



# TRANSPORT CANADA

## Departmental Results Report 2021-22



Transport  
Canada

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Canada 

## **Erratum Note**

Subsequent to the tabling in Parliament and online publication of TC's 2021-22 Departmental Result Report, it was determined that the document of record contained some errors in the result tables.

Corrections have been made to both the HTML and PDF versions of the document posted online to ensure complete and transparent information. Corrections include:

### **Section: Results Table 1 – A safe transportation system**

- Indicator 1g) Rate of reportable road traffic collisions in Canada (rate per billion vehicle kilometres travelled), FY 2021-22 result changed from 31.7% to 23.8% reduction (for 2020) as compared to the five-year average due to an incorrect calculation.
- Indicator 1h) Rate of serious injuries in reportable road traffic collisions in Canada (rate per billion vehicle kilometres travelled), FY 2021-22 result changed from 26.4% reduction to 17.9% reduction (for 2020) as compared to the five-year average due to an incorrect calculation.
- Indicator 1i) Rate of fatalities in reportable road traffic collisions in Canada (rate per billion vehicle kilometres travelled), FY 2021-22 result changed from 12.6% to 2.5% reduction (for 2020) as compared to the five year average due to an incorrect calculation.

### **Section: Results Table 4 – Harmful air emissions from transportation in Canada are reduced**

- Indicator 4a) Percentage change in emissions of GHGs from the transportation sector, 2019-2020 actual result changed from 16% to 8.5% above 2005 levels due to revised emission estimates for historical years contained in the 2023 National Inventory Report.
- Indicator 4a) Percentage change in emissions of GHGs from the transportation sector, 2020-21 actual result changed from 1% to 8.9% below 2005 levels due to revised emission estimates for historical years contained in the 2023 National Inventory Report.

### **Section: Results Table 5 – Canada's oceans and marine environments are protected from marine shipping impacts**

- 2021-22 Actual results for indicator 5a) Reduction in the rate of spills into Canada's oceans and marine environments, had an error made when calculating the result whereby the value was incorrectly divided by two when it should not have been. The result has since been corrected, from 0.053 to 0.106/hr per 1,000 active commercial vehicles.

**2021–22**  
**Departmental Results Report**  
**Transport Canada**

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The Honourable Omar Alhabra, P.C., M.P.  
Minister of Transport

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This document is available in alternative formats upon request.

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## From the Minister

2021-22 was a year of formidable challenges, not only in Canada, but around the globe. COVID-19 cases remained high, with multiple variants of the virus presenting new threats to public health, and undermining business confidence, security and stability. Travel limitations and labour shortages from the pandemic caused a direct impact on our supply chains. At the same time, continuing global tension and conflicts required the strengthened oversight of domestic and international transportation security practices. These hurdles were worsened by extreme weather events—wildfires and flooding—that disrupted vital air, road and rail links. Climate change and threats to natural ecosystems, in which air, marine, rail and road transportation systems are heavily implicated, remained at the top of the Government’s agenda.



All of these challenges took place in the context of Canada’s determination to advance reconciliation with Indigenous Peoples. For many Indigenous Peoples and northern inhabitants, the reliability, security and efficiency of transportation links are vital to everyday health, prosperity and well-being. As such, threats to the transportation system were of particular concern.

Yet, in the face of these unique and daunting challenges, Canadians maintained their vigilance and demonstrated tremendous resolve in helping each other get through the worst, and moved forward - united in achieving sustainable recovery and renewal. Recognizing that Canada’s transportation system was greatly affected, Transport Canada continued to prioritize the safe and secure movement of people and goods, protect the health of its employees and the public, support a strong economic recovery, promote a cleaner environment, and advance the Government’s commitment to inclusion and reconciliation.

To address the immediate COVID threats to passengers and transportation workers and to help limit the spread of the virus in the broader population, Transport Canada, based on public health advice and guidance, implemented evidence-based mask, vaccine and travel mandates that positioned Canada to eventually allow a safe and responsible gradual easing of border and travel restrictions.

As this Report was being developed, a very rapid increase in traveller demand exceeded the ability of federal partners and other operators to quickly scale back up their services, and this adversely affected the air travel experience of Canadians. In early May 2022 when problems became evident, as Minister of Transport, I instructed my officials to bring together key industry players and government partners to identify immediate solutions. More specifically,

Transport Canada established operational working groups to identify problems, causes, and solutions. My colleagues and I will continue to actively work with industry daily to implement solutions to improve services while maintaining high levels of safety and security.

When the flooding occurred in British Columbia in November 2021, the Department took decisive action as part of a Supply Chain Recovery Working Group. Alongside other levels of government, industry and public service sectors, Transport Canada moved quickly to reduce the impact of this significant climate emergency. I announced the creation of a National Supply Chain Task Force, and the Department hosted a National Supply Chain Summit to identify longer-term prevention and mitigation measures. To support a strong economic recovery for the hard-hit air sector, Transport Canada delivered hundreds of millions of dollars for critical relief, infrastructure, safety and security support through the Airport Critical Infrastructure Program, the Airport Relief Fund, and the Airports Capital Assistance Program.

Combining our concerns for environmental protection and our support for Indigenous leadership and engagement in transportation matters, which are of profound importance to the health, safety and prosperity of Indigenous Peoples and other northerners, we continued the implementation of the Oceans Protection Plan and other measures to protect land and marine ecosystems. Our approach integrates the best available science with invaluable traditional knowledge, a collaborative arrangement achieved through strong and respectful partnerships.

2021-22 also saw the advancement of exciting innovations in transportation technologies and infrastructure. We launched the next phase in the procurement process for the High Frequency Rail project in the highly urbanized Quebec to Windsor corridor. This will engage the private sector in what will eventually provide Canadians with more efficient, accessible, and reliable transportation options for generations to come. We also made sustainable transport more accessible by advancing the popular Incentive for Zero-Emission Vehicles program, which is helping more Canadians purchase green vehicles for personal transportation, while supporting Canada's net-zero carbon goal. Further, in response to the growing importance of drone technology for a wide range of practical commercial, research and operational uses, we supported the development and testing of new regulations and technical guidance for the safe and responsible use of Remotely Piloted Aircraft Systems.

This Departmental Results Report provides an opportunity to reflect on Transport Canada's major initiatives and accomplishments over the past year. The fact that these successes and advancements have been achieved in challenging times speaks volumes to the dedication and talent of Departmental staff, for which I am deeply grateful. Their efforts ensure that our country's transportation system is safe, secure, green, innovative and efficient for all Canadians.

The Honourable Omar Alghabra, P.C., M.P.  
Minister of Transport

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## Results at a glance



A total of **\$11 billion** available to support the viability and recovery of the air sector including the following:

**\$570 million - Airport Critical Infrastructure Program** for large airports

**\$65 million - Airport Relief Fund** to assist lower revenue airports

**\$186 million - Airports Capital Assistance Program**, for safety improvements at small/regional airports



**130,000 consumers and businesses** have participated in the Incentive for Zero-Emission Vehicles Program since its launch in 2019



**TC continued collaboration with partners under the Oceans Protection Plan**, while improving system performance, getting products to market, keeping Canadians safe, and supporting economic recovery and growth

In 2021-22, Transport Canada (TC) continued to deliver on its mandate to advance policies, programs and regulations that contribute to the development of a transportation system that is safe, secure, green, innovative and efficient for all Canadians.

In 2021-22, the COVID-19 pandemic and the increasing frequency and scale of extreme weather events from climate change greatly impacted global supply chains and the transportation systems on which they depend. This underscored the vital role the Department plays in improving system performance and reliability to get products to market, keep Canadians safe, and support economic recovery and growth. This was best demonstrated in the response to November 2021's devastating floods in the Lower Mainland of British Columbia, where TC supported the emergency response work of the inter-governmental Supply Chain Recovery Working Group. Temporary safety measures limited movements in airspace and restricted marine vessels that were not involved in recovery efforts and other efforts were undertaken to facilitate the movement of trucks carrying essential goods and equipment. The success of these operations led to the hosting of a National Supply Chain Summit in January 2022 and the creation of a National Supply Chain Task Force to chart near-term and longer-term actions to strengthen Canada's supply chains, supported by a safer and more secure and reliable transportation system.

2021-22 saw TC continue to work to contain the spread of COVID-19 while facilitating the vital flow of essential travellers and workers, as well as goods/trade. Working closely with other departments and levels of government, TC's actions included the adjustment and evaluation of provisions and protocols for COVID-safe travel by air, rail and marine modes, and supporting a gradual, measured and safe approach to easing of border and travel restrictions.

TC also continued its critical safety and security work, including the development and administration of regulations and national standards, and implementation of monitoring, testing, inspections and subsidy programs that contribute to safety and security in the aviation, marine, rail and road modes. Several significant milestones were achieved in 2021-22. For example, TC and Canadian Pacific Railway signed an agreement on May 27, 2021, to obtain the necessary plans, specifications and regulatory authorization to complete the Lac-Mégantic rail bypass, and proceed with environmental studies, public consultations and land acquisition to finalize the submission of applications for construction. In response to the January 2020 downing of Ukraine International Airlines Flight 752, TC also supported Canada's involvement in the global Safer Skies Initiative to prevent future downings of civilian aircraft over or near conflict zones. This included addressing gaps in the international accident investigation regime exposed by Iran's safety investigation, and the virtual hosting by Canada of the second Safer Skies Forum on March 29-30, 2022.

Recognizing the vital role that the air sector plays in the growth and success of Canada's economy, the Government of Canada made over \$11 billion available to support the viability and recovery of this sector. TC managed three key relief programs: the \$570 million Airport Critical Infrastructure Program, to support large airports in making critical investments in safety, security and transit infrastructure and biosecurity improvements; the \$65 million Airport Relief Fund, to address the financial impacts of COVID-19 among 22 targeted airports with revenues less than \$250 million dollars; and the \$186 million Airports Capital Assistance Program, for safety improvements at small/regional airports.

In light of the growing impacts of extreme weather events, TC continued to focus on building world-leading marine corridors that are competitive, safe and environmentally sustainable, while also enhancing northern transportation infrastructure and respecting commitments to Indigenous communities, which are particularly dependent on reliable transportation systems. In 2021-22, TC continued collaboration with partners under the Oceans Protection Plan (OPP)—a key mandate commitment for the Minister. Initiatives included ensuring emergency responders have better data and models to predict the drift trajectory of spilled oil and drifting vessel and equipping communities across Northern Canada with critical marine infrastructure to support sealift and resupply. As a contribution to reconciliation, special emphasis was placed on continuing collaboration with Indigenous communities on the west coast, including forging of new partnerships, and equipping communities with new boats, equipment and training for marine safety.

To advance the Government's High Frequency Rail (HFR) initiative, TC issued a Request for Expression of Interest to explore proposals for high-frequency passenger rail in the Toronto-Quebec City Corridor, with the aim of attracting experienced private sector partners. TC also

continued to lead the federal Incentives for Zero-Emission Vehicles (iZEV) Program that provides a point-of-sale incentive of up to \$5,000 for the purchase or lease of eligible zero-emission vehicles—a program that has seen over 130,000 consumer and business participants since its launch in May 2019.

TC’s actions in 2021-22 demonstrated continued progress in promoting a safe and secure, efficient and environmentally responsible transportation system in Canada while addressing some of the most pressing issues facing Canada, notably COVID-19 recovery, economic and supply chain resiliency reliability, and response to the challenges of climate change.

For more information on the TC’s plans, priorities and results achieved, see the “Results: what we achieved” section of this report.

## **Results: what we achieved**

### **Core responsibility 1: Safe and Secure Transportation System**

**Description:** Ensures a safe and secure transportation system in Canada through laws, regulations, policies, and oversight activities.

#### **Urgent and emerging issues**

##### **Protecting Canadians from COVID-19 while supporting essential travel**

A priority for TC in 2021-22 was to continue to implement [temporary public health measures](#)<sup>ii</sup>, based on public health advice and guidance, to limit the spread of COVID-19 via air and rail travel, as well as on cruise ships. To avoid or minimize unnecessary restriction of travel—particularly for essential services—and to facilitate the transition back to normal conditions, these measures entailed the consideration of some 250 exemptions to the [Canadian Aviation Regulations](#)<sup>iii</sup>. To handle this unprecedented increase in exemption requests, TC established an Exemption Surge Team. The Department also explored innovative ways to support industry while meeting international standards in such areas as the medical and training practices used during the pandemic. With a commitment to learning from the pandemic, the Department also began reviewing the temporary measures that were implemented, to assess which ones could be codified permanently into regulations for the future. This includes consideration of possible updating of the Civil Aviation Directive related to regulatory exemptions, to ensure consistency in their review, analysis and issuance. Throughout the year, TC worked with aviation sector stakeholders on a weekly basis to seek feedback on issues and challenges faced by the industry during the COVID-19 pandemic as well as approaches to future recovery. The Department also collaborated and consulted with federal partners and industry stakeholders on ways to support essential road transportation workers in carrying out their critical duties so as to ensure the continuity of supply chains and the health and safety of workers. Overall, TC sought to ensure that responses to the pandemic continued to be flexible and adaptable to changing circumstances, notably in developing and issuing Interim Orders, guidance material and communication products.

### **Reliable transportation system integral to Canada’s supply chain security**

Global supply chains have been disrupted by the global COVID-19 pandemic and the impacts of climate change. Ensuring that Canadians are able to put food on their tables and buy the goods and other critical supplies they need is a top priority for the Government of Canada. To address these concerns, the Minister of Transport, the Minister of Agriculture and Agri-Food, the Minister of Innovation, Science and Industry, the Minister of International Trade, Export Promotion, Small Business and Economic Development, the Minister of Labour and the Minister of Employment, Workforce Development and Disability Inclusion hosted a National Supply Chain Summit in January 2022.

The Summit brought together a broad representation of Canadian organizations including business associations, manufacturers, exporters associations, as well as chief executive officers of railway, marine, air, trucking and retail business and industry leaders and associations. Participants discussed the challenges facing Canada’s supply chain and identified potential solutions to ensure that what Canadians need reaches their households as quickly as possible. Recognizing that an efficient and reliable transportation network is integral to a safe, secure and reliable supply chain, the Summit specifically explored ways to strengthen the reliability and efficiency of Canada’s transportation system.

To further advance this work, a new Supply Chain Task Force was created with industry experts to make recommendations and received suggestions regarding short and long-term actions to enhance Canada’s supply chain. A new, \$50 million targeted call for proposals under the National Trade Corridors Fund (NTCF) was established to immediately relieve supply chain congestion at Canadian ports, for example by increasing their storage capacity. Budget 2021 also provided an additional \$1.9 billion over four years to recapitalize the NTCF that makes Canada’s supply chain more efficient and supports economic recovery. The recommendations of the Task Force will help inform the development of a National Supply Chain Strategy, which was referenced in the 2022 federal budget.

## Ensuring safety of connected and automated vehicles

The safety and reliability of connected and automated vehicle (CAV) technologies and applications continued to be a priority focus for TC. To keep pace with emerging CAV technologies, the Department continued to pursue a range of regulatory and non-regulatory tools and provisions to reduce barriers to innovation and program and service delivery, while ensuring the ongoing safety of Canadian road users.

To support government and industry efforts to improve vehicle cyber security, TC created a dedicated vehicle cyber security web presence and published [TC's Vehicle Cyber Security Strategy](#)<sup>iv</sup> and [Canada's Vehicle Cyber Security Assessment Tool](#)<sup>v</sup>. The Department also worked closely with the [Canadian Council of Motor Transport Administrators \(CCMTA\)](#)<sup>vi</sup> to support the publication of [Canadian Jurisdictional Guidelines for the Safe Testing and Deployment of Highly Automated Vehicles – Version 2.0](#)<sup>vii</sup> (PDF, 4.61 MB). In addition, TC published its updated guidance document: [Guidelines for Testing Automated Driving Systems in Canada Version 2.0](#)<sup>viii</sup> (PDF, 14.8 MB). The Department also continued to work with the [World Forum for the Harmonization of Vehicle Regulations](#)<sup>ix</sup> to advance pre-regulatory guidance on functional requirements for automated validation methods for automated driving.

