



# 2021

## ENVIRONMENTAL, SOCIAL & GOVERNANCE REPORT

# TABLE OF CONTENTS

## OVERVIEW 3

MESSAGE FROM OUR BOARD CHAIR 4

MESSAGE FROM IAN ANDERSON 5

LOOKING BACK: 2021 HIGHLIGHTS 6

ABOUT TRANS MOUNTAIN 7

## APPROACH 8

OUR APPROACH TO ESG 9

SUSTAINABLE DEVELOPMENT GOALS 10

LOOKING FORWARD: ESG COMMITMENTS 11

ABOUT THIS REPORT 12

## ENVIRONMENT 13

ASSET INTEGRITY 14

EMERGENCY PREPAREDNESS AND RESPONSE 17

BIODIVERSITY, LAND AND WATER STEWARDSHIP 18

PROTECTING TRADITIONAL USE AND HERITAGE RESOURCES OF INDIGENOUS PEOPLES 21

GREENHOUSE GAS EMISSIONS 23

AIR QUALITY 25

ENVIRONMENTAL STEWARDSHIP IN MARINE TERMINAL OPERATIONS 26

## SOCIAL 31

EMPLOYEE AND CONTRACTOR SAFETY 32

INCLUSION AND DIVERSITY 35

RELATIONSHIPS WITH INDIGENOUS COMMUNITIES 37

RELATIONSHIPS WITH LANDOWNERS 42

RELATIONSHIPS WITH COMMUNITIES 43

ECONOMIC CONTRIBUTION TO CANADA 44

## GOVERNANCE 45

CORPORATE GOVERNANCE 46

GOVERNANCE FOR ENVIRONMENTAL AND SOCIAL MATTERS 47

CYBERSECURITY 48

ETHICS 49

WORKING WITH RESPONSIBLE CONTRACTORS 50

## TCFD 51

ADVANCING CLIMATE DISCLOSURES 52

I. GOVERNANCE 53

II. RISK MANAGEMENT 54

III. STRATEGY, CLIMATE-RELATED SCENARIOS 55

III. STRATEGY, CLIMATE CHANGE-RELATED PHYSICAL RISKS 58

III. STRATEGY, TRANSITION-RELATED RISKS AND OPPORTUNITIES 61

IV. METRICS AND TARGETS 63

## APPENDICES 64

OTHER ESG-RELATED QUESTIONS 65

PERFORMANCE TABLE 66

SASB INDEX 68

FORWARD-LOOKING STATEMENTS 69

# OVERVIEW



# MESSAGE FROM OUR BOARD CHAIR

**I am proud to be part of the skilled and experienced Board of Directors that oversees Trans Mountain Corporation. Trans Mountain is a federally owned corporation managed as any publicly-traded company would be—with transparency, attention to a long-term vision of growth and competitiveness, and a strict adherence to ethics and compliance.**

In February, the Board announced the retirement of Ian Anderson from his position as President and CEO of Trans Mountain and his departure from the Board, effective April 1, 2022. The entire Board of Directors extends its thanks for Ian's incredible leadership. Ian understood well that the business and this Expansion Project was about much more than a pipeline. He led a Project that continues to progress while setting new standards for major pipeline project execution, including unprecedented levels of involvement from Indigenous Peoples and communities. Ian's passion and commitment to Indigenous reconciliation in this country has transformed many communities that his work touched. On behalf of the Board, we wish Ian all the best in his future endeavours.

Effective April 1, the Board approved the appointment of Rob Van Walleggem as President (Interim) of Trans Mountain. Rob brings more than 30 years of legal experience to the role, including more than 20 years in the energy sector. He was recruited by Trans Mountain four years ago and added strong leadership and deep expertise to the company. The Board is undergoing a process to appoint a permanent replacement.

Through these changes, Trans Mountain has remained focused on executing its mandate to safely operate the existing pipeline and complete the Expansion Project. In March 2022, construction reached a major milestone achieving more than 50 per cent completion. Celebration of the halfway mark was made possible by the hard work and dedication of our entire workforce. The Trans Mountain pipeline remains the only pipeline that transports petroleum from the Western Canadian Sedimentary Basin to the West Coast. It is also the only pipeline providing Canadian producers with direct access to world market pricing through a Canadian port. We believe Trans Mountain stands as an example of how a major infrastructure project can successfully contribute to a responsible Canadian energy industry.

I encourage you to read the pages ahead to learn more about Trans Mountain's practices and progress on its environmental, social and governance (ESG) initiatives. As a Board, we have and will continue to take an active role in overseeing the management of the company's ESG risks and opportunities.



2021 underscored the need for a strong company culture. Through the experiences of the wildfires, the extreme flooding in BC, and the ongoing COVID-19 pandemic, Trans Mountain continued to make progress on the Expansion. On behalf of the Board of Directors I would like to offer my thanks to all Trans Mountain's employees and contractors for their hard work and commitment during the exceptional challenges of 2021. We have confidence that together we will continue to adapt, be resilient, and remain accountable.

**William Downe**  
**Chair, Board of Directors**

# MESSAGE FROM IAN ANDERSON

**I am pleased to share with you our 2021 Environmental, Social and Governance (ESG) report. It is being published just after I have retired, but I am honoured to be able to share some reflections about 2021 and about my rewarding time at Trans Mountain.**

The year 2021 was one to remember, but maybe not in the way we often think. 2021 challenged our company and our people in ways we didn't think were possible and we persevered in the face of adversity. At Trans Mountain, we restarted our project work after two serious accidents in late 2020, we continued progressing construction despite challenging conditions, and our people shone through the experiences of the BC floods by stepping up to support communities and affected people. I am proud of our collective effort and accomplishments because we never gave up, we never lost hope, and we showed incredible resilience as individuals and as a company. Our relationships with governments, customers, and communities did nothing but strengthen through these difficult challenges.

In late 2020, we made the difficult decision to stand down work after two serious incidents in our contractor workforce. It was a difficult decision, but it was the right decision. Achieving alignment on safety and completely revamping our safety practices was necessary and indeed transformational. Our project-wide safety stand down ended in February 2021. We emerged with a plan and dedication to transform our safety culture.

On November 14, 2021 we initiated a precautionary pipeline shutdown as a result of the extreme flooding in BC. For three weeks we were challenged to the core. The pressures on our team to be safe, creative and timely in their work were ever-present. We faced several extreme weather fronts, access limitations, and continuous demands to keep officials and customers informed. It reminded us that the critical service we provide is part of a complex supply chain that keeps large parts of western Canada's economy going. The eventual system restart was widely, and rightly, heralded as a herculean effort against very tough odds.

These events say nothing of our ongoing measures to work within a pandemic and ensure workplace safety, including offering on-site testing and personal protective equipment. We accommodated work-from-home needs, we upgraded our systems to enable remote access, and we protected against the growing cybersecurity risk all businesses now face. It was a year like no other!

As I look to the future, I remain extremely optimistic about the role that Trans Mountain can play in Indigenous economic reconciliation. I believe reconciliation is something that is deeply personal; and for companies I believe it needs to come from a place of learning and opportunity, not obligation. I've been honoured to have met people from many Indigenous communities. I have listened, learned and grown as a human being. I believe these same values exist within the Company and I know that we are doing our best to leave a positive legacy for Indigenous communities along the pipeline corridor and to build capacity within these communities.



Our efforts are geared towards changing the lives of individuals, which in turn can create meaningful community change. I believe Trans Mountain has been, and will continue to be, a leader in this area.

I've been working on the Expansion Project since 2010 when the project was only an idea with a potential to transform the Canadian economy. I feel incredibly fortunate to have led an amazing team on what has been one of the most scrutinized energy projects in Canadian history. We have navigated extraordinary changes in climate policy, Indigenous Law recognition, consultation, social justice, and new environmental expectations. It is almost impossible to do justice to that experience in one letter. As I retire from Trans Mountain, I have an overwhelming sense of pride. I'm proud of what we've accomplished. I'm proud of the people that have made extraordinary things happen. I'm proud of what we've overcome. I'm proud of the legacy we're leaving behind and I'm excited for what the future may hold for this company. I will continue observing its progress and rooting for its success.

As a new chapter begins in my life, I want to thank all of those who trusted and supported; all of those who advised and counseled; and all of those who will continue the legacy.

**Ian Anderson**  
**President and Chief Executive Officer**

## LOOKING BACK: 2021 HIGHLIGHTS

Our respect for Indigenous communities is woven into the fabric of our company and embedded in our environmental, social and governance activities. Activities denoted with a “O” symbol highlight our work with Indigenous communities.



### ENVIRONMENT

- As part of our asset integrity program, we replaced more than 600 metres of pipeline beneath the Sumas River and the Coquihalla River in order to ensure proper depth of cover and protect the environment.
- As part of our efforts to protect biodiversity during Expansion Project construction activities, we relocated 148,801 amphibians, 4,414 fish, 127 snakes and 1,414 forest snails.
- In 2021, as part of the Expansion Project, our teams conducted 15,474 person days of environmental inspection, with 20,443 person days of technical field studies and monitoring conducted by third-party consultants.
- O In order to protect heritage resources, we invested more than \$20 million in archaeological studies and conducted 17,341 shovel tests.
- Our Environmental Protection Rules program won the CEPA Foundation Award for Innovation.



### SOCIAL

- O As of December 31, 2021, Trans Mountain and our contractors have hired: approximately 19,600 people, of whom 2,100 (10.7%) are Indigenous, and 5,130 businesses, of which 760 are Indigenous businesses (~15% of the total businesses hired).
- In Alberta and British Columbia, we contributed \$5.8 million in community benefits agreements.
- O We have 69 agreements with Indigenous communities valued at more than \$600 million.
- We strengthened our approach to safety on the Expansion Project.
- O We supported communities through a series of extreme weather events (wildfires, severe cold and extreme flooding) by rebuilding infrastructure and helicoptering in supplies to flooded and stranded communities.
- We maintained safe construction progress through the COVID-19 pandemic by offering testing, contact tracing, vaccination clinics, and remaining transparent in our community engagement.



### GOVERNANCE

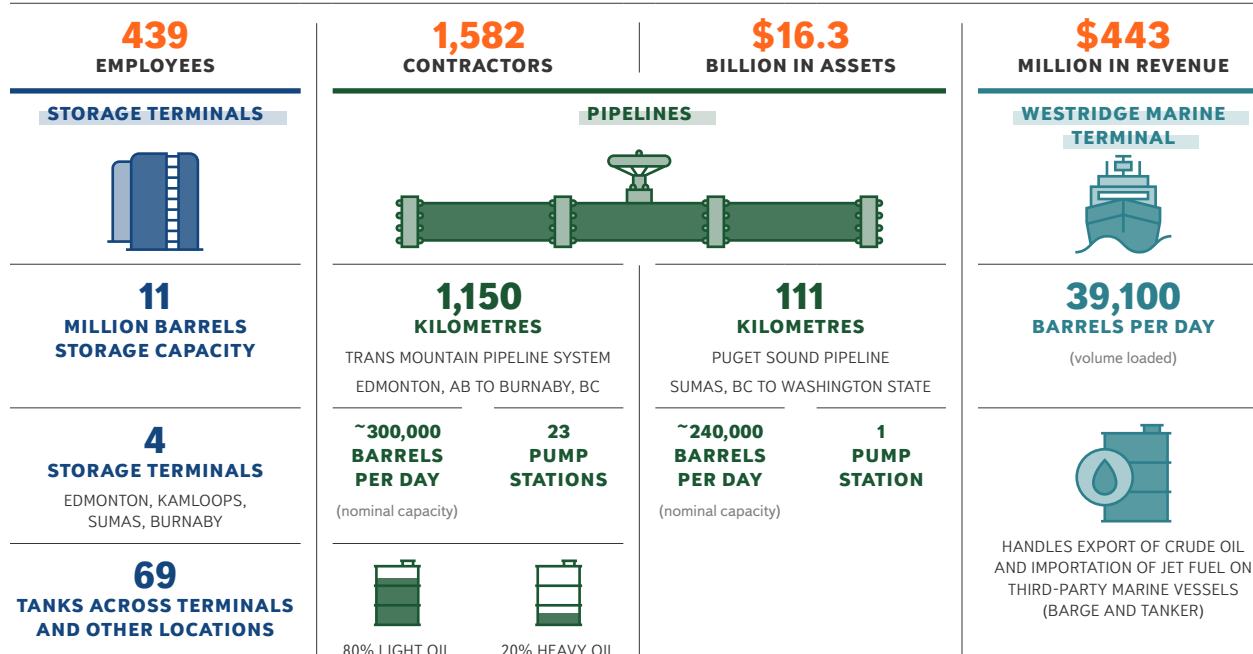
- O 17% of our Board members are Indigenous and 33% are women.
- We formally included climate-related risks in our Enterprise Risk Management program.
- We expanded our disclosures in response to the recommendations from the Task Force on Climate-related Financial Disclosures.
- 98 per cent of our employees completed cybersecurity training.
- 537 individuals attended cyber awareness sessions and we reviewed learnings from the Colonial Pipeline cybersecurity incident.
- A portion of our short-term compensation is linked to goals addressing key ESG topics, including greenhouse gas (GHG) emissions management.
- We formally incorporated responsibility over ESG matters (including climate-related risks) into our Board committee mandates.

