel slowdown implemented in 2017 and 2018 was extended to include both Haro Strait and Boundary Pass. In addition, a voluntary lateral displacement of inshore vessel traffic in the Strait of Juan de Fuca was implemented to move traffic away from key foraging areas.

Transport Canada and Fisheries and Oceans Canada also entered into a Conservation Agreement under the *Species at Risk Act* with the various industry partners involved in the ECHO Program. The purpose of the agreement is to formalize the participation of the industry partners and the Vancouver Fraser Port Authority in the ECHO program and to formalize the role of the ECHO program in researching, developing, implementing, and monitoring measures to reduce the contribution of large commercial vessels to the threat of acoustic and physical disturbance to SRKW.

Transport Canada held engagement sessions in spring 2019 with Indigenous Groups and key stakeholders on the concept and development of underwater vessel noise management plans, custom plans developed by operators to reduce their fleets' underwater noise.

As part of the Government of Canada's commitment to address underwater vessel noise, the Quiet Vessel Initiative was launched in 2019 to develop scientific evidence about the most effective approaches to quieting vessels as part of a long-term solution to underwater radiated noise.

The Quiet Vessel Initiative is enabling Transport Canada to address these gaps by funding the assessment of safe, environmentally-responsible and effective "quiet vessel" technologies and operational practices. The results generated through the Quiet Vessel Initiative will support Canada's efforts to influence the development of international quiet vessel design standards through the International Maritime Organization.

Globally, Canada is leading on the issue of underwater noise from shipping by spearheading underwater vessel noise work at the International Maritime Organization (IMO), including through hosting workshops and participating in international conferences. In January 2019, the Government of Canada hosted a Technical Workshop at the IMO Headquarters in London, UK focused on quieting ships to protect the marine environment. The workshop attracted more than 140 delegates from 24 countries, and included naval architects, marine engineers, ship operators, shipyards, national policymakers, industry associations, academics and non-governmental organizations. The result was a breadth of expertise with diverse viewpoints that led to a more complete and accurate assessment of the current state of, and opportunities for, innovative ship designs and technologies. A policy workshop was convened in Vancouver in November 2019, and a new work output proposal has been submitted for consideration and approval by the Marine Environment Protection Committee of the IMO at their next meeting scheduled for fall 2020. Travel restrictions may impact negotiations at IMO on new measures.

North Atlantic Right Whales

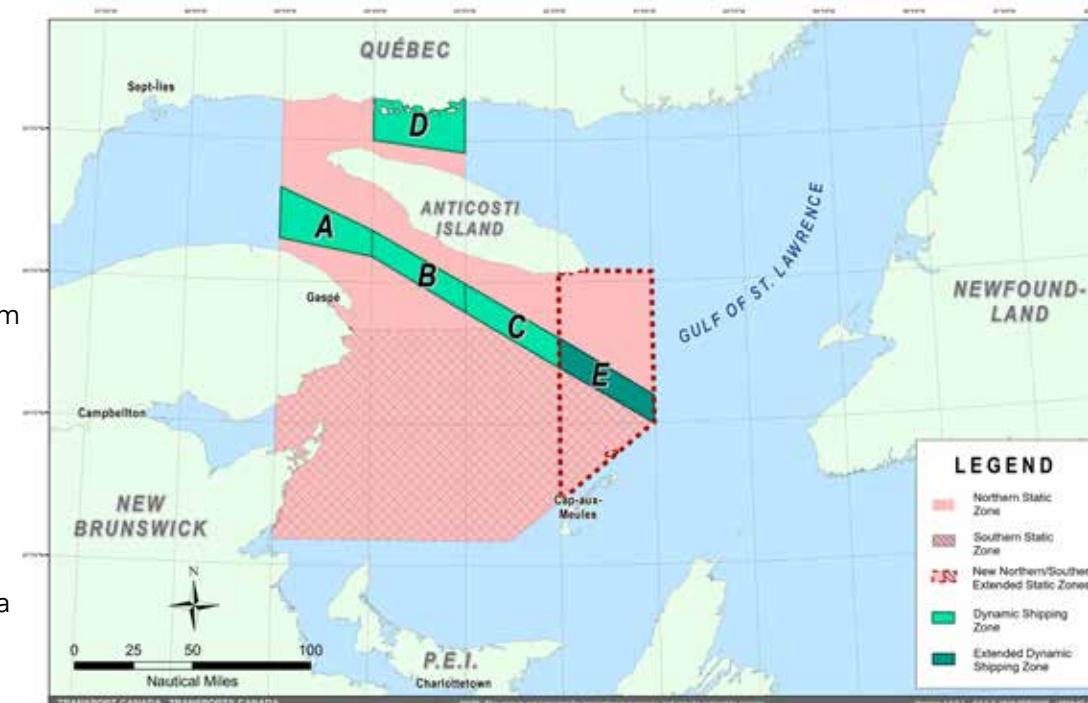
For a third year, from April 28 to November 15, Transport Canada implemented speed management measures in the Gulf of St. Lawrence to reduce the risk of vessel collisions with North Atlantic right whales (NARW). The department put a speed restriction in place for vessels 20 m or longer travelling through much of the western Gulf of St. Lawrence. To minimize impact on the marine industry, vessels were allowed to travel at safe operational speeds in parts of the shipping lanes north and south of Anticosti Island when no NARW were observed.



In response to the deaths of several NARW mid-season, on July 8, 2019, the Government of Canada announced enhanced measures to provide further protection for the NARW, including:

- applying the speed restriction to all vessels over 13 m in length
- expanding the speed restriction zone, and
- increasing aerial surveillance

Transport Canada's National Aerial Surveillance Program flew a total of 586.7 flight hours in 2019 in support of these measures. With 5,279 transits through the speed reduction zone, 19 penalties were issued, resulting in a compliance rate of 99.6%.



Ongoing work with other government departments, industry, non-governmental organizations, academia, Indigenous groups, and international partners is key to the continued success of measures under the Whales Initiative

OCEANS PROTECTION PLAN

The Government of Canada continues to deliver initiatives under the \$1.5 billion national Oceans Protection Plan to protect Canada's coasts while growing the economy. In partnership with Indigenous and coastal communities, this project is developing a world-leading marine safety system to meet Canada's unique needs, and improve our ability to prevent and respond to marine pollution incidents from coast to coast. Projects under the Oceans Protection Plan include:

BUILDING MEANINGFUL PARTNERSHIPS

Transport Canada continued to speak and partner with Indigenous peoples, coastal communities, marine stakeholders, and provinces and territories with over 873 engagement sessions held to date, including 615 with multiple Indigenous groups. Through the Oceans Protection Plan the government will fund 21 projects totaling \$5.8 million under the Indigenous and Local Communities Engagement and Partnership Program to support long-term, ongoing partnerships and engagement with Indigenous peoples.



ENHANCED MARITIME SITUATIONAL AWARENESS

The department launched the Enhanced Maritime Situational Awareness initiative in May 2019 to create a user-friendly web-based system where users can access local maritime data, including vessel traffic. The department funded partners to build project capacity, buy equipment, upgrade infrastructure, and improve the system. Partners are regularly testing the system and working with the department to make improvements so the system meets community and user needs.

LOW-IMPACT SHIPPING CORRIDORS IN THE NORTH

This project aims at developing a governance framework to facilitate the management of shipping along key routes to minimize potential effects to wildlife, socio-cultural activities and ecologically sensitive areas. Such a framework would also serve to improve marine navigation safety and help guide future investments and service enhancements in priority areas in the North. In 2019, Transport Canada, the Canadian Coast Guard and the Canadian Hydrographic Service completed the first round of engagement sessions with Inuit and Indigenous communities, land-claim organizations, partners and stakeholders including territorial and provincial governments, industry, academic and non-governmental organizations. The focus of these sessions was to establish partnerships and have preliminary discussions on the goals of the initiative with respect to governance and priority geographic areas along shipping corridor routes. Engagement with partners and stakeholders is ongoing and expected to continue over the next year.

ANCHORAGES INITIATIVE

As a trading nation, the marine transportation system is key to Canada’s continued economic and social well-being. Anchorages are an integral part of safe navigation. The Government’s goal for managing anchorages in Canada is one where commercial shipping is conducted safely for the benefit of all Canadians, managed efficiently, and to the extent possible, minimizes the impact to the marine environment and surrounding communities. The Anchorages Initiative is advancing work towards creating a framework for management of anchorage sites outside of public ports and articulating best practices for ships at anchor.

An Interim Protocol for the Use of Southern British Columbia Anchorages was introduced in 2018 to put in place measures to reduce the impacts of large vessels at anchor outside of port authorities and currently remains in effect. The Interim Protocol includes voluntary procedures to balance the use of anchorage locations and mitigate potential disturbances to residents caused by light and noise from ships at anchor. It was developed in partnership with the Vancouver Fraser Port Authority, the Pacific Pilotage Authority, and industry stakeholders. Engagement with Indigenous peoples, coastal communities and marine stakeholders is being continued over the coming year to gather feedback on the key challenges associated with anchorage activities.

BILL C-48: OIL TANKER MORATORIUM ACT

The *Oil Tanker Moratorium Act* (Bill C-48) received royal assent on June 21, 2019, providing a unique level of coastal protection in northern British Columbia. The act bans oil tankers carrying more than 12,500 metric tons of crude oil or persistent oil products from stopping, loading or unloading at ports or marine installations in the moratorium area. The area extends from the Canada-US border in the north, down to the point on British Columbia’s mainland across from the northern tip of Vancouver Island, including Haida Gwaii.

SAFETY EQUIPMENT AND BASIC MARINE INFRASTRUCTURE FOR NORTHERN COMMUNITIES INITIATIVE

In 2018, this project committed \$24.2 million to the Governments of Nunavut and Northwest Territories to make community resupply operations safer and more efficient. The department issued a second call for proposals, that closed on March 31, 2020, for projects in Nunavut, the Northwest Territories, Nunatsiavut (Labrador), and Nunavik (Northern Quebec) that will use the remaining \$68.4 million. Examples include cargo lay-down areas, sealift ramps, mooring bollards, and petroleum resupply operation infrastructure.

MARINE TRAINING PROGRAM

The Marine Training Program increases access to training and job opportunities in the marine industry for underrepresented groups like women, northerners, and Indigenous peoples. The Marine Training Program has provided three-year funding to the Nunavut Fisheries and Marine Training Consortium, Nova Scotia Community College, and the British Columbia Institute of Technology.

PROACTIVE VESSEL MANAGEMENT

Transport Canada worked with Indigenous and coastal communities, and marine stakeholders to draft a National Proactive Vessel Management Framework that provides guidance on how to identify and address vessel traffic issues. The department launched pilot projects in Cambridge Bay, Nunavut, Inuvialuit Settlement Region, and the North Coast of British Columbia to implement and test the national Framework.

CUMULATIVE EFFECTS OF MARINE SHIPPING INITIATIVE

Transport Canada is rolling out and testing it in six pilot sites across Canada. The department is relying on regional engagement and collaboration with Indigenous nations, industry and other stakeholders in each of the six identified pilot sites. Through two years of engagement the project has gathered a lot of information, including marine vessel activities and the impacts they have on the environment. Transport Canada has started to develop a national framework to assess the cumulative effects of marine shipping in collaboration with Indigenous nations, academic experts and stakeholders. The goal is to improve our understanding of cumulative effects of marine shipping in key ecosystems.

ABANDONED OR WRECKED VESSELS

Transport Canada, in partnership with the Department of Fisheries, Oceans and the Canadian Coast Guard, implemented a national strategy on abandoned and wrecked vessels. This comprehensive strategy include several measures to mitigate the impacts and risks posed by these problem vessels. The centerpiece, the Wrecked, [Abandoned or Hazardous Vessels Act](#) came into force in July 2019. It is designed to protect coastal and shoreline communities, the environment and infrastructure by strengthening vessel owner responsibility and liability of their vessels throughout their life-cycle. It does so by, among other things, banning the act of vessel abandonment, and bringing into Canadian law the [Nairobi International Convention on the Removal of Wrecks, 2007](#). It also enhanced federal powers to take proactive actions on vessels posing hazards in Canadian waters. Another key measure is the launch of the [Abandoned Boats Program](#), for which [funding has been announced](#) for the following projects:

- Removal and disposal of 112 vessels
- Conducting 109 removal assessments
- Supporting five education and awareness projects, and three research projects

ENGAGING CANADIANS

Transport Canada continues to raise awareness about the Oceans Protection Plan and marine safety, including engaging and receiving ongoing input from Canadians through the [Let’s Talk - Oceans Protection Plan Portal](#).

AIR TRANSPORTATION



HIGHLIGHTS

- The Air Passenger Protection Regulations came into effect. These rules created a standard for the treatment and repayment of travellers that face common service issues, like delays.
- Canada proactively grounded the Boeing 737 MAX-8 after the tragic Ethiopian Airlines incident. We created strict safety measures that expanded on those recommended by the U.S. Federal Aviation Administration.
- Transport Canada is committed in making sure there is good public value when reviewing the sale and purchase of Canadian airlines. We examine proposals closely to find the impact that mergers and sales could have on travellers. This includes the public interest assessment ordered for Air Canada proposed purchase of Transat A.T. Inc.

MAJOR CHANGES TO LEGISLATION, REGULATIONS AND PROGRAMS

The *Transportation Modernization Act* tasked the Canadian Transportation Agency with developing protection regulations for air travellers that would be clear, consistent, transparent and fair. The Agency, along with Transport Canada, developed new regulations based on consultations with the public and the air industry. The new approach outlines clear treatment standards for air travellers in specific situations, as well as financial repayment in some situations.

Phase 1 of the air passenger protection regulations, which deal with communication, tarmac delays, denied boarding, lost and damaged luggage, and transporting musical instruments, came into effect on July 15, 2019. The Phase 2, which deals with flight delays, cancellations, and seating children, came into effect on December 15, 2019.

The 40th Session of the International Civil Aviation Organization (ICAO) Assembly took place at ICAO Headquarters in Montreal from September 24 to October 4, 2019 and welcomed over 2,400 international delegates. The Assembly focused on shared priorities in aviation safety, security, efficiency, economic development and environmental protection. Canada was also re-elected in Part I of the ICAO Council (States of chief importance in air transport).

WORK TO IMPROVE EFFICIENCY AND COMPETITIVENESS

The Air Marketplace Frameworks Program helps support a competitive and viable air industry. It gives Canadian airlines the chance to grow and compete successfully in a global environment and sets the governance structure for national air infrastructure providers.

In 2019, Transport Canada worked with the International ICAO and member states, the Canadian aviation industry and other international organizations to promote global aviation safety and security and improve connectivity. Working together encourages economic growth, and combines the abilities and resources from all stakeholders.

Throughout 2019, Canada continued to improve air transport connectivity with bilateral partners and signed new or expanded agreements with many countries including Tunisia, Grenada (Open-skies), Chile, and Ecuador. As of December 2019, Canada had agreements that covered 107 countries under the Blue Sky policy. This includes a broad agreement with the European Union.

WORK TO IMPROVE SAFETY AND SECURITY

Transport Canada processes around 120,000 Civil Aviation services a year. In 2019, the department:

- licensed 28,894 pilot or flight engineers
- certified 955 air operator certificates
- registered 7,790 aircrafts
- licensed 101 air traffic controllers
- completed 40,970 medical assessments
- certified 32,436 drone pilots
- completed thousands of inspections
- provided 117 Canadian aviation documents to new Air Cargo Supply Chain participants

Drones (Remotely Piloted Aircraft Systems)

In 2019, Transport Canada published new regulations for small drones flown within visual line-of-sight. These regulations create predictable rules to allow drones to be used by businesses, first responders, and those who want to fly drones for fun.