Other measures taken by TC in 2021-22 to promote CAV safety included: development and testing of innovative driver assistance technologies; investigation and development of testing for safe human-automated vehicle interactions both inside and outside of vehicles—including automated shuttles, passenger cars and heavy vehicles; and investigation of ways to qualify virtual test platforms for future safety validation of automated driving systems.

More generally, TC's [Enhanced Road Safety Transfer Payment Program](#)<sup>x</sup> continued to provide support to the provinces and territories and the CCMTA and other non-government organizations. This support included investment of \$12.55 million to support 29 projects in 2021-22 focused on such issues as technological innovation, impaired driving, distracted driving, and commercial drivers. In addition, TC launched a bilingual multimedia public awareness campaign on [Advanced Driver Assistance Systems](#)<sup>xi</sup> to help increase the public's knowledge of various new features in passenger vehicles.

## Modernizing Canada’s regulations to meet evolving industry needs

In 2021-22, TC continued to make progress in implementation of its longer-term [Transportation Sector Regulatory Review Roadmap](#)<sup>xiii</sup> to update, modernize and streamline its regulation of transportation systems in Canada.



In the aviation sector, the Department continued to review and modernize the [Canadian Aviation Regulations](#)<sup>xiii</sup> to make them more agile, coherent and performance-based in response to evolving sector needs and conditions. TC also continued its work with stakeholders to modernize the Canadian Aviation Regulation Advisory Council (CARAC). This included administration of an industry survey to identify possible improvements to the Council and its work. As a result, TC’s consultation tools were enhanced, including: streamlining of information on the [CARAC webpage](#)<sup>xiv</sup>; inclusion of an ongoing consultation section and Let’s Talk page; and creation of an online subscription form to automatically receive CARAC notices.

In other sectors, TC: launched an online application process to allow vessel owners to request and pay for marine insurance certificates; consulted with industry participants on the feasibility and potential effectiveness of digital shipping documents for dangerous goods; and published updated guidelines, best practices and standards for the testing of automated driving systems in Canada.

In support of transparency and regulatory compliance, TC also published guidance documents supporting the [Motor Vehicle Safety Oversight Program](#)<sup>xv</sup>, outlining the Department’s oversight role related to the [Motor Vehicle Safety Act](#)<sup>xvi</sup> and the [Motor Vehicle Safety Regulations](#)<sup>xvii</sup>, and the general responsibilities and obligations of industry, and members of the public. TC also established a [consent agreement](#)<sup>xviii</sup> under the [Motor Vehicle Safety Act](#). The Department also made progress on regulatory initiatives dealing with information gathering, use of administrative monetary penalties, and exemptions, with the aim of pre-publication in Canada Gazette, Part I in 2022 and 2023.

## Keeping pace with the demands and challenges of drone operations

The rapid development and deployment of Remotely Piloted Aircraft Systems (RPAS) (“drones”) is leading to an unprecedented transformation in Canada’s transportation system, with wide-ranging implications for the economy and society. RPAS are already being used for search and rescue, delivery of critical medical supplies, infrastructure inspections, environmental mapping, and photography/videography for diverse operations. These drone applications are helping to save lives and keep first responders and other workers out of dangerous environments while they do their work.



With the aim of integrating RPAS operations into Canadian skies as part of a modern national civil aviation system, TC continued to develop a more comprehensive regulatory framework to support the safe and responsible operations of RPAS, while also encouraging innovation in this growing sector. This included drafting guidance material for standard RPAS operating scenarios, namely: Visual Line of Sight (VLOS) operations drones weighing up to 600kg in low risk airspace; VLOS operations for drones weighing up to 150kg in any airspace; VLOS operations for drones weighing less than 25kg flown above 400ft Above Ground Level; and Beyond Visual Line of Sight (BVLOS) operations with visual observer for drones weighing less than 25kg. The work also included completion—in collaboration with industry partners—of Phase One of a pilot project to gather data and validate technical requirements for RPAS Traffic Management services in rural environments.

## Security

### Managing transportation system threats and emergencies

With an ongoing mandate for overall security of Canada’s transportation systems, TC continued to gather, interpret and share intelligence about known or anticipated threats, and thereby enable industry stakeholders and security partners to take timely prevention and mitigation measures. The Department’s Situation Centre (SITCEN) continued to serve as a 24/7 reporting hub for stakeholders and coordinated TC’s emergency response function, focused on timely information sharing on emerging safety and security issues with key partners. In order to improve the governance and modernize its Emergency Management (EM) function, TC conducted a number of activities to enhance its Incident Management System (IMS), which serves to provide a standard framework for responding to internal and external incidents that often require an immediate reordering of daily priorities and deployment of human or material resources. TC conducted 22 training sessions and issued 103 training certificates related to the Incident Command System as well as 171 certificates for Emergency Operations Centre training. These training sessions included 87 participants from partner organizations outside of TC. In addition, TC expanded its management and

surge capacity rosters by implementing digital emergency personnel management and surge capacity rosters for an activation during an incident. It also deployed geospatial mapping tools for the situational awareness and risk analysis which were first used during the British Columbia wildfire season and floods. Overall, the EM program held eight orientation, training and exercise sessions across all TC regions using digital tools.

TC's IMS aligns with the Government of Canada's [Federal Emergency Response Plan](#)<sup>xix</sup>, a whole-of-government emergency framework, so that the department can contribute to an integrated Government of Canada response.

## **Maintaining aviation security throughout the challenges of COVID-19**

Throughout 2021-22, TC continued to ensure that Canada's aviation security system remained dynamic, efficient, and effective despite the serious disruptions and challenges presented by the COVID-19 pandemic. Notably, the Department was able to continue progress on the [Known Traveller Digital Identity \(KTDI\) pilot project](#)<sup>xx</sup>, by applying lessons learned from comparable pilot projects that had been carried out by a number of domestic air carriers in 2021. TC also continued to implement the [Safer Skies Initiative](#)<sup>xxi</sup>, which was initially launched in February 2020. As part of this initiative, TC established the Conflict Zone Information Office in late 2021, with 24/7 monitoring capacity and an ability to issue security advisories and prohibitions to guide Canadian air carriers on their flight operations in and near conflict zones. TC also continued to Co-Chair the [Safer Skies Consultative Committee \(SSCC\)](#)<sup>xxii</sup>. Comprised of subject matter experts from foreign states, industry, and international organizations, the SSCC played a vital role in sharing information and perspectives on conflict zones in relation to civil aviation. A second Safer Skies Forum—co-hosted by Canada and the SSCC—was held in March 2022 to share risk information and mitigation methods and criteria for airspace closure in times of conflict.

## **Modernizing and strengthening marine security**

TC continued to maintain security for vessels and Canadian marine facilities and ports, in line with its mandate to ensure Canada meets its international marine security obligations through internationally harmonized regulatory requirements. Canada became the Chair of the Maritime Domain Awareness collaborative partnership with the United States, the United Kingdom (UK), Australia and New Zealand. The partnership shares information on threats and risks, and coordinates security-related activities with partner working groups and communities of interest. As Chair of the federal [Interdepartmental Marine Security Working Group](#)<sup>xxiii</sup>, TC also worked with Government partners to update Canada's Maritime Security Strategic Framework, and continued to lead a Canada-US exercise to promote common awareness of threats and coordinate risk mitigation actions.

In 2021-22, TC modernized the marine security document issuance process by aligning it with the International Maritime Organization's (IMO) guidelines for electronic certification. This entailed establishment of the [Marine Electronic Document Validation \(MEDV\) system](#)<sup>xxiv</sup> that enables the Department to electronically issue and verify the validity and legitimacy of marine security documents by way of quick response code. The final phase of the project was launched in May 2021 and MEDV is fully operational and ready for

application to other aspects of marine security documentation. In 2021-22, TC also advanced work to modernize the *Marine Transportation Security Act*<sup>xxv</sup>. This included policy analysis of challenges and gaps with marine security regulations and the completion of consultations with internal and external stakeholders. Potential enhancements to the Act were included for consideration in the Department's Ports Modernization Review.

### **Advancing global air cargo security**

During 2021-22, TC developed and undertook proof of concept testing of a risk assessment and management methodology for the *Pre-load Air Cargo Targeting and Artificial Intelligence (PACT+AI)*<sup>xxvi</sup> initiative. When refined, this will serve as the foundation for the application of AI technologies and methods for air cargo security screening—a vast improvement upon manual processes. These AI-supported procedures enable extremely rapid and reliable sorting and assessment of air cargo information (e.g., shipper and receiver names and addresses, as well as cargo descriptions) to identify suspicious shipments warranting closer inspection or even instant security action. To further advance air cargo security protocols and procedures, TC also announced proposed draft Digitalization and Technology Neutral Regulations through the Treasury Board's *Targeted Regulatory Review Roadmap*<sup>xxvii</sup> and TC's Forward Regulatory Plan. This allows the air cargo industry to provide feedback on next steps in making PACT a global program aligned with Canada's international partners.

### **Addressing drone security risks and countermeasures**

Throughout 2021-22, TC worked with federal partners and industry stakeholders to advance drone countermeasure initiatives that address threats posed by malicious drone use. This work included development of drone incursion escalation protocols to trigger collaborative local and national-level responses by government and industry. In support, TC partnered with stakeholders—including NAV CANADA, Ottawa International Airport, and Defence Research and Development Canada—to conduct trials and exercises in drone detection and mitigation capabilities and advance threat assessment processes and response actions.

### **Strengthening rail and intermodal surface security**

To support implementation of the *Passenger Rail Transportation Security Regulations*<sup>xxviii</sup>, which came into force January 6, 2022, TC implemented a national oversight program for passenger rail security. Under this oversight program, TC developed and issued industry guidance documents to facilitate stakeholders' compliance, as well as program documentation for the inspectorate along with a standard operation procedure and checklists for conducting inspections. In addition, the program enhanced its reporting system used to report inspection results and compliance rates, and to track security incident data.

## **Safety**

### **Addressing system-wide transportation safety concerns**

Recognizing that operator fatigue is a significant safety risk factor, TC continued to address mitigation of this risk across all modes of transportation. These fatigue mitigation measures

are designed to address risks related to a state of reduced mental or physical ability to safely operate equipment or perform safety-related duties, resulting from such factors as sleep loss, poor quality sleep, extended wakefulness and/or extreme physical activity. The work involved application of fatigue science software to support evidence-based decisions on policy and regulatory options.

More generally, TC continued with measures to strengthen compliance promotion and enforcement for transportation safety regulations, guidelines and best practices. To support more consistency in approaches and requirements across modes, TC developed new multimodal operational enforcement policies and procedures, addressing such aspects as: collection and use of social media; investigation planning; statement collection; and evidence collection, handling and storage. TC—in collaboration with other regulatory departments—also began to digitize regulatory frameworks to make them more accessible and efficient. The Department launched the Multimodal Enforcement Report System to connect key enforcement data from a variety of sources and facilitate a standardized approach to monitoring and reporting on oversight and enforcement activities.

### **Maintaining vigilance in aviation safety**

TC made a number of changes to improve its aviation safety surveillance program. First, new tools were introduced to identify and resolve non-compliance. These tools support more effective communication of non-compliance to enterprises, based on the type of safety concern they pose and available paths for resolution. To support this, national town halls and self-paced training initiatives educated inspectors on the new tools, and work was begun to update the Delegated Officer Initial Training. Second, a Finding Review Committee was established in April 2021 to play a quality assurance role by reviewing 100% of findings and observations and providing feedback via monthly reports. Finally, the Department explored options to update national surveillance planning to adapt to evolving oversight requirements. Updated staff instruction combined traditional quantitative risk indicators with an expanded set of qualitative questions and offered greater flexibility in surveillance plans and activities to adapt to evolving risks situations.

## Enhancing the safety of marine vessels and operations

In 2021-22, TC undertook a number of regulatory initiatives to improve the safety of vessels and their operation. The Department continued work to modernize the Vessel Construction and Equipment Regulations to ensure that Canadian requirements for building and equipping new vessels of 24 metres in length or above are consistent with modern standards and industry best practices. The Department



also advanced work to update the *Fishing Vessel Safety Regulations*<sup>xxix</sup> to improve safety in the fishing industry, and implemented new *Vessel Safety Certificate Regulations*<sup>xxx</sup> that clarify vessel certification and inspection requirements and ensure better alignment with the objectives of the *Canada Shipping Act, 2001*<sup>xxxi</sup>. With the aim of replacing existing Safety Management Systems with *Marine Safety Management Systems Regulations*<sup>xxxii</sup>, TC also completed drafting of proposed regulations—planned for prepublication in Canada Gazette, Part 1, in June 2022. This regulatory proposal is designed to establish requirements for the Ship Manager of a vessel to develop, implement and maintain a safety management system that addresses the shore-based and on-board operations of the vessel. The aim is to improve the safety culture and reduce accidents and human errors that jeopardize human safety and environmental protection.

TC continued to make updates to Canada’s marine safety regulatory regime, reinforcing regulatory compliance and promoting a culture of safety, in particular within the commercial fishing industry. This included commencement of updates to the *Fishing Vessel Safety Regulations*<sup>xxxiii</sup> to strengthen the safety of the fishing vessel industry.

With respect to more general administrative arrangements, in April 2021, TC implemented the *Marine Safety Fees Regulations*<sup>xxxiv</sup>, which streamline existing marine regulations by consolidating and updating marine fees and services for Marine Cargo, Port State Control and tank prewash services into one comprehensive regulation. TC brought into force in April 2021 the amendment of the *Marine Liability and Information Return Regulations*<sup>xxxv</sup> and the new *Wreck Removal Convention Certificate Fee Regulations*<sup>xxxvi</sup>. The latter introduced new fees for Marine Insurance Certificates and was supported by the launching of an online application for requesting and paying for certificates. Finally, the Department held a public consultation on proposed changes to the Vessel Registry, Pleasure Craft Licensing, and Pleasure Craft Operator Competency services, with the aim of introducing new and revised fees in 2022-2023.

### **The vital role of standards and guidelines in marine safety**

Marine safety depends most heavily on industry adoption of, and compliance with, evidence-based standards and guidelines for vessel design, maintenance, modification, and operation. To support this, TC works constantly at developing, promoting, reviewing, and updating a diverse array of domestic and international agreements, standards and best practices, such as the following illustrative examples:

- The International Convention for the Safety of Life at Sea (SOLAS)
- TC publications, such as:
  - Canadian Modifications to the International Code on Intact Stability
  - Damage Stability Standards for Non-Convention Passenger Vessels
  - Canadian Life-Saving Appliance Standard, etc.
- TC standards, such as:
  - Guidelines for the Design and Construction of Offshore Supply Vessels
  - Guidelines for Formal Safety Assessment for use in the International Maritime Organizations (IMO), of which Canada is a Member State

## Addressing priority rail safety concerns



In 2021-22, TC pursued several measures to improve rail safety across Canada. The Department continued to work with the rail industry to prepare to implement the *Locomotive Video and Voice Recorder Regulations*<sup>xxxvii</sup>, which will come into force on September 2, 2022. This entailed responding to questions on interpretation of the regulations, providing guidance documents, hosting meetings with companies and manufacturers, and developing an approach to regulatory oversight. TC also continued work to address the issue of fatigue in the railway industry, focused on *Duty & Rest Period Rules*<sup>xxxviii</sup> that establish the length of duty period, total work hours, rest periods, time away from work, and fatigue management plans to reduce the occurrences of rail accidents due to operator fatigue. As part of the ongoing phased implementation of the Duty & Rest Period Rules, the requirement for railways to develop and implement fatigue management plans came into effect on November 25, 2021, and TC began reviewing them for compliance.

TC also supported implementation of the first phases of the revised *Track Safety Rules*<sup>xxxix</sup> that were approved in 2021 and which came into effect on February 1, 2022. Phase 1 includes changes to railway yard track standards along with track inspection and supervision qualifications, new quality requirements for track maintenance and repair work, and the requirement that railways submit management plans for track maintenance and repair. Phase 2 includes additional changes to inspection, supervision, qualification and certification requirements, provisions for remedying defects, and a requirement that Track Geometry Management Plans include instructions for monitoring and responding to near non-compliance situations.