# ABOUT TRANS MOUNTAIN

Trans Mountain operates Canada’s only pipeline system transporting oil products to the West Coast of Canada. We currently deliver approximately 300,000 barrels of crude oil and refined products every day. Our assets also include four storage terminals and a marine terminal. Our pipeline system, which runs from Edmonton, Alberta to Burnaby, British Columbia, has been in operation for more than 65 years.

Trans Mountain Corporation was incorporated in 2018 as a federal Crown corporation and we are accountable to Parliament through Canada Development Investment Corporation (CDEV). Trans Mountain is headquartered in Calgary, Alberta, and has regional offices along the pipeline system. In April 2022, the Governor General in Council issued a proclamation that changed Trans Mountain Corporation’s status to a non-agent Crown corporation, allowing us to borrow from parties other than the Government of Canada.

## AT A GLANCE figures as of December 31, 2021



## LAND ACKNOWLEDGMENT

Trans Mountain acknowledges and respects the Indigenous Peoples on whose Traditional Territory we operate and construct our expanded pipeline system. We recognize the unique histories, cultures and traditions of all those Indigenous groups within whose Territory Trans Mountain operates and that their relationship to the land continues to this day.

## TRANS MOUNTAIN EXPANSION PROJECT

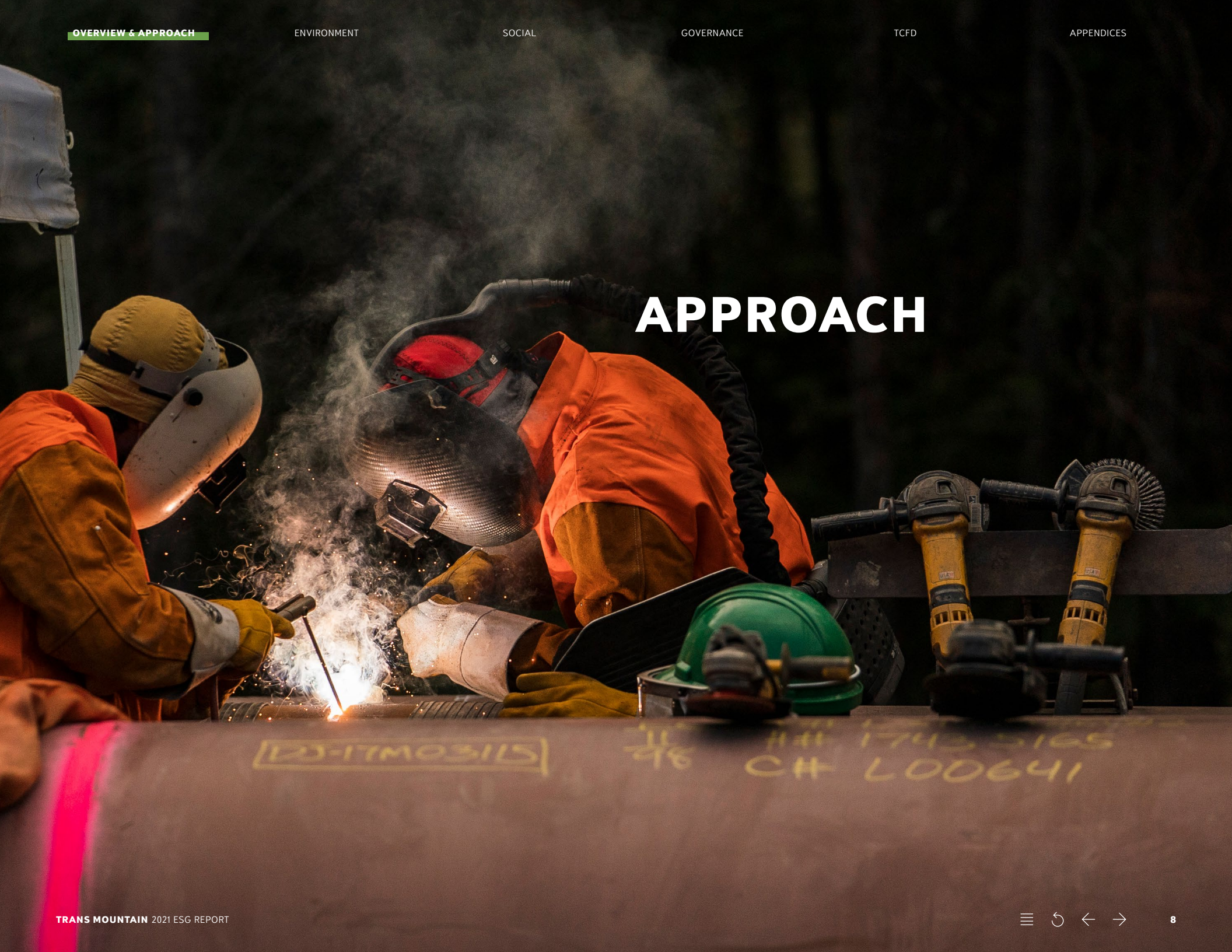
Our Expansion Project will provide Western Canadian oil producers with significant additional oil transportation capacity and tidewater access. The Expansion will create a twinned pipeline along our current pipeline between Edmonton, Alberta and Burnaby, British Columbia. The Project will see the installation of new pipeline, new and modified facilities including pump stations and terminals, and a new dock complex at the existing Westridge Marine Terminal.

## EXPANSION (ESTIMATED FIGURES)

- **+980** kilometres of new pipeline
- **+590,000** barrels per day
- **+12** pump stations
- **+19** tanks across the three terminals
- **+3** berths



# APPROACH





# OUR APPROACH TO ESG

Managing environmental, social and governance (ESG) matters responsibly is not new at Trans Mountain. It is a part of our past, our present and an integral part of our future. This report is our second formal communication of our ESG practices and progress. Our approach to ESG management involves working on the ESG topics highlighted on this page. As society evolves, we will reassess what specific environmental, social and governance issues we focus on.

## OUR COMMITMENT

### ENVIRONMENT

Our transportation services have a comparatively low GHG footprint and we can help our customers compete in markets that are increasingly focused on striving to meet decarbonization goals. Our pipeline crosses some of the most rugged, mountainous terrain in the world as well as wetlands, waterways, parkland, and urban areas. While we operate in a challenging environment, our pipeline has delivered safe and reliable energy transportation for more than 65 years. We take great care to respect the traditional use of the land and Indigenous heritage resources. During the Expansion Project activities, our goal is to minimize our impacts on the environment and to offset remaining impacts on the climate, wetlands and biodiversity.

### SOCIAL

We respect the communities where we operate and work hard to build and maintain these relationships. We operate in a manner consistent with Canada’s commitment to advance reconciliation with Indigenous Peoples. Whether it is through the course of our daily operations or during construction, we are committed to operating safely and responsibly to protect our employees, contractors and the public. We also foster a positive, inclusive and diverse work environment.

### GOVERNANCE

Our Board of Directors and leadership team work to set a positive example for all employees and contractors by acting with integrity. Our policies and practices establish clear expectations and foster accountability at all levels of the organization. Our training gives employees the necessary tools to meet the commitments contained in our policies. Our decisions consider the long-term vision for our company and incorporate environmental and social factors. As societal expectations of corporations evolve, we remain attuned to shifts in risks and opportunities, and adjust our business practices accordingly.

## RELEVANT TOPICS

- Asset integrity and emergency preparedness
  - Land and water stewardship
  - GHG emissions
  - Mitigation of climate-related risks
  - Environmental stewardship in marine operations
- 
- Employee and contractor safety
  - Inclusion and diversity
  - Relationships with people and communities
  - Enabling Indigenous opportunity
  - Economic contribution to Canada
- 
- Corporate governance
  - Governance for environmental and social matters
  - Ethics
  - Cybersecurity
  - Working with responsible contractors

# SUSTAINABLE DEVELOPMENT GOALS

Considering the needs of future generations, we join Canada and the 192 other countries and large number of non-profit organizations and corporations that support the UN Sustainable Development Goals (SDGs). The SDGs are 17 global goals, set by the United Nations General Assembly in 2015 to be achieved by 2030. These goals aim to protect the planet, reduce inequality and ensure prosperity for all.

Trans Mountain supports this global and Canadian commitment and wants to contribute towards the achievement of the SDGs. This chart describes some of the important ways that we work towards the SDGs in our operations.



## TRANS MOUNTAIN ACTIVITIES

## RELATED SDGs AND TARGETS

Operating and expanding the Trans Mountain pipeline, a reliable and resilient infrastructure system that supports energy access

[9.1] Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all



Providing employment opportunities and contributing to Indigenous businesses and economic development

[8] Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all



[8.5] Achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value

Offering education and training opportunities to help raise the standard of living in local and Indigenous communities

[4] Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all



[4.4] Substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship

Investing in asset integrity, preventing spills and minimizing releases to air, land and water

[12.4] Achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment



Protecting biodiversity during the Expansion Project and continuing to support the protection of marine life, including marine mammals, around the Westridge Marine Terminal

[15.5] Take urgent and significant action to reduce the degradation of natural habitats and halt the loss of biodiversity



[14.1] Prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution

Monitoring, reporting and managing our greenhouse gas (GHG) emissions and providing funds to communities along the pipeline corridor to improve their resilience to extreme weather events

[13] Take urgent action to combat climate change and its impacts



[13.1] Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

## LOOKING FORWARD: ESG COMMITMENTS

As we move forward, we remain committed to continue managing ESG matters responsibly and enhancing our ESG performance over time. To date, we have incorporated numerous ESG considerations into our business planning processes, practices and reporting. Looking ahead to the next two years, we have set objectives to demonstrate our commitment to continual improvement. Commitments identified with a “O” symbol reflect our drive to continue advancing our work with Indigenous communities.



### ENVIRONMENT

- By the end of 2022, develop and publish a Scope 1 and Scope 2 emissions reduction plan.
- Develop an Expansion Project construction emission offset plan, by the end of 2023.
- Pursue and develop technologies that support GHG emissions reduction, climate change mitigation and that support Indigenous communities.
- 100% of employees receive training on the Environmental Protection Rules by the end of 2023, to promote company-wide environmental awareness.
- Install leak detection fibre optic technology along the Expansion Project pipeline by the end of 2023.
- Complete at least 3,500 person days of Indigenous Monitoring in 2022, providing oversight for proper execution of environmental mitigations and protection measures, and heritage resources.