The regulations introduce two categories of drone operations: basic and advanced. The categories are based on distance from bystanders and airspace rules. Both categories have their own set of rules that require the drone pilot to:

- register and mark the drone with its registration number
- pass an online exam and get a pilot certificate

Canada's two test ranges for drones are key assets that play an important role in the growth of the Canadian drone industry. These are the Unmanned Aerial System Centre of Excellence in Alma, Quebec and the Foremost Centre for Unmanned Systems in Foremost, Alberta. The ranges offer controlled environments with more than 127,000 square kms of restricted airspace. Operators use the ranges to test safety procedures, technologies, and create operating practices.

Transport Canada's [new online drone services](#) are digital and available in real time, reflecting Civil Aviation's commitment to modernizing service delivery.

Boeing 737 MAX-8

Following the Lion Air crash in Indonesia in October 2018, Transport Canada received a summary assessment and Airworthiness Directive from the US Federal Aviation Administration (FAA) regarding the Boeing 737 MAX aircraft. Transport Canada was the only regulatory authority to put in place more measures than what was recommended by the FAA. By working with the three Canadian companies that fly the MAX 8 (Air Canada, WestJet and Sunwing), Transport Canada created extra mandatory training requirements for Canadian Boeing 737 MAX-8 pilots, as a precaution.

In the case of the Ethiopian Airlines accident on March 10, 2019, Transport Canada first obtained detailed satellite data from Aireon, an international consortium of air navigation service corridors that includes NAV Canada as the Canadian service provider. After quickly analyzing this data, Transport Canada decided to ground the Boeing 737 MAX-8 that same morning. Shortly after our decision, the FAA also grounded the aircraft.



Transport Canada continues to collaborate with international civil aviation authorities to certify and validate the Boeing 737 MAX-8 design changes that would allow the aircraft to return to service around the world.

Aviation Safety Collaboration Forum

In January 2019, the Strategic Safety Risk Assessment methodology project was introduced to the aviation industry. This project is a collaborative effort with the aviation industry to identify, assess and rank key safety issues. If risk management practices are identified as a gap or safety issue, then the safety issue would be included in the risk register. It would then be looked at further to determine the level of risk that it represents to the Canadian aviation system.

Since then, several meetings have taken place with the aviation industry and outside stakeholders who are increasingly involved in the risk assessment process.

General aviation safety campaign

In 2019, Transport Canada wanted to improve safety in the general aviation community through a safety campaign. Launched in 2017, this three-year campaign aims to improve safety through non-regulated technology, and promotional and educational projects like national safety seminars. These seminars cover different topics, like pilot decision-making, pilot proficiency, and best practices.

Heading into its third year, the campaign continued engaging with the general aviation community, including the creation of working groups to deal with specific safety issues. The campaign holds a strong web presence on Transport Canada’s website, including regular social media posts and digital safety products.

The campaign will end in 2020, but the projects developed under the campaign will continue as part of Civil Aviation’s safety program.

Commercializing air security screening services

Budget 2019 announced a goal to transfer the delivery of airport security screening services to an independent, non- profit company. These services are currently managed by the Canadian Air Transport Security Authority (CATSA), which is a Crown corporation. The federal government will continue to oversee security screening services at Canadian airports. The *Security Screening Services Commercialization Act*, the legislation that makes this change possible, received royal assent on June 21, 2019.

This historic change will result in a more innovative, nimble, and responsive security screening authority. It’s based on the successful commercialization of air navigation services that took place in the late 1990s and resulted in the creation of NAV CANADA. Since that time, NAV has been able to reduce fees, drive innovation, and improve services, all while maintaining a world-class safety record.

Pre-clearance

In 2019, US Customs and Border Protection pre-cleared around 15 million US-bound passengers at Canada’s eight pre-clearance airports. This was done under the Agreement on Air Transport Preclearance and the new Agreement on Land, Rail, Marine and Air Transport Preclearance that came into force on August 15, 2019. The new agreement expanded preclearance to the surface, rail and marine modes, and to new locations for the air mode. This expansion will make it faster to travel between Canada and the US, help travellers access more destinations, support trade, protect our rights, and improve border security.

WORK TO PROTECT THE ENVIRONMENT

Transport Canada has been working with other countries to help the International Civil Aviation

Organization develop a Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). The plan manages carbon emissions by requiring aircraft operators to buy carbon credits to offset some of the greenhouse gas emissions from international flights. It applies to any air operator (commercial, business, and private) that emits more than 10,000 tonnes of CO2 emissions on international flights between 2019 and 2035.

In November 2018, Transport Canada published changes to the *Aeronautics Act* that set out monitoring, recording and verification requirements for emissions. The data from air operators set emissions baselines to help determine offsetting obligations during the offsetting phase.

To make it easier for Canadian carriers to comply with CORSIA, Transport Canada has been working on new broader regulations that combine CORSIA’s offsetting obligations into Canadian domestic law.

Transport Canada has also been supporting ICAO’s Assistance Capacity Building and Training program to support the global implementation of CORSIA. Transport Canada delivers capacity building sessions in French to Francophonie African States and in English to Caribbean States. To date, Transport Canada has run 8 regional seminars.

We will continue to encourage countries to participate in CORSIA in order to increase the percentage of international aviation that will be covered by the scheme.

OTHER NOTABLE WORK FROM THIS YEAR

Purchase and merger of Canadian North Inc. by First Air

Following a public interest assessment by the Minister of Transport, on June 16, 2019 the Governor in Council gave Bradley Air Services Limited (known under the trade name of First Air) permission to buy and merge with Canadian North Inc., subject to some terms and conditions.

The terms and conditions:

- limit passenger and cargo fare increases
- make sure capacity and cargo delivery times are maintained and not reduced for passenger routes transporting freight
- provide access for new market entrants, and
- set transparency and accountability conditions for the new company

Following this authorization and closure of the transaction on July 9, 2019, Canadian North became the dominant passenger and cargo air provider for Canada’s North. The new carrier expects to transport 225,000 passengers and over 22 million kg of freight and mail between 31 northern communities and Ottawa, Montreal, Winnipeg and Edmonton.

Purchase of WestJet by ONEX

On December 11, 2019, ONEX Corporation, a Canadian investment holding company, bought WestJet Airlines Ltd. The arrangement was subject to government and regulatory review: first from the Minister of Transport, who found that the deal didn’t raise any public interest issues, then, by the Alberta Court of Queen’s Bench, which granted an order that allowed the sale to go ahead.

This was followed by a review by the Competition Bureau, which found the arrangement would not negatively impact competition and, finally, from the Canadian Transportation Agency. The Agency approved the arrangement on the condition that ONEX updates its by-laws to make sure that any matters related to WestJet are voted on at Board of Directors’ meetings where a majority of Canadian directors are present, to make sure that WestJet stays Canadian controlled.



Proposed purchase of Transat A.T. Inc. by Air Canada

On June 27, 2019, Transat A.T. Inc. managers agreed they would recommend to stakeholders that the company be purchased by Air Canada. This decision was endorsed on August 23, 2019. On August 27, 2019, the Minister of Transport found that the transaction raised public interest issues, so a public interest assessment would need to be conducted with input from the Commissioner of Competition. The public interest assessment is due to the Minister by May 2, 2020, and will help the Minister make a recommendation to the Governor in Council, which will ultimately decide the matter.

WHAT'S NEXT FOR THE SECTOR?

Looking ahead, Canada plans to work with other aviation authorities and safety partners to use their expertise, share best practices, and stay on top of innovation and technology.

Transport Canada will be putting in place a safety campaign to help end unsafe practices in the air-taxi sector. The focus will be on using proactive safety management to build a safety culture where unsafe practices aren't accepted. This campaign will be modelled after the earlier general aviation safety campaign.

In Canada, as in the rest of the world, the private sector is now leading new space-based systems and services, resulting in more demand for domestic commercial launch services. Canadians are looking at options for getting their new technologies to space safely, on-schedule, and on-budget. Canadian space start-ups are also developing launch vehicle technologies with the goal of launching from Canada in the near future.



Under the *Aeronautics Act* and the *Canadian Aviation Regulations*, Transport Canada has the authority to regulate Canadian rockets, manage the use of Canadian airspace and certify aerodromes.

On March 6, 2019, the Government announced a national Space Strategy that recognizes the strategic value of space and space exploration. The Space Strategy will:

- help Canada's space industry take advantage of the growing space economy
- focus investments on satellite technologies and space as an enabler and
- support Canadian academics, industry, and science based on the use of national and commercial space technology



TRANSPORTATION OF DANGEROUS GOODS



HIGHLIGHTS

- Changes to the Transportation of Dangerous Goods Regulations were published in the *Canada Gazette*, Part II. These updated safety and technical requirements for specific containers, and improved the harmonization of Canadian and US tank car requirements.
- Transport Canada updated Part 7 of the Transportation of Dangerous Goods Regulations on the Emergency Response Assistance Plan provisions. These new regulations improve the safety of Canadians by introducing more thorough emergency response requirements for companies that transport dangerous goods.
- Transport Canada continued to improve how it oversees the transportation of dangerous goods by adding training for inspectors and their support personnel.
- Transport Canada continued to conduct research alongside federal institutions and the US to make transporting dangerous goods safer.

IMPROVING DANGEROUS GOODS OVERSIGHT

Transport Canada maintained a strong oversight program, with nearly 100 inspectors doing 5,210 inspections and using 204 enforcement actions and risk reduction measures. The department continues to update, develop and deliver specialized training for inspectors. Transport Canada is always trying to improve its risk-based oversight regime by identifying, researching, and addressing emerging risks.

COLLABORATING ON RESEARCH

Crude oil

Transport Canada worked with the US Department of Energy and Department of Transportation to research Crude Oil Characterization. The study looked at the physical, chemical, and combustion characteristics of some North American crude oils. It looked at how these characteristics relate to thermal hazard distances from pool and fireballs fires. The results showed that all the oils tested have similar thermal hazard distances and that the measured properties are consistent with those of other alkane-based hydrocarbon liquids.^[9]

In 2019, Transport Canada launched an additional Crude Oil Sampling and Analysis Campaign. The goal was to sample Canadian crude oils that are often transported via surface transportation in order to get better data for risk analysis of the hazards (like flammability and toxicity) of transporting crude oils. Transport Canada has also done experiments on crude oil pool fire testing, where the fire characteristics of Bakken crude and diluted bitumen were compared during two-meter pool fires.

In October 2019, Transport Canada developed a computer model that can predict the behaviour of crude oil in closed containers (like tank cars) exposed to fire conditions up to 950°C.^[10] The department has also

⁹ <https://www.tc.gc.ca/eng/tdg/safety-menu-1242.html#Abstract%E2%80%93Task-3>

¹⁰ <https://www.tc.gc.ca/eng/tdg/safety-menu-1242.html#Abstract%E2%80%93Crude-Oil-Equation>



worked on a computer model that can predict the heat transfer to crude oil in a rail tank car during a fire. These two models are being used together to assess the impact of certain variables on how crude oil responds to fire conditions. The variables that were evaluated include the composition of the crude oil, the tank car fill level, the orientation and function of the pressure relief valve, and the degree of thermal protection.

Lithium batteries

Transport Canada tested environmental conditions for shipping lithium batteries.^[11] This test involved shipping instrumented packages of various sizes and weights within Canada and abroad. The data collected for each package included location, pressure, temperature, shock, vibration, drop, and humidity. In addition, the department continues to work with the National Research Council of Canada to test the draft SAE G-27 packaging performance standard for air transport of lithium batteries.

Portable tanks

In cooperation with the US Federal Railroad Administration, Transport Canada has been studying the behaviour of a UN portable tank and its cryogenic contents (liquefied natural gas) when exposed to fire. This multi-year research project includes fire testing and modelling.

Tank cars

Transport Canada has published a study on extensive mechanical testing of two commonly used tank car steels. Based on this study, the department developed several equations linking the strength, creep, and toughness properties of tank car steels. These tests help us better understand the behavior of tank cars during accidents and to provide input for a material based computer model.^[12]

UPDATING THE TRANSPORTATION OF DANGEROUS GOODS REGULATIONS

Transport Canada continued to review and update several parts of the Transportation of Dangerous Goods Regulations, consistent with the Government of Canada’s Forward Regulatory Plan: 2019-2021. The changes will increase compliance and improve the safety of Canadians.

Regulatory projects include:

- A fee modernization proposal for the Transportation of Dangerous Goods means of containment facilities registration program
- Updating the Transportation of Dangerous Goods Regulations to:
 - o correct various errors
 - o include requirements for transporting means of containment in Canada, as well as to incorporate by reference recent versions of international regulations and recommendations, like those of the United States
 - o consolidate the regulations on the Department of Justice’s website (the regulations will stay basically unchanged)
 - o require that all persons who handle, offer for transport, or transport dangerous goods be trained and tested against a Competency-Based Training and Assessment Standard in order to be deemed competent
 - o harmonize them with international regulations by incorporating changes introduced in the latest edition of the UN Recommendations related to safety marks, classification information, shipping names, and special provisions
 - o update the standard TP 14877 “Containers for Transport of Dangerous Goods by Rail”, which came into force on July 2, 2019

11 <https://nrc-publications.canada.ca/eng/view/object/?id=1fbd9904-57f8-4fbc-a679-b31033315329>
 12 https://www.tc.gc.ca/eng/tdg/tank-car-research.html#_Abstract

- o improve emergency preparedness and response during incidents involving higher risk dangerous goods. These new regulations address recommendations from the Emergency Response Taskforce created by the Minister after the tragic events of Lac-Mégantic

USING TECHNOLOGY

Emergency Response Assistance Plans (ERAP) Online Services

Transport Canada has launched its new application process called ERAP Online Services to create, view, or change an ERAP application. This system replaces the previous manual application process. This achievement is part of a new era of modernizing Transport Canada’s programs to better serve Canadians.

Client Identification Database

Transport Canada continues to work on the Client Identification Database which introduces a new requirement for businesses that transport dangerous goods to register and provide information on their dangerous goods activities. It’s expected to launch in 2021.

ENGAGEMENT AND COMMUNICATION

In February 2019, Transport Canada hosted a Dangerous Goods Research Symposium that attracted over 200 registrants. These included representatives from industry, emergency responders, research institutions and universities, provincial, territorial and municipal stakeholders, as well as federal and US government partners. The symposium gave the department the chance to speak with stakeholders about research ideas, while identifying research gaps.

The department continued to engage with first responders across Canada in a number of ways, including through the TDG Steering Committee on First Responder Training. This committee was created in December 2016 to help develop a flammable liquid curriculum for first responders responding to incidents involving flammable liquid on railways and roads.

In 2019, Transport Canada, with the support of industry experts and first responders, completed a bilingual multi course flammable liquid curriculum specifically designed to support community planning and response for a flammable liquid incident by road or rail. First responders and emergency planners have begun completing the first level awareness course named “Canadian Emergency Response Flammable Liquid Incidents in Transport”, as part of the multi-level course curriculum.

The Transportation of Dangerous Goods Program worked with external stakeholders by regularly engaging with the General Policy Advisory Council and its sub-committees. The department also regularly engaged with the National Compliance Working Group, a forum for provinces and territories to work with Transport Canada on inspection and enforcement issues related to the transportation of dangerous goods. Transport Canada also regularly meets and works with the US Department of Transportation Pipeline and Hazardous Materials Safety Administration.

Safety awareness kit for first responders

Transport Canada continues to promote public safety by improving the TDG Safety Awareness Program and reaching out to targeted audiences like first responders, communities and municipalities. Safety awareness kits have been developed for first responders, which contain presentations, guides and advisories, handouts, bulletins, videos, and copies of the TDG Newsletter.

Coordinating the next edition of the Emergency Response Guidebook 2020

The Emergency Response Guidebook was developed and distributed by CANUTEC in collaboration with the US and international partners. It supports emergency responders in the event of incidents involving dangerous goods. The latest version of the Guidebook should be published in spring 2020.



OTHER UPDATES ON REGULATIONS AND STANDARDS

As part of the Regulatory Roadmap on Innovation and Investment, the department has launched a project to test using electronic shipping documents. This 3 year project will allow Transport Canada to test using electronic shipping documents for dangerous goods shipments in a safe way. As the transportation sector evolves, Transport Canada is looking at ways regulations can be updated to help keep Canada competitive and encourage innovation, while keeping Canadians safe.