In addition, TC amended Regulations to extend the original grade crossing regulation compliance deadline, from November 28, 2021 to November 28, 2022 for high-priority grade crossings, and to November 28, 2024 for all other crossings. This adjustment was intended to prioritize efforts on crossings that represent the greatest risk to public safety while taking into account the economic impacts of the pandemic.

In response to the devastating fires in Lytton, British Columbia, TC issued a *Ministerial Order to Class 1 railway companies*<sup>xl</sup>, directing them to implement immediate safety measures to prevent, detect and suppress fires. It also established speed restrictions during periods of extreme heat and fire risk. Building on this progress, the Department and the Railway Association of Canada worked to incorporate best practices into a draft extreme weather and

fire risk mitigation rule for railway operations, anticipated for approval and publication in June 2022. The Department also made provisions for enhanced oversight during periods of extreme heat and fire risk. In addition, TC established a new rail safety component of the [Community Participation Funding Program](#)<sup>xli</sup> to support engagement with Indigenous groups on rail safety.

## Dangerous Goods

### Ensuring the safe transportation of dangerous goods needed by industry

The safe transportation of dangerous goods (TDG) is an ongoing priority for TC, and the Department undertook several measures to strengthen TDG policies and practices to protect Canadians and the environment. Ongoing vigilance in 2021-22 entailed the conduct of 3,850 inspections and completion of 5,204 enforcement actions and



risk reduction measures. In response to the COVID-19 restrictions on inspection operations, TC issued guidance on alternative oversight activities, such as remote inspections to improve oversight measures, and the issuance of 16 [temporary certificates](#)<sup>xlii</sup> and two [equivalency certificates](#)<sup>xliii</sup> to facilitate the safe transportation of dangerous goods and support pandemic relief efforts.

The [Canadian Transport Emergency Centre \(CANUTEC\)](#)<sup>xliv</sup> continued to assist emergency response personnel in handling dangerous goods emergencies on a 24/7 basis. CANUTEC coordinated the dissemination of vital incident information to key internal and external partners and emergency response personnel as well as the TC Situation Centre, which serves as the Department's point of contact for other types of transportation safety and security emergencies.

Over the year, TC modernized the TDG Oversight regime by improving and updating tools and databases to provide more complete and accurate information on regulated companies and their compliance status. This supports risk-based planning and tracking of national regulatory compliance rates. Notably, the implementation of a Client Identification Database will provide TC with a reliable and comprehensive inventory of TDG sites and dangerous goods activities. Similarly, new digital tools, such as the Regulatory Oversight Management application launched in 2021-22 is making inspections more convenient and efficient, including: capability to capture inspection results directly while in the field using a mobile device; providing offline capacities for inspections in remote locations; and offering simple and quick ways to input data, such as voice-to-text technologies.

In 2021-22, TC developed an action plan to better identify the level of national compliance of the transportation of dangerous goods using provincial and territorial compliance data for road shipments. The plan is to supplement this with a TC registry of regulated entities/companies that handle, offer for transport, transport, or import dangerous goods in Canada.

TC also developed annual policy and regulatory plans that anticipate and respond to the evolving issues in the TDG world, allowing for early regulatory consultations, meaningful stakeholder engagement, harmonization with international codes, and due consideration of evolving industry conditions and capacities.

In 2021-22, TC developed and maintained safety standards for means of containment of dangerous goods, including tank cars, highway tanks, intermediate bulk containers, and cylinders, which are incorporated by reference in the *Transportation of Dangerous Goods Regulations (TDGR)*<sup>xlv</sup>. The Department also completed work on various research initiatives and projects to support TDGR safety standards and requirements, including: methods to assess the toxicity of crude oil to inform best practices regarding classification; modeling of how tank cars carrying crude oil perform when exposed to fire; and testing with the National Research Council of Canada (NRC) to support the development of *SAE International's Aerospace Standard (AS6413)*<sup>xlvi</sup> on packaging performance for lithium battery transportation on passenger aircraft.

In total, some 23 projects reflecting guidance and suggestions from the *2019 TDG Research Symposium*<sup>xlvii</sup> were initiated to inform TDG decision-making. These projects addressed such factors as: a multi-year plan for research on emergency response; means of containment; crude oil; lithium batteries and other electric energy storage systems; TDG analytics; risk assessments and analyses; a geographic-information-system based supply chain; and a variety of regional, and modal analyses.

In 2021-22, TC proposed a regulatory amendment to harmonize Canada's TDG Regulations with the United Nations recommendations by aligning safety marks, classification information, shipping names, and special provisions. This is designed to increase the consistency, quality, efficiency, and effectiveness of our transportation of dangerous goods compliance activities.

Other activities in the year included: reviewing and updating the risk ranking methodology used to prioritize TDG inspection sites; ensuring that containment facilities with expired certificates do not conduct the activities for which the certificates were issued; and maintaining and strengthening the TDG safety awareness outreach program and related materials for industry, communities/municipalities, first responders and the general public.

### **Ongoing collaboration on aviation issues of mutual interest**

A heavy focus of TC's collaboration with international partners and counterparts is on aviation issues of bilateral and/or multilateral concern. The ongoing work is diverse and extensive.

Key initiatives and accomplishments in 2021-22 included:

- progress on amendment of the Canada-European Union (EU) Bilateral Aviation Safety Agreement
- ongoing discussions with the UK Civil Aviation Authority to ensure a seamless transition of the working arrangements pertaining to UK's EU Exit
- signing of a revision of the Implementation Procedures for Airworthiness with the US Federal Aviation Administration (US FAA)
- signing of a Memorandum of Understanding between the Ministry of Transportation of the Republic of Indonesia and TC concerning cooperation in civil aviation, with a heavy emphasis on technical cooperation in the field of civil aviation, including water aerodrome standards and operations, seaplane operations and a state safety program
- work on amendments to Technical Arrangements regarding maintenance, with the Japan Civil Aviation Bureau and the Civil Aviation Authority of Singapore, as well as the Maintenance Implementation Procedures with the US FAA
- exploration of possible new Technical Arrangements regarding certification with the Civil Aviation Authority of Singapore
- collaboration with the Civil Aviation Safety Authority of Australia, the Civil Aviation Authority of New Zealand, and the Ministry of Civil Aviation of India.

## **International cooperation and alignment**

### **Collaborating with international partners on shared transportation concerns**

#### **Aviation**

TC continued to support Canada's membership in the National Aviation Authority Network—an international group focused on cooperation on aerospace issues of shared concern. TC's involvement in 2021-22 including collaboration with international counterparts from the UK, New Zealand, Australia and the United States in preparation for the 41<sup>st</sup> Assembly of the International Civil Aviation Organization (ICAO) in fall 2022.

In 2021-22, TC continued to engage with the international community to discuss drone incursion challenges and consider best practices to prevent and respond to drone security incidents. In addition, TC continued to work with partners and counterparts to build support within ICAO on ways to improve air accident safety investigation protocols, including how to better address conflict-of-interest situations.

### **Marine**

TC participated in virtual bi-weekly Strategic Arrangement calls with international maritime security partners, notably the “Five Eyes” intelligence alliance comprised of Canada, the UK, New Zealand, Australia and the United States. The Department hosted three Maritime Event Response Protocol Working Groups and participated in seven teleconferences with maritime security partners to advance preparations for the 2022 Maritime Event Response Protocol—Maritime Operational Threat Response Tabletop Exercise to support threat response planning. In addition, TC—supported by ongoing stakeholder consultations—continued to advance modernization of Canada’s *Marine Personnel Regulations*<sup>xlviii</sup> to align them with international conventions, address recommendations from the Transportation Safety Board of Canada (TSB), and ensure they are consistent with standard practices in the marine industry.

### **Automobiles**

The Department continued to work with international partners to facilitate the development of international guidance and longer-term regulatory development for connected and automated vehicle safety. This included collaboration with the U.S. Department of Transport and the National Highway Traffic Safety Administration, the Global Forum for Road Traffic Safety, the World Forum for the Harmonization of Vehicle Regulations, and numerous sub-working groups, such as the Informal Working Group on Validation Methods for Automated Driving (co-chaired by Canada). The collaboration focused on advancing globally-aligned safety requirements for CAVs.

### **Gender-Based Analysis Plus**

TC consistently applies a disciplined *Gender-Based Analysis (GBA) Plus framework*<sup>xlix</sup> to review plans and proposals for policies, programs, projects, legislation and regulations, with a view to identifying and advancing to overcome systemic barriers and enhance equitable opportunities for diverse population groups based on sex, gender and other intersecting identity factors.

In 2021-22, special emphasis was placed on gender representation in processes dealing with advancement of drone policies, testing and regulations, and on engagement with Indigenous communities and outreach to other diverse populations, particularly in the marine sector.

When TC launched the *Canadian Drone Advisory Committee (CanaDAC)*<sup>1</sup>, TC sought to ensure diversity in committee membership, taking into consideration factors such as gender, regional and geographical location, linguistic diversity, and participation from traditionally underrepresented communities (e.g., Indigenous Peoples). For example, 30% of the committee members are women even though female representation in the industry is currently only about 5%. The Department also continued to work with the NRC on RPAS-

related research and development projects—including human impact severity testing across different body sizes and sexes—to develop inclusive, data-driven risk assessment tools. In addition, TC completed a social acceptance project with McGill University to assess differences in perceptions of drones, participation as operators, and potential benefits across a broad range of demographic groups.

TC also ensured that its aviation safety education campaigns and initiatives were assessed to identify potential inequalities experienced by diverse groups, with the results used to guide more inclusive communication approaches and materials.

TC continued to ensure that a strategic environmental assessment and a gender-based analysis is systematically undertaken for each regulatory proposal being brought forward. These analyses help assess the social and economic impacts of aviation safety regulations on diverse groups of Canadians and to identify and remove potential barriers faced by the groups. The Department also continued to promote awareness of the importance of using gender-neutral terms in regulatory frameworks, and regulatory proposals are now thoroughly assessed to ensure use of inclusive language.

TC’s Civil Aviation Medicine (CAM) Branch stopped asking for “Gender” on medical assessments, so as to avoid confusion between gender identity and biological sex. (CAM now asks for “Sex” rather than “Gender” on medical examination reports). They have also stopped using gendered salutations and have implemented non-gendered pronouns (they/them) for correspondence with gender non-conforming individuals. The Branch has also added a specific field to Medical Examination Reports for “Menstrual Issues”.

In addition, TC proceeded with development of an Indigenous Engagement Framework for initiatives related to transportation of dangerous goods, with a specific focus on rail operations and safety.

The Department created the [Marine Training Program \(MTP\)](#)<sup>li</sup> to help underrepresented groups—notably women, Indigenous Peoples, and Northerners—access available marine training. In 2021-22, a total of 189 students graduated from the three schools: 37 from Nunavut Fisheries and Marine Training Consortium; 77 from Nova Scotia Community College; and 75 from British Columbia Institute of Technology, bringing the total thus far to 650 graduates, many of whom have been hired in the marine industry.

The department continued to apply a GBA Plus lens when developing and updating the training given to inspectors in all transportation modes. The objective is to ensure that all training materials are free from bias, e.g., by adopting use of gender-neutral names and pronouns, such as “they” instead of he or she, or using both genders where necessary, such as “inspecteur/inspectrice” in French.

In 2021-22, TC standardized and developed 11 generic Task Hazard Analyses (THA) relevant to oversight delivery to support a common and safe approach to conducting inspection/investigation-related tasks. It also applied a GBA Plus lens to all THAs to ensure hazard identification and assessment are comprehensive, specifically related to the risk of

violence and harassment as may be experienced by employees of differing identities. In addition, TC finalized GBA Plus clothing specifications for coveralls and 3-in-1 winter jackets to address the needs of a diverse oversight workforce.

Finally, TC has been conducting GBA Plus analysis in the planning and execution of digital modernization projects and fee modernization initiatives to ensure equality, diversity and inclusiveness are integrated into the decision-making processes.

## 2030 Agenda for Sustainable Development

TC integrates—wherever relevant in its policies, programs and projects—cost-effective means to support Canada’s commitment to the United Nations 2030 Agenda for Sustainable Development and the [Sustainable Development Goals \(SDGs\)](#)<sup>lii</sup>, and advancement of the [Federal Implementation Plan for the 2030 Agenda](#)<sup>liii</sup>.

In 2021-22, TC continued to emphasize measures to deal with the transportation of dangerous goods and the prevention of spills that are harmful to human health and the environment.

TC’s actions to prevent and mitigate spills, releases and incidents related to dangerous goods continue to directly support achievement of the [SDG 3 – Good health and well-being](#)<sup>liv</sup>, target 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination. TC’s actions on the transportation of dangerous goods include:

- Conducting education, outreach and awareness activities to ensure that the industry is aware of its legal and regulatory responsibilities
- Bringing Canada’s regulations in line with international codes
- Maintaining an effective oversight regime to ensure regulatory compliance and to carry out enforcement when warranted
- Requiring the development of Emergency Response Assistance Plans, so that industry knows what to do in the event of a release or anticipated release of certain higher-risk dangerous goods while in transport
- Deploying Remedial Measures Specialists to the scene of dangerous goods emergencies to promote public safety by monitoring the corrective actions taken to mitigate the incident.

With support from TC, Canada in the fall of 2021 co-sponsored the IMO submission for an “International Day for Women in Maritime” and committed to supporting ongoing efforts through the [IMO’s Women in Maritime Program](#)<sup>lv</sup> (May 18th has been marked as a day of observance each year to celebrate women in the maritime industry and to promote their recruitment, retention, and sustained employment). These efforts are part of the department’s ongoing work to advance the UN 2030 Agenda for [SDG 5: Achieve gender equality and empower all women and girls](#)<sup>lvi</sup>.

## **Experimentation**

As a regulatory and operational Department focused heavily on evidenced-based decision making in the advancement and continuous improvement of transportation policies, programs, projects and regulations, TC maintains an ongoing commitment to the testing, validation and refinement of innovative new approaches using rigorous evaluation methods.

In 2021-22, TC proceeded with a number of research, testing and proof of concept initiatives dealing with innovations in drone operations, international traveler identity, air cargo security and a range of transportation hazard and safety issues.

TC continued to work on the Phase 1 of RPAS traffic management (RTM) trials to validate RTM service technologies for beyond visual line of sight operations in rural environments, inform the development of performance requirements and attract industry investment to establish RTM service in Canada. Trial participants have tested drone tracking solutions and command and control links using terrestrial and satellite based cellular networks. This is providing baseline data about network coverage, latency, and reliability for RTM platforms. The data have also supported the development of IT infrastructure needs and initial system architecture concepts. In addition, trial participants and their partners have made significant investments that will have lasting benefits for the development of an RTM solution in Canada.

TC supported domestic air carriers' pilot projects that sought to rely on biometrics to verify traveller identity, thereby offering more efficient processes, with fewer physical touchpoints throughout an air traveller's journey. Findings are being used to further inform TC's assessment of the impact of biometrics on aviation security regulatory compliance and passenger processing speed, in line with the objectives of the KTDI pilot project.

During 2021-22, a testing portal that allowed air carriers to submit their digital air cargo information for analysis was developed for the PACT+AI initiative. This version of the program—which shifts away from less efficient manual methods—allows targeters to test real industry data and prepare advanced analytics reports for risk analysis. A framework for an Inbound Cargo Risk Score was also developed and is currently being applied—allowing targeters to receive near real-time risk information and make risk-based decisions. As the foundation for the AI, data analytics software (Microsoft Power BI) has been added to the PACT+AI initiative in order to streamline cargo data analysis and assist senior management with making decisions regarding risks to aviation security.

In 2021-22, TC focused on innovative approaches to regulation and tracking of dangerous goods, and application of efficient technologies for monitoring of infrastructure safety, including experimentation of the use of drones for remote as well as dangerous inspections. TC continued to use novel approaches to test innovative technologies and processes that will inform regulations as well as non-regulatory measures focused on ensuring that Canada's transportation system is safe and secure. Initiatives included:

- TC’s TDG Program partnered with the Pipeline and Hazardous Materials Safety Administration on the Regulatory Sandbox to align regulations and facilitate North American implementation of electronic shipping documents for dangerous goods.
- Canadian National (CN) Railway and Burlington Northern Santa Fe (BNSF) Railway are currently using paperless shipping documents in their daily operations, enabled through equivalency certificates issued by TDG.
- The Department’s TDG Program also partnered with the U.S. to develop and align regulations for remotely piloted aircraft that transport dangerous goods.