### SOCIAL

- Complete 100 senior management safety visits across operations and on the Expansion Project.
- Establish an Indigenous advisory council in 2022 to provide advice to our leadership team and guide our reconciliation efforts.
- Develop an Indigenous Reconciliation Action Plan by the end of 2022 for publishing in 2023. The Plan will contain elements of Indigenous economic reconciliation.
- All employees and contractors complete a mandatory company-wide Indigenous cultural awareness training module by the end of 2022.
- More than 70% of leaders receive training to support effective leadership in a hybrid work environment in 2022.
- Continue supporting the project management certificate program for Indigenous women.
- Enhance our Inclusion and Diversity practices and policies to ensure employees from diverse backgrounds have access to programs supporting participation in the workplace and their psychological well-being at work.



### GOVERNANCE

- Expand our board education program in 2022 to include key ESG/sustainability issues and enable informed oversight and long-term planning.
- Review our governance structure in 2022 to support improved governance over our most relevant ESG topics at the Board committee level.
- 100% of employees complete annual IT security/cybersecurity training annually.
- Enhance climate-related risk analysis within our Enterprise Risk Management program.
- Enhance climate-related scenario analysis by conducting quantitative assessments.

# ABOUT THIS REPORT

**At Trans Mountain, we are committed to being transparent about our practices and performance. The goal of this ESG report is to communicate the environmental, social and governance initiatives and key metrics that demonstrate our progress to date and our commitment to continual improvement.**

- Unless otherwise noted, this report covers quantitative and qualitative performance for the year ended December 31, 2021. When available, comparable and historical data is provided for 2019 and 2020.
- Our reported environmental and social performance covers pipelines and terminals operated by Trans Mountain, and the Expansion Project now under construction.
- Unless noted, data does not include third-party service providers.
- Financial data is in Canadian dollars and environmental data is in metric units.
- The accuracy of this report is important to our company. Senior management and relevant staff have reviewed all information and believe it is an accurate representation of our performance. Third-party assurance of this report was not conducted.
- The terms Trans Mountain, our, we, the company, and the corporation, refer to Trans Mountain Corporation. The Expansion Project, the Expansion, and the Project refer to the Trans Mountain Expansion Project.

## ALIGNING WITH ESG STANDARDS

Although this report does not meet all the requirements to be fully in accordance with any one reporting standard, we cross-reference our disclosures to the following recognized standards:

**TCFD** \_\_\_\_\_ **PAGE 51**

**SASB** \_\_\_\_\_ **PAGE 68**

We also outline our contributions to the SDGs.

**SDGs** \_\_\_\_\_ **PAGE 10**

Read our caution regarding forward-looking statements on [page 69](#).

## DETERMINING WHAT TO REPORT

Although there is a wide range of ESG matters companies can consider, we want to focus our communications on the ESG topics that can have a significant impact on our business success, and those that represent the interests of:

- Our employees
- Our customers
- Indigenous and local communities
- Regulators

In 2020, our senior management team participated in an ESG prioritization workshop to determine which ESG-related issues were most relevant to our company. Prioritization was conducted by taking into account our understanding of the concerns and priorities of employees, customers, Indigenous and local communities and regulators; and by discussing the potential financial or operational impact of the issues on Trans Mountain. The results of the workshop were reviewed and approved by our Board of Directors.

The initial list of ESG-related issues was extracted from guidelines from:

- The Sustainability Accounting Standards Board (SASB)
- The Task Force on Climate-related Financial Disclosures (TCFD)
- Reports from other midstream companies

# ENVIRONMENT

We are committed to conducting our operations in a safe and responsible manner that is respectful of the environment and minimizes our impact to water, land, and air.

# ASSET INTEGRITY

For the protection of our employees, the public, and the environment, we want to operate all our assets as reliably and safely as possible. We maintain the integrity of our pipelines, terminals and pump stations through continual hazard identification, prevention, and monitoring.

## PIPELINES

Since our pipeline is underground, we rely on internal inspection technologies to conduct pipeline inspections at regular intervals. Our asset integrity program helps us detect small imperfections in the pipe before they pose a risk of failure. Being proactive allows us to monitor pipeline conditions over time and take action to make required repairs with proper planning to minimize environmental impacts. In-line inspections use sophisticated tools (called pigs) that travel inside the pipeline to detect and measure potential defects or changes to the pipe using specialized technology. The range of inspections and preventative activities that are part of our asset integrity program are illustrated on the next page.

### Leading-Edge Leak Detection for the Expanded Pipeline

Common practices for detecting leaks include using a combination of sensor technology and mathematical calculations to monitor and model pipeline operating conditions. Using these practices, known as computational monitoring systems, any deviations exceeding certain thresholds will generate a leak alarm and communicate it to our pipeline controller.

For the expanded pipeline, we are installing a new technology that places a fibre optic cable outside and along the pipe. The cable acts as a distributed sensor that measures vibration, temperature, and movement, continuously and very accurately. These measurements can be used to detect activities in real time that could damage the integrity of our pipeline such as ground movement or encroachment of equipment digging on our pipeline. The sensing cable can also detect very small leaks. The fibre optic cable can help us pinpoint the location of a suspected leak within 10 metres. Using this leading-edge technology for its rapid and accurate leak detection is expected to provide an important additional safety feature for the expanded pipeline.

In 2021, we advanced the installation of conduit along the pipeline to support the future installation of the fibre optic cable. Approximately 369 km of conduit was installed along the Expansion Project route. A unique benefit of the project is that it can bring broadband internet services to several communities along the route where none previously existed.

## OUR PERFORMANCE

### PIPELINE INTEGRITY

	2019	2020	2021
<b>PIPELINE INTEGRITY</b>			
In-line inspections (total km of pipeline inspected)	1,576	865	<b>1,191</b>
Integrity digs (number)*	103	71	<b>107</b>
<b>PIPELINE SPILLS</b>			
Pipeline spills (number)	0	0	<b>0</b>

\* The number of integrity digs can vary year over year depending on the deployment of programs, technology and the activity associated with reactivation work.

We had **ZERO** pipeline-related spills in 2021.

### CONSTRUCTION-RELATED SPILLS—EXPANSION PROJECT

	2019	2020	2021
Reportable spills (number)	9	50	<b>34</b>
Volume of reportable spills (m <sup>3</sup> )	0.009	125	<b>41</b>

Construction-related spills exclude commodity spills from our pipeline. The two most common types of construction-related spills are: spills to water and fluid releases during horizontal directional drilling. According to regulations, we must report any spills to water regardless of volume.

Our construction-related spills decreased in 2021 despite an increase in construction activity. We experienced several small spills (10 ml to 1 L) to water during the expansion of the Westridge Marine Terminal. The larger volumes were nontoxic drilling mud related to directional drilling. To learn from these incidents, we held lessons-learned workshops to discuss inadvertent fluid releases and shared best practices. We continue to work with our contractors to ensure they use environmentally friendly materials when working in and around water.

IN FOCUS

# PIPELINE ASSET INTEGRITY PROGRAM

We conduct the following inspections and preventative activities:

### AERIAL INSPECTIONS

We fly over the pipeline to conduct a visual inspection of the right-of-way and monitor human-related activities around the pipeline, inspect for any possible leaks, and look for new hazards that could affect the pipe such as sink holes or other geohazard events.

**136**  
aerial inspections in 2021

### RIGHT-OF-WAY MAINTENANCE

We maintain the strip of land above and around the pipeline so that large trees, shrubs, or other debris remain away from the pipe. This ongoing maintenance provides clear line of sight and access for surveys, inspections, and emergency situations.

### PIPELINE DEPTH OF COVER

We regularly monitor our pipeline to ensure adequate soil cover remains over top of the pipe. Areas with deficient cover are prioritized for remediation.

### CATHODIC PROTECTION SURVEYS

We monitor the effectiveness of our cathodic protection system by taking annual readings at test stations located every two kilometres along the pipeline route to ensure a minimum voltage is maintained on the pipeline. We also complete periodic close interval surveys that provide us with voltage readings every three metres along the pipeline route.

**4,117**  
cathodic protection test lead surveys conducted in 2021

### CONTROL CENTRE

In our Control Centre in Edmonton, Alberta, our operators monitor our pipelines and terminals 24 hours a day, seven days a week.

**24/7**  
real-time remote monitoring of the entire system

### IN-LINE INSPECTIONS

We use sophisticated tools (called pigs) that travel inside the pipe to detect and measure potential defects or changes. These in-line inspections are one of our most important tools because most of the pipeline is buried and cannot be visually inspected.

**1,191**  
km of pipeline inspected via in-line inspections in 2021

### INTEGRITY DIGS

When an in-line inspection detects something that requires further investigation, we conduct an integrity dig by excavating and examining the pipe at that location. We use non-destructive examination techniques and if necessary, repair, refurbish or replace the pipe.

**107**  
integrity digs conducted in 2021

### CORROSION PREVENTION

The exterior of the pipe has a coating to protect it from contact with the soil. Because corrosion is an electrochemical process, we also use cathodic protection to protect the pipe from oxidation in areas where it is in contact with the soil.

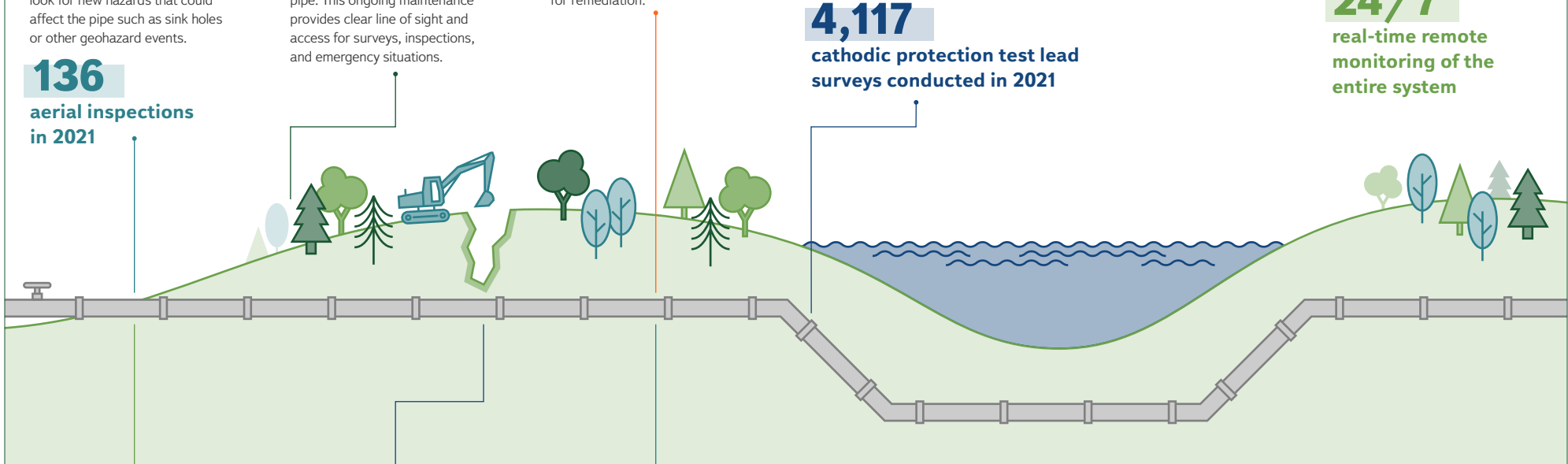
The interior of the pipe is protected from corrosion by running cleaning pigs on a regular basis to prevent debris and moisture build up.