These funds will be distributed through bilateral agreements with provinces and territories, to address the construction, improvement, rehabilitation and expansion of existing public transit infrastructure and to support new projects.

Funding has successfully kickstarted several major projects including:

- extending the Montreal Metro's Blue Line from Saint-Michel to St. Leonard and Anjou
- extending Vancouver's SkyTrain from Surrey to Langley and under Broadway Avenue, and
- adding 27 km of light rail line traveling west between Mill Woods and Lewis Farms in Edmonton

The Government of Canada is committed to funding projects that support small cities, rural and northern communities like:

- 118 new buses to communities across British Columbia that will shorten commutes, provide access to new jobs, and provide a greener method of transportation
- \$11.5 million in funding to buy 53 new buses in Sudbury – the city has faced ongoing deficits from maintaining an aging fleet
- restructuring Quebec City's public transit system – this will include two trambus lines covering 15km and a 23km tramway line, revitalizing public transportation in the city to meet current and future needs
- 5 buses and installation of 25-50 shelters in Elliot Lake, ON

Municipalities are using these funds to shorten commutes, improve efficiency, reduce emissions, grow Canada's economy, and improve the lives of Canadians.

MAJOR PUBLIC TRANSIT PROJECTS

As our urban centers continue to grow, Canadians need diverse, reliable, and efficient public transportation. All levels of government recognize these needs, and they've responded with major projects, some of which are highlighted below.

The Réseau express métropolitain (REM)

The largest public transit project witnessed in Quebec over the last 50 years, the REM is an automatic light rail network which spans across 67 km of tracks, stopping at 26 stations. Integrated into existing transit systems, the REM will nearly double the length of Montreal's rail system and connect to hot-spots like the Montréal-Trudeau Airport. The system is also low-emission, and uses 100% electric power.

OC Transpo Confederation Line

On September 14, 2019, the first phase of the Confederation Line opened for business in Ottawa. The \$2.1 billion project is the largest infrastructure project in the city's history, running from Tunney's Pasture in the West, to Blair in the East. Expansions in each direction are currently underway.

New subway transit plan for the GTHA

On October 28, 2019, Ontario's Minister of Transportation announced that the Government of Ontario and the City of Toronto are working together to expand Toronto's subway system. With an investment of \$28.5 billion, if carried out, this plan will be the largest investment in subway expansion in the province's history. Currently, the city expects to build or expand 4 lines.

PUBLIC TRANSIT TRANSPORTATION



PUBLIC TRANSIT TRANSPORTATION



INVESTING IN CANADA INFRASTRUCTURE PLAN

Starting in 2016, the 12 year Investing in Canada Infrastructure Plan (ICIP) will invest over \$180 billion into infrastructure projects across the country. The plan will take place in two phases, the first of which focuses on repairing and upgrading public transportation systems. The plan has set aside \$28.7 billion to public transportation, broken down as follows:

- \$3.4 million over 3 years from the Budget 2016
- \$20.1 billion from the public transit stream of the ICIP
- \$5 billion set aside to the Canada Infrastructure Bank
- \$100 million set aside to the Smart Cities Challenge



THE CANADIAN TRANSPORTATION SYSTEM'S PERFORMANCE IN 2019

IN THIS SECTION

- PERFORMANCE MEASUREMENT
- FREIGHT TRANSPORTATION
- PASSENGER TRAFFIC FLOWS
- SAFETY & SECURITY PERFORMANCE
- GREEN TRANSPORTATION PERFORMANCE

HIGHLIGHTS

- The transportation system saw major disruptions in 2019 and 2020. Inclement weather, labour disputes, rail blockades and the outbreak of COVID-19 have all put a strain on the system and its stakeholders. Despite these challenges, the system has stayed resilient enough to recover.
- Canada continues to have one of the most safe and secure transportation systems in the world. The number of accidents stayed lower or close to the ten-year average for all modes.
- Progress in fuel efficiency is showing promising results, despite an overall increase in greenhouse gas emissions of 4% from 2008-2017. This increase is mostly due to more vehicles being on the road.
- Despite a global decline in economic growth in 2019, Canada's transportation sector fared well, transporting similar volumes to 2018.



THE CANADIAN TRANSPORTATION SYSTEM'S PERFORMANCE IN 2019

PERFORMANCE MEASUREMENT

A number of data and metrics are used to monitor and assess Canada's transportation system. For example, productivity and price indexes provide information on modal efficiency and price competitiveness. Time-based indicators, such as end-to-end transit time and dwell time, are used to assess the system's fluidity and supply chain competitiveness. Also, merchandise volumes and values indicate flows and use of the system from national and regional perspectives.

In addition to efficiency measures, this chapter also presents Canada's environmental performance measures, such as greenhouse gas emissions. It also presents safety and security performance measures, for example, accidents and deaths rates. While this chapter presents an overview of the performance of the Canadian transportation system over 2019, the [Transportation Data and Information Hub](#) of the Canadian Centre on Transportation Data publishes an increased number of traffic and performance indicators, updated on a monthly basis.

FREIGHT TRANSPORTATION

Overall, the transportation system performed well in 2019, in a time of softer economic growth conditions across the globe. Stakeholders moved volumes comparable to 2018 while keeping the network fluid.

Global gross domestic product (GDP) growth slowed down in 2019 to around 2.9%, from 3.7% in 2018. Trade tensions between the US and China, geopolitical pressures, as well as a sluggish manufacturing sector have contributed to this economic softening. In Canada, GDP growth slowed down, from 1.9% in 2018 to 1.6% in 2019. Canada's main trading partner, the US, recorded lower growth, from 2.9% growth in 2018 to 2.3% in 2019. Canada's relationship with China was tense, impacting some Canadian exports like canola.

Amid softer economic conditions, the system was disrupted by many events during 2019 and early 2020, like bad weather, labour disruptions, and system outages.

On November 19, around 3,200 Canadian National Railway train conductors and yard workers went on an 8-day long strike. The strike significantly reduced the rail system's ability to serve customers from various supply chains. This disruption had major impacts on rail-based supply chains, as some stakeholders couldn't ship products and receive inputs. A number of businesses had to slow production which led to lost sales and in some cases, temporary layoffs.

Rail dependent supply chains were especially impacted, including grain. Grain producers couldn't ship their product for export and couldn't get propane which they use to dry and store grain. Other commodities that heavily rely on rail transportation, like potash, crude oil, forest products, chemicals as well as motor vehicles and equipment, were also impacted. Eased by softer economic conditions, the system was able to recover within a few weeks, with railways clearing the backlogs and returning to current levels by mid-December. Overall, this event put a dent in Canada's economic growth. Real gross domestic product in November increased only by 0.1%, with a 0.9% decline in the transportation and warehousing sector.

Despite these factors, the transportation system's volumes were comparable to 2018.

Disruptions continued in 2020. January 2020 was marked by periods of extreme cold across Western Canada which forced railways to impose speed and train length restrictions to ensure safety. Heavy rain and strong winds at the Port of Vancouver also disrupted loading and unloading operations while heavy rain in the inland parts of British Columbia caused a washout. Following a crude oil derailment in early February 2020 (second crude oil derailment to happen in the same area in Saskatchewan in two months), the Minister ensued a ministerial order on speed limits for dangerous goods movements across the Canadian rail system.

THE CANADIAN TRANSPORTATION SYSTEM'S PERFORMANCE IN 2019

Railway blockades, which started on February 6, affected an already fragile transportation system. CN Rail was forced to shut down its eastern network with major consequences for multiple economy sectors, as freight and passenger movements were halted. The unpredictable nature of those blockades exacerbated their impact on the system, as stakeholders did not prepare for the disruption, as had been the case with the CN Rail strike.

A multimodal transportation system that is productive, competitive and connected can provide fast shipment times, lower costs and more reliable transportation for freight and passengers. In 2019, Transport Canada launched a study of the impacts of transportation regulations on Canadian supply chains.

With this study, Transport Canada wants to identify freight bottlenecks and find new opportunities along Canada's major trade corridors. This project is one of the 24 projects announced as part of the Regulatory Review Roadmap on Innovation for the transportation sector.

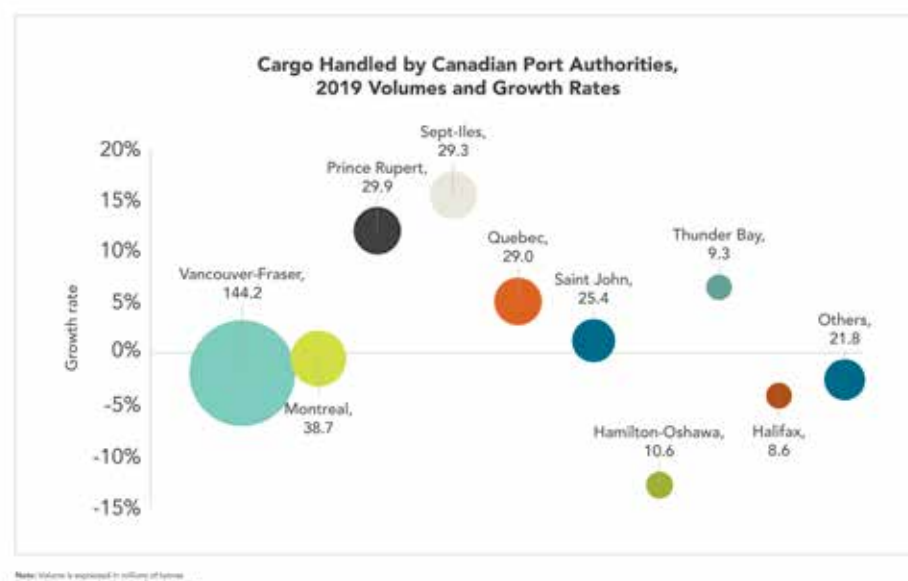
MARINE TRANSPORTATION

According to the United Nations Conference on Trade and Development, around 90% of the world's trade travels by sea. This represented around 11 billion tonnes of goods moved in 2018. According to the Conference's review on maritime transport, the world's seaborne trade volumes saw a 2.7% annual growth in 2018, slightly slower than the 4.1% growth registered in 2017.

In Canada, the total cargo volumes handled at the 17 Canada Port Authorities increased by 1.1% in 2019, up to 346.8 million tonnes (see Canada Port Authorities at map 5 in the [Annex](#)).

In Western Canada, the Port of Vancouver, Canada's busiest port, handled 1.9% less tonnes of freight in 2019 mainly explained by declines in forest products, machinery and metals. Asian trading partners, such as China, India, and Japan, however continued supporting demand for transportation with construction and automotive industry developments. Shipments from steelmaking coal mines in British Columbia to the Port of Vancouver for marine transportation to Asia reported increases ranging from 15% to 39% in 2019 from 2018.

The Port of Prince Rupert, another important and growing port on the West Coast, handled 12% more tonnes of freight in 2019, with significant increases for containers and coal. Demand for coal to generate energy in Asia, despite the trend to renewables, gave rise to mine developments in western Canada and increased rail flows to Prince Rupert, which saw its thermal coal shipments increase 46% in 2019 from 2018.



THE CANADIAN TRANSPORTATION SYSTEM'S PERFORMANCE IN 2019

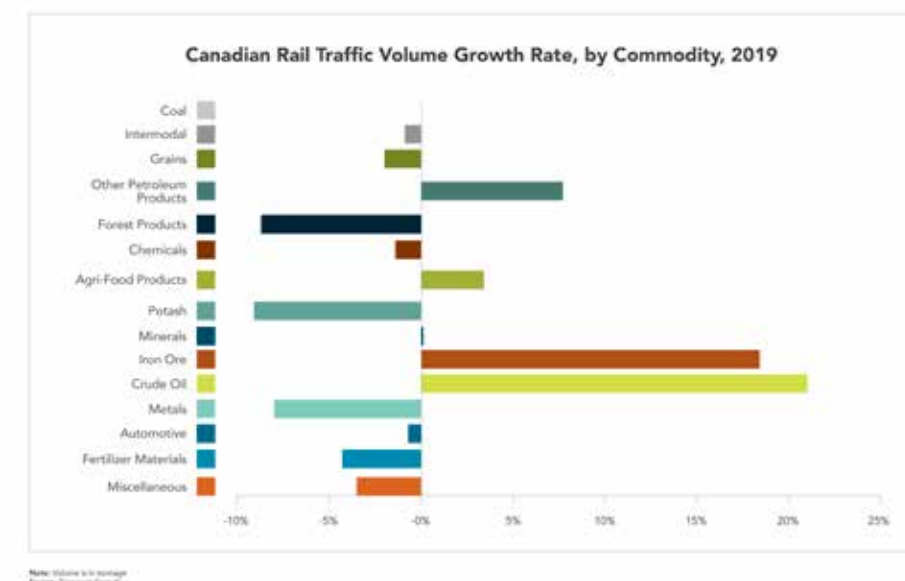
In Central Canada, the Port of Montreal, the second busiest port in Canada, handled 0.5% less tonnes in 2019. In the St. Lawrence Seaway, both the amount of cargo and the number of vessel transits decreased in 2019 after two consecutive years of growth, decreasing by 6.4% and 5.8% respectively. Although both measures decreased they are still above their values in 2017.

In Eastern Canada, a decrease of 4.1% in tonnes handled was recorded in 2019 at the Port of Halifax. This drop was driven by cargo in containers as well as imports that weren't shipped in containers. The Port of Saint John in New Brunswick handled 1.2% more cargo in 2019.

RAIL TRANSPORTATION

In 2019, railways moved a total of 329.8 million tonnes, a 0.4% increase from 2018 (see rail flows in Canada at map 6 in the [Annex](#)^[13] with notable growth recorded for crude oil (21.0%), iron ore (18.4%) and other petroleum products (7.7%).

In the absence of additional pipeline capacity, by the end of 2018 Alberta had to cap oil production to manage a huge discount in its oil price. US trade with Canada generated strong rail transportation demand from crude oil shippers, in particular with destination to the US Gulf Coast. In 2019, amid dwindling oil supplies from Venezuela and Mexico, and strong demand from US refiners for Canada's heavy crude, Alberta allowed oil producers to exceed output limits when shipping by rail, which averaged above 280 thousand barrels per day, a 16% increase from average 242 thousand barrels per day in 2018.



In contrast, some commodities saw large traffic drops in 2019. These include:

- potash (-9.1%):
 - because of severe rain and flooding in the US, which delayed spring farming, and to weak phosphate margins damaging the potash trade from Saskatchewan
- forest products (-8.7%):
 - because of poor lumber market conditions as low prices and high cost of production prompted a large number of mills curtailments. For pulp and paper, high global inventories translated into demand and BC mills curtailments affecting Canadian producers
- grain (-2.0%):
 - because of delayed harvest, global oversupply for specific crops. Tariffs and trade challenges with China (including Chinese ban on Canadian canola) also added to the reduced demand

13 Including both federally regulated and provincially regulated railways that interchange with a federally regulated railway.

THE CANADIAN TRANSPORTATION SYSTEM'S PERFORMANCE IN 2019

for Canadian grain. Canola exports to China from the Port of Vancouver dropped 20% in 2019. In contrast, Canadian wheat exports to China benefited from US-China trade disputes (for example, imposition of restrictions on US wheat imports), with the largest yearly shipment of wheat to China in 2019 over the 14 last years. In Europe, weak crop production in 2019 prompted a surge in export demand from the Canadian Prairies through the St. Lawrence Seaway, which reported an 80.7% increase in canola in 2019

Cargo shipped in containers and moved by rail stayed flat compared to 2018, possibly due to global economic softness and lower consumer demand.

AIR TRANSPORTATION

In 2019, airports in Canada handled 1.35 million tonnes of cargo loaded and unloaded from domestic and foreign carriers, a 9.2% decrease over 2018.