In 2021-22, TC continued to experiment with the use of virtual reality, augmented reality, and mixed reality technologies for inspector training. These technologies are designed to make training across Canada more accessible, equitable and efficient for TC inspectors in all regions, thereby reducing costs and environmental impacts, and allowing training to be undertaken in potentially dangerous situations such as near fast-moving waters and in tidal areas. In 2021-22, the focus was on Civil Aviation and Marine Safety & Security.

## Results achieved

### Results achieved – Result 1: A safe transportation system

Departmental results	Performance indicators	Target	Date to achieve target	2019–20 Actual results	2020–21 Actual results	2021–22 Actual results
1a) A safe transportation system	Ten-year aircraft accident rate <sup>1</sup> (average per year, per 100,000 aircraft movements)	No more than 3.2 per 100,000 movements	2022-03-31	3.2 per 100,000 movements	3.1 per 100,000 movements	3.1 per 100,000 movements
1b) A safe transportation system	Ten-year aircraft fatality rate (average per year, per 100,000 aircraft movements)	No more than 0.65 per 100,000 movements	2022-03-31	0.6 per 100,000 movements	0.6 per 100,000 movements	0.5 per 100,000 movements
1c) A safe transportation system	Ten-year marine accident rate (average per year, per 1,000 commercial vessels) <sup>2</sup>	At most 10 per 1,000 commercial vessels	2022-03-31	7.0 per 1,000 commercial vessels	6.8 per 1,000 commercial vessels	6.8 per 1,000 commercial vessels <sup>3</sup>

<sup>1</sup> This includes foreign-registered aircraft operating in Canada for both the accident and fatality rates.

<sup>2</sup> This includes unique foreign vessel arrivals, registered Canadian vessels under 15 gross tonnes (GT) and certificated vessels over 15 GT operating in Canadian waters.

<sup>3</sup> Indicator 1c is calculated using accidents reported by the TSB, and a count of vessels in Canadian waters in 2021-22 as calculated by TC.

1d) A safe transportation system	Ten-year marine fatality rate (average per year, per 1,000 commercial vessels)	At most 0.5 per 1,000 commercial vessels	2022-03-31	0.4 per 1,000 commercial vessels	0.4 per 1,000 commercial vessels	0.4 per 1,000 commercial vessels <sup>4</sup>
1e) A safe transportation system	Ten-year rail accident rate (average per year, per million-train miles)	No more than 12.24 (which is an estimated 5% reduction in the rate in the current year as compared to the average of previous five years) <sup>5</sup>	2022-03-31	5.2% reduction	7.9% reduction	7.2% increase <sup>6</sup>
1f) A safe transportation system	Ten-year rail fatality rate (average per year, per million-train miles)	No more than 0.72 (which is an estimated 5% reduction in the rate for the current year as compared to the average of previous five years) <sup>7</sup>	2022-03-31	7.0% reduction	3.9% reduction	13.7% reduction
1g) A safe transportation system	Rate of reportable road traffic collisions in Canada (rate per billion vehicle kilometres travelled)	No more than 1,563.45 (which is an estimated of 1% reduction in the rate for the current year as compared to the average of the previous five years)	2022-03-31	4.4% reduction in 2018 as compared to the five-year average (2013–17)	5.7% reduction in 2019 as compared to the five-year average (2014–18)	23.8% reduction in 2020 as compared to the five-year average (2015–19)

<sup>4</sup> Indicator 1d is calculated using fatalities reported by the TSB, and a count of vessels in Canadian waters in 2021-22 as calculated by TC.

<sup>5</sup> For indicator 1e reductions in accident rates depend on collaboration between railway companies, road authorities and private authorities who share the responsibility for the implementation of measures to reduce these rates. This is the reason why we chose a 5% annual reduction rate.

<sup>6</sup> The increase is largely due to an elevated reporting of fires (186 in 2021-22 versus 89 in 2020-21).

<sup>7</sup> For indicator 1f reductions in fatality rates depend on collaboration between railway companies, road authorities and private authorities who share the responsibility for the implementation of measures to reduce these rates. This is the reason why we chose a 5% annual reduction rate.

1h) A safe transportation system	Rate of serious injuries in reportable road traffic collisions in Canada (rate per billion vehicle kilometres travelled)	No more than 27.84 (which is an estimated 1% reduction in the rate for the current year as compared to the average of the previous five years)	2022-03-31	15.9% reduction in 2018 as compared to the five-year average (2013–17)	18.9% reduction in 2019 as compared to the five-year average (2014–18)	17.9% reduction in 2020 as compared to the five-year average (2015–19)
1i) A safe transportation system	Rate of fatalities in reportable road traffic collisions in Canada (rate per billion vehicle kilometres travelled)	No more than 5.08 (which is an estimated 1% reduction in the rate for the current year as compared to the average of the previous five years)	2022-03-31	3.9% reduction in 2018 as compared to the five-year average (2013–17)	12.5% reduction in 2019 as compared to the five-year average (2014–18)	2.5% reduction in 2020 as compared to the five-year average (2015–19)

## Results achieved – Result 2: A secure transportation system

Departmental results	Performance indicators	Target	Date to achieve target	2019-20 Actual results	2020-21 Actual results	2021-22 Actual results
2a) A secure transportation system	Time to Revoke Transportation Security Clearances (TSC)	It is anticipated that this outcome will be reportable in one year at which time the baseline and target will be set for future trend analysis	2022-03-31	N/A – New indicator	N/A – New indicator	As a full year has not yet lapsed in production, data will be produced next fiscal year.
2b) A secure transportation system	Total number of TSC Applications processed versus TSC applications received	Between 40,000 and 50,000	2022-03-31	N/A – New indicator	N/A – New indicator	43,637
2c) A secure transportation system	Rate of compliance of air sector operators with TC's security regulations	At least 90%	2022-03-31	93.03%	90%	77%

### Results achieved – Result 3: A modern safety and security regime that supports economic growth

Departmental results	Performance indicators	Target	Date to achieve target	2019-20 Actual results	2020-21 Actual results	2021-22 Actual results
3a) A modern safety and security regime that supports economic growth	Percentage of TC safety regulations aligned with international transportation standards (air)	100%	2022-03-31	95.1%	95.1%	95.1%
3b) A modern safety and security regime that supports economic growth	Percentage of TC security regulations aligned with international transportation standards (air)	At least 90%	2022-03-31	100%	100%	100%
3c) A modern safety and security regime that supports economic growth	Percentage of client requests for safety or security authorizations that meet TC's service standards (air)	At least 83%	2022-03-31	89.00%	80.45%	86.80%
3d) A modern safety and security regime that supports economic growth	Percentage of client requests for safety or security authorizations that meet TC's service standards (marine)	At least 80%	2022-03-31	99.88%	99.87%	99.51%

**Budgetary financial resources (dollars)**

2021–22 Main Estimates	2021–22 Planned spending	2021–22 Total authorities available for use	2021–22 Actual spending (authorities used)	2021–22 Difference (Actual spending minus Planned spending)
444,748,926	444,748,926	513,774,558	454,625,657	9,876,731

**Human resources (full-time equivalents)**

2021–22 Planned full-time equivalents	2021–22 Actual full-time equivalents	2021–22 Difference (Actual full-time equivalents minus Planned full-time equivalents)
3,451	3,392	(59)

Financial, human resources and performance information for the TC's Program Inventory is available in [GC InfoBase](#)<sup>lvii</sup>.

## Core responsibility 2: Green and Innovative Transportation System

**Description:** Advances the Government of Canada's environmental agenda in the transportation sector by reducing harmful air emissions; protects Canada's ocean and marine environments by reducing the impact of marine shipping; and affirms a commitment to innovation in the transportation sector.

### Government wide priorities

#### Supporting Canada's Oceans Protection Plan



In 2021-22, TC continued to lead on the Government's [Oceans Protection Plan \(OPP\)](#)<sup>lviii</sup>, as part of a whole-of-government approach. This included: ongoing improvements to prevention and response times to deal with marine pollution incidents; increased on-water presence and response capacity; rapid enablement of science-based response in the event of a spill; and expansion of the role of the Canadian Coast Guard Auxiliary. The Department also worked to preserve and restore coastal marine ecosystems vulnerable to marine shipping, including protection of Canada's whale populations and restoration of coastal ecosystems. From 2017 to the end of 2021-22, TC held over 2,300 public and stakeholder engagement sessions—including over 1,800 with Indigenous groups—to promote modernization of marine safety and environmental protection in Canada.

TC also continued to help reduce pollution from vessels and to support oil spill response through its modernized [National Aerial Surveillance Program \(NASP\)](#)<sup>lix</sup>, under which TC aircraft flew 564 hours monitoring for the deterrence of oil spills and the protection of marine mammals. NASP is in the process of converting its fourth aircraft from a typical commuter aircraft to a maritime patrol aircraft, which is expected to reach initial operating service by Spring of 2023. Complementing this, TC advanced plans to deliver Canada's first large-scale drone to support NASP in the Arctic by spring/summer of 2023. More generally, the Department invested in scientific research and technology to better prevent and respond to ship-source oil spills, while increasing understanding of how to protect coastal ecosystem.

In June and July of 2021, the Government launched virtual consultations to involve Indigenous Peoples and other marine stakeholders in shaping the next phase of the OPP. Based on this, a [What We Heard report](#)<sup>lx</sup> was released in February 2022 summarizing overall national and regional priorities of Indigenous partners and stakeholders across Canada.

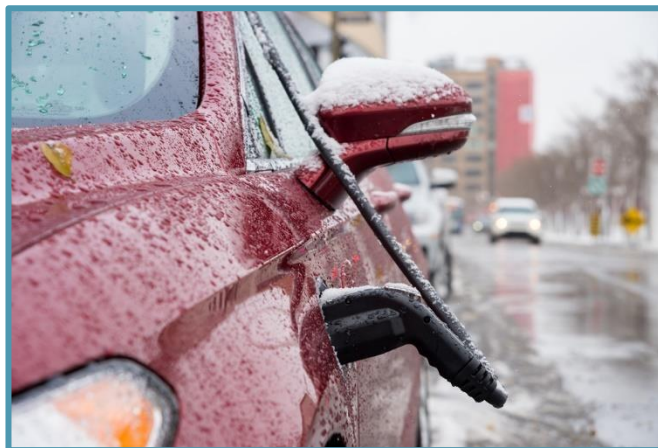
Among many Government actions under the \$1.5 billion OPP ([Report to Canadians](#)<sup>lxi</sup>), TC supported the signing of a Memorandum of Understanding between Canada and Heiltsuk Nation, committing both parties to work together to enhance the First Nation’s role in marine environmental response within Heiltsuk territory. Progress was also made in improving current, tide, and sea level prediction systems for six high-priority Canadian ports on the Pacific and Atlantic coasts as well the St-Lawrence River, so as to provide emergency spill responders with better drift estimates.

### **Delivering on global climate change and plastic reduction commitments**

TC continued to work with federal partners and stakeholders to develop and implement initiatives under the [Pan-Canadian Framework on Clean Growth and Climate Change](#)<sup>lxii</sup>. The Framework sets out Canada’s strengthened climate plan to reduce greenhouse gas (GHG) emissions and air pollutants from transportation, and to promote a green economy through clean transportation technologies. The Department also worked through international fora—such as the IMO and the ICAO—to develop goals and measures to reduce environmental impacts from international transportation.

In the final year of the [Transportation Assets Risk Assessment \(TARA\)](#)<sup>lxiii</sup> initiative, TC continued to develop knowledge and tools to help the transportation sector adapt to climate change and build resiliency into its infrastructure and operations. This entailed funding of climate risk assessments and adaptation research for federally owned and operated assets such as airports, ports, bridges, and roads.

With the objectives of making it easier for consumers and businesses to choose zero-emission vehicles and to reduce emissions from the on-road sector, TC continued to work with partners to deliver the [Incentives for Zero Emission Vehicles \(iZEV\) Program](#)<sup>lxiv</sup> for passenger vehicles. As of March 31, 2022, over 141,000 vehicles had been incented through a total of \$611 million in program investments. TC also worked with partners to launch a Marine and Ports Hydrogen working group under [Canada’s Hydrogen Strategy](#)<sup>lxv</sup>. In addition, the Department launched a process to develop a new action plan to reduce GHG emissions from the aviation sector—focusing on a vision of net-zero emissions by 2050—supported by near-term actions to set the sector on a path to decarbonization.



The Department continued to support domestic and international work—including collaboration with the IMO—to prevent and reduce marine plastic litter from ship-based activities. TC funded an [Innovation Solutions Canada](#)<sup>lxvi</sup> challenge on innovative ways to recycle glass fibre-reinforced plastic, and launched a new challenge for the filtration of microplastic from ship greywater discharge.

## Strengthening Indigenous engagement and reconciliation

In 2021-22, TC explored new opportunities for co-management and partnership arrangements to learn from, and meaningfully engage, Indigenous Peoples in the development and management of Canada’s transportation system in ways that protect the environment, respect Indigenous culture and interests, and integrate Indigenous knowledge in decision making. To better fulfill legal obligations and advance reconciliation, TC supported the active participation of Indigenous communities and organizations through departmental Grant and Contribution funding programs.

Major initiatives either launched or continuing in 2021-22 include:

- [Indigenous Participant Funding Program](#)<sup>lxvii</sup> to support the capacity of Indigenous communities and organizations to participate in processes under the [Canadian Navigable Waters Act \(CNWA\)](#)<sup>lxviii</sup> and [Wrecked, Abandoned or Hazardous Vessels Act \(WAHVA\)](#)<sup>lxix</sup>, including: a Project component to support consultation processes related to the two Acts; a Policy component to support engagement in the development of implementation policies for the two Acts; and a Capacity component to fund Indigenous community- and organization-led initiatives which support long-term capacity to participate in related processes and activities.
- [Community Participation Funding Program](#)<sup>lxx</sup>, to help eligible local and Indigenous communities and organizations take part in developing and improving Canada’s marine and rail transportation system, including: knowledge sharing in tailoring marine and rail transportation systems to local conditions and the environment; and engagement in the development and implementation of federal marine transportation and rail safety strategies and policies that may impact their daily activities and communities.
- The program has two components:
  - [Marine Transportation Component](#)<sup>lxxi</sup>, which helps eligible Indigenous groups and local communities to take part in developing and improving Canada’s marine transportation system.
  - [Rail Safety Component](#)<sup>lxxii</sup>, which helps eligible local and Indigenous communities and organisations to take part in developing and improving Canada's rail transportation system.

TC has also established contribution agreements with three National Indigenous Organizations, namely the Assembly of First Nations (AFN), Inuit Tapiriit Kanatami (ITK) and the Native Women’s Association of Canada (NWAC), to build ongoing relationships focused on a number of programs under TC’s mandate. These longer-term contribution

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agreements were set up for 3 years (2020-21 to 2022-23), providing \$100K per year per organization.

- AFN has provided valuable knowledge and guidance on Oceans Protection Plan initiatives, the development of the Interdepartmental [Indigenous Knowledge Policy Framework](#)<sup>lxxiii</sup>, and TC’s engagement with First Nations. TC is seeking to expand work with AFN beyond the marine sphere, and the department’s Rail Safety Directorate is currently working on developing an engagement framework with the organization.
- TC and ITK have established regular co-hosted dialogue, entailing 3-4 calls per year with the four Inuit land claim organizations, to discuss topics of mutual interest, with a focus in the marine sphere, including the *CNWA* and the OPP.
- In early 2022, NWAC provided reports to TC on “Culturally Relevant Gender-Based Analysis” of both the Interdepartmental Indigenous Knowledge Policy Framework, and the *CNWA*, concerning Indigenous women’s unique relationship with, and knowledge of, water (an issue of particular relevance for the Navigation Protection Program).