### GEOHAZARD MONITORING

This program documents inspections and maintenance work on natural hazards sites along the pipeline route, including watercourse crossings and slopes or other areas of potential ground movement. Within our program we:

- Maintain a natural hazard database that includes detailed information for each natural hazard site;
- Conduct detailed ground inspections and surveys to monitor the geohazard sites that are scheduled based on risk;
- Use real-time flow monitoring at watercourse crossings to assess any increased risk to the pipe during flood events;
- Use instrumentation and radar/satellite imagery to monitor for potential ground movement around the pipe; and
- Complete detailed assessments to prioritize mitigation where required.

**507**  
natural hazard inspections and surveys conducted in 2021



**River Crossing Replacements**

Our pipeline system crosses more than 1,000 bodies of water, including important waterways such as the North Saskatchewan River, Athabasca River, Thompson and North Thompson Rivers, Coquihalla River, Coldwater River and Fraser River. We inspect and monitor pipeline segments under bodies of water and conduct preventative replacements when needed. We carefully select appropriate construction methods given the sensitivity of the environment surrounding the pipe. In 2021, we completed two important river crossing replacements:

**SUMAS RIVER** ■ We replaced 309 metres (m) of existing pipe beneath the Sumas River. In addition to traditional methods of construction, we used an innovative trenchless construction method called Direct Pipe. This method uses a steerable tunnelling head to minimize surface disturbance and impact to the surrounding banks and riverbed. The replacement addressed an identified anomaly in the pipe and a segment with low depth of cover (the new portion of pipe was installed 5.8 m deeper than the previous pipe).

**COQUIHALLA RIVER** ■ We replaced 328 m of existing pipe with a new segment of the same diameter but set deeper into the river substrate beneath the Coquihalla River. The river crossing had been identified for replacement due to low depth of cover. The entire replacement segment was tested and examined (by x-ray and hydrotest). Tying the new piping into the system was planned to occur in late November, but was impacted by the flooding events in British Columbia. Tie in of the new crossing is now planned for Q4 2022.

**TERMINALS**

Trans Mountain owns 69 above ground tanks—57 are located across four liquids storage terminals and 12 are in other locations. As part of our regular maintenance program, our operators visually inspect the exterior of our tanks monthly to check the tank foundation, shell, roof, leak detection and secondary containment systems.

These inspections help identify early warnings of potential tank problems. In addition, we complete both external (in-service) inspections at least every five years, and a comprehensive internal (out-of-service) inspection at intervals not exceeding 20 years.

**PUMP STATIONS**

Pump stations, spaced approximately every 50 km along the pipeline, keep the oil flowing. To ensure the stations operate safely, they are continually monitored remotely and visited on-site regularly by operations personnel. Because our pipeline traverses mountainous terrain, our pipeline must operate at varying and sometimes high pressures. Our comprehensive over-pressure protection system and in-house experts evaluate pressure variations and set limits to protect against exceeding safe pressures.

RIGHT: We inspect and monitor pipeline segments under bodies of water and conduct preventative replacements when needed. We carefully select appropriate construction methods given the sensitivity of the environment surrounding the pipe.



**OUR PERFORMANCE**

**TERMINALS AND PUMP STATIONS—  
SPILLS AT FACILITIES**

	2019	2020	2021
Reportable spills (number)	2	1	1
Volume of reportable spills (m <sup>3</sup> )	76	190	7

Reportable spills includes spills reportable to authorities in the jurisdictions where we operate. These spills include oil or other substance. Note that reportable volumes differ in each province.

In September 2021, we experienced a reportable release at our Edmonton Terminal in Alberta. The release was contained on Trans Mountain property. The cleanup and safe response to the release began immediately, followed by investigations by the applicable government authorities, as well as Trans Mountain.

In 2021, the environmental remediation activities at the Sumas pump station continued (in response to the 2020 release). We completed ongoing groundwater and soil assessments throughout 2021 and successfully installed a groundwater remediation system.

We also conducted containment and detection upgrades at the Sumas pump station. Our engineering team completed a full Emergency Shut Down (ESD) audit. To prevent a similar incident at other pump stations, we also continued our inspection program to examine tubing fittings that could potentially be vulnerable to similar releases.



# EMERGENCY PREPAREDNESS AND RESPONSE

The most responsible emergency management strategy is to prevent the emergency from occurring. However, if an incident occurs, we rely on our detailed emergency procedures and trained professionals to respond quickly.

## CONTINUALLY IMPROVING OUR RESPONSE CAPABILITIES

We use the internationally recognized [Incident Command System \(ICS\)](#) to manage our emergency response. ICS is a standardized command and control system used to manage emergency incidents. We train our own personnel to be our first responders, an industry best practice, and we also engage stakeholders (firefighters, emergency crews, suppliers and community organizations) in emergency preparedness. Each year, we enhance our preparedness capabilities by completing the following activities:

- 20-30 emergency field and tabletop exercises to learn the various components of our response plans, equipment, and response strategies in varying environmental conditions. For example, in early July, we conducted a spill response exercise on the Fraser River, near Hope, BC. [Read more.](#)
- 3-5 tabletop response exercises, which allow us to work through emergency scenarios and test employee and contractor knowledge about the available emergency response plans.

## TWO PLANNED FULL-SCALE EXERCISES

We aim to conduct at least one full-scale exercise each year to test the real-time effectiveness of our response. These exercises are multi-agency, multi-jurisdictional activities involving the mobilization of emergency personnel, equipment, and resources, as if a real incident had occurred. In 2021 as part of our ongoing program, we conducted two full-scale planned exercises:

### SIMULATING A SPILL DURING VESSEL LOADING ■

In April 2021, we completed a vessel loading exercise to demonstrate our ability to effectively manage a spill should one occur in the Burrard Inlet at Westridge Marine Terminal. The exercise included a coordinated response with more than 150 virtual and in-person participants from two Indigenous communities and 10 agencies working collaboratively to enable an efficient response. The exercise provided an opportunity for response personnel to demonstrate and practice both land and water-based training, including the deployment of equipment and response vessels and to practice the implementation of the Westridge Marine Terminal Emergency Response Plan under COVID-19 safety protocols. [Read more.](#)

### SIMULATING A SPILL INTO A CREEK ■

In September 2021, we conducted a second full-scale emergency response exercise simulating a spill into a creek in Washington state. The exercise provided an opportunity to fine-tune the use of a virtual Incident Command Post while working collaboratively with our federal, state and local partners in Bellingham, Washington.

## OUR PERFORMANCE

### EMERGENCY RESPONSE EXERCISES

	2019	2020	2021
Drills	13	22	18
Tabletop exercises	5	11	5
Full-scale exercises	1	1	3*
<b>TOTAL</b>	<b>19</b>	<b>34</b>	<b>26</b>

\* Two exercises, plus our full-scale response to the BC floods.

## BEING PREPARED WITH OUR OWN EQUIPMENT INVENTORY

Another way we prepare for emergencies is through the availability of our own inventory of emergency response equipment. We estimate our equipment requirements by modelling for a worst-case spill volume scenario in each district, which helps to ensure we have enough equipment and can deliver that equipment to an incident site on time.

## PREPARING FOR COMPLEX EMERGENCIES

We prepare for a variety of incidents. For all spills we ensure we have enough equipment on hand to contain the spill for the first six hours, after which additional spill response requirements would come from our mutual aid companies and service providers. To deal with a potential tank fire, we have enough equipment to handle fires up to the size of our largest tank.

This exercise also contributed to enhancements in our Microsoft Teams environment which has improved our ability to effectively use this tool for large incidents.



**WATCH THIS VIDEO TO LEARN MORE ABOUT OUR EMERGENCY RESPONSE EXERCISES**

# BIODIVERSITY, LAND AND WATER STEWARDSHIP

**We see it as our responsibility to protect the land, water, and ecosystems where we operate. Water is a shared resource and an essential part of all ecosystems. Therefore, we take seriously our responsibility to be stewards of the land and water bodies near our operations.**

## PROTECTING BIODIVERSITY

The pipeline crosses many protected areas, including recreational areas and parks such as Jasper National Park in Alberta and Mount Robson Provincial Park in British Columbia. Since the operating pipeline is buried, the impact to surface wildlife is minimal. However, we are committed to minimizing our impact to the land and to the biodiversity of these sensitive areas by implementing a strong asset integrity program that prevents spills and a rapid emergency response program that reduces impacts if a spill were to occur.

## TAKING SPECIAL CARE DURING RIVER CROSSING REPLACEMENTS

Our pipeline system crosses more than 1,000 bodies of water. During our day-to-day operations there is relatively little in-stream work required, however, in 2021, we completed two large river crossing replacements, the Sumas and Coquihalla 15 replacements.



In planning and implementing a river crossing project (the replacement of the section of pipe underneath the river), great care is taken to preserve the environmental features in and around the stream including the wildlife and aquatic habitat within the riparian zone. For each water crossing, we carried out extensive mitigation measures. Our Environmental Protection Plans detailed the actions required to ensure protection of land, plants, wildlife, fish, and aquatic environment for the replacement work.



**WATCH THIS VIDEO TO LEARN MORE ABOUT OUR ENVIRONMENTAL PROTECTION RULES**

In 2021, our Environmental Protection Rules program won the CEPA Foundation Award for Innovation for our industry-leading program. The award is given to a member company in the areas of sponsoring, leading, or adopting innovation in the energy pipeline industry.

ABOVE: More than 148,000 amphibians (like this pacific tree frog) were carefully relocated in 2021. Amphibian relocation will continue throughout the duration of the Expansion Project.

**PROTECTING ECOSYSTEMS AND BIODIVERSITY DURING CONSTRUCTION**

**Environmental Protection Rules**

Based on incident data, Expansion Project risks and feedback from our stakeholders, we carefully selected and integrated eight Environmental Protection Rules into our approach on the Project, a first in the industry. The rules aim to do for environmental awareness what the Life Saving Rules have done for safety in the energy industry. Each of the Environmental Protection Rules is focused on an area that has the potential to result in a significant environmental event. The rules are in place to protect land, water and other resources, and to help avoid spills, noise, and other environmental impacts. In 2021, our Environmental Protection Rules program won the [CEPA Foundation Award for Innovation](#) for our industry-leading program. The award is given to a member company in the areas of sponsoring, leading, or adopting innovation in the energy pipeline industry.

In 2021, we also added two new rules: Traditional Land Use (see more on [page 21](#)) and Migratory Birds (see more on [page 20](#)). We plan to expand the adoption of the rules to the entire company in 2022. To support the implementation of the rules, we will continue to provide training to personnel in 2022 and support our worker recognition program. The program recognizes on-the-spot positive actions and also acknowledges sustained leadership in compliance and environmental stewardship. More than 800 workers were recognized last year.

**Environmental Protection and Management Plans**

Since 2012, the environmental team for the Expansion Project has been out in the field studying a wide range of environmental features, including plants, fish, and wildlife. Baseline studies were used to develop detailed plans that must be implemented before, during and after construction along the pipeline right-of-way, at facilities, in related access areas, and at temporary infrastructure sites.

These include more than 60 environmental protection and management plans that outline how potential effects of the Expansion Project on fish, vegetation and wildlife should be appropriately mitigated in accordance with relevant guidelines and regulatory requirements. We plan to mitigate impacts to vegetation by re-establishing natural ecosystems similar to what was present pre-disturbance, or by developing a vegetative cover compatible with surrounding landscapes.

**Trenchless Crossings**

The Expansion Project includes 980 kilometres of new pipeline and travels across a variety of terrain. For the majority of the pipeline route, conventional construction methods will be used. Conventional methods involve the pipe being set down into a trench and buried, which is what many people think of when they imagine pipeline installation. Trenchless methods are a key tool in the construction of major pipeline projects within urban, environmentally and culturally sensitive areas because they greatly mitigate impact to normal daily activities and traffic circulation patterns, and minimize or eliminate ground disturbance. To date, we have approximately 40 major trenchless crossings planned for the Expansion Project, with the majority horizontal directional drilling. Since the Project began, we have safely and successfully executed 34 trenchless crossings.