The three busiest airports for air cargo were the Toronto Pearson International Airport (469.9 thousand tonnes or 5.5% less than in 2018), the Vancouver International Airport (302.6 thousand tonnes or 12.2% less than in 2018) and the Hamilton Airport (99.2 thousand tonnes or 7.5% less than in 2018).

ROAD TRANSPORTATION

Truck traffic declined slightly in 2019 (-3.1%), with 10.9 million two-way trucking movements at Canada-US border points compared to 11.3 million two-way trucking movements in 2018 (See border crossing traffic at map 7 in [Annex A](#)). It was also slightly below the three-year average (-1.0%).

SUPPLY CHAINS

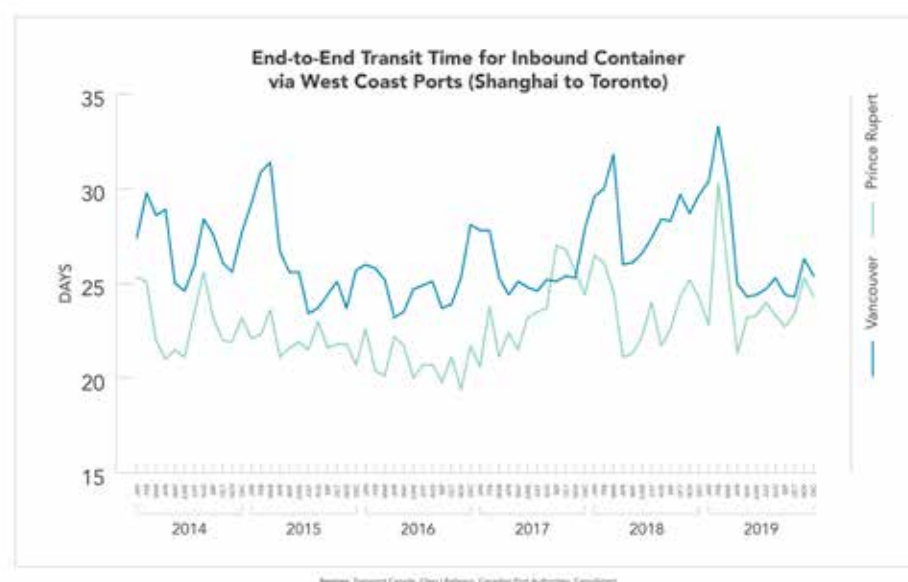
Inbound container supply chain

Despite lower growth in 2019, inbound container traffic handled at West coast ports increased significantly, by 6.6%. While the port of Vancouver recorded a small increase in inbound container volume, 0.5%, traffic at the Port of Prince Rupert increased by 19.3%. Transit time to ship a container from Shanghai to Toronto via West Coast ports (end-to-end transit times)^[14] was only slightly above the three-year average benchmark during most of the year, averaging 25.9 days. It stayed below the 2018 level of 27.4 days.¹³

Average transit time over the winter of 2019 stayed above the three-year average by more than 3 days. Line outages, labour-related disruptions, and extreme weather events were some of the pressures that contributed to lower system performance.

Supply chain transit times stayed competitive throughout the year compared to other US west coast competitor ports, like Los Angeles/Long Beach and Seattle/Tacoma, which

14 Transport Canada's measure of end-to-end transit times encompasses ocean transit from origin in Asian and European ports, dwell at the Canadian port, and in-land (rail and truck) transit to major inland North American hubs like Toronto and Chicago.



THE CANADIAN TRANSPORTATION SYSTEM'S PERFORMANCE IN 2019

had similar winter challenges.

On Canada's East Coast, container volumes increased again at the Port of Montreal in 2019 by 3.9% and Saint John by 16.6%, but stayed flat at the Port of Halifax (-0.1%). Overall, the supply chain was fluid over 2019 with end-to-end transit time of containers from Antwerp to Toronto, through the ports of Montreal and Halifax decreasing to 17.9 days in 2019 on average, from 18.6 days in 2018. Over the winter of 2019, transit times reached 20.8 days, three days above the three-year average.

Western grain supply chain

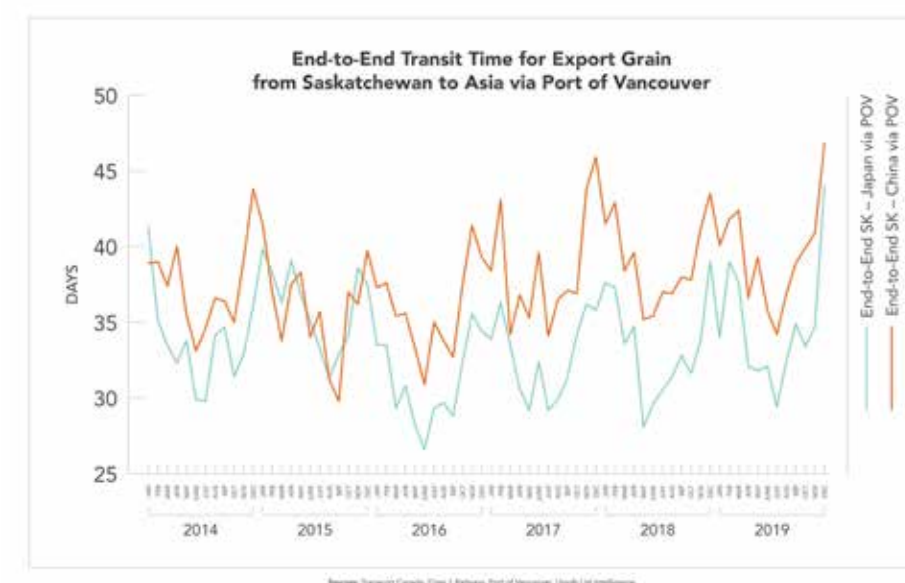
In Western Canada, crop supply (production and carry-forward) reached around 80 million tonnes during the crop year 2019-20, similar to the previous year. This was due to higher than expected yield (production increased by 2.5%) and smaller carry forward stocks (-19.4%) compared to 2018-19.

Higher western grain production put seasonal pressures on the rail transportation network. Grain from farms starts entering the system in September and through the fall, and capacity to ship grain to Thunder Bay decreases in the winter when the Seaway is closed.

Slightly lower volumes of grain (-1%) were shipped from the prairies elevators at the start of the 2019-2020 crop year (August to December) compared to the same period last year. Delayed harvest, labour disruptions in November, and challenging weather conditions contributed to this decrease.

The majority of grain produced in Western Canada is exported via West Coast ports as well as the port of Thunder Bay and through the St. Lawrence Seaway. The supply chain relies heavily on railways to transport grain for export.

Grain volumes handled at Canadian ports declined slightly in 2019. However, the Port of Vancouver, which handled 28.3 million tonnes, recorded a 3.6% increase while grain handled at the Port of Prince Rupert increased by 1%. Grain handled at the port of Thunder Bay increased (6.7%) and decreased by 14.8% in the St. Lawrence Seaway.



The grain supply chain saw similar fluidity issues during the 2019-2020 winter. End-to-end transit time to ship grain to Asia stayed higher than the three-year average for most of the crop year, reaching a peak in December 2019, 9.2% higher than the three-year average from Saskatchewan to China and 21% higher from Saskatchewan to Japan via the Port of Vancouver.

These higher figures were due to a decrease in performance of the different parts of the supply chain, including vessel loading, rail transit and grain elevator loading. Despite higher than

average transit time from December to March, railways carried 5.1% more grains than during the same period in the previous year.

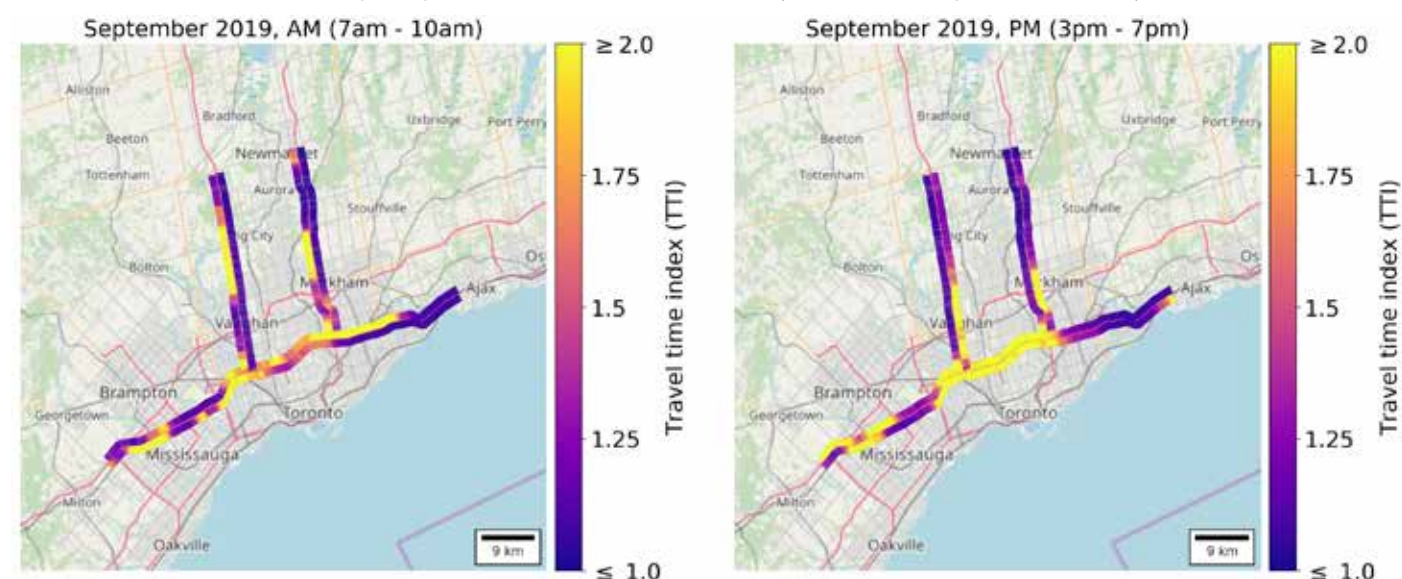
THE CANADIAN TRANSPORTATION SYSTEM'S PERFORMANCE IN 2019

Urban mobility

Transport Canada, working with provincial and territorial transportation agencies, collects and analyzes near real-time traffic data. In recent years, the traffic in urban areas has increased, making key urban trade corridors more congested.

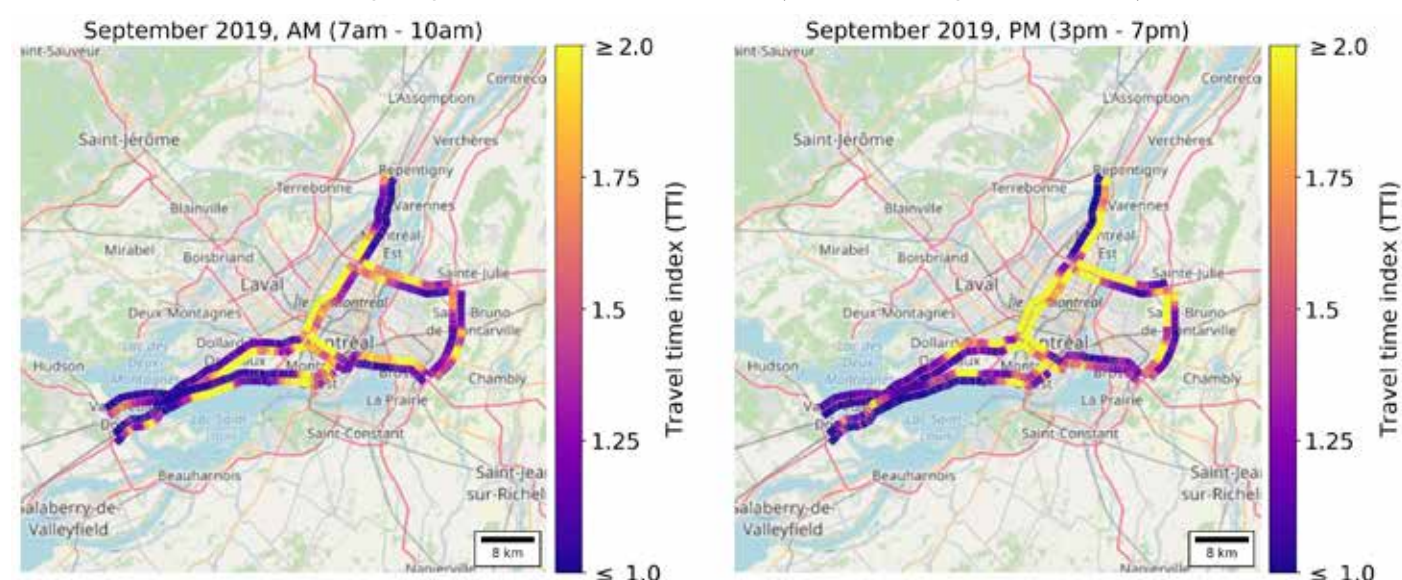
Westbound Highway 401 across Toronto saw an average 17% increase in travel time from September 2017 to September 2019. Highway 401 in Toronto is among the most congested urban corridors in Canada with up to 275% longer average travel times on some segments in comparison to free-flow conditions.

TORONTO, ON, MONTHLY TRAVEL TIME INDEX (MONDAY-FRIDAY, BY TIME OF DAY)



In Montreal, the westbound highway A-40 saw an average 24% increase in travel time between Blvd. Décarie to A-25 from September 2017 to September 2019. Urban traffic in Montreal has twice the average travel time on some highways compared to free-flow conditions.

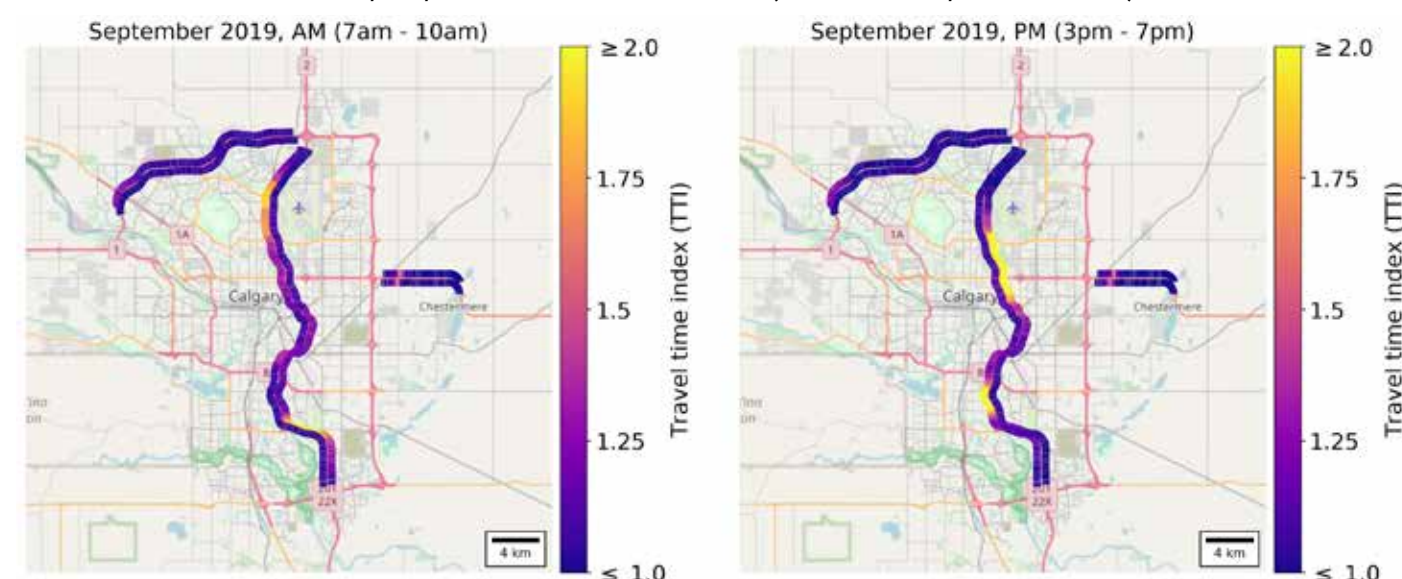
MONTRÉAL, QC, MONTHLY TRAVEL TIME INDEX (MONDAY-FRIDAY, BY TIME OF DAY)