Among several other key initiatives in 2021-22, TC established partnerships with Indigenous communities in a number of projects, including the implementation of marine safety initiatives through the [Trans Mountain Expansion Project accommodation measures](#)<sup>lxxiv</sup>. The Department also commenced exploratory discussions regarding a co-managed navigational study with a First Nation located in Ontario that would help develop a co-management framework in the implementation of the *CNWA*. To guide partnerships with Indigenous Peoples on an ongoing basis, TC continued work with other federal departments to develop an Indigenous Knowledge Policy Framework to support the respectful integration of Indigenous Knowledge in decision-making for project reviews and regulatory decisions, and which will guide the implementation of Indigenous Knowledge provisions in the *CNWA*.

### **Integrating Indigenous Knowledge in transportation decision making**

The Government of Canada is committed to the active and meaningful engagement with Indigenous Peoples in all relevant aspects of policy development and decision making. This includes the proactive integration of Indigenous Knowledge with scientific evidence to ensure a robust and well-balanced consideration of issues, options and implications.

TC has been working with other federal departments and agencies and Indigenous partners in developing an Indigenous Knowledge Policy Framework. For TC, the Framework will provide guiding principles for the implementation of mandatory Indigenous Knowledge provisions for project reviews and regulatory decisions related to the *CNWA*. This will establish the baseline from which internal Indigenous Knowledge guidance, for both the *CNWA* and the department more broadly, will be developed and subsequently applied. Indigenous Knowledge guidance and related tools will guide how TC will work with and consider Indigenous Knowledge, respectfully, in projects and initiatives.

The aim is to have interim guidance drafted in 2023, with the guidance finalized in 2024 following further engagement with Indigenous partners. Once the guidance is implemented, Indigenous Peoples will have a greater understanding of how their Knowledge is integrated into TC's processes and decisions. Such appropriate and respectful inclusion of Indigenous Knowledge in TC's work will foster stronger relationships with Indigenous Peoples and support better informed analysis of issues and options in decision making.

## **Environmental protection policies and strategies**

### **Strengthening regulatory measures to protect marine environments**

In 2021-22, TC commenced work in respect to proposed legislative amendments to the *WAHVA*, which will include the creation of a vessel-owner financed remediation fund to support the remediation/removal of priority abandoned, hazardous or wrecked vessels and preventative measures to reduce Vessels of Concern.

The Department also commenced an initial review of the *Ferry Cable Regulations*<sup>lxxv</sup>, *Navigable Waters Bridges Regulations*<sup>lxxvi</sup> and *Navigable Waters Works Regulations*<sup>lxxvii</sup> in order to assess the outdated regulations and its provisions. (For example, some requirements may no longer be aligned with industry standards and best practices.) The review provided an opportunity to reduce regulatory administrative burden; create greater flexibility for industry to make use of new technologies and approaches for managing interferences to navigation; and help the Program better address outstanding compliance issues and facilitate case-by-

case review. In addition, the review advanced a regulatory proposal to establish fees for services provided by the Department, as part of a broader departmental fee modernization initiative, and developed enhanced program administration capacity to process Governor-in-Council exemption requests. For example, throwing or dumping material—such as sawdust, edgings, stone, gravel, etc.—into a navigable water, or a body of water that connects to a navigable water; and activities that lower the water level of a waterway so that navigation is impossible.

Over the past few years, TC has been modernizing the legislative framework for pilotage to support safe and efficient pilotage services into the future. The amended provisions of the *Pilotage Act*<sup>lxxviii</sup> are now fully implemented and the transition to the new system is complete. The Department continues to work with pilotage authorities and system users on bringing into effect new regulations that better integrate pilotage in the navigation system.

### **Taking action on abandoned, hazardous and wrecked vessels**

In 2021-22, TC took measures to address abandoned, hazardous and wrecked vessels by implementing and enforcing the *WAHVA*. It also improved the quality of vessel owner information, and launched public consultations on a proposed regulatory charge to be collected from vessel owners that would be used to finance the remediation of problem vessels in Canadian waters. In the course of the year, TC addressed 52 vessels under its *Abandoned Boats Program*<sup>lxxix</sup> and took compliance and enforcement actions to clean up an additional 157 vessels, pursuant to its authorities under *WAHVA*. In total, since April 2017 to March 2022, TC has addressed 592 problem vessels.

### **Investing in environmental training**

With a commitment to strengthening environmental management knowledge and skills in the marine sector, the Department's MTP continued to fund training projects for underrepresented groups (e.g., Indigenous Peoples, Inuit, Northerners, and women). This training was offered through the British Columbia Institute of Technology (BCIT), in partnership with Camosun College, the Nunavut Fisheries and Marine Training Consortium (NFMTC), and the Nova Scotia Community College (NSCC). While some planned training projects were delayed and others converted to virtual delivery because of COVID-19 restrictions, there were 189 graduates, with 1,104 TC marine certificates issued and 135 graduates successfully employed in the marine industry—including positions with the Canadian Coast Guard.

### **Addressing threats from invasive aquatic species**

To mitigate the economic and environmental risks to Canada from the introduction and spread of aquatic invasive species via marine transportation, TC undertook several initiatives. It implemented the new *Ballast Water Regulations*<sup>lxxx</sup> on June 23, 2021, which regulations strengthen existing rules and further protect Canada's environment from the introduction and spread of aquatic invasive species and pathogens. In line with this, TC continued work to engage the United States and other countries on regulatory compatibility. The Department also engaged with the domestic and international marine community on the control and

management of vessel biofouling, and released draft voluntary guidance on in-water biofouling cleaning of vessel hulls.

### **Promoting environmental innovations in the transportation sector**

In 2021-22, TC's [ecoTECHNOLOGY for Vehicles Program](#)<sup>lxxxix</sup> tested and evaluated new technologies to help reduce GHGs and air pollutants from transportation and support a safe and secure deployment of connected and automated vehicles. The program also addressed regulatory knowledge gaps about the performance of new advanced technologies, with the results supporting the development of evidence-based codes, standards and test protocols. Funded projects have addressed a variety of innovations, including: a [joint project with NRC and the Toronto Transit Commission](#)<sup>lxxxix</sup> analyzing the energy performance from TTC's deployment of 60 electric buses to develop electrification guidelines for transit agencies; a study on the reliability and accuracy of hydrogen refueling to support codes and standards for hydrogen infrastructure; tests on advanced driver assistance system technologies such as automated emergency braking (AEB) for vulnerable road users, car-to-car AEB and lane keep assist; and an evaluation of the performance of vehicle-to-vehicle communications in various road and environmental conditions.

TC provided funding for R&D projects to accelerate the adoption of clean technologies by the domestic marine sector. This included support for the development of innovative electrical boat propulsion systems, including requirements for recharging infrastructure and maintenance and the commercial viability of zero emission propulsion systems. It also included the installation and testing of an electric boat conversion kit on a vessel, including trials and demonstrations by commercial boat operators.

TC also supported R&D initiatives for the development of a port emissions inventory tool that will provide emission estimates of GHG and criteria air contaminants for vessels, locomotives, on-road vehicles, off-road equipment, and administrative buildings within a port's boundaries. In addition, TC supported other projects, including: assessment of environmental and health risks of black carbon generated by marine engines; identification of best practices to measure and regulate black carbon emissions; exploration of issues associated with the development of a natural gas marine supply chain for the Canadian Arctic; prototype design of an on-the-go robotic technology for ship hull cleaning in transit; assessment of best environmental practices for hull coating and propeller polishing on laker vessels; and study of potential underwater vessel noise performance results and GHG reductions from the application of graphene coatings to fishing vessels.

In 2021-22, TC also provided funding for R&D projects to accelerate the adoption of clean technologies in the rail sector, including: development of an advanced locomotive catalytic converter; development and testing of lignin-derived fuel blends for the rail sector; and risk assessment and analysis of mitigation options and standards for hydrogen-powered locomotives.

The Department continued to implement Budget 2017's \$10.5M program to [Advance Connectivity and Automation in the Transportation System \(ACATS\)](#)<sup>lxxxix</sup>, which provided

transfer payments for [15 research, testing, and capacity building](#)<sup>lxxxiv</sup> projects addressing wireless communications for connected and automated vehicles, road infrastructure cybersecurity, and [Intelligent Transportation System architectures](#)<sup>lxxxv</sup>. TC also supported and participated on several collaborative efforts led by the [Transportation Association of Canada](#)<sup>lxxxvi</sup>, [CSA Group](#)<sup>lxxxvii</sup> (PDF, 3.6 MB), the [Connected Vehicle Pooled Fund Study](#)<sup>lxxxviii</sup>, and the [Transportation Research Board](#)<sup>lxxxix</sup>, among others.

## Gender-based analysis plus

TC consistently applies a rigorous GBA Plus framework to review plans and proposals for policies, programs, projects, legislation and regulations. The GBA Plus framework was designed to move beyond traditional policy development assumptions, deliberately assess the different impacts of initiatives on diverse population groups based on sex, gender and other intersecting identity factors. Finally, in applying a GBA Plus analysis, incorrect assumptions that can lead to unintended and unequal impacts on particular groups of people would be minimized.

In 2021-22, TC placed special emphasis on the engagement of underrepresented groups in marine training, as part of broader Departmental efforts to strengthen the diversity of the marine sector and support the long-term achievement of Canada’s OPP. As part of the OPP, TC’s MTP, supported new training and learning opportunities for underrepresented groups within the marine sector. The program pursued ways to reduce barriers to entry for underrepresented groups looking to join the marine industry, as well as ongoing efforts to reflect and support Indigenous values, local and traditional knowledge in national training curricula. More than 1,000 students have participated in MTP courses and programs, and many have successfully found employment in the marine sector—including the Canadian Coast Guard—following graduation.

## 2030 Agenda for Sustainable Development

TC integrates—wherever relevant in its policies, programs and projects—cost-effective means to support Canada’s commitment to the United Nations 2030 Agenda for Sustainable Development and the SDGs, and advancement of the Federal Implementation Plan for the 2030 Agenda.

In 2021-22, TC played significant roles in international and interdepartmental initiatives related to climate change, protection of marine species at risk, and pollution prevention from marine operations. A TC representative served as vice-chair for meetings of the [United Nations Economic Commission for Europe’s \(UNECE\)](#)<sup>xc</sup> Group of Experts on Assessment of Climate Change Impacts and Adaptation for Inland Transport. This Group of Experts advances work to generate and share knowledge and build capacity across UNECE regions to address climate change impacts for inland transport, thereby supporting several UN SDGs including:

- [SDG 9: Industries, Innovation and Infrastructure](#)<sup>xcii</sup>
- [SDG 13: Climate Action](#)<sup>xciii</sup>
- [SDG 17: Partnerships for the Goals](#)<sup>xciii</sup>

In 2021-22, TC further refined and implemented measures to protect Canada’s at-risk whale populations from negative impacts of vessel traffic. This included requiring vessels to stay at least 400m away from killer whales in the Salish Sea and creating no-go zones for vessels to reduce the threat of physical and acoustic disturbance to the endangered [Southern Resident killer whales](#)<sup>xciv</sup>. It also included implementing mandatory speed limits over much of the Gulf of St. Lawrence to reduce the risk of vessel collisions with endangered [North Atlantic right whales](#)<sup>xcv</sup>. These TC whale protection measures contributed to the [SDG 14: Conserve and sustainably use the oceans, seas and marine resources](#)<sup>xcvi</sup>.

## Experimentation

As a regulatory and operational Department focused heavily on evidenced-based decision making in the advancement and continuous improvement of transportation policies, programs, projects and regulations, TC maintains an ongoing commitment to the testing, validation and refinement of innovative new approaches using rigorous evaluation methods.

In the field of road Research, Design and Development (RD&D), TC proceeded with its ecoTECHNOLOGY for Vehicles (eTV) Cooperative Truck Platooning System project. This entails track-based and on-road testing to gather evidence to inform the potential development of guidelines, regulations, policies and programs for this technology. In 2021-22, dynamic testing was completed at TC’s Motor Vehicle Testing Centre, and a human factors assessment and training as well as an on-road trial were completed in January 2022.

In 2021-22, Marine RD&D projects continued to support the adoption of low-noise and low-emission vessel innovations, both domestically and internationally. Similarly, rail RD&D projects contributed to the reduction of GHG and air pollutant emissions by assessing the performance of emerging technologies in Canada and informing the development of environmental and safety regulations, codes, standards and guidelines. These research projects help ensure innovative technologies can be introduced in a safe and timely manner.

In 2021-22, TC launched a project in support of the [Navigation Protection Program \(NPP\)](#)<sup>xcvii</sup>, assessing the efficacy of RPAS as a tool to inspect areas of interest, such as abandoned vessels, new bridge piers, ferry docks, newly constructed bridges, and aquaculture fish farms. Using drones to support NPP inspections can enhance TC’s oversight capabilities, particularly in areas that are challenging or dangerous for a human inspector to reach, e.g., near fast moving waters and in tidal areas. The project determined that RPAS development is at a suitable stage to proceed with operational experimentation.

Working with the NRC, TC supported the development of a satellite-based earth observation tool, to automate the inspection of critical infrastructure, including bridges, marine ports, airports, and railways. The project developed data needed to provide public infrastructure authorities with early warnings about unexpected and excessive deformations and structural behaviour of critical assets to ensure that proactive maintenance and remediation can be accomplished.

An experimental trial was undertaken in four provinces to validate the ability of aerial drones to supplement traditional rail track inspection technologies. The experiment confirmed the ability of larger drones to conduct inspections in beyond visual line of sight operations, though more analysis and experimentation needs to be done to assess if the technology can be effectively deployed at scale.

In 2021-22, TC undertook several trials of experimental made-in-Canada drones. This included: long range fixed wing drones; long and mid-range cargo resupply quadrotor and tandem-rotor aircraft for military and emergency response scenarios; and a variety of short-range quadrotor aircraft principally designed for inspection purposes. These trials included testing of tilt-rotor transitions, transitions from aircraft to rover, novel recovery, and delivery parachutes and designs that can operate in the absence of GPS connectivity. Trials took place at each of Canada’s four major drone proving grounds and in underground mining facilities to simulate signal loss. They also included work on detection equipment to locate drones and to improve navigation and situational awareness of non-compliant or illegal drone activity.

## Results achieved

### Results achieved – Result 4: Harmful air emissions from transportation in Canada are reduced

Departmental results	Performance indicators	Target	Date to achieve target	2019–20 Actual results	2020–21 Actual results	2021–22 Actual results
4a) Harmful air emissions from transportation in Canada are reduced	Percentage change in emissions of GHGs from the transportation sector	Emissions from the transportation sector in 2021 are reduced from 2019 levels, helping contribute to the achievement of Canada’s national target to reduce emissions by 30% by 2030 from 2005 levels	2021-12-31	8.5% above 2005 levels in 2019	8.9% below 2005 levels in 2020	2021 emissions will be published in April 2023

## Results achieved – Result 5: Canada’s oceans and marine environments are protected from marine shipping impacts

Departmental results	Performance indicators	Target	Date to achieve target	2019–20 Actual results	2020–21 Actual results	2021–22 Actual results
5a) Canada’s oceans and marine environments are protected from marine shipping impacts	Reduction in the rate of spills into Canada’s oceans and marine environments	5% reduction in spills from one year to the next	2022-03-31	0.15/hour per active 1,000 active commercial vessels <sup>8</sup>	0.114/hr per 1,000 active commercial vessels	0.106/hr per 1,000 active commercial vessels <sup>9</sup>
5b) Canada’s oceans and marine environments are protected from marine shipping impacts	Percentage of vessels 20 meters and greater that are compliant with slowdown measures that mitigate the impacts of vessel traffic on marine species	At least 85%	2022-03-31	N/A - New Indicator as of April 1, 2021	N/A - New Indicator as of April 1, 2021	99.51%

## Results achieved – Result 6: A transportation system that supports innovation

Departmental results	Performance indicators	Target	Date to achieve target	2019-20 Actual results	2020-21 Actual results	2021-22 Actual results
6a) A transportation system that supports innovation	Number of new aeronautical products certified	Variance remains +/- 10% year-over-year	2022-03-31	N/A: The indicator is in the process of being revised, to better capture and report on the department’s innovation agenda.	N/A: The indicator is in the process of being revised, to better capture and report on the department’s innovation agenda.	669

<sup>8</sup> This was reported as 0.0015 in the 2019-20 Departmental Results report.