**Biodiversity Training**

During the 2021 migratory bird nesting season, construction was stopped on a 900-metre area along the Brunette River. During this time, we provided refresher training to employees and contractors on the mitigation techniques required for clearing and construction activities during the migratory bird restricted activity period. We also clarified the process for proper clearing activities.

**OUR PERFORMANCE**

**AS PART OF THE EXPANSION PROJECT OUR TEAMS CONDUCTED:**

**15,474**

person days of environmental inspection in 2021

**20,443**

person days of technical field studies and monitoring by third-party consultants in 2021



ABOVE: We have approximately 40 major trenchless crossings planned for the Expansion Project. They greatly mitigate impact to normal daily activities and traffic circulation patterns, and minimize or eliminate ground disturbance.

IN FOCUS

## EFFORTS TO PROTECT BIODIVERSITY DURING CONSTRUCTION IN 2021

The below graphic highlights some of the mitigation measures we undertook to protect biodiversity along the pipeline corridor in 2021.

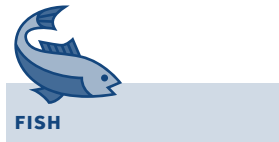


**LOCATION**  
Along full pipeline corridor

**SPECIES**  
Great Basin Spadefoot, Western Toad, Long-toed Salamander, Columbia Spotted Frog, Pacific Tree Frog

During our field studies, amphibian breeding habitats were identified for several species. In 2021, Wildlife Resource Specialists and our General Contractors undertook work to relocate amphibians from the construction footprint. Off-site relocation spots were pre-identified to minimize hold times and stress and prevent re-entry during the construction phase. Amphibian relocation will continue throughout the duration of the Expansion Project. [Read more.](#)

**148,801**  
amphibians relocated



**LOCATION**  
Westridge Marine Terminal, BC

**SPECIES**  
Herring and Salmon

To minimize our impact on aquatic species, we have been using a specialized underwater fish deterrent during construction of the Westridge Marine Terminal. The deterrent, known as Acoustic Fish Deflection (AFD), uses sound projectors to create a sound field that prevents fish from entering areas where active construction activities are taking place. The frequency levels of the AFD system are gentle on all marine life, including fragile fish. The same technology is also being used to deter seals from coming into proximity with construction activities. [Read more.](#)

**4,414**  
fish relocated from river crossings along the pipeline route



**LOCATION**  
Lower Mainland, BC

**SPECIES**  
Fifty-five bird species with special conservation status have the potential to occur along the Expansion route

We have developed policies and procedures for the protection of migratory birds and their habitat. In Canada, the general nesting period for migratory birds may start in mid-March and extend until late August. However, in the Lower Mainland some species, such as the Anna's Hummingbird and Song Sparrow, can begin nesting as early as February. Mitigation measures include the use of non-intrusive nest sweeps and the establishment of species-specific buffer zones around active nests to ensure our construction activities have the least impact possible on nesting birds. [Read more.](#)

**10,746**  
bird nest monitoring observations



**LOCATION**  
Fraser Valley, BC

**SPECIES**  
Oregon Forestsnails

Our Oregon Forestsnail Mitigation and Habitat Restoration Plan identifies four areas of Oregon Forestsnail critical habitat in the Fraser Valley. We have a federal Species At Risk Act (SARA) permit to relocate Oregon Forestsnails from the Expansion Project footprint. With the support of wildlife resource specialists, we have studied and installed exclusion fencing and have been salvaging and relocating the snails to adjacent suitable habitat. We also tagged and are tracking a subset of Oregon Forestsnails using radio telemetry to learn more about their movements, their survival success after relocation, and how quickly they will recolonize the Expansion Project footprint after reclamation. [Read more.](#)

**1,414**  
Oregon Forestsnails relocated



**LOCATION**  
Near Kamloops, BC

**SPECIES**  
Western Yellow-Bellied Racers, Great Basin Gophersnakes, Western Rattlesnakes

In fall 2020, while carrying out pre-construction environmental surveys, our environmental team located three snake dens in the Lac Du Bois grasslands. The snakes are designated under Schedule 1 of the Species at Risk Act, which requires specific plans detailing mitigation measures. Following our environmental protection and management plans, 127 snakes were captured and relocated. Thirty-five of the snakes were relocated back into a natural den with similar habitat characteristics, but as winter hit the weather became too cold to continue releasing the snakes back to the local area, so the remaining 92 were transported to the BC Wildlife Park for temporary captive care. We provided a donation to support the Park's efforts of conservation, education and rehabilitation. The snakes were released in the spring of 2021. [Read more.](#)

**127**  
snakes relocated



**LOCATION**  
Interior of BC

Wildlife underpasses are one of the mitigations we use to maintain connectivity for animals. For example, in places where the pipeline intersects two breeding wetlands, we install exclusion fencing around the two wetlands and then create a ramp for vehicles to travel over and wildlife to pass under. Our Environmental Inspectors and Indigenous Monitors work to identify appropriate breaks in our topsoil piles resulting from clearing and levelling. If left as long walls along the edge of the right-of-way the piles would restrict wildlife movement. In the winter we do the same for our snow piles.

**6**  
wildlife corridors developed

# PROTECTING TRADITIONAL USE AND HERITAGE RESOURCES OF INDIGENOUS PEOPLES

**Environmental stewardship is not solely about the physical aspects of land; it is also about respecting traditional use of the landscape and heritage resources. Traditional use includes the historical use of the land and water by Indigenous communities, while cultural heritage resources refer to objects, sites, or locations that are of cultural, historical, or archaeological significance to Indigenous groups and Canada.**

Our environmental practices also integrate traditional knowledge and approaches throughout project planning and into construction to protect important cultural resources. Traditional knowledge is generally understood as the beliefs, practices and skills passed down through generations that form part of the cultural or spiritual identity of an Indigenous community.

There are three ways in which we integrate traditional knowledge and demonstrate our respect of traditional use and heritage resources:

**TRADITIONAL LAND AND RESOURCE USE AND ARCHAEOLOGICAL STUDIES** ■ Since 2012, more than 98 Indigenous groups have participated in archaeological fieldwork or have provided traditional use information and traditional knowledge as part of Trans Mountain-facilitated studies or independent third-party studies. During these studies, Indigenous groups collect or provide data to enhance our knowledge of the environment along the pipeline corridor. Since 2016, we have also invested more than \$40 million to support archaeological studies and conducted more than 41,000 shovel tests in areas identified as having potential to support heritage resources.

## OUR PERFORMANCE

ON THE EXPANSION PROJECT:

**5,038**

person days of Indigenous Monitoring during 2021

SINCE 2016, WE HAVE CONDUCTED MORE THAN:

**41,000**

shovel tests in areas identified as having potential to support heritage resources

Many Indigenous groups have participated in environmental field programs to support traditional knowledge integration into our practices.

We complete baseline studies to pre-identify environmental features so work can be planned to avoid or minimize impact to these sites. In some cases, new archaeological features are observed during construction and are known as “chance finds”. The Expansion Project has numerous approved contingency plans in place to respond to these events. In 2021, we worked closely with several Indigenous communities in the implementation of our contingency plans related to traditional land and resource use and archaeological features. This work involves a three gate “stoplight” process to ensure Indigenous communities are notified and engaged and appropriate mitigation is developed prior to construction progressing at the location.



LEFT: We have one of the largest archaeology programs in Canada. Since 2016, we have conducted an extensive number of shovel tests (shallow excavations made with a shovel to determine whether archaeologically significant material is present below the ground surface).

**INDIGENOUS MONITORING PROGRAM** ■ We work with Indigenous Monitors to ensure we incorporate traditional knowledge into construction oversight, and to help us minimize impacts to traditional land use sites and heritage resources. As of December 2021, 45 Indigenous Monitors are employed as part of the Expansion Project, bringing the program to its full capacity. Our Indigenous Monitors are essential and integrated members of our construction environmental inspection team. Integration enables efficient knowledge transfer between Indigenous Monitors, environmental inspection and construction crews. Integration also provides opportunities for Indigenous Monitors to develop experience and transferable skills related to environmental inspection and monitoring that they can use after the construction project is over. As part of the Expansion Project, we have also developed a bridging guideline to support Indigenous Monitors who have an interest in and could become an Environmental Inspector. In 2021, the first Indigenous Monitor successfully completed the bridging program and became an Environmental Inspector working on the Expansion Project.

**COLLABORATING WITH GOVERNMENT AGENCIES AND INDIGENOUS COMMUNITIES** ■ The Indigenous Advisory and Monitoring Committee (IAMC) brings together 13 Indigenous and six senior federal representatives to provide advice to regulators in their efforts to monitor the Trans Mountain Expansion Project and the existing pipeline. The 13 Indigenous members represent the various 129 Indigenous communities and regions along the route. Members have shared goals of both the safety and protection of environmental and Indigenous interests regarding lands and waters. Trans Mountain is an invited guest in the group and has representatives which participate on several subcommittees.



Since 2017, Indigenous monitors for the IAMC have regularly participated in oversight of the Expansion Project and existing line with the Canada Energy Regulator (CER), Fisheries and Oceans Canada, and Parks Canada. This includes working with the CER to participate in emergency management exercises, safety and environmental protection inspections, and socio-economic reviews. Through this collaboration, CER inspection officers learn about Indigenous values and world views with respect to risk, while Indigenous monitors learn about the CER’s inspection process.

ABOVE: Culturally modified trees (pictured) are living trees that have been visibly altered or modified by Indigenous people as part of their tradition. Please note this is a stock image used for reference purposes.

STORY

**IDENTIFYING CULTURALLY MODIFIED TREES**

As an example of traditional land and resource use, culturally modified trees are living trees that have been visibly altered or modified by Indigenous people as part of their tradition. For example, bark stripped for use in making woven mats, ropes, or baskets.

In 2021, we began a project-wide full-scale culturally modified tree walk to inventory all such trees along the pipeline route. While we avoid these trees wherever we can, if a tree is within the right-of-way we work with the Indigenous community to transfer the tree after which the community often uses them for educational opportunities for their children or in schools.