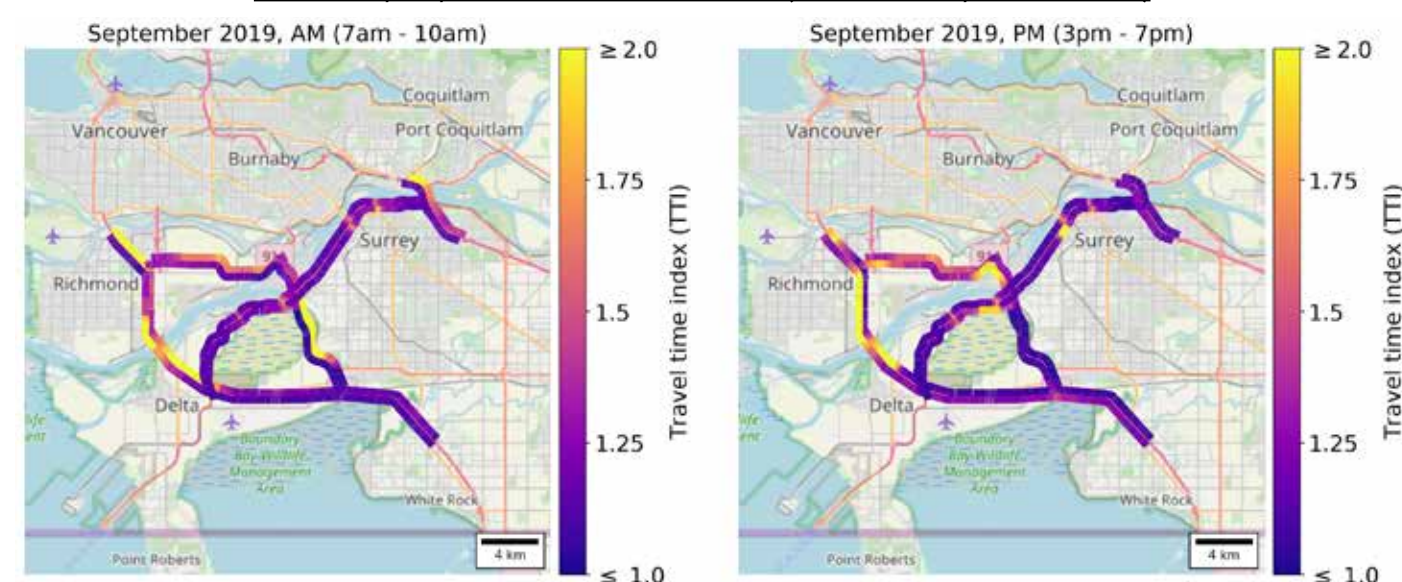
THE CANADIAN TRANSPORTATION SYSTEM'S PERFORMANCE IN 2019

In Western Canada, the Calgary-Edmonton corridor continues to be one of the most heavily used by passenger and commercial traffic. In Calgary, the average travel time is up to 180% higher in some areas when compared to free-flow conditions. In Vancouver, the travel time on southbound highway 99 increased by an average of 11% from September 2017 to September 2019.

CALGARY, AB, MONTHLY TRAVEL TIME INDEX (MONDAY-FRIDAY, BY TIME OF DAY)



VANCOUVER, BC, MONTHLY TRAVEL TIME INDEX (MONDAY-FRIDAY, BY TIME OF DAY)



Truck border wait times

Amid lower truck traffic, border wait times for southbound trucks at most of the 15 top border crossings declined or stayed fairly flat in 2019. The median wait time for those 15 border crossings for southbound trucks was 11.8 minutes, which was a 3.0% improvement over the three-year average or 0.4 minute faster. Sarnia, ON and Landsdowne, ON as well as Pacific Highway, BC had the longest southbound truck border wait times in 2019.

THE CANADIAN TRANSPORTATION SYSTEM’S PERFORMANCE IN 2019

THE CANADIAN TRANSPORTATION SYSTEM’S PERFORMANCE IN 2019

SUPPLY CHAIN VISIBILITY PROJECTS

Transport Canada invests in multi-stakeholder projects on data gathering and supply chain visibility to foster regional evidence-based dialogue, promote optimization of existing transportation capacity, and support the department and stakeholders to plan and coordinate private and public investments. Over the last decade, Transport Canada has collaborated with government and industry partners, including Canadian Port Authorities, railways, and shippers to improve data and knowledge on supply chains fluidity and reliability. For example, the department supports ports, railways, and other partners to plan their operations and manage fluidity by sharing advanced arrival information from the Canada Border Services Agency for inbound containerized cargo destined to the port.

After investing more than \$2 million to support trucking at the marine terminal gates of the Ports of Vancouver, Montreal and Halifax, Transport Canada has built on those initial investments by supporting the pilot phase of a supply chain visibility project at the Port of Vancouver.

When the pilot phase was completed, it produced a platform where industry partners provide near real-time data. Performance indicators are created and distributed to the supply chain members to help them better understand the performance of key supply chains. Building on the success of the pilot phase, the department invested more than \$6 million through the National Trade Corridor Fund to develop real-time dashboards for the Ports of Vancouver and Prince Rupert. The dashboards will measure end-to-end supply chain performance for cargo moving through both ports.

The Government recognizes the importance of improving productivity and fluidity of Canada’s key trade corridors. Transport Canada is supporting initiatives to build regional partnerships, as well as gather and share data among public and private stakeholders, academics and the research community, and all levels of government.

Transport Canada is also working with partners and stakeholders through the Smart Freight Centre to address urban mobility in and around the Greater Toronto Area and is currently finalizing agreements with stakeholders to share transportation data valued at \$1 million. This innovative approach uses the analytical skills and knowledge that exist in the region and supports analysis with data available to Transport Canada to address challenges across the transportation system.

COMMODITY SUPPLY CHAIN TABLE

Collaboration among industry stakeholders is critical to making sure Canada’s transportation system is efficient. To that end, the Commodity Supply Chain Table meets twice a year to provide a consensus-based, multimodal, national forum for producers, shippers, service providers and other supply chain partners involved in moving commodities by rail, to identify and deal with issues in the transportation system.

In 2019, the spring meeting was held in Burnaby, British Columbia, and the fall meeting was held in Ottawa, Ontario. Among other topics, Transport Canada and participants shared information on the performance of their supply chains, outlooks for production and demand for transportation services. They also discussed managing winter conditions, and opportunities for infrastructure investment to address bottlenecks.

In 2019, the group focused on working together on common supply chain challenges and opportunities. This collaboration and dialogue have helped supply chain partners monitor, plan, and coordinate among themselves and supported the reliability, efficiency and effectiveness of Canadian supply chains.

PASSENGER TRAFFIC FLOWS

Most transportation modes saw a declines in passenger traffic in 2019 amid slower economic conditions.

AIR SECTOR

In 2019, Canadian airports reported an estimated 162 million air passengers, which was a 0.8% increase over 2018 (see passenger flows for main Canadian airports at map 8 in [Annex A](#)). The top 20 busiest Canadian airports moved 146.2 million passengers.

The air sector served:

- 92.2 million passengers on domestic services
- 32.2 million passengers on services between Canada and the US
- 37.1 million passengers on other international services

In 2019, around 90.5% of the total air passenger traffic was handled at Canada’s Top 20 airports, with record-breaking traffic at the top three airports.

- Toronto Pearson International served 49.1 million passengers (1.4% annual growth), representing 30.4% of national air passenger traffic
- Vancouver International served 25.5 million passengers (0.2% annual decline), representing 15.8% of national air passenger traffic
- Montreal-Trudeau International served 19.6 million passengers (3.3% annual growth), representing 12.1% of national air passenger traffic

MARINE SECTOR

In 2019, more cruise passengers passed through all major Canadian ports, including Vancouver (20.4% to 1,070.9 thousands of passengers), Halifax (2.2% to 324 thousands of passengers), Saint-John (22.9% to 196 thousands of passengers) and Quebec (2.5% to 237 thousands of passengers).

RAIL SECTOR

VIA Rail’s annual passenger traffic grew 5.5% to around 5.0 million in 2019, which was the largest number of passengers. The Quebec City - Windsor corridor stayed the busiest part of VIA Rail’s network, with 4.8 million passengers, rising 5.5% from 2018.

In 2019, intercity passenger railways transported 5 million people, up 5% from 2018 and up 24.0% from the previous five-year average.

In 2019, 173 thousands passengers used rail carriers to cross Canada-US border points, down 15.2% from 2018. Following a large increase in 2018 (19%) with the highest number of travellers entering or returning to Canada by rail over a decade, 2019 levels fell well below the 10 year average of 183 thousands passengers.

ROAD SECTOR

In 2019, 53.2 million two-way passenger vehicle movements were recorded at Canada-US border crossings, down 1.7% from 2018. Around 67% of 2019 vehicle crossings were Canadian registered vehicles.

In 2018, public transit systems carried around 2.2 billion passengers, a 2.4% increase from 2017. This rise was due to different factors like increased service levels (higher efficiency, expanded service hours), higher student populations and economic upturns in metropolitan areas.

The largest ridership gains were seen in small communities, with gains of 6.6% for communities with population less than 400,000 compared to 2.1% for communities with population with more than 400,000. Ridership in the Greater Toronto and Hamilton Area and Greater Vancouver Area decreased from 2017 while ridership in the Greater Montreal Area increased by 4.5%.

THE CANADIAN TRANSPORTATION SYSTEM'S PERFORMANCE IN 2019

THE CANADIAN TRANSPORTATION SYSTEM'S PERFORMANCE IN 2019

SAFETY AND SECURITY PERFORMANCE

AIR SECTOR

In 2019, 188 aviation accidents involving Canadian-registered aircraft were recorded, down 7% from the average of the past ten years. These accidents caused 54 deaths, a large increase compared to 25 deaths in 2018.

In 2019, Canada continued to improve the flow of legitimate air travellers and goods while maintaining a high level of aviation security. The Canadian Air Transport Security Authority screened over 68 million passengers and their belongings at Canadian airport.

MARINE SECTOR

Canada has a strong record of safe and secure marine shipping. Given the thousands of ships that operate in Canadian waters, there are relatively few accidents. In 2019, there were 201 reportable accidents involving at least one Canadian registered vessel, down from the ten-year average.^[15]

RAIL SECTOR

In 2019, there were about 1,244 recorded railway accidents, up 6.4% from 2018. These accidents resulted in 72 deaths, down slightly over the average for the previous ten years.^[16] Accidents relating to dangerous goods increased 36% to 167.

ROAD SECTOR

In 2018, road casualty collisions were around 10% lower compared to 2013, despite significant growth in the number of licensed drivers, vehicles registered and vehicle kilometres driven. Canada's number of deaths per 10,000 registered motor vehicles was 0.77 in 2018, a rate that has been relatively stable in recent years but significantly lower (-33%) than a decade earlier.^[17]

GREEN TRANSPORTATION PERFORMANCE

Overall, domestic transport-related greenhouse gas emissions (GHG) are up 4% over the past decade (2008 to 2017). Canada's National Inventory Report 1990-2017 shows lower emissions for air and marine transportation, and higher emissions for road transportation.^[18]

AIR SECTOR

In 2017, domestic aviation emitted 7.2 megatonnes of carbon dioxide equivalent (CO₂e). This represents 4.1% of domestic transportation-related greenhouse gas emissions. While emissions from air travel have increased since 2005 because of increased air traffic, reporting under Canada's Action Plan to Reduce GHG Emissions from Aviation identifies a steady improvement in air carrier emission intensity performance, specifically a 2% average annual improvement or a cumulative improvement of 18.4% from 2008 to 2018.^[19] Between 2017 and 2018 Canadian air carriers improved their overall fuel efficiency by 3.3%.¹⁹

MARINE SECTOR

In 2017, the domestic marine sector emitted 4.5 megatonnes of CO₂e. This is 2.6% of domestic transportation-related greenhouse gas emissions. Over the 2005 to 2017 period, domestic marine greenhouse gas emissions decreased by 31%, as shippers have shifted to other modes such as trucks and rail.



In 2019, the National Aerial Surveillance Program flew a total of 4,005 hours of surveillance over Canada's three coasts, including 587 hours in support of protection measures for the North Atlantic right whale. During these patrols, the program found 673 pollution incidents and estimated that the quantity of oil they observed in the marine environment was around 3,644 litres. Regular aerial surveillance flights contribute significantly to the decrease in oil discharges from commercial vessels at sea, as ships are increasingly aware their illegal polluting activities can be detected.

RAIL SECTOR

In 2017, the rail sector emitted 6.7 megatonnes of CO₂e. This is 3.8% of domestic transportation-related greenhouse gas emissions. Freight operations represented 98% of rail greenhouse gas emissions. According to the latest annual Locomotive Emissions Monitoring Report (2017), Canadian railways have reduced their emission intensity by 2.45 kg CO₂e per 1,000 revenue tonne kilometres compared to 2010.^[20] This has limited the net growth of greenhouse gas emissions in this sector to 0.2 megatonne of CO₂e equivalent from 2011 to 2017, despite freight traffic increasing by 19.4% (revenue tonne kilometres) and intercity passenger traffic increasing by 4.1% (passengers).

ROAD SECTOR

In 2017, road transportation emitted 147 megatonnes of CO₂e equivalent, or 84% of transportation-related greenhouse gas emissions and 21% of total Canadian greenhouse gas emissions.

From 2005 to 2017, road transportation greenhouse gas emissions grew by 12%. Despite improvements in fuel efficiency across all vehicle classes, this increase is due to:

- growth in the number of vehicles, passenger and freight activity
- a shift towards more greenhouse gas-intensive transportation, including heavy duty trucks and larger passenger vehicles (for example, SUVs and light trucks)

Greenhouse gas emissions from on-road freight vehicles increased by 25.1% between 2005 and 2017, from 48 to 60 megatonnes. Over the same period, road freight activity, measured in tonne-kilometres, also increased by about 43%.

Greenhouse gas emissions from on-road passenger vehicles increased by 4.3% between 2005 and 2017, from 84 to 87 megatonnes. Over the same period, road passenger activity measured in passenger-kilometres increased by about 10%.

Federal regulations have set progressively stricter emission standards for both new passenger cars and light trucks of model years 2017 and beyond, and new heavy-duty vehicles and engines of model years 2021 to 2027. This builds on existing standards covering earlier model years.

15 Statistical information provided by the Transportation Safety Board.

16 Data is from the Transportation Safety Board website. Occurrences where investigations are ongoing are not included.

17 Collisions with deaths and injuries.

18 Emissions for other modes for example, residential, commercial and recreational off-road vehicles) of transportations are lower than a decade ago. They represent 3.8% of transportation-related emissions in 2015.

19 The annual report on Canada's Action Plan to Reduce GHG Emissions from Aviation provides information on energy use and emissions by Canada's air carriers. It differs in scope and methodology from the official emissions accounts reported in Canada's national inventory for aviation.

20 The latest annual Locomotive Emissions Monitoring Report produced by the Railway Association of Canada provides information on energy use and emissions by Canada's railways, and differs in scope and methodology from the official emissions reported in Canada's National Inventory Report for rail.



TRENDS IN INNOVATION

HIGHLIGHTS

- Transport Canada is working to enable bold and innovative transportation solutions through research and evaluation and helps Canadian businesses to develop and commercialize innovations.
- The rapid trend in technologies is showing no signs of slowing down and will continue to impact both demand and supply of transportation.

Advances in information, communication, and other technologies have taken place over the past two decades. These technologies have brought major change to nearly every sector of the economy, including transportation. New technologies are being used for transportation infrastructure, equipment, and supply chain management to make them smarter and more efficient. Changes like ride sharing and “last-mile” delivery services have changed both how and where transportation occurs and will continue to disrupt transportation.