<sup>9</sup> Active commercial vessels include unique foreign vessel arrivals, registered Canadian commercial vessels under 15 GT and certificated vessels over 15 GT operating in Canadian waters.

**Budgetary financial resources (dollars)**

2021–22 Main Estimates	2021–22 Planned spending	2021–22 Total authorities available for use	2021–22 Actual spending (authorities used)	2021–22 Difference (Actual spending minus Planned spending)
480,211,176	480,211,176	606,849,025	464,773,611	(15,437,565)

**Human resources (full-time equivalents)**

2021–22 Planned full-time equivalents	2021–22 Actual full-time equivalents	2021–22 Difference (Actual full-time equivalents minus Planned full-time equivalents)
713	775	62

Financial, human resources and performance information for TC's Program Inventory is available in [GC InfoBase](#)<sup>xcviii</sup>.

## **Core responsibility 3: Efficient Transportation System**

**Description:** Supports efficient market access to products through investment in Canada’s trade corridors; adopts and implement rules and policies that promote sufficient choice and improved service to Canadian travellers and shippers; and manages transportation assets to ensure value for Canadians.

### **System-wide Initiatives**

#### **Supporting informed decisions on transportation systems**

TC continued to operate the Trade and Transportation Information System, comprised of the [Canadian Centre on Transportation Data \(CCTD\)](#)<sup>xcix</sup> and the associated [Transportation Data and Information Hub \(TDIH\)](#)<sup>c</sup>. The CCTD partnership between Statistics Canada and TC continues to serve as a trusted source for authoritative transportation data for stakeholders and the Canadian public. Drawing on more than 600 data sets, performance indicators, analyses and research on transportation in Canada, the TDIH disseminates data and information to increase understanding of the transportation sector and its role in Canada's economy and society.

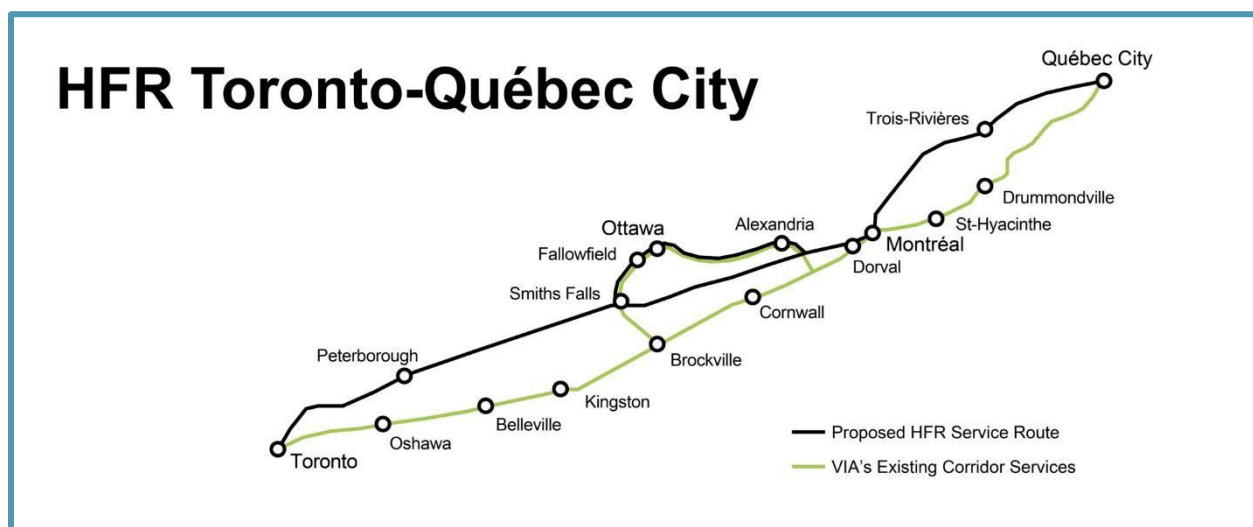
Following extensive consultations with industry, TC in 2021-22, developed proposed amendments to the [Transportation Information Regulations](#)<sup>ci</sup> designed to enhance public reporting on railway service and performance. By significantly improving the quality of data regarding railway service and performance, it will enable supply chain partners and stakeholders to better identify and understand emerging issues, reduce information asymmetry between parties, and place further emphasis on railway performance in support of efforts to improve supply chain resiliency and overall fluidity within the network.

#### **Addressing labour supply challenges in the transportation sector**

TC undertook work on Canada’s problem with labour and skills shortages across transportation modes by continuing to implement its Strategy on Labour and Skills Shortages. This ongoing work entails collaboration with industry, stakeholders and other government partners. TC worked with Employment and Skills Development Canada (ESDC) to provide opportunities for third party applicants from the transportation sector to access resources for skills development and training under ESDC’s [Sectoral Workplace Solutions Program](#)<sup>cii</sup>. TC also sought opportunities to improve data and evidence to support effective decision-making in these areas, with the aim of building a fully capable and diverse transportation workforce in Canada, including engagement of women, Indigenous Peoples, and other underrepresented groups.

## System Investment and Improvements

### Making progress on a high-frequency rail system for Ontario and Québec



**Figure 1:** Proposed HFR route between Toronto and Québec City. While a route and stations have been proposed, work is ongoing, including public consultations, to help guide HFR's exact path and station stops.

Source: [HFR Integrated Project Team](#)

TC and its partners continued to advance the transformative HFR project in the Toronto-Ottawa-Montreal-Quebec City corridor. Progress included: completion of preliminary work to prepare for the procurement process; release of a Request for Expressions of Interest from industry; and initiation of engagement with Indigenous Peoples as well as public stakeholders such as transit authorities, municipalities, and chambers of commerce, as part of preparatory work for the formal Impact Assessment process.

### Reinforcing the role and viability of the St. Lawrence Seaway

TC continued to ensure the St. Lawrence Seaway remains a critical transportation corridor for North America. As part of the 2017 Seaway Review, the Department engaged with Indigenous communities as well as stakeholders such as the St. Lawrence Seaway Management Corporation, shippers, carriers, industry associations, provinces, and municipalities. The findings from this review actively informed TC's efforts to support the St. Lawrence Seaway as a key asset to advance trade and promote economic growth, and ensure the continued movement of goods. In 2021 alone, approximately 38 million tonnes of cargo transited the St. Lawrence Seaway.

### Modernizing Canada's ports

In 2021-22, TC moved nearer to completion of its Ports Modernization Review, which will aim to optimize the role of Canada Port Authorities in the transportation system. Launched in 2018, the review is focused on five key themes: supporting the competitiveness of Canada's

economy by facilitating the movement of goods; strengthening relationships with Indigenous Peoples and local communities; promoting environmentally sustainable infrastructure and operation; enhancing port safety and security; and optimizing governance and financial management. As it finalizes the review, TC is ensuring that potential impacts to the economy and supply chain—such as those caused by pandemics or other major events—are duly considered in risk mitigation plans.

## **Reinforcing Canada’s trade corridors**

TC continued to deliver the [NTCF<sup>ciii</sup>](#), which enables investments in trade corridors that allow Canadians to compete in key global markets through improved fluidity of Canadian supply chains, i.e., improvements that enhance the ease and speed with which cargo moves from one geographic area to another and from one transportation mode to another. In 2021-22, TC completed calls for proposals for the Arctic and Northern component as well as the Continuous component of the Fund, resulting in 33 funded projects, with federal contributions totalling more than \$795M. The projects focus on strengthening Canada’s connections to global markets, diversifying trade, and building more efficient and reliable internal trade corridors, including in Canada’s Northern and Arctic regions.

TC also supported trade and transportation infrastructure investments in Arctic and northern communities. This entailed: collaboration with partners on the implementation of the [Arctic and Northern Policy Framework<sup>civ</sup>](#) to improve socio-economic opportunities for Northerners; launching of the Arctic Transportation Policy Framework to guide TC’s policies, regulations and programs in the North; and creation of an Arctic and Northern Lens to help ensure that northern realities are duly taken into account in policy, program and regulatory processes.

## **Supporting Canada’s transportation infrastructure**

TC continued to implement the Government’s [Ferry Services Contribution Program<sup>cv</sup>](#), which was extended for five years through to March 31, 2027. The program helps ensure continued access to safe and reliable ferry services for communities in Eastern Canada over the longer term. Design of new ferry vessels to replace the MV Holiday Island and MV Madeleine continued to advance, with the planned use of hybrid propulsion technologies to significantly reduce GHG emissions.

Under the [Ports Asset Transfer Program<sup>cvi</sup>](#), TC advanced the transfer of two TC-owned local ports, Les Méchins and Pelee Island, and transferred the Port of Baie-Comeau. Port transfers put control of the port facilities directly into the hands of local interests, which supports job creation and tourism development opportunities that benefit local businesses, port facility users, and the regional economy.

TC-owned airports, ports and ferry terminals and TC-owned ferry vessels remained available for use, with TC continuing investments to enhance health and safety at the facilities. Two of five projects funded through Budget 2018 were completed, namely the Services Building Retrofit at the Kuujjuaq Airport, and Kuujjuaq Airport Rehabilitation of Runway 07/25 and Taxiway. Work continued on the remaining three projects, namely the Wabush Airport Combined Services Building, Sept Iles Airport Rehabilitation of Runway 09-27, and

Penticton Airport Maintenance Garage replacement. Other major infrastructure projects completed in 2021-22 included the rehabilitation of the wharf of La Romaine and the Rehabilitation of the Maintenance Garage at the St. Anthony Airport. Progress continued to be made on ferry terminal infrastructure and vessel fit-up related to the newly-acquired MV Madeleine II, as well as procurement of two new ferry vessels via Davie Shipbuilding, both of which will continue into 2022-23. Major health and safety projects for ferries that were completed in 2021-22 included Harbour Dredging and Parking Lot Expansion at the Souris Terminal and Electrical, Mechanical and Lighting Upgrades at both the Wood Islands and Caribou Terminals.

## **Gender-based analysis plus**

TC consistently applies a rigorous GBA Plus framework to review plans and proposals for policies, programs, projects, legislation and regulations. The GBA Plus framework was designed to move beyond traditional policy development assumptions, deliberately assess the different impacts of initiatives on diverse population groups based on sex, gender and other intersecting identity factors. Finally, in applying a GBA Plus analysis, incorrect assumptions that can lead to unintended and unequal impacts on particular groups of people would be minimized.

In 2021-22, TC focused on inclusive approaches to training, particularly in support of inspection and enforcement operations.

In 2021-22, TC continued to apply a GBA Plus lens when developing and updating the training given to inspectors of all modes. The objective is to ensure that all training materials are free from bias, e.g., by adopting use of gender-neutral names and pronouns, such as “they” instead of he or she, or using both genders where necessary, such as “inspecteur/inspectrice” in French.

## **2030 Agenda for Sustainable Development**

TC integrates—wherever relevant in its policies, programs and projects—cost-effective means to support Canada’s commitment to the United Nations 2030 Agenda for Sustainable Development and the SDGs, and advancement of the Federal Implementation Plan for the 2030 Agenda.

In 2021-22, TC was a key contributor to the development of the International Transport Forum’s Gender Analysis Toolkit for Transport Policies designed to help member countries and transportation stakeholders adopt and normalize gender analysis in their development of transport policies.

## **Experimentation**

As a regulatory and operational Department focused heavily on evidenced-based decision making in the advancement and continuous improvement of transportation policies, programs, projects and regulations, TC maintains an ongoing commitment to the testing, validation and refinement of innovative new approaches using rigorous evaluation methods.

In 2021-22, TC applied and experimented with innovative approaches to inspector training and the application of machine learning for certain departmental operations. The Department also continued to improve its operations by launching several applications that leverage robotics process automation, intelligent business process management system, and machine learning. These applications enhance efficiency and effectiveness by allowing TC to eliminate manual data entry for Marine Safety inspectors, and to improve data accuracy, for example in detecting high risk air cargo.

## Results achieved

### Results achieved – Result 7: Transportation corridors enable efficient movement of products to market

Departmental results	Performance indicators	Target	Date to achieve target	2019–20 Actual results	2020–21 Actual results	2021–22 Actual results
7a) Transportation corridors enable efficient movement of products to market	End-to-end, rail transit time of containers along the trade corridor from Canadian west coast ports to Chicago, including border crossing time	Less than or to 6.5 days (3-year average TBD end of 2020)	2022-03-31	6.5 days	6.2 days	6.4 days
7b) Transportation corridors enable efficient movement of products to market	End-to-end, Canada-side, truck transit time of general freight along the Toronto to United States trade corridor, including border crossing time	Between 0 hours and 25 hours	2022-03-31	3.4 hours	3.4 hours	3.4 hours
7c) Transportation corridors enable efficient movement of products to market	End-to-end transit time of containerized freight arriving from ports in Asia	Equal to or under 25 days	2022-03-31	25.9 days	29.7 days	34.5 days
7d) Transportation corridors enable efficient movement of products to market	End-to-end transit time of a select grouping of commodities, such as grains, departing from Canada to Asia	Equal to or under 38 days	2022-03-31	39.5 days	40.5 days	40.0 days

## Results achieved – Result 8: Canadian travellers and freight operators benefit from choice and improved service

Departmental results	Performance indicators	Target	Date to achieve target	2019–20 Actual results	2020–21 Actual results	2021–22 Actual results
8a) Canadian travellers and freight operators benefit from choice and improved service	Percentage of designation requests from Canadian carriers for international scheduled services processed <sup>10</sup>	100%	2022-03-31	NA New indicator	100% (7 out of 7) <sup>11</sup>	100% (11 out of 11)
8b) Canadian travellers and freight operators benefit from choice and improved service	Percentage of exemption requests from foreign carriers for domestic services processed <sup>12</sup>	100%	2022-03-31	100% (2 of 2)	100% (3 out of 3) <sup>13</sup>	100% (11 out of 11)

## Results achieved – Result 9: Transport Canada manages its assets effectively

Departmental results	Performance indicators	Target	Date to achieve target	2019-20 Actual results	2020-21 Actual results	2021-22 Actual results
9a) TC manages its assets effectively	Availability of TC owned and managed airports <sup>14</sup>	Exactly 100% (*certain types of events are excluded from the calculation)	2022-03-31	100%	100%	100%
9b) TC manages its assets effectively	Availability of TC owned and managed ports	Exactly 100% (*certain types of events are excluded from the calculation)	2022-03-31	100%	100%	100%

<sup>10</sup> This Department Results Indicator, as a percentage, has limited use since the department through ACE(A) aims to process all designation requests, regardless of the actual number of requests received, and we are exploring revising this indicator.

<sup>11</sup> This number represents the actual number of designation requests that were processed during 2020-21; and, as expected, is quite small due to the pandemic, which negatively impacted all air transport activity.

<sup>12</sup> This Departmental Results Indicator, as a percentage, has limited use since the department through ACE(B) aims to process all exemption requests, regardless of the actual number of requests received, and we are considering revising this indicator.

<sup>13</sup> This number represents the actual number of exemption requests that were processed during 2020-21; and, as expected, is quite small due to the pandemic, which negatively impacted all air transport activity.

<sup>14</sup> 9a-c) Any planned closure/cancellation required for maintenance reasons to ensure safe operations is excluded from the calculation. In addition, any closure/cancellation due to causes that cannot be anticipated and/or are beyond the control of the department, such as weather-related issues, natural disasters, or employee strikes is excluded.

Departmental results	Performance indicators	Target	Date to achieve target	2019-20 Actual results	2020-21 Actual results	2021-22 Actual results
9c) TC manages its assets effectively	Availability of TC owned and managed ferries	Exactly 100% (*certain types of events are excluded from the calculation)	2022-03-31	100%	100%	100%

### Budgetary financial resources (dollars)

2021–22 Main Estimates	2021–22 Planned spending	2021–22 Total authorities available for use	2021–22 Actual spending (authorities used)	2021–22 Difference (Actual spending minus Planned spending)
911,569,977	911,569,977	1,435,139,031	1,013,339,021	101,769,044

### Human resources (full-time equivalents)

2021–22 Planned full-time equivalents	2021–22 Actual full-time equivalents	2021–22 Difference (Actual full-time equivalents minus Planned full-time equivalents)
498	503	5

Financial, human resources and performance information for the TC’s Program Inventory is available in [GC InfoBase<sup>cvii</sup>](#).