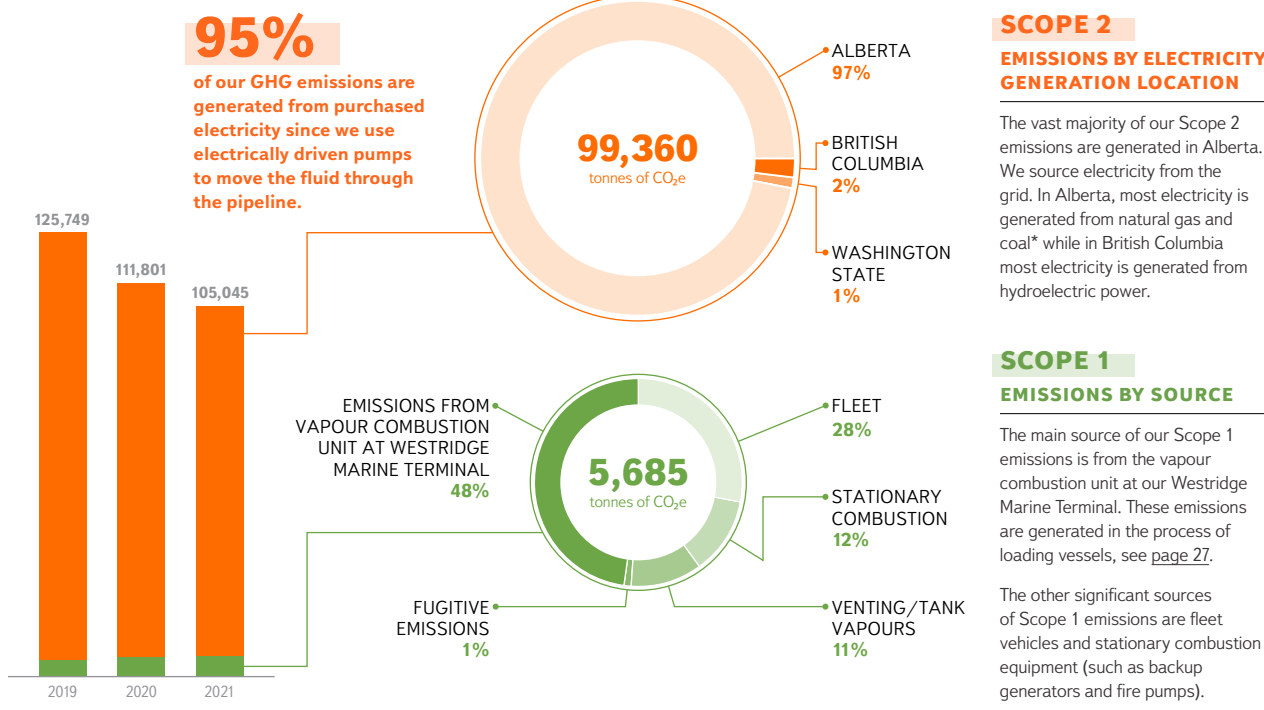
# GREENHOUSE GAS EMISSIONS

We track and manage the greenhouse gas (GHG) emissions generated by our daily operations. Most of our emissions are indirect (also known as Scope 2) since we use electrically driven pumps to move the fluid through the pipeline.

We support the Government of Canada’s ambition to be net zero by 2050 and will set our own targets to reduce and/or offset our Scope 1 and Scope 2 emissions to support this ambitious goal. We are developing a Scope 1 and Scope 2 GHG emissions reduction plan which we intend to publish by the end of 2022.

## GHG EMISSIONS AND SOURCES

tonnes CO<sub>2</sub>e



\* CER 2018 data. <https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/provincial-territorial-energy-profiles/provincial-territorial-energy-profiles-alberta.html>

### STORY

#### INVESTING IN CLIMATE MITIGATION SOLUTIONS AND INDIGENOUS COMMUNITIES

Trans Mountain has invested in Synergize Inc., a start-up company aimed at commercially growing and processing a natural cattle feed additive based on a strain of red seaweed that can reduce enteric methane emissions in cattle and other ruminants by up to 90 per cent.

Synergize has secured a \$5 million grant from Emissions Reduction Alberta and a commercial license to use the additive in Alberta, British Columbia, and Ontario. The methane emission reductions can be independently verified using appropriate quantification protocols to generate offset credits.

With Trans Mountain’s support, Synergize is developing a land-based pilot on Vancouver Island and is working with T’Sou-ke First Nation to set up a commercial aquaculture facility to farm the red seaweed in T’Sou-ke First Nation territory.

Trans Mountain’s agreement provides us access to validated and verified emission offset credits as they are generated by Synergize.



**WATCH THIS VIDEO TO LEARN MORE ABOUT OUR SYNERGIZE PROJECT**

### SCOPE 2

#### EMISSIONS BY ELECTRICITY GENERATION LOCATION

The vast majority of our Scope 2 emissions are generated in Alberta. We source electricity from the grid. In Alberta, most electricity is generated from natural gas and coal\* while in British Columbia most electricity is generated from hydroelectric power.

### SCOPE 1

#### EMISSIONS BY SOURCE

The main source of our Scope 1 emissions is from the vapour combustion unit at our Westridge Marine Terminal. These emissions are generated in the process of loading vessels, see [page 27](#).

The other significant sources of Scope 1 emissions are fleet vehicles and stationary combustion equipment (such as backup generators and fire pumps).

**OFFSETTING EMISSIONS FROM CONSTRUCTION**

Building a pipeline generates emissions. As part of our regulatory approvals, we have committed to offsetting the two main contributors to construction-related emissions: fuel consumed by light and medium trucks as well as heavy machinery during construction, and land clearing activities (removal of vegetation for site preparation). We estimate that the Expansion Project will generate a cumulative one million tonnes of CO<sub>2</sub> during the complete construction period. The following activities help us measure, reduce and offset our emissions.

**Fuel Consumption**

We estimate our GHG emissions from fuel consumption using the methodology outlined in the National Inventory Report 1990-2017: Greenhouse Gas Sources and Sinks in Canada from ECCC (2019)<sup>1</sup>. GHG emissions from fuel consumption are assessed based on fuel type and class of vehicle or fuel purpose, both of which were used to select the appropriate emission factors for fuel combustion.

To manage and reduce emissions arising from fuel consumption, we have developed a carbon management plan for the Expansion Project that contractors must adhere to. The plan incorporates initiatives such as an anti-idling policy (which is reinforced by our Air and Noise environmental protection rule), and the use of worker camps and shuttle services to minimize transportation to and from work sites.

**Land Clearing Activities**

We estimate our GHG emissions from land clearing using the Canadian Forest Sector’s *Carbon Budget Model*<sup>2</sup>, a forest carbon modeling framework used to simulate all forest carbon stocks required under the international GHG reporting standards set by United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto protocol.

To place the new pipeline under the ground, we must first remove grasses, trees, and shrubs. There are emissions associated with removing trees because they store carbon. Some of this vegetation will be reclaimed to its original nature and some will be replaced with grasses to leave an adequate right-of-way to access the pipeline. These activities will reduce the impact on the environment and the associated emissions resulting from this process.

**Offset Plan**

We are committed to offset the previously-described GHG emissions generated from Project construction in Alberta and British Columbia over several years after construction is completed. High quality offsets compensate for project emissions through measurable emission reductions elsewhere that are verified by independent third parties. We expect to develop an Expansion Project construction emission offset plan by the end of 2023.

BELOW: Construction continues to advance even in challenging weather conditions.



<sup>1</sup> [https://publications.gc.ca/collections/collection\\_2019/eccc/En81-4-2017-3-eng.pdf](https://publications.gc.ca/collections/collection_2019/eccc/En81-4-2017-3-eng.pdf)

<sup>2</sup> CBM-CFS3; Kull et al., 2016



# AIR QUALITY

The main sources of non-GHG emissions are tank venting, construction-related combustion equipment, road dust, and chemical use. Air emissions metrics from our storage terminals can be found in the performance table (see [page 68](#)). To reduce construction impacts, we are implementing best management practices and mitigation measures as described in our air emission monitoring plans and fugitive emissions monitoring plans. Some of our practices include reducing equipment idling, covering soil piles, and conducting regular street sweeping.

## NEW AIR MONITORING SYSTEM

Ambient air quality monitoring programs monitor the combined effect of air quality emissions from the Expansion Project and existing emissions sources, including other pollutants of interest unrelated to our operations but common to the air shed.

In 2021, we completed the majority of the design development for a state-of-the-art air monitoring system at our Westridge Marine Terminal. We expect to also install new air stations at Burnaby, Sumas, and Edmonton Terminals by the end of 2022. The installations will be timed to allow for pre-operations baseline surveys. The monitoring program will be continuous for the operational life of the expanded pipeline system.



The four ambient air quality monitoring stations are best in class with respect to design, siting, reporting and technology. Each building is being specifically designed to suit environmental and seismic conditions at each location in AB and BC as well as comply with current siting and exposure protocols from regulators. Readings from each continuous monitor will be recorded and posted to a data platform accessible by the public. The station includes self-diagnostic technology; each station will measure their performance and alert whenever a component drifts outside normal operating conditions so corrective action can be flagged, minimizing downtime.

ABOVE: In 2021, we completed the majority of the design for a state-of-the-art air monitoring system at our Westridge Marine Terminal.

# ENVIRONMENTAL STEWARDSHIP IN MARINE TERMINAL OPERATIONS

**Our Westridge Marine Terminal in Burnaby, British Columbia, receives third-party vessels (tankers or barges) that either export petroleum products from our pipeline; or import jet fuel from offshore. While the number of vessels handled each month fluctuates depending on market conditions, our terminal historically averages five tankers and three barges loaded with oil, and one or two barges unloaded with jet fuel each month.**

As part of the Expansion Project, the marine terminal will be expanded from a single berth to a three-berth complex, with associated onshore facilities. Following the completion of the Project, the pipeline’s full capacity will be 890,000 barrels per day. Up to 70% of the capacity of the expanded system may be delivered to the Westridge Marine Terminal for shipment. This volume is equivalent to loading up to 34 partially loaded Aframax class vessels per month. Although this traffic level is a small contribution to the overall traffic in the area, we acknowledge the role that the Expansion will play in increasing overall vessel traffic and associated concerns. We are working proactively to mitigate risks with suitable management systems and working with others to prevent and respond to incidents.

We see our role as two-fold. First, we must safely and responsibly operate the expanded terminal, and second, we must continue building relationships to promote accountability and continuous improvement for the safety, efficiency and environmental performance of the marine regime. The next few pages explain how we carry out these responsibilities.

## RESPONSIBLY OPERATING OUR MARINE TERMINAL

### 1 TERMINAL SAFETY

Our safety practices include tank safety, odour abatement, terminal lighting and navigation safety.

### 2 EMISSIONS DURING LOADING

We capture and destroy hydrocarbon vapours and gases released during marine vessel filling.

### 3 PREVENTING SPILLS DURING LOADING

We employ international best practices for vessel loading, including pre-deployment of an oil spill boom.

### 4 GREEN MARINE

We voluntarily participate in the annual review of our air and waste contaminants and noise levels.



## OUR ROLE IN SUPPORTING THE MARINE COMMUNITY

### 1 WORKING WITHIN THE ESTABLISHED MARINE REGIME

Our practices conform to the established regional marine safety regime and we support efforts to continually improve the regime.

### 2 SUPPORTING SPILL PREVENTION DURING TRANSIT

While oil spillage from a tanker is the owner’s responsibility, we participate in and support the marine safety regime.

### 3 SUPPORTING ENHANCED SPILL RESPONSE

In addition to our own emergency preparedness and response planning, we have invested heavily to increase marine spill response capacity along the entire shipping route.

### 4 PROTECTING MARINE LIFE AND BIODIVERSITY

Our Marine Mammal Protection Program outlines both our own mitigations and our efforts to influence the marine industry to minimize threats to marine life.

### 5 ENGAGING WITH COMMUNITIES

Our commitment to engaging with communities during the Expansion Project extends to the marine communities, local and Indigenous, as far as the west coast of Vancouver Island.

**RESPONSIBLY OPERATING OUR MARINE TERMINAL**

The terminal has a long record of safe and reliable operations. We will work to maintain that record by operating the terminal with the highest standards of safety and environmental protection. The following activities help us manage the direct impacts of our terminal operations:

**1. TERMINAL SAFETY** ■ At the Westridge Marine Terminal, we have three tanks designed to store finished products that are currently storing jet fuel. We meet all standards for maintenance, odour abatement, terminal lighting (light levels and directional lighting), and have a rigorous ongoing safety program. We also work collaboratively with all stakeholders to help improve overall navigation safety, such as maintaining regular communication with ship agents. Navigation safety and safe vessel approach to the terminal are particularly crucial during construction given the additional vessels and activity near the terminal. To maintain safe separation between active construction and the public waterway, and for security, we placed a floating marine construction safety boom (similar to a fence) around the main construction area.