This trend shows no sign of slowing down, and in fact, is likely to speed up as the public and private sector adjust to new ways of working. Changes in technology and innovation will impact both demand and supply of transportation. Major upcoming disruptions include:

- recent technology (cloud logistics, internet of things)
- emerging technology (AI, advanced analytics, blockchain), and
- advanced technology (green vehicles, robotics)

These innovations could improve corridor flows, reduce costs, help with collaboration, reduce safety and environmental impacts, change the origin and destination of shipments, and the nature of transportation services.

According to Statistics Canada, the number of innovative businesses in the transportation and warehousing industry increased from 62.5% in 2007-2009 to 70.2% in 2015-2017. Despite innovative practices, the transportation industry was still falling behind the national average of 79.3% in 2015-2017.

TRENDS IN INNOVATION

As the pace of innovation speeds up, it's important that Canada's transportation sector gets ready for emerging and disruptive technologies.

With funding under the Trade and Transportation Corridor Initiative, Transport Canada launched the Program to Advance Connectivity and Automation in the Transportation System in 2017. The program's goal is to help Canadian jurisdictions prepare for a variety of technical, regulatory and policy issues being raised by automated and connected vehicles. The program conducts research, develops standards, and is providing \$2.9 million in funding over four years. The funding will support 15 projects that will help Canadian jurisdictions prepare for these new technologies.

The program:

- updates the Intelligent Transportation System Architecture, a common framework for planning, defining, and integrating intelligent transportation systems
- supports automated and connected vehicle pilot projects, like low-speed automated shuttle trials in Calgary and Toronto and opening a connected vehicle test bed in Calgary
- develops automated and connected vehicle standards for Canada
- develops cybersecurity projects for infrastructure
- develops and launches a Security Credential Management System work plan to help make sure that connected vehicle communications are secure and can be trusted, and
- supports capacity-building activities with road authorities

Seeing the need for early leadership and guidance on automated and connected vehicles in Canada, Transport Canada published [Testing Highly Automated Vehicles in Canada: Guidelines for Trial Organizations](#). This guidance was developed together with the provinces and territories. It offers practical, Canada-wide guidelines for the safe testing of automated and connected vehicles. Its flexible and responsive policy approach will make testing consistent across jurisdictions, which will support safety, competitiveness and economic growth.

Transport Canada is also working to support bold and innovative transportation through research and evaluation including the ecoTECHNOLOGY for Vehicles Program which tests and evaluates the safety and environmental performance of innovative vehicle technologies to advance key Government of Canada priorities. Results from research and development projects support the creation of codes and standards, which support the safe and timely introduction of these technologies.

Examples include:

- Cooperative Truck Platooning System for heavy-duty vehicles
- Advanced and Alternative Fuel Vehicles, and
- Connected and Automated Vehicle Safety Testing

Transport Canada's Clean Rail Research and Development program encourages companies to develop technologies that could reduce emissions from moving people and freight by rail. It focuses on technologies that are on the path to commercialization but are facing barriers to being widely used. These barriers include unease about technological readiness, lack of understanding about the capability of technologies, concern over the impact of new technologies on existing equipment and uncertainty from missing codes and standards.

The main themes for projects in 2019 were:

- refining renewable drop-in replacement fuels for diesel locomotive
- assessing options for hydrogen locomotives, also known as hydrail

- developing advanced emission control technologies for locomotives, and
- assessing the feasibility of hyperloop technologies

As age, rot, and climate change threaten transportation infrastructure, Transport Canada is looking for ways to identify and monitor performance issues at early stages. An example of a technology is Canada's Radarsat Synthetic Aperture Radar satellites. They can detect bridge movements that develop over time, which could be due to excessive loads, soil settlement, truck or ship impacts, or extreme weather.

This is possible due to advanced computing algorithms and the availability of high-resolution satellite images. Currently data is being gathered for major Canadian bridges and development is underway to advance and implement a data-driven decision-support tool that can provide bridge authorities with performance indicators on bridge stability and safety, and help them in the challenging decision making process of bridge maintenance and rehabilitation.

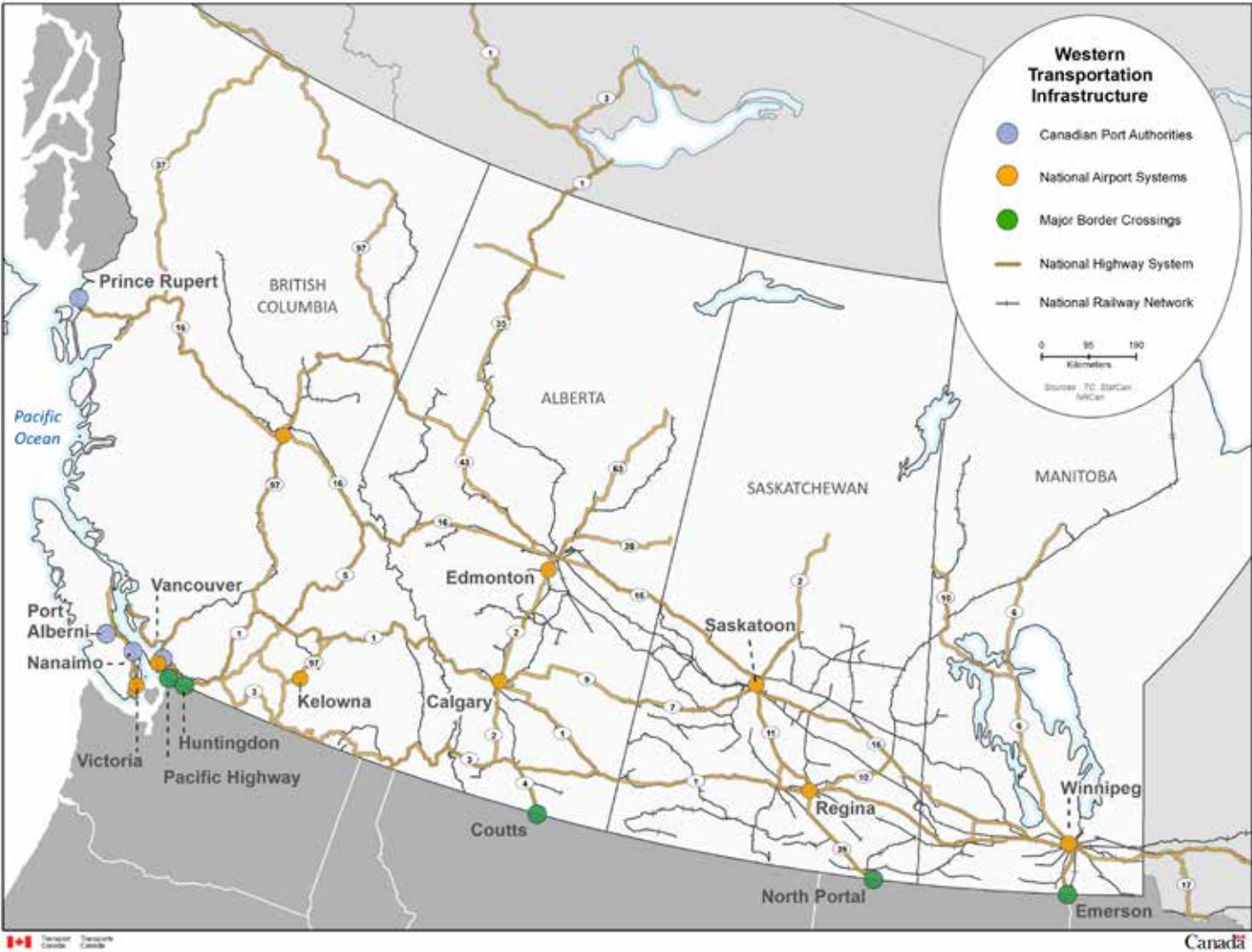
Transport Canada continues to help Canadian small and medium size businesses develop and commercialize innovations. In 2018, Transport Canada launched two challenges through Innovation, Science and Economic Development Canada's Innovative Solutions Canada Program to find solutions for specific transportation challenges where solutions don't exist.

Five recipients were given funding to develop proof of concepts for economically viable and environmentally sustainable ways to recycle fiberglass-reinforced plastic used in vessel hulls and for affordable solutions for commercial vehicles to help detect vulnerable road users (like cyclists and pedestrians) and alert the driver of potential collisions.