## Internal Services

### Description

Internal Services are groups of related activities and resources that the federal government considers to be required to support programs and/or required to meet the corporate obligations of an organization. Internal Services refers to the activities and resources of the 10 distinct service categories that support program delivery in the organization:

- Acquisition Management Services
- Communication Services
- Financial Management Services
- Human Resources Management Services
- Information Management Services
- Information Technology Services
- Legal Services
- Materiel Management Services
- Management and Oversight Services
- Real Property Management Services

### Results:

#### Modernizing human resources management

TC's Human Resources (HR) undertook significant modernization projects in 2021-22 in a wide range of areas. Notably, the Department completed Phase 1 of classification conversion and will continue with next phases of the longer-term project in future years. TC also continued to modernize the Department's Staffing Activity Management System (SAMS) and how TC assesses candidates, with the aim of reducing reliance on traditional assessment plans in favour of more realistic environments and contexts. In addition, TC developed a series of data dashboards that support improvement of overall People Management and HR planning. In addition, TC updated the Delegation of HR Authorities and a number of policies, to ensure readiness for the post-pandemic shift to hybrid work.

TC's Occupational Health and Safety (OHS) continued to update policies, directives and programs to meet the emerging needs of the COVID pandemic, respond to changes to the Canada Labour Code on harassment and violence prevention in the workplace, and reflect the new realities of the hybrid-work model.

In addition to leveraging HR data for improved recruitment and retention, and to meet diversity objectives, TC continued to develop several on-line applications and supporting tools to advance its future-of-work initiative (OurTC). TC established itself as a leader interdepartmentally through such initiatives as its development of a Work and Teams Assessment process to identify readiness for hybrid work, the design of a Work Arrangement Agreement application for all TC employees, and the development and provision of discussion guides, and multiple resource tools to meet the needs of managers and employees.

## **Strengthening workplace skills and knowledge**

In 2021-22, TC acquired an enterprise-wide Learning Management System (LMS), that will track and streamline learning, while enabling interactive elements for learning experiences and facilitating the development of new and engaging TC learning. This modern and innovative learning platform—due to be operational by September 2022—will significantly increase the learning experience for employees.

TC’s HR also successfully launched new learning and diversity initiatives. Most notable was the full launch of a Middle Managers Development Program (MMDP) in September 2021. The MMDP provide the opportunity to enhance soft skills to manage people more effectively through recognizing unconscious bias, having difficult conversations productively, and managing through challenging times.

## **Creating a more diverse, inclusive and supportive workplace**

TC established a Diversity and Inclusion (D&I) Secretariat to support its multi-pronged approach to improving diversity and inclusion at TC. The Secretariat supports a number of committees and subcommittees tasked with leading TC’s D&I Action Plan, focused on ensuring coherent communication, data analytics, administrative support, programming and reporting to central agencies and internal to TC. TC’s D&I intranet site is regularly updated and includes access to the Canadian Centre for D&I to further equip TC employees and managers with D&I resources and a multiculturalism calendar.

TC completed its 2020-21 Annual Multiculturalism report to Canadian Heritage (PCH), in addition to the annual Employee Equity Workforce Analysis Report. TC also contributed to the response Letter to the Clerk on the Call to Action on Anti-Racism, Equity, and Inclusion in the Federal Public Service.

TC’s HR staffing team helped the Department continue to innovate and be flexible by expanding national recruitment and increasing the number of employees working in positions based outside of their region. For example, TC introduced “distributed teams” where not all team members work in the same geographic location, an approach that has allowed TC to be more creative in filling critical skills gaps through identification of candidates from less traditional candidate pools.

Internally, a review of the existing performance measurement framework for TC’s D&I Action Plan was initiated. The results are intended to inform and improve the next iteration of the framework.

## **Leveraging digital technologies and lessons learned to enhance efficiency and effectiveness**

TC’s Communications Group continued to use a digital-first approach to inform, consult and engage stakeholders and Canadians. Information was shared using multiple formats and various platforms to accommodate the diverse needs of Canadians. This ensured information was equally accessible to all audiences, including Indigenous, ethno-cultural and official-

language minority communities, as required by the Government of Canada’s [Policy on Communications and Federal Identity](#)<sup>cviii</sup>.

In 2021-22, TC’s Audit and Evaluation Branch conducted reviews and audits for various high-profile TC priorities, including grants and contributions funding, migration to the Cloud, TC’s airports, and programs under the OPP. Risks related to COVID-19 were addressed by examining the pandemic-related temporary measures and developing lessons learned to help inform the management of future crises.

In support of its objective to use a digital-first approach to inform and engage with stakeholders and Canadians in an open and transparent manner, TC undertook multiple projects to build engagement capacity and skills and to openly share information and data with Canadians. TC provided in-house training on public participation to build new engagement capacity and networks. TC also supported the implementation of the National Action Plan on Open Government and continued to be an active contributor of open information and open data records.

In 2021-22, TC made great strides in modernizing its digital services by leveraging emerging cloud computing technology, improving user experiences, and being smarter with data to enable more evidence-based decision-making.

Further, TC continued to advance the adoption of modern digital delivery practices, aligned with the Government of Canada’s Digital Standards, including human-centred design, agile and product management approaches. TC built a service management framework with supporting tools and guidance for service managers to better align with TC’s service modernization goals and Government of Canada’s [Policy on Service and Digital](#)<sup>cxix</sup>. With this TC enables those that are responsible for delivering services to Canadians to better align their services with policies and strategic direction.

In 2021-22, TC adopted a [department remission policy](#)<sup>cx</sup>, which outlines when service recipients could be eligible for a partial refund if TC does not meet service standards.

## Modernizing fee structures and administration

As part of TC’s [Fee Modernization Initiative](#)<sup>cxii</sup>, the Department continued to improve fee structures and reinforce service commitments. Many of TC’s fees have not increased in 20 years and do not reflect the costs of providing the services. TC engaged and consulted stakeholders on proposed fee changes, including: Remotely Piloted Aircraft Systems (RPAS) Lower-Risk Beyond Visual Line-Of-Sight (BVLOS) Operations; Vessel Registry; and Regulatory charge (fee) for Vessel Remediation Fund. In April 2021 the [Marine Safety Fees Regulations](#)<sup>cxiii</sup> came into force, which included new fees for Marine Insurance Certification. TC also introduced the option to apply and pay for these certificates online. Finally, phase 1 of the modernization of the fees for Marine Cargo Inspection Program also came into force.

In addition, as part of TC’s Service Transformation, the Department continued to develop tools to improve service delivery for Canadians, for which a priority is to enable 100% of the Department’s services with fees available online.

## **Gender-Based Analysis Plus**

TC consistently applies a disciplined GBA Plus framework to review plans and proposals for policies, programs, projects, legislation and regulations, with a view to identifying and advancing to overcome systemic barriers and enhance equitable opportunities for diverse population groups based on sex, gender and other intersecting identity factors.

In 2021-22, special emphasis was placed on gender representation in advertising campaigns as well as all web and social media communications. TC continued to apply GBA Plus considerations in the design of information and advertising campaigns, consultations and surveys, and sample selection for research studies.

Additionally, all web and social media communications were made available in both official languages at the same time in compliance with the government’s Web Standards. Communications products were also neutral and depicted the diverse nature of Canadians in a fair, representative and inclusive way. Visuals used in social media, web and advertising campaigns presented gender-neutral images, different genders (often in non-traditional roles), various ethnicities, and Canadians with disabilities. The department did not receive requests for digital content in alternate formats.

In 2021-22, a comprehensive update of TC’s GBA Plus guidance documents was completed. This included a revised GBA Plus template and user instructions as well as the GBA Plus Inventory of Sources and Data that align with new tools to strengthen GBA Plus—a tool released by Women and Gender Equality Canada (WAGE). TC participated in interdepartmental and international meetings and events, and promoted GBA Plus best practices. In early 2022, TC participated in the annual Consultation on Gender and Transport hosted by the International Transport Forum (ITF), and in June 2022, representatives from TC facilitated a learning session on GBA Plus in action at Trucking HR Canada’s annual Women with Drive leadership convention, reaching an audience of over 200 participants from industry. The Department continued to engage with over 90 GBA Plus Network members at TC through email updates and meetings, and hosted a virtual learning event for the Network during GBA Plus Awareness Week. TC’s GBA Plus Guidance Tool for Staffing Processes was finalized for use by management to effectively incorporate GBA Plus considerations into staffing opportunities and TC continued to promote GBA Plus mandatory training with over 80% of TC employees having completed the online GBA Plus training offered by WAGE.

**Budgetary financial resources (dollars)**

2021–22 Main Estimates	2021–22 Planned spending	2021–22 Total authorities available for use	2021–22 Actual spending (authorities used)	2021–22 Difference (Actual spending minus Planned spending)
214,715,234	214,715,234	255,744,759	250,468,392	35,753,158

**Human resources (full-time equivalents)**

2021–22 Planned full-time equivalents	2021–22 Actual full-time equivalents	2021–22 Difference (Actual full-time equivalents minus Planned full-time equivalents)
1,340	1,622	282

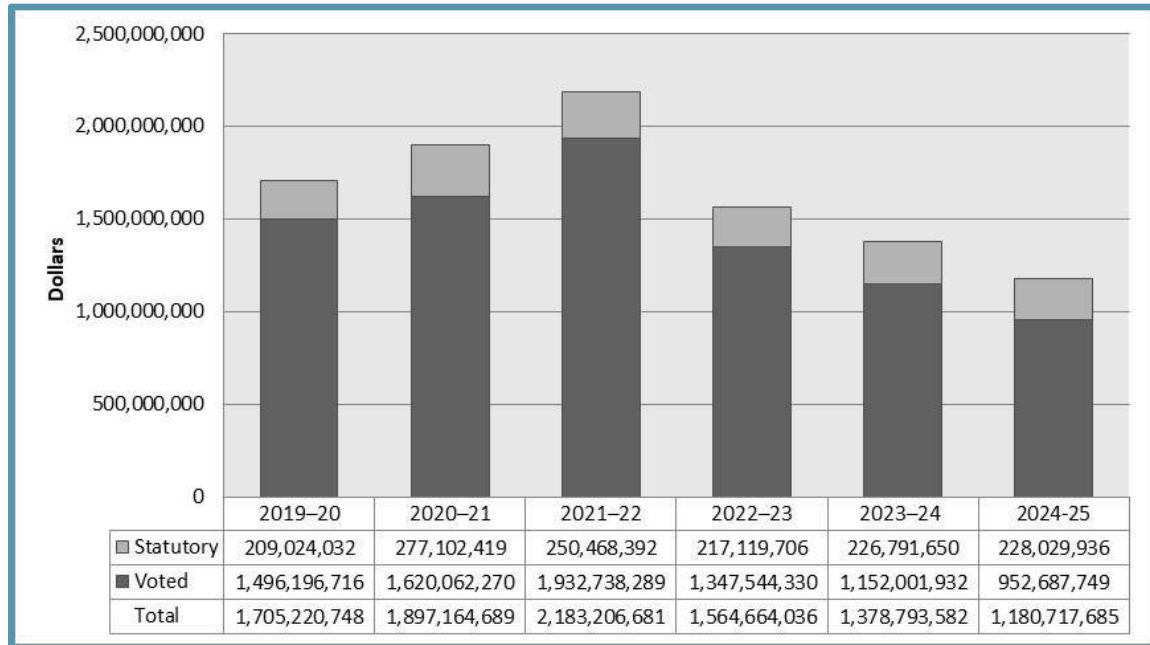
## Spending and human resources

### Spending

#### Departmental spending trend graph

##### Spending 2019-20 to 2024-25

The following graph presents planned (voted and statutory) spending over time.



As illustrated in the departmental spending trend graph, TC’s actual expenditures increased from fiscal year 2019-20 through to fiscal year 2021-22. This is mainly due to incremental funding for initiatives such as the NTCF, the iZEV and the purchase of a new ferry vessel (MV Madeleine II) to ensure ferry service continuity to the remote community of Îles-de-la-Madeleine. This increase also included spending on programs to support the air sector during the COVID-19 pandemic (such as increased funding for the Airports Capital Assistance Program, the Airport Critical Infrastructure Program, and the Airport Relief Fund).

Spending plans decline after 2021-22 mostly due to sun setting funding for initiatives such as the iZEV, Support for Remote Communities, the OPP, the NTCF, and for spending on programs to support the air sector during the COVID-19 pandemic (such as increased funding for the Airports Capital Assistance Program, the Airport Critical Infrastructure Program, and the Airport Relief Fund).

The planned spending does not include expected funding for items included in Budget 2021 or Budget 2022.

## Budgetary performance summary for Core Responsibilities and Internal Services (dollars)

Core Responsibilities and Internal Services	2021–22 Main Estimates	2021–22 Planned spending	2022–23 Planned spending	2023–24 Planned spending	2021–22 Total authorities available for use	2019–20 Actual spending (authorities used)	2020–21 Actual spending (authorities used)	2021–22 Actual spending (authorities used)
CR1 - Safe and Secure Transportation System	444,748,926	444,748,926	399,141,879	353,454,379	513,774,558	453,703,550	460,142,800	454,625,657
CR2 - Green and Innovative Transportation System	480,211,176	480,211,176	204,472,272	140,993,945	606,849,025	389,635,911	345,956,926	464,773,611
CR3 - Efficient Transportation System	911,569,977	911,569,977	759,615,683	693,185,777	1,435,139,031	644,930,752	852,124,999	1,013,339,021
<b>Subtotal</b>	<b>1,836,530,079</b>	<b>1,836,530,079</b>	<b>1,363,229,834</b>	<b>1,187,634,101</b>	<b>2,555,762,614</b>	<b>1,488,270,213</b>	<b>1,658,224,725</b>	<b>1,932,738,289</b>
Internal Services	214,715,234	214,715,234	201,434,202	191,159,481	255,744,759	216,950,535	238,939,964	250,468,392
<b>Total</b>	<b>2,051,245,313</b>	<b>2,051,245,313</b>	<b>1,564,664,036</b>	<b>1,378,793,582</b>	<b>2,811,507,373</b>	<b>1,705,220,748</b>	<b>1,897,164,689</b>	<b>2,183,206,681</b>

The “budgetary performance summary for core responsibilities and internal services” table presents the budgetary financial resources allocated for TC’s core responsibilities and for internal services.

### Planned spending

Planned spending includes approved funding at the time the 2021-22 Main Estimates were approved and would not include expected funding from Budget 2021 or Budget 2022.

### Total authorities available for use

Total authorities available for use is greater than planned spending because it includes incremental funding approved during the year mostly through the Supplementary Estimates process. Examples for 2021-22 include increased funding for Grant and Contribution programs to support the air sector during the pandemic as well as increased funding for the iZEV and the Port Asset Transfer Program.

## **Actual Spending**

Actual spending is less than total authorities available for use because of changes in completion dates for Capital projects and changes to the timing of transfer payments as the department matches actual expenditures to recipient requirements. Examples of less than expected expenditures for 2021-22 include Grant and Contribution programs such as the Airport Critical Infrastructure Program, the NTCF and the program to protect Canada's coastlines and Waterways.

Long-term trend information for each core responsibility generally follows the patterns outlined at the departmental level in the previous section. For information on the 2021-22 variances (actuals less planned) at the core responsibility level please note:

### **Safe and Secure Transportation System**

This core responsibility spent \$9.9M (or 2%) more than originally planned in 2021-22, this is considered a non-material variance.

### **Green and Innovative Transportation System**

This core responsibility spent \$15.4M (or 3%) less than originally planned in 2021-22 mostly as a result of surpluses in Capital and Grant and Contribution programs, (such as the iZEV as a result of changes in completion dates for Capital projects and changes to the timing of transfer payments as the department matches actual expenditures to recipient requirements, offset by increased funding for various initiatives.