**2. MANAGING EMISSIONS FROM THE MARINE TERMINAL** ■ The process of filling a marine vessel with oil leads to the generation and displacement of hydrocarbon vapours or gases from within the vessel’s cargo tanks. As a direct release of those gases into the atmosphere would be detrimental, we capture and destroy them in a Vapour Combustion Unit. As part of the Expansion Project, we will install two new Vapour Recovery Units (VRUs) which will capture nearly all the vapours associated with ship loading and reinject them into the vessels. Increased traffic might result in increased overall emissions from the terminal.

**3. PREVENTING SPILLS DURING LOADING** ■ We have been safely loading third-party vessels with petroleum products at our marine terminal since 1956. Preventing marine spills is critical because they would have detrimental effects on the marine environment and require significant resources and effort to clean up.

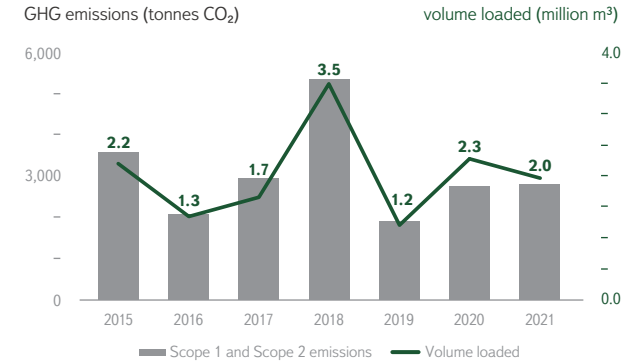
- We have a strong oil pollution prevention plan, reviewed by Transport Canada, and deploy numerous resources as part of the plan.
- At any given time, there is only a small amount of oil in the terminal piping and the integrity of such piping is regularly checked as part of our pipeline asset integrity program.
- For oil transfers between the terminal and vessels, we plan and carefully manage this procedure applying international best practices, under close supervision of our operators, our Loading Master and the vessel officers and crew.
- We take special efforts to prevent any oil that might enter the water from spreading over a larger area by having pre-deployed an operational oil spill boom (i.e., a containment barrier) surrounding both the vessel and the water side of our terminal.

**4. GREEN MARINE** ■ Green Marine is a voluntary environmental certification program for the North American marine industry which encourages its participants to reduce their environmental footprint by taking concrete actions across 14 performance indicators. The 390 members and supporters include ship owners, ports, terminals, shipyards, and seaway corporations. As a terminal participant since 2013, the Westridge Marine Terminal undertakes a self-review of its performance with respect to air and waste contaminants and noise levels annually, and is subject to a verification every two years by Green Marine. In April 2021, we underwent this third-party verification and maintained our certification at Level 3.

We are committed to providing updates on marine spill response enhancements, commitments, conditions, and Indigenous participation. In 2021, we began offering a semi-annual [marine progress report](#) to provide updates on marine activities and key marine commitments and conditions related to the Expansion Project.

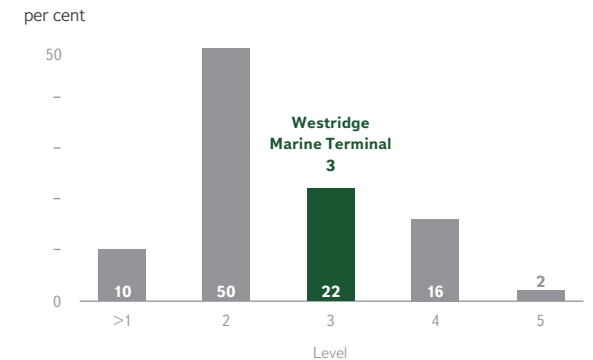
**OUR PERFORMANCE**

**WESTRIDGE TERMINAL GHG EMISSIONS VS VOLUME LOADED (HISTORICAL DATA)**



GHG emissions from the Westridge Marine Terminal directly correlate to the volume of product we load onto vessels each year.

**PERCENTAGE OF PARTICIPANTS WITH AN AVERAGE AT OR ABOVE LEVELS 1, 2, 3, 4 AND 5**



Green Marine scoring captures performance in GHG, air pollutants, spill prevention, community impacts, environmental leadership, and waste management. A score of 3 means that we have integrated systems to manage and quantify those impacts. Note that 1 is the lowest level and 5 is the highest.

## OUR ROLE IN SUPPORTING THE MARINE COMMUNITY

As a midstream company, our pipeline and terminal play a crucial role in connecting producers with customers. We will continue to provide value by performing this role, as well as being an advocate of safety and enhanced stewardship in the marine community. Some of our activities that support safe marine traffic are:

### 1. WORKING WITHIN THE ESTABLISHED MARINE SAFETY REGIME

■ Our practices and procedures conform to the established regional marine safety regime, a robust set of risk controls for all traffic and for oil tankers, in particular. We work with the many significant stakeholders and rights-holders (both national and international) to support and continually improve this regime. We collaborate with Transport Canada, the Canadian Coast Guard, the Pacific Pilotage Authority, the United States Coast Guard, pilots, marine service providers, shipping organizations, other terminals, coastal communities, and Indigenous peoples. Trans Mountain supports efforts and initiatives such as the federal Oceans Protection Plan that strive for continual improvement of the regime.

### 2. SUPPORTING SPILL PREVENTION DURING VESSEL TRANSIT

■ Spillage of oil from a tanker is the owner’s responsibility. Trans Mountain is responsible for all spills and releases from our pipelines or facilities. However, we recognize concerns about oil spills to marine waters and have taken active steps to contribute to marine safety and spill prevention and response.

— **VESSEL ACCEPTANCE STANDARD** ■ Each vessel that calls at our terminal must meet all applicable international, national and local regulations. Our acceptance standard outlines the criteria vessels must meet before they can use our dock and includes measures that minimize noise and light effects for neighbours living close to our terminal. We carry out pre-screening of all nominated vessels and reserve the right to deny vessels access to our marine terminal facility if standards are not met.



— **EXPANDED TUG ESCORT ROUTE** ■ We have helped to improve tug use and escort procedures for tankers by financing studies and funding training programs for Pilots and Tug Masters. As a condition of vessel acceptance post-Expansion, we will be requiring our shippers (customers) to use escort service for all loaded tankers for the entire shipping route between our terminal in the Burrard Inlet and the Pacific Ocean, including the Strait of Juan de Fuca where no such escort of vessels happens today. The additional tugs necessary for this expanded service have the support of our shippers and will increase and further strengthen the marine safety regime to benefit all vessel traffic in the region.

— **INCREASED RESPONSE CAPABILITIES** ■ Trans Mountain is a shareholder and member the Western Canada Marine Response Corporation (WCMRC). WCMRC is funded through fees charged on transported oil, including oil transported at our marine terminal. Our contributions have supported establishing and maintaining this highly capable oil spill response organization. In the event of a spill, fast and effective response enables rapid containment and prevents more widespread impacts. We have committed to funding a significant increase in future response capacity along with incremental reduction in response time. Once implemented, this will be a lasting legacy of the Expansion Project. In 2021, we conducted a full-scale emergency response exercise to demonstrate our ability to effectively manage a spill response event should one occur in Burrard Inlet at Westridge Marine Terminal. Read more on [page 17](#).

ABOVE: A tanker is loaded at the Westridge Marine Terminal. We have been safely loading third-party vessels with petroleum products at our marine terminal since 1956.

**3. SPILL RESPONSE AND PREPAREDNESS** ■ Even though each vessel is responsible for their own cargoes and spills, we acknowledge the role that the terminal expansion plays in increasing tanker traffic and have invested more than \$150 million to increase the response capabilities of the WCMRC. Funded by the industry, WCMRC is the only certified marine responder on Canada’s West Coast. By working with them to dramatically increase their capacity, we are helping to improve spill response along the entire shipping route. The funds will create six new marine spill response bases, enable the purchase of 44 new vessels, and employ 135 new people in spill response. The Enhanced Response Regime (ERR) is currently in development by WCMRC and is expected to be in place when the Expansion Project is completed, with all bases either complete or under active construction and the recruitment complete at the end of 2022.

Westridge Marine Terminal is an important part of our emergency preparedness and response planning. We have taken precautions to be able to respond rapidly in the event of an emergency, such as comprehensive training for our employees and maintaining enough equipment to be self-sufficient to respond to emergencies for the first six hours (read more about Trans Mountain’s emergency response program on [page 17](#)).

BELOW: We provide spill and emergency response training to our employees and maintain enough equipment, such as containment booms (pictured) to respond to emergencies within the first six hours of an incident.



**STORY**

**STRENGTHENING MARINE SAFETY WHILE SUPPORTING INDIGENOUS ECONOMIC CAPACITY**



In December 2021, a long-term agreement was awarded to KOTUG Canada to provide escort towage to tankers loaded at Westridge Marine Terminal. KOTUG Canada was selected by shippers on the Trans Mountain Pipeline after a rigorous and competitive process, facilitated by Trans Mountain. KOTUG Canada will provide and operate the two dedicated escort tugs which will be flagged in Canada and operated by highly skilled and capable Canadian mariners. The agreement was established in partnership with the Sc’ianew First Nation, located in Beecher Bay, on Vancouver Island. This strategic location along the Trans Mountain escort route will provide KOTUG Canada with a safe home for a dedicated berthing facility and support the commercial activities of the Sc’ianew First Nation.

KOTUG Canada has a separate agreement with Western Canada Marine Response Corporation to provide a dedicated offshore supply vessel equipped for 24/7 oil spill response services to support the protection of the Salish Sea/Haro Strait and Juan de Fuca Strait. Together, the three vessels will help to further improve the safety of the marine network in the region.



**4. PROTECTING MARINE LIFE AND BIODIVERSITY ■**

From the beginning, we recognized our responsibility to mitigate the effects of the Expansion Project on marine life, including marine mammals such as the Southern Resident killer whale, and our contributing role of working with industry and stakeholders to apply mitigations to the greatest extent possible. In 2021, we formalized our Marine Mammal Protection Program. The program outlines, (1) the mitigations and activities within our control which can address the various threats to marine mammals and, (2) the measures we are undertaking to support best practices and influence the conduct of vessel operations which may also minimize these threats and/or contribute to marine mammal conservation overall. We have committed to work with third-party marine vessels calling at our terminal in the program’s implementation.

**5. ENGAGING WITH COMMUNITIES DURING THE EXPANSION PROJECT ■**

Our commitment to engaging with communities during the Expansion extends to the marine communities, local and Indigenous, as far as Vancouver Island. We acknowledge our influence as a responsible member of the shipping sector and we aim to foster mutually respectful relationships based on trust. One example of such relationships is WCMRC and KOTUG Canada’s partnerships with the Sc’ianew (Beecher Bay) First Nation, to provide support vessel services out of a new base located in Beecher Bay on Vancouver Island. All parties have shared values of protecting the marine environment, building capacity and growing local economies for many years.

ABOVE: A tanker receives a tug escort after departing from the Westridge Marine Terminal.

**STORY**

**SUPPORTING WATER SAFETY IN INDIGENOUS COMMUNITIES**

As part of our Safe Boating initiative under our Marine Public Outreach Program, we partnered with Transport Canada in 2021 to create lifejacket libraries for more than 30 West Coast Indigenous communities on Vancouver Island.

The libraries loan the 600 lifejackets donated by Trans Mountain to community members who need one to safely enjoy water-based activities. Given the frigid waters in this area, wearing a lifejacket can help save a person’s life in the event of an emergency.

The initiative supports Transport Canada’s Office of Boating Safety mandate to educate boaters and save lives by using the proper equipment, gaining the knowledge and respect for our water environment, and wearing lifejackets for water-based activities. It also contributes to our compliance with one of our approval conditions (BC EAO Condition 11 – Indigenous Marine Public Outreach).



**WATCH THIS VIDEO TO LEARN MORE ABOUT OUR PARTNERSHIP**



# SOCIAL

Indigenous communities, our neighbours, governments, and local communities play an important role in how we conduct our business. Our success depends on earning the trust, respect, and cooperation of all community members.