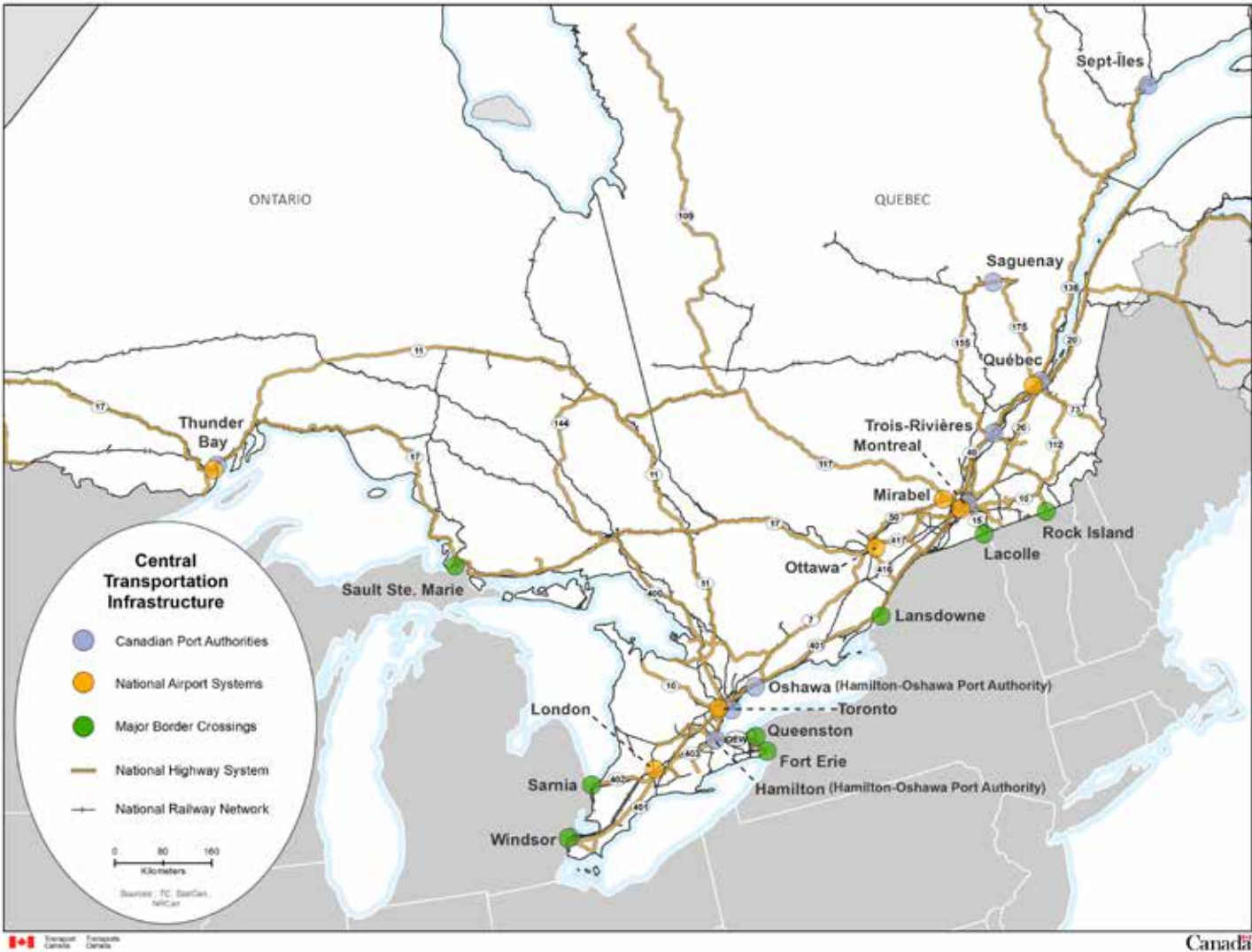
MAP 1

WESTERN REGION



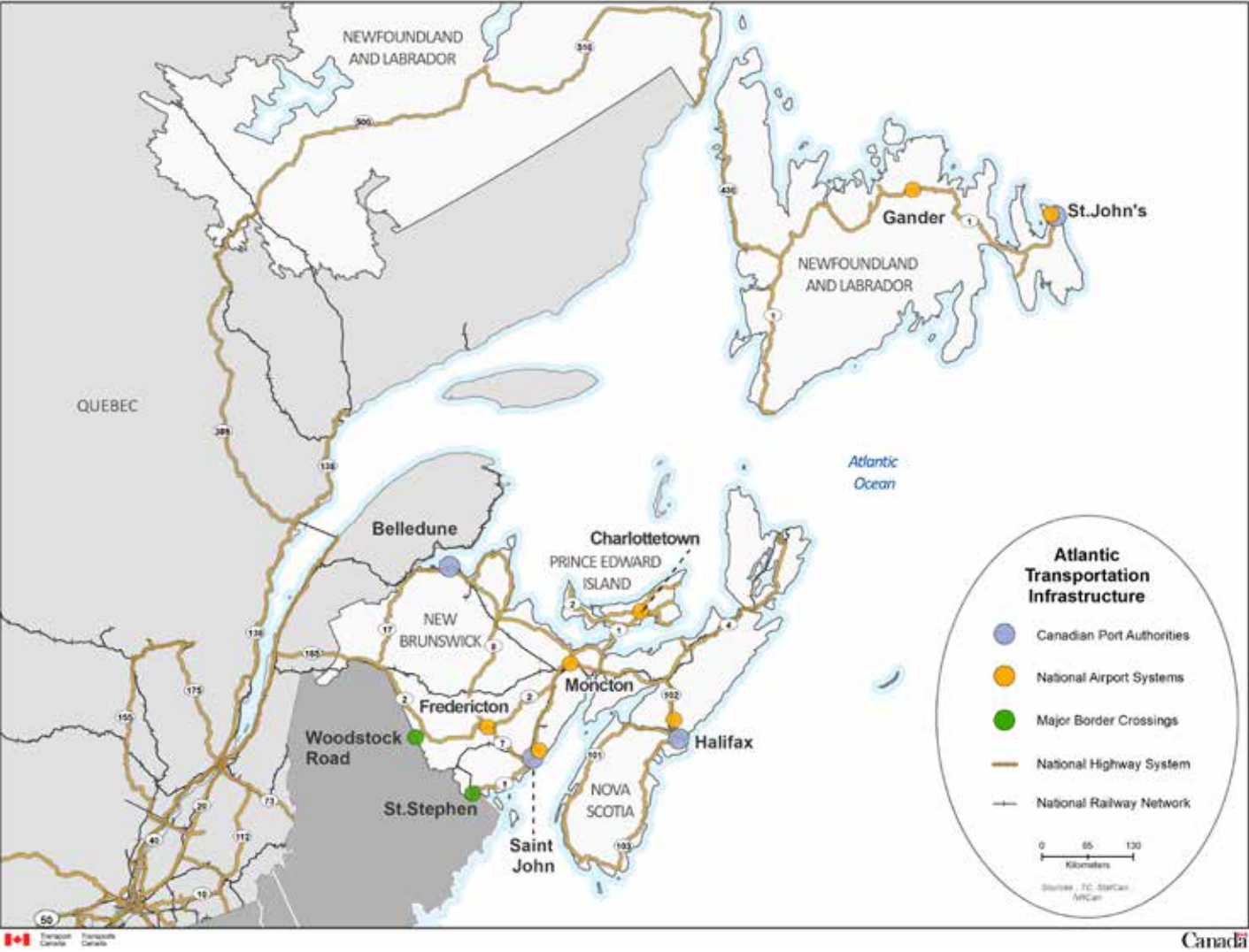
MAP 2

CENTRAL REGION



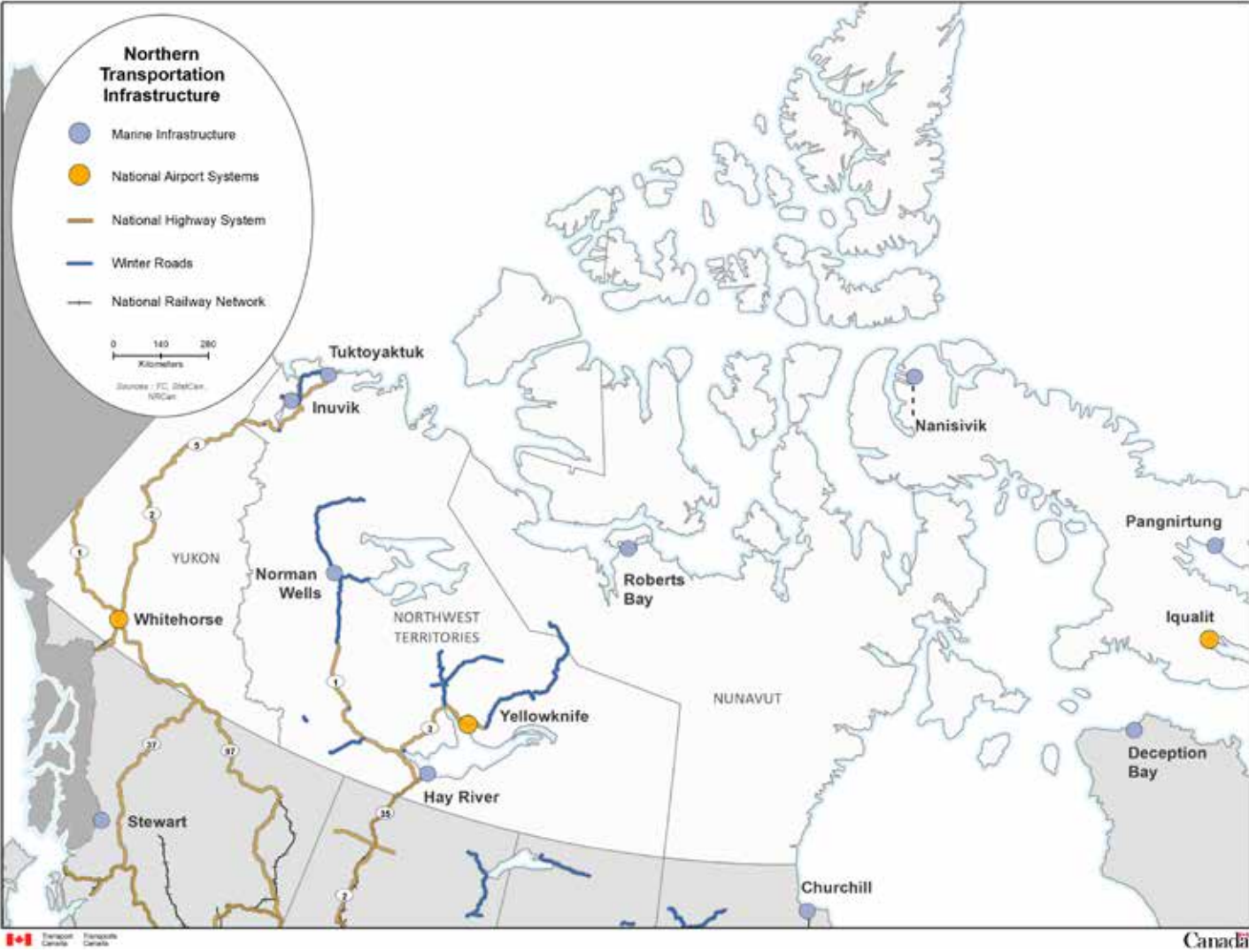
MAP 3

EASTERN REGION

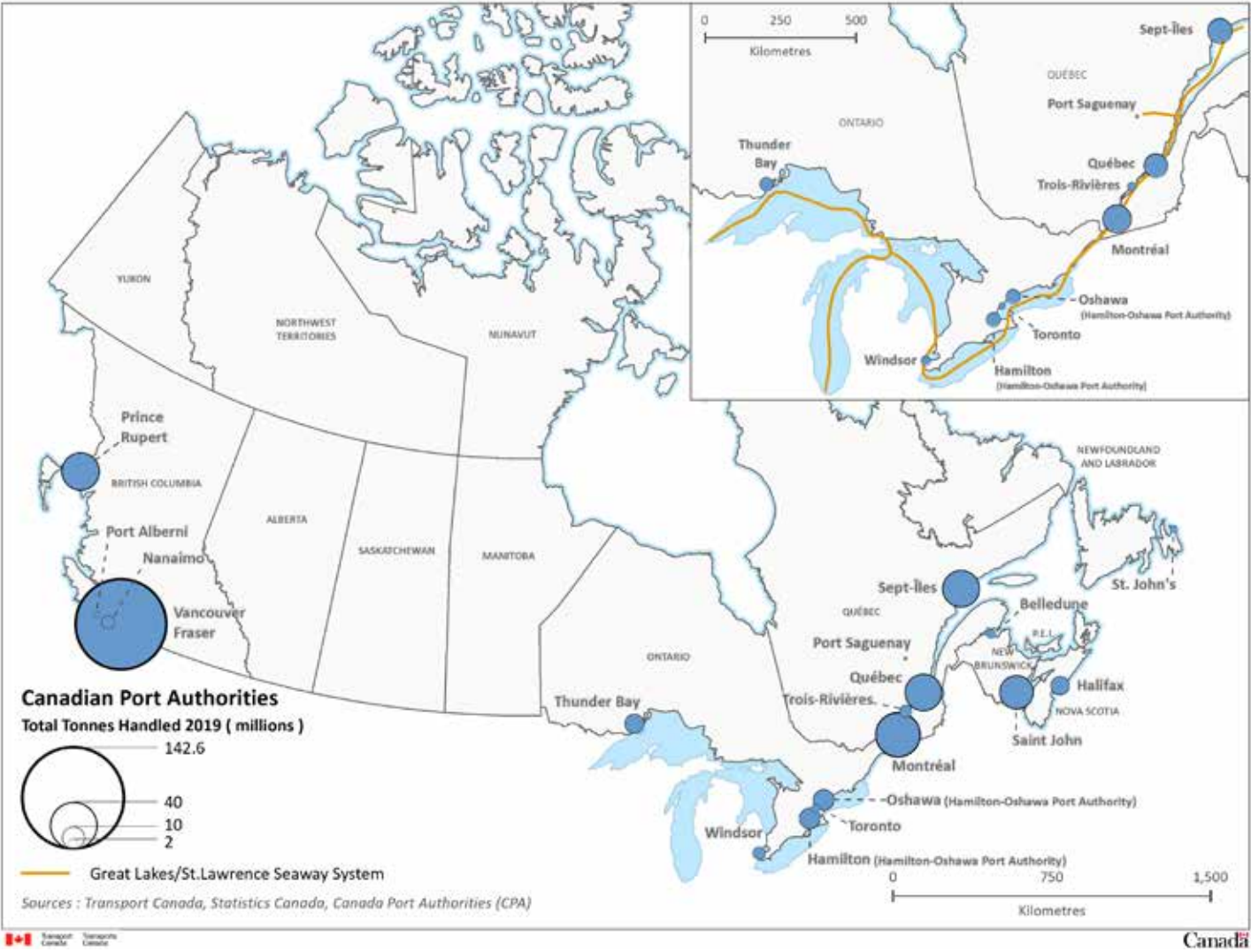


MAP 4

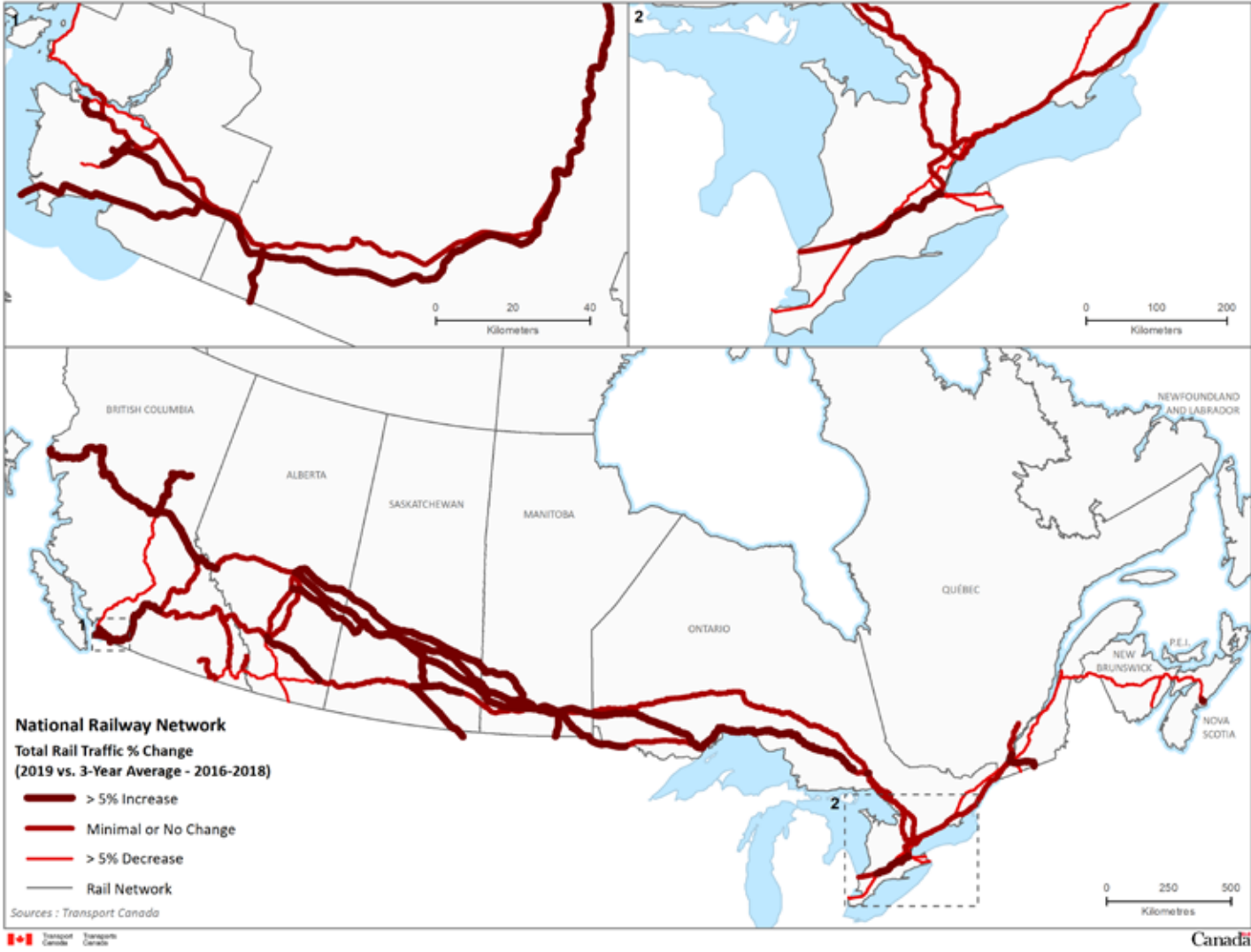
NORTHERN REGION



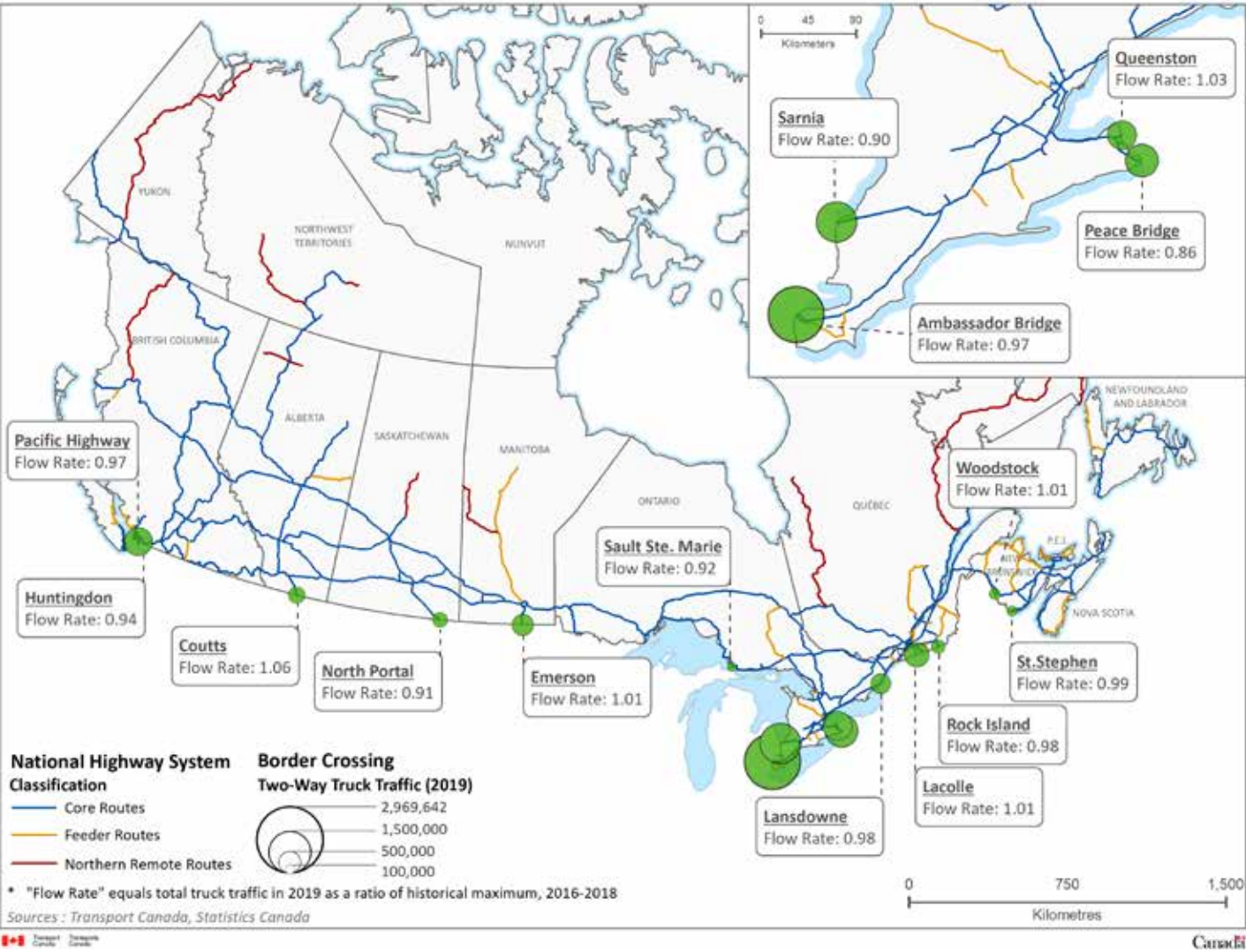
MAP 5
CANADIAN PORT AUTHORITIES



MAP 6
RAIL SYSTEM FLOW COMPARISON
TOTAL TRAFFIC 2017 COMPARED TO 3 YEAR AVERAGE

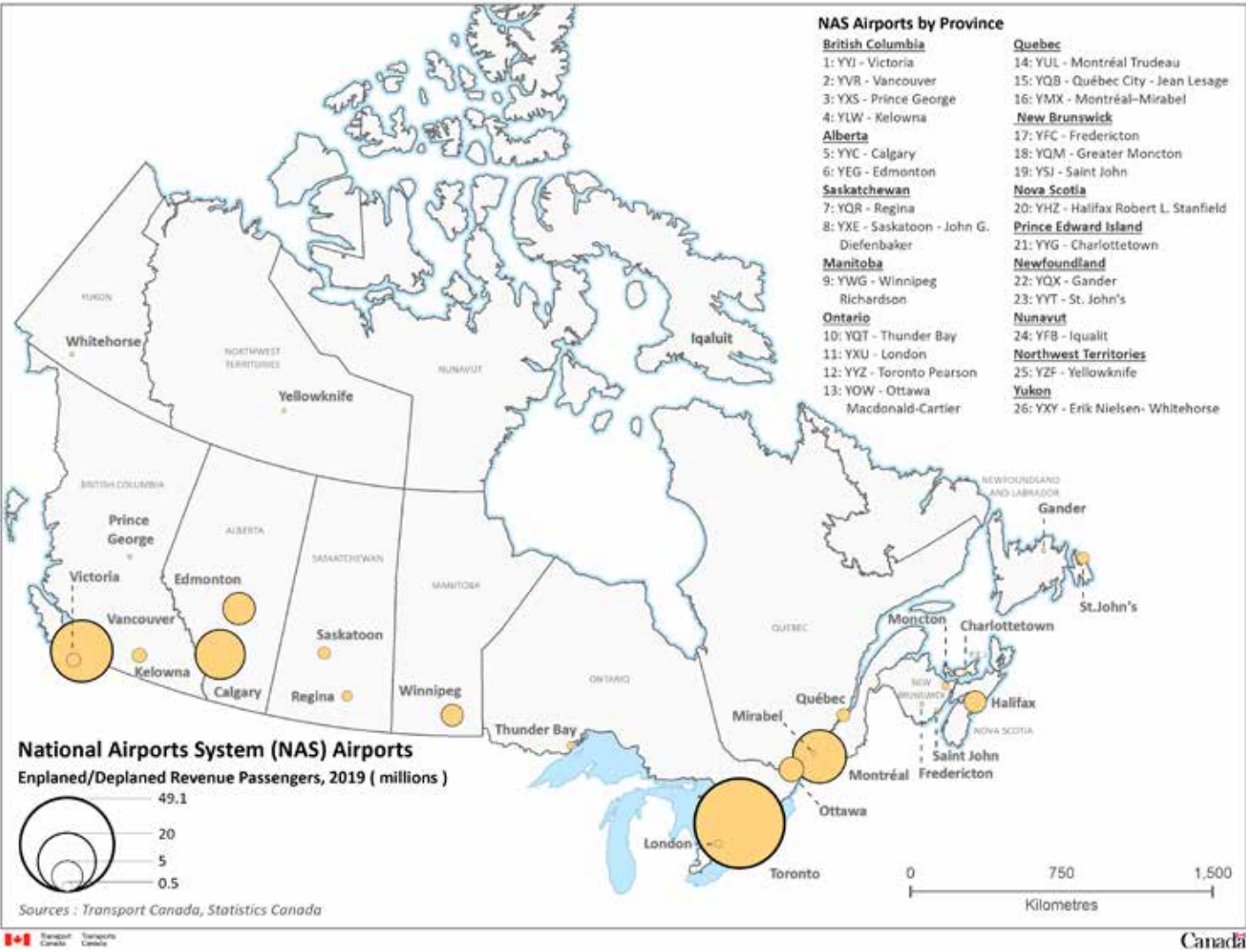


MAP 7
TRUCK BORDER CROSSING PERFORMANCE METRICS
TRAFFIC FLOWS



MAP 8

NATIONAL AIRPORT SYSTEM



TRANSPORTATION AND THE ECONOMY

GENERAL

- Table EC1: Economic Indicators , 2019
- Table EC2: Transportation Sector GDP and GDP Shares by Province and Territory, 2016
- Table EC3: Aggregate Household Final Consumption Expenditures on Transportation, 2019
- Table EC4: Volume of Goods in Domestic Trade, by Sector and Mode of Transport 2008–2017

MERCHANDISE TRADE

- Table EC5: Modal Shares in Canada’s International Trade 2010–2019
- Table EC6: Modal Shares in Canada-United States Trade 2010–2019
- Table EC7: Modal Shares in Canada-Other Countries Trade 2010–2019
- Table EC8: Canada–United States Trade, by Main Trade Flows 2018–2019
- Table EC9: Canada’s Exports and Imports, by Origin, Destination and Mode of Transport, 2019
- Table EC10: Canada’s Merchandise Trade–Top 25 Partners 2018–2019

TRAVEL AND TOURISM

- Table EC11: Visits by Canadians to All Countries, 2016-2017
- Table EC12: Canada - United States Travel, by Mode of Transport and by Purpose, 2017
- Table EC13: Canada - Overseas Travel, by Mode of Transport and by Purpose, 2017

LABOUR

- Table EC14: Employment in the Transportation Sector 2010–2019
- Figure EC15: Labour in Transportation Modes in Canada, by Age Range, 2019
- Table EC16: Average Weekly Earnings by Selected Transportation Industries 2010–2019
- Table EC17: Labour Actions in the Transport Sector, by Mode 2010–2019

PRICE PERFORMANCE OF TRANSPORT

- Table EC18: Average Crude Oil Prices - Canadian and U.S. \$ per Barrel 2010–2019
- Table EC19: Retail Price of Regular Road Gasoline and Diesel For Selected Cities 2010–2019
- Table EC20: Price of Other Transportation Fuels 2010–2019
- Table EC21: Price and Output Indicators, Transport Industries 2013–2018
- Table EC22: Efficiency Indicators, Transport Industries 2013–2018
- Table EC23: Cost Structure of Transport Industries 2015–2018
- Table EC24: Financial Performance of Transportation Industries 2012–2018

GOVERNMENT SPENDING AND REVENUES ON TRANSPORTATION

- Table G1: Summary of Transportation Expenditures and Revenues by Level of Government 2009/10–2018/19
- Table G2: Transportation Expenditures and Revenues by Mode and Level of Government 2009/10–2018/19
- Table G3: Detailed Federal Transport Expenditures, by Mode and by Department/Agency 2009/10–2018/19
- Table G4: Government Revenues from Transport Users 2009/10–2018/19
- Table G5: Summary of Provincial Transport Expenditures by Province/Territory 2009/10–2018/19
- Table G6: Detailed Provincial/Territorial Expenditures by Mode and by Province/Territory 2009/10–2018/19

ENVIRONMENT AND ENERGY

- Figure EN1: Greenhouse Gas Emissions, by Economic Sector, 2017
- Figure EN2: Greenhouse Gas Intensity of End-Use Sectors 2008 and–2017
- Table EN3: Transportation Energy Consumption, by Type and Mode 2009–2018
- Table EN4: Total Transportation Greenhouse Gas Emissions, All Modes 2000–2017
- Table EN5: Air Pollutant Emissions from the Transportation Sector, by Type of Pollutant 2009–2018
- Figure EN6: Transportation Mode Share of Air Pollutant Emissions, 2018
- Table EN7: Aviation Greenhouse Gas Emission Intensity, by Region of Operation 2009–2018
- Table EN8: Aviation Fuel Consumption, by Region of Operation 2009–2018
- Table EN9: National Aerial Surveillance Program Key Metrics 2009/10–2018/19
- Table EN10: Rail Greenhouse Gas Emission Intensity, by Type of Operation 2008–2017
- Table EN11: Railway Fuel Consumption 2009–2018
- Figure EN12: Zero Emission Vehicle (ZEV) Market Share 2015–2019

TRANSPORTATION SAFETY AND SECURITY

GENERAL

- Table S1: Summary of Transportation Safety Statistics for Aviation, Marine, Rail, Road and TDG 2010–2019
- Figure S2: Accidents and Accident Rates per Activity Measure for Rail, Road, Marine and Aviation 2009–2019

RAIL OCCURENCES

- Table S3: Railways Under Federal Jurisdiction, Accidents and Incidents 2010–2019
- Table S4: Railways Under Federal Jurisdiction, Accidents by Province/Territory 2010–2019
- Table S5: Railways Under Federal Jurisdiction, Crossing and Trespasser Accidents 2010–2019

ROAD OCCURENCES

Table S6: Road Casualty Collisions, Fatalities and Injuries, with Rates (per 10,000 MVR and Billion Vehicle-Kilometres) 2009–2018

Table S7: Road Casualty Rates (Fatalities and Injuries per Billion Vehicle-Kilometres) by Province/Territory 2017–2018

Table S8: Commercial and Other Vehicles Involved in Fatal Collisions, by Vehicle Type 2013–2018

Table S9: Fatalities Resulting from Commercial and Other Vehicles Involved in Fatal Collisions, by Vehicle Type 2013–2018

Table S10: Fatalities by Road User Class 2013–2018

Table S11: Vehicles Involved in Fatal Collisions, by Vehicle Type 2013–2018

MARINE OCCURENCES

Table S12: Marine Occurrences 2010–2019

Table S13: Small Canadian Vessels Engaged in Commercial Activity–Marine Occurrences 2010–2019

Table S14: Small Canadian Vessels Engaged in Commercial Fishing Activity, Marine Occurrences 2010–2019

AIR OCCURENCES

Table S15: Aviation Occurrences and Casualties Involving Aircraft Operating Under CARs 2014–2019

Table S16: Summary of Aviation Occurrences Reported to the Transportation Safety Board 2014–2019

Table S17: Canadian-Registered Aircraft (CRA) Accident Rates for Aircraft Operating Under CARs 2014–2019

Table S18: Accidents Involving Aircraft Operating under CARs, by Province/Territory 2014–2019