### **Efficient Transportation System**

This core responsibility spent \$101.8M (or 11%) more than originally planned in 2021-22 mostly as a result of increased funding approved during the year through the Supplementary Estimates process for Grant and Contribution programs to support the air sector during the pandemic.

### **Internal Services**

This core responsibility spent \$36.8M (or 17%) more than originally planned in 2021-22 as a result of increased funding for Internal Services mostly to address Information Management and Information Technology funding requirements.

## Human resources

The “Human resources summary for core responsibilities and internal services” table presents the full-time equivalents (FTEs) allocated to each of TC’s core responsibilities and to internal services.

### Human resources summary for core responsibilities and Internal Services

Core responsibilities and Internal Services	2019–20 Actual full-time equivalents	2020–21 Actual full-time equivalents	2021–22 Planned full-time equivalents	2021–22 Actual full-time equivalents	2022–23 Planned full-time equivalents	2023–24 Planned full-time equivalents
Safe and Secure Transportation System	3,479	3,514	3,451	3,392	3,291	3,047
Green and Innovative Transportation System	629	678	713	775	591	449
Efficient Transportation System	488	490	498	503	480	473
<b>Subtotal</b>	<b>4,596</b>	<b>4,682</b>	<b>4,662</b>	<b>4,670</b>	<b>4,362</b>	<b>3,969</b>
Internal Services	1,448	1,569	1,340	1,622	1,270	1,225
<b>Total</b>	<b>6,044</b>	<b>6,251</b>	<b>6,002</b>	<b>6,292</b>	<b>5,632</b>	<b>5,194</b>

As illustrated in the above table, FTEs increased from 2019-20 to 2021-22. This increase is mostly due to initiatives such as the Trade, and Transportation Corridors Initiative, Protecting Marine Life, the Trans Mountain Expansion project, and temporary initiatives to help support Canada’s Air Sector during the COVID-19 pandemic.

Planned FTEs are expected to decline after 2021-22 primarily as a result of reduced and sun-setting funding for initiatives such as the Trade and Transportation Corridors Initiative, the Oceans Protection Plan, TC’s Transformation Initiative, the Trans Mountain Expansion project, and the temporary initiatives to help support Canada’s Air Sector during the COVID-19 pandemic.

The planned FTEs do not include expected funding for items included in Budget 2021 or Budget 2022.

## Expenditures by vote

For information on TC’s organizational voted and statutory expenditures, consult the [Public Accounts of Canada 2021–2022](#)<sup>cxiii</sup>.

## Government of Canada spending and activities

Information on the alignment of TC's spending with the Government of Canada's spending and activities is available in [GC InfoBase](#)<sup>cxiv</sup>.

## Financial statements and financial statements highlights

### Financial statements

TC's [financial statements \(unaudited\)](#) for the year ended March 31, 2022<sup>cxv</sup>, are available on the departmental website.

### Financial statement highlights

#### Condensed Statement of Operations (unaudited) for the year ended March 31, 2022 (dollars)

Financial information	2021–22 Planned results	2021–22 Actual results	2020–21 Actual results	Difference (2021– 22 Actual results minus 2021–22 Planned results)	Difference (2021– 22 Actual results minus 2020–21 Actual results)
Total expenses	2,257,942,000	2,275,387,001	1,858,085,756	17,445,001	417,301,245
Total revenues	83,134,000	83,306,675	71,385,444	172,675	11,921,231
Net cost of operations before government funding and transfers	2,174,808,000	2,192,080,326	1,786,700,312	17,272,326	405,380,014

#### Condensed Statement of Financial Position (unaudited) as of March 31, 2022 (dollars)

Financial information	2021–22	2020–21	Difference (2021–22 minus 2020–21)
Total net liabilities	1,344,948,065	1,318,444,374	26,503,691
Total net financial assets	439,417,039	483,005,708	(43,588,669)
Departmental net debt	905,531,026	835,438,666	70,092,360
Total non-financial assets	2,938,527,697	2,952,182,538	(13,654,841)
Departmental net financial position	2,032,996,671	2,116,743,872	(83,747,201)

## Corporate Information

### Organizational profile

**Appropriate minister(s):** The Honourable Omar Alghabra, Minister of Transport

**Institutional head:** Michael Keenan

**Ministerial portfolio:** Transport Canada

The [Transport Canada Portfolio](#)<sup>cxvi</sup> includes:

- Transport Canada
- Shared governance organizations (e.g., the [St. Lawrence Seaway Management Corporation](#)<sup>cxvii</sup>)
- Crown corporations (e.g., the [Great Lakes Pilotage Authority](#)<sup>cxviii</sup>)

Grouping these organizations into one portfolio allows for integrated decision making on transportation issues.

**Enabling instrument(s):** [Department of Transport Act](#)<sup>cxix</sup> (R.S., 1985, c. T-18)

TC administers over 50 [laws related to transportation](#)<sup>cxx</sup> and shares responsibility for the administration of many others. Justice Canada is the federal department responsible for maintaining the [Consolidated Statutes of Canada](#)<sup>cxxi</sup> and provides access to the full text of federal acts and regulations.

**Year of incorporation / commencement:** 1936

### Raison d’être, mandate and role: who we are and what we do

“[Raison d’être, mandate and role: who we are and what we do](#)<sup>cxxii</sup>” is available on TC’s website.

For more information on the department’s organizational mandate letter commitments, see the “[Minister’s mandate letter](#)<sup>cxxiii</sup>”.

### Operating context

Information on the operating context is available on the [TC’s website](#)<sup>cxxiv</sup>.

### Reporting framework

TC’s approved Departmental Results Framework and Program Inventory for 2021-22 are as follows.

Departmental Results Framework						
Core responsibility 1: Safe and secure transportation system		Core responsibility 2: Green and innovative transportation system		Core responsibility 3: Efficient transportation system		
Result 1: A safe transportation system	<b>Indicator:</b> Accident rate over a 10-year period, and fatality rate over a 10-year period (air and marine)	Result 4: Harmful air emissions from transportation in Canada are reduced	<b>Indicator:</b> Percentage change in emissions of greenhouse gases from the transportation sector	Result 7: Transportation corridors enable efficient movement of products to market	<b>Indicator:</b> End-to-end, rail transit time of containers along the trade corridor from Canadian west coast ports to Chicago, including border crossing time	
	<b>Indicator:</b> Accident rate over a 5-year period, and fatality rate over a 5-year period (rail)				<b>Indicator:</b> End-to-end, Canada-side, truck transit time of general freight along the Toronto to United States trade corridor, including border crossing time	
	<b>Indicator:</b> Rate of reportable road traffic collisions in Canada				<b>Indicator:</b> End-to-end transit time of containerized freight arriving from ports in Asia	
	<b>Indicator:</b> Rate of serious injuries in reportable road traffic collisions in Canada				<b>Indicator:</b> End-to-end transit time of a select grouping of commodities, such as grains, departing from Canada to Asia	
Result 2: A secure transportation system	<b>Indicator:</b> Rate of compliance of Canadian aviation regulated entities with Transport Canada's security regulations	Result 5: Canada's oceans and marine environments are protected from marine shipping impacts	<b>Indicator:</b> Reduction in the rate of spills into Canada's ocean and marine environments	Result 8: Canadian travellers and freight operators benefit from choice and improved service	<b>Indicator:</b> Percentage of international air services requests/issues addressed	
	<b>Indicator:</b> Total number of Transportation Security Clearance (TSC) applications processed versus TSC applications received				<b>Indicator:</b> Percentage of vessels 20 meters and greater that are compliant with slowdown measures that mitigate the impacts of vessel traffic on marine species	<b>Indicator:</b> Percentage of exemption requests from foreign carriers for domestic services processed
	<b>Indicator:</b> Time to revoke Transportation Security Clearances					

<b>Result 3: A modern safety and security regime that supports economic growth</b>	<b>Indicator:</b> Percentage of Transport Canada's safety or security regulations aligned with international transportation standards (air)	<b>Result 6:</b> A transportation system that supports innovation	<b>Indicator:</b> Number of new aeronautical products certified	<b>Result 9:</b> Transport Canada manages its assets effectively	<b>Indicator:</b> Availability of Transport Canada owned and managed transportation assets (ports, airports, ferries)
	<b>Indicator:</b> Percentage of client requests for safety or security authorizations that meet Transport Canada's service standards (air)				
	<b>Indicator:</b> Percentage of client requests for safety or security authorizations that meet Transport Canada's service standards (marine)				

Internal Services		
Program Inventory		
<b>Core responsibility 1:</b> <b>Safe and secure transportation system</b>	<b>Core responsibility 2:</b> <b>Green and innovative transportation system</b>	<b>Core responsibility 3:</b> <b>Efficient transportation system</b>
<b>Programs:</b> Aviation Safety Regulatory Framework, Aviation Safety Oversight, Aircraft Services, Marine Safety Regulatory Framework, Marine Safety Oversight, Rail Safety Regulatory Framework, Rail Safety Oversight, Rail Safety Improvement Program, Multi-Modal and Road Safety Regulatory Framework, Multi-Modal and Road Safety Oversight, TDG Regulatory Framework, TDG Oversight, TDG Technical Support, Aviation Security Regulatory Framework, Aviation Security Oversight, Marine Security Regulatory Framework, Marine Security Oversight, Intermodal Surface Security Regulatory Framework, Intermodal Surface Security Oversight, Security Screening Certification, and Emergency Management.	<b>Programs:</b> Climate Change and Clean Air, Protecting Oceans and Waterways, Navigation Protection Program, Environmental Stewardship of Transportation, Transportation Innovation, and Indigenous Partnerships and Engagement.	<b>Programs:</b> Transportation Marketplace Frameworks, Transportation Analysis, National Trade Corridors, and Transportation Infrastructure.

## Supporting information on the program inventory

Supporting information on planned expenditures, human resources, and results related to TC's Program Inventory is available in the [GC InfoBase](#)<sup>cxxv</sup>.

## Supplementary information tables

The following supplementary information tables are available on [TC's website](#)<sup>cxxvi</sup>:

- Details on transfer payment programs
- Gender-based analysis plus
- Horizontal initiatives
- Response to parliamentary committees and external audits
- United Nations 2030 Agenda for Sustainable Development and the Sustainable Development Goals

## Federal tax expenditures

TC's Departmental Results Report does not include information on tax expenditures that relate to its planned results for 2021–22.

Tax expenditures are the responsibility of the Minister of Finance, and the Department of Finance Canada publishes cost estimates and projections for government-wide tax expenditures each year in the [Report on Federal Tax Expenditures](#)<sup>cxxvii</sup>. This report provides detailed information on tax expenditures, including objectives, historical background and references to related federal spending programs, as well as evaluations, research papers and gender-based analysis. The tax measures presented in this report are solely the responsibility of the Minister of Finance.

## Organizational contact information

### Mailing address

Transport Canada (ADI)  
330 Sparks Street  
Ottawa, ON  
K1A 0N5

**Telephone:** 613-990-2309

**Fax:** 613-954-4731

**Email:** [Questions@tc.gc.ca](mailto:Questions@tc.gc.ca)

**Website(s):** [Transport Canada website](#)<sup>cxxviii</sup>

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## Appendix: definitions

### **appropriation** (*crédit*)

Any authority of Parliament to pay money out of the Consolidated Revenue Fund.

### **budgetary expenditures** (*dépenses budgétaires*)

Operating and capital expenditures; transfer payments to other levels of government, organizations or individuals; and payments to Crown corporations.

### **core responsibility** (*responsabilité essentielle*)

An enduring function or role performed by a department. The intentions of the department with respect to a core responsibility are reflected in one or more related departmental results that the department seeks to contribute to or influence.

### **Departmental Plan** (*plan ministériel*)

A report on the plans and expected performance of an appropriated department over a 3-year period. Departmental Plans are usually tabled in Parliament each spring.

### **departmental priority** (*priorité*)

A plan or project that a department has chosen to focus and report on during the planning period. Priorities represent the things that are most important or what must be done first to support the achievement of the desired departmental results.

### **departmental result** (*résultat ministériel*)

A consequence or outcome that a department seeks to achieve. A departmental result is often outside departments' immediate control, but it should be influenced by program-level outcomes.

### **departmental result indicator** (*indicateur de résultat ministériel*)

A quantitative measure of progress on a departmental result.

### **departmental results framework** (*cadre ministériel des résultats*)

A framework that connects the department's core responsibilities to its departmental results and departmental result indicators.

### **Departmental Results Report** (*rapport sur les résultats ministériels*)

A report on a department's actual accomplishments against the plans, priorities and expected results set out in the corresponding Departmental Plan.

**experimentation** (*expérimentation*)

The conducting of activities that seek to first explore, then test and compare the effects and impacts of policies and interventions in order to inform evidence-based decision-making, and improve outcomes for Canadians, by learning what works, for whom and in what circumstances. Experimentation is related to, but distinct from innovation (the trying of new things), because it involves a rigorous comparison of results. For example, using a new website to communicate with Canadians can be an innovation; systematically testing the new website against existing outreach tools or an old website to see which one leads to more engagement, is experimentation.

**full-time equivalent** (*équivalent temps plein*)

A measure of the extent to which an employee represents a full person-year charge against a departmental budget. For a particular position, the full-time equivalent figure is the ratio of number of hours the person actually works divided by the standard number of hours set out in the person's collective agreement.

**gender-based analysis plus (GBA Plus)** (*analyse comparative entre les sexes plus [ACS Plus]*)

An analytical process used to assess how diverse groups of women, men and gender-diverse people experience policies, programs and services based on multiple factors including race ethnicity, religion, age, and mental or physical disability.

**government-wide priorities** (*priorités pangouvernementales*)

For the purpose of the 2020–21 Departmental Results Report, those high-level themes outlining the government's agenda in the 2019 Speech from the Throne, namely: Fighting climate change; Strengthening the Middle Class; Walking the road of reconciliation; Keeping Canadians safe and healthy; and Positioning Canada for success in an uncertain world.

**horizontal initiative** (*initiative horizontale*)

An initiative where two or more federal organizations are given funding to pursue a shared outcome, often linked to a government priority.

**non-budgetary expenditures** (*dépenses non budgétaires*)

Net outlays and receipts related to loans, investments and advances, which change the composition of the financial assets of the Government of Canada.

**performance** (*rendement*)

What an organization did with its resources to achieve its results, how well those results compare to what the organization intended to achieve, and how well lessons learned have been identified.

**performance indicator** (*indicateur de rendement*)

A qualitative or quantitative means of measuring an output or outcome, with the intention of gauging the performance of an organization, program, policy or initiative respecting expected results.

**performance reporting** (*production de rapports sur le rendement*)

The process of communicating evidence-based performance information. Performance reporting supports decision making, accountability and transparency.

**plan** (*plan*)

The articulation of strategic choices, which provides information on how an organization intends to achieve its priorities and associated results. Generally, a plan will explain the logic behind the strategies chosen and tend to focus on actions that lead to the expected result.

**planned spending** (*dépenses prévues*)

For Departmental Plans and Departmental Results Reports, planned spending refers to those amounts presented in Main Estimates.

A department is expected to be aware of the authorities that it has sought and received. The determination of planned spending is a departmental responsibility, and departments must be able to defend the expenditure and accrual numbers presented in their Departmental Plans and Departmental Results Reports.

**program** (*programme*)

Individual or groups of services, activities or combinations thereof that are managed together within the department and focus on a specific set of outputs, outcomes or service levels.

**program inventory** (*répertoire des programmes*)

Identifies all the department's programs and describes how resources are organized to contribute to the department's core responsibilities and results.

**result** (*résultat*)

A consequence attributed, in part, to an organization, policy, program or initiative. Results are not within the control of a single organization, policy, program or initiative; instead they are within the area of the organization's influence.

**statutory expenditures** (*dépenses législatives*)

Expenditures that Parliament has approved through legislation other than appropriation acts. The legislation sets out the purpose of the expenditures and the terms and conditions under which they may be made.

**target** (*cible*)

A measurable performance or success level that an organization, program or initiative plans to achieve within a specified time period. Targets can be either quantitative or qualitative.

**voted expenditures** (*dépenses votées*)

Expenditures that Parliament approves annually through an appropriation act. The vote wording becomes the governing conditions under which these expenditures may be made.

## Endnotes

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