# EMPLOYEE AND CONTRACTOR SAFETY

**Our first priority is to protect the health and safety of our employees, contractors, and the public. With more than 430 employees and 1,580 individual contractors working directly with, or on behalf of, Trans Mountain, this is a critical and ongoing mission. We care about the safety and well-being of our people, not only for their safety, but the safety of others in the community and for the environment. This is why we have stringent safety standards, high expectations of our contractors, and are always working to improve our safety practices.**

## SAFETY ACTIVITIES

To continue improving our safety performance, we implemented the following initiatives in 2021:

**GREEN HAND PROGRAM** ■ Our new and young worker (Green Hand) program identifies and supports employees who are young or inexperienced. This includes workers of any age who are new to Trans Mountain, have limited or no experience in their new role, and workers who have been relocated where the hazards are different from their previous workplace. These workers are typically unfamiliar with processes, facilities, and job routines, and may be reluctant to ask questions. The program provides additional support and training, including a mentor, constant evaluations and feedback, and a final review before the worker can perform any non-routine work or high-risk activities.

BELOW: A safety meeting begins the day at the Westridge Marine Terminal.

**LIFE SAVING RULES** ■ Trans Mountain has expanded its corporate-wide use of Energy Safety Canada’s Life Saving Rules, which are concise, easy-to-remember rules aimed at preventing serious injuries and fatalities. They remind workers of the most hazardous work situations in our industry (heights, confined spaces, hot work, line of fire, energy isolation, and driving) and set mandatory expectations for having a work authorization, respecting safety controls, and being fit for duty. We also adopted an additional rule, Damage Prevention, to address activities that have the potential to cause pipeline damage. In 2021, we provided corporate-wide online training and hosted focus groups to help embed the rules into all our safety standards and processes.

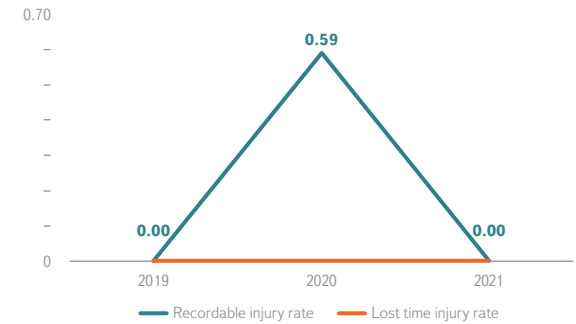
**SENIOR LEADERSHIP FIELD SAFETY VISITS** ■ During these visits our senior leaders (directors and above) go out to the field to interact with coworkers, discuss safety (including through one-on-one meetings), and identify things that are working well and could be improved. Our senior leaders completed 38 safety visits in 2021. These visits have made a positive contribution to our strong safety culture.

**SAFETY RECOGNITION PROGRAM** ■ We expanded our Safety Recognition program to include all corporate employees and operational contractors (where historically the program had been focused on high-risk field employees). The program has been very well received and allows workers to be nominated for good performance related to our safety program, rules, and standards. Awards include gift cards and a quarterly draw for those who have submitted a near miss.

## OUR PERFORMANCE

### EMPLOYEE INJURY RATES

injuries per 200,000 hours worked

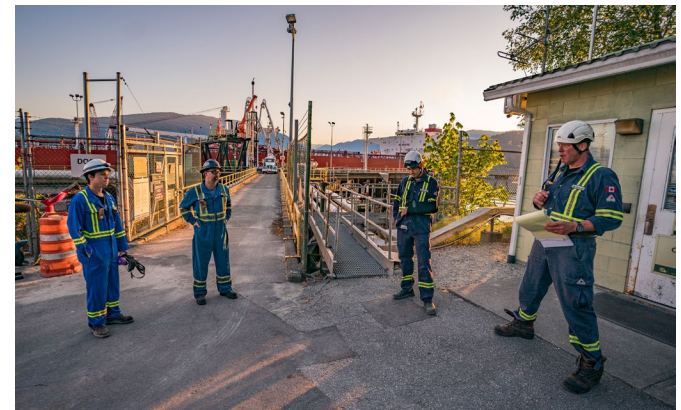


We continue to achieve industry-leading employee injury rates. Read about our safety activities on this page. The vast majority of our employees work in our day-to-day operations.

**IN 2021, OUR EMPLOYEES EXPERIENCED:**

**ZERO**  
recordable injuries

**ZERO**  
lost-time injuries





## EXPANSION PROJECT SAFETY

Some of our safety challenges on the Expansion Project include the complexity of construction logistics, slopes and mountainous terrain, amount and size of equipment, multiple general construction contractors, and high number of individuals required on site. As such, we need to be exceptionally vigilant and rigorous in the application of our safety practices by the contractors.

### Revamped Safety Strategy

As a result of the two significant safety incidents we experienced on the Expansion Project in 2020, we strengthened our safety approach in 2021. Our revamped strategy is centered on six areas of focus:

#### 1. MANAGE HAZARDS AND HIGH RISKS ACTIVITIES ■

To support this focus area, we established executive and contractor safety committees, asked our major contractors to complete a safety culture assessment, and developed leading indicator frequency key performance indicators (KPIs) and targets to support hazard identification. We also improved our inspection and compliance processes and implemented a risk assessment control validation process.

#### 2. FOCUS ON SIGNIFICANT INJURIES AND FATALITY

**PREVENTION ■** We use Energy Safety Canada's Life Saving Rules, in conjunction with our own best practices. In 2021, we improved awareness on the rules and completed trend analysis of positive and negative rules observations from prior inspections and incidents. We also set targets on our Life Saving Rules focus inspections, established damage prevention standards, and delivered detailed damage prevention training.



RIGHT: Successful completion of the Mann Creek horizontal direction drill in the North Thompson.



**3. ENCOURAGE POSITIVE SAFETY BEHAVIOURS** ■

In 2021, we implemented a Safety Recognition Program in the Expansion Project that rewards both acts of excellent safety leadership and great safety calls made in difficult circumstances.

**4. BUILD A ‘SPEAK-UP’ CULTURE** ■ We completed several initiatives to provide a psychologically safe space for people to report safety concerns, issues and incidents, including improving our messaging in orientations and bulletins, recognizing ‘stopping unsafe tasks’ in our Safety Recognition Program, and introducing a positive leading indicator (KPI) that supports and encourages the reporting of ‘stop tasks, pause tasks’.

**5. IMPROVE SAFETY COMMUNICATIONS INTERNALLY AND WITH CONTRACTORS** ■

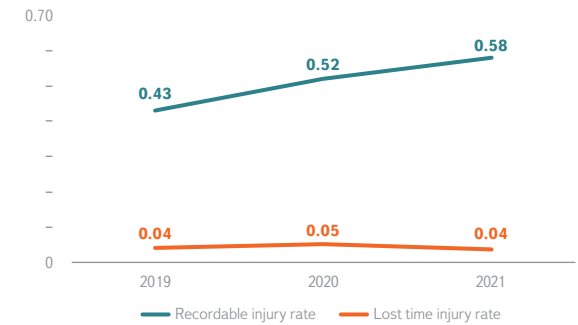
We built a Health and Safety Hub, a 24/7 accessible central repository for safety information, issued a weekly health and safety email to all Trans Mountain personnel, and have enhanced our focus on transparent, timely and accurate reporting of incidents and near misses.

**6. ENGAGE SENIOR LEADERSHIP** ■ We developed a Leadership Safety Engagement KPI establishing minimum engagement/visits for senior leaders covering all spreads and key facilities. Contractors are now required to include a leadership field safety engagement procedure in their plans. Our senior leaders completed more than 50 safety visits to the Expansion Project in 2021.

**OUR PERFORMANCE**

**CONTRACTOR INJURY RATES**

injuries per 200,000 hours worked



During 2021, our contractors worked more than 21 million hours on the Expansion Project. Our recordable injury rates in 2021 were higher than other years due to a significant increase in activity, increased low severity events, and improved reporting culture. Our recordable injury rate has increased but the lower lost-time injury rate indicates case management was effective and the incidents were less severe.

The vast majority of our contractors work on the Expansion Project.

# INCLUSION AND DIVERSITY

**We strive for an inclusive and diverse workplace that is supportive of all employees and contractors. We believe that diverse viewpoints and cultural knowledge enrich our organization’s collective cultural understanding, build trust, reduce turnover, improve innovation, and create a positive environment where our people can thrive.**

As a federally regulated company, we comply with the Employment Equity Act. The Act requires us to engage in proactive employment practices to increase the representation of four designated groups: women, people with disabilities, Indigenous people, and visible minorities. We survey our Canadian workforce to allow for self-identification, and develop an annual employment equity report detailing representation of the designated groups, rates of hiring, promotions, and terminations. The report also outlines our efforts around policy review, and training and awareness initiatives.

## PROVIDING TRAINING AND INCREASING AWARENESS

We provide opportunities for our employees to openly discuss harassment, discrimination, and unconscious biases. Doing so raises awareness about these topics and how they hinder the development of an inclusive workplace. Examples include:

### HARASSMENT AND VIOLENCE PREVENTION ■

We added three position-based training courses in 2021: 1) an awareness course for all employees on how to recognize, prevent, and report an incident; 2) mandatory training for leaders to provide a deeper dive into the complaint process and their role, and a review of our policy and statutory obligations; and 3) training for Designated Recipients (those who lead the complaint process to resolution) to provide a deeper understanding of our policy, the complaint process, and their role.

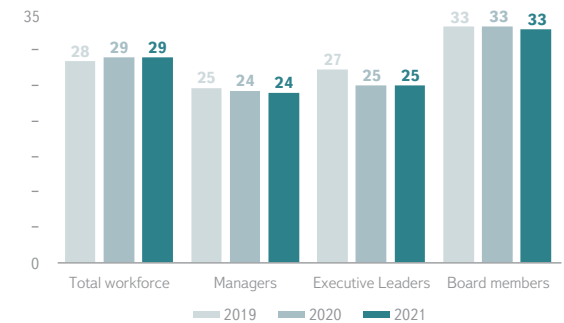
**UNCONSCIOUS BIAS ■** We offered a special Unconscious Bias training session to our Inclusion and Diversity Committee in January 2021 to expand awareness about biases and how they can influence one’s decisions.

**MENTAL HEALTH AND WELLNESS ■** In 2021, we offered four sessions to the Calgary workforce: ‘Mental Health and Well-being: Coping Strategies During COVID-19’, ‘Mental Health Workplace Leadership During COVID-19’, ‘Stress Reduction Tool Bag’, and ‘Mental Health Awareness’. We also added a new wellness page to our intranet which is accessible by all employees where we highlight a different wellness topic each month. Our goal is to ensure employees from diverse backgrounds have access to programs that support their full participation in the workplace and their psychological well-being at work.

## OUR TEAM

### WOMEN AT VARIOUS LEVELS

per cent



Employee-only data.

To increase women in leadership roles, female candidates are represented in the selection process and female representation is included on the interview panel.

To better understand our applicant pool, we have implemented an Applicant Tracking System which offers candidates the ability to voluntarily disclose their gender, if they are Indigenous, are a visible minority, or have a disability. Internally, we are also tracking women who have applied for supervisory roles to understand trends in this area.





**INCLUSION AND DIVERSITY INITIATIVES**

Inclusion and diversity are also advanced through our Inclusion and Diversity Committee. The committee’s mandate is to support a workplace environment where everyone feels safe, valued, and respected. This committee is accountable to our Vice President, People and Technology Resources, and our President and CEO. Its role is to develop and promote initiatives that raise awareness, identify and remove barriers, and create workforce learning opportunities that support diversity and inclusion. Some of the initiatives supported by the Committee over the past year include:

**DIVERSITY DAYS** ■