Dangerous Goods Occurences

Table S19: Reportable Accidents Involving Dangerous Goods by Mode and Phase of Transport 2008–2018

Table S20: Deaths and Injuries Attributed to the Dangerous Goods at Reportable Accidents 2008–2018

AIR TRANSPORTATION**AIRPORTS**

Table A1: Number of Aerodromes in Canada 2010–2019

Table A2: Airport Capital Assistance Program Expenditures, by Province/Territory 2010/11–2019/20

Table A3: Airport Authorities Financial Performance, 2018

Table A4: Airport Improvement Fees (AIF) at National Airport System (NAS) Airports 2010–2019

Table A5: Air Travellers Security Charge (ATSC) 2002–2019

Table A6: Top 10 Busiest Canadian Airports in Terms of Aircraft Movements 2010–2019

AIRCRAFT AND LICENCES

Table A7: Licence Authorities Held by Air Carriers as of December 31, 2019

Table A8: Civil Aviation Personnel Licences and Permits by Category as of December 2019

Table A9: Personnel Licences and Permits, by Province/Territory, as of December 2018–2019

Table A10: Total Operating Revenues of Canadian Air Carriers, 2008–2017

Table A11: Annual Labour Costs per Employee of Canadian Air Carriers, 2008–2017

Table A12: Average Scheduled Daily Seat-Kilometres, by Air Carrier, Domestic Sector 2018–2019

PASSENGER TRAFFIC

Table A13: Competition in the Top 25 Domestic Air Markets as of December 31, 2019

Table A14: Top 20 Busiest Canadian Airports in Terms of Enplaned/Deplaned Revenue Passengers 2010–2019

Table A15: Top 10 Busiest Canadian Airports in Terms of Enplaned/Deplaned Revenue Passengers, by Sector 2010–2019

FREIGHT TRAFFIC

Table A16: Volume of Traffic Carried by Canadian Air Carriers 2010–2019

Table A17: Top 10 Busiest Canadian Airports in Terms of Loaded/Unloaded Revenue Cargo, by Sector 2010–2019

Table A18: Air Exports and Imports, by World Region 2018–2019

Table A19: Main Commodity Groups Shipped by Air in Canada's International Trade 2018–2019

MARINE TRANSPORTATION**PORTS**

Table M1: Port Classifications, as of December 31, 2019

Table M2: Number of Port Sites Under the Control and Administration of Transport Canada, by Province 2010–2019

Table M3: Status of Transport Canada Port Facilities, 2019

FINANCIAL PROFILES

Table M4: Canada Port Authorities (CPA) Financial Results, 2018

Table M5: Canada Port Authorities (CPA) Financial Comparison 2017–2018

Table M6: Financial Results for Transport Canada Ports 2010/11–2019/20

Table M7: St. Lawrence Seaway Financial Performance 2009/10–2018/19

Table M8: Pilotage Authorities Financial Results 2010–2019

FLEET AND PILOTAGE

Table M9: Total Pilotage Assignments and Assignments Per Pilot 2010–2019

Table M10: Canadian-Registered Fleet, by Vessel Type 1999/2009–2019

VESSEL MOVEMENTS

Table M11: Vessel Trips in Canadian Waters, by Vessel Type 2015–2019

Table M12: Vessel Trips in Canadian Waters, by Vessel Flag 2015–2019

FREIGHT TRAFFIC

Table M13: Total Tonnage Handled by Canada’s Port Authorities (CPAs) 2010–2019

Table M14: St. Lawrence Seaway Cargo Traffic 2010–2019

Table M15: St. Lawrence Seaway Traffic, by Commodity 2010–2019

Table M16: International Cruise Ship Traffic at Selected Canadian Ports 2010–2019

Table M17: Canada’s Marine Traffic Handled by Canada Port Authorities (CPAs) 2010–2019

Table M18: Canada’s Leading Ports Handling Containerized Freight 2010–2019

Table M19: Main Commodities Shipped in Canada’s International Marine Trade, by Market, 2019

Table M20: End-to-End Transit Times from Shanghai to Toronto via British Columbia Ports using a Direct Rail Model 2010–2019

Table M21: Key Performance Indicators for Selected Intermodal Container Ports, 2016–2018 2017–2019

RAIL TRANSPORTATION

RAILWAY PROFILE

Table RA1: Length of Railways in Canada, 2018

Table RA2: Railway Revenues, 2009–2018

Table RA3: Railway Fleet, 2009–2018

Figure RA4: Average Monthly Train Velocity, by Rail Carrier, 2019

Table RA5: Revenue Tonne-Kilometres, by Railway Sector, 2009–2018

FREIGHT TRAFFIC

Table RA6: Overall Rail Traffic Characteristics 2010–2019

Table RA7: Traffic Received and Forwarded by Canadian-Based Class II Carriers 2010–2019

Table RA8: Volume of Rail Exports and Imports, by Commodity 2010–2019

Table RA9: Value of Rail Exports and Imports by Commodity 2010–2019

Table RA10: Dangerous Goods Shipments on Rail 2010–2019

Table RA11: Volume of Rail Exports and Imports, by Province/Territory of Origin 2010–2019

Table RA12: Value of Rail Exports by Port of Exit and Clearance 2010–2019

Table RA13: Volume of Rail Marine Exports and Imports 2010–2019

Table RA14: Volume of Rail Marine Exports and Imports, by Commodity 2010–2019

Table RA15: CN and CPR Intermodal Traffic 2010–2019

PASSENGER TRAFFIC

Table RA16: Passenger and Passenger-Kms for VIA Rail Canada and Other Carriers 2010–2019

ROAD TRANSPORTATION

ROAD NETWORK

Table RO1: Length of the National Highway System, 2017

Table RO2: Length of the Public Road Network in Canada, 2016

TRUCK - PROFILE AND ACTIVITY

Table RO3: Traffic Volume by Canadian For-Hire Carriers 2014–2018

Table RO4: Canadian International Trade Value Shipped by Trucks, by Commodity Groups 2018–2019

Table RO5: Canada’s Road Trade with the United States, by Busiest Border Crossing Points 2018–2019

Table RO6: Twenty Busiest Border Crossings for Cars/Other Vehicles 2015–2019

Table RO7: Twenty Busiest Border Crossings for Trucks 2015–2019

Table RO8: Border Wait Times for Southbound Trucks at Selected Crossings, 2019

Table RO9: Annual Trucking Bankruptcies, by Region 2010–2019

BUS AND URBAN TRANSIT - PROFILE AND ACTIVITY

Table RO10: Bus Industry Revenues by Service Lines 2008–2017

Table RO11: Urban Transit Passengers Carried and Vehicle-Kilometres 2009–2018

Table RO12: Urban Transit Fleet Composition 2009–2018

Table RO13: Average Annual Compensation in the Bus Industry 2008–2017

Table RO14: Selected Provincial Systems Indicators For Urban Transit, 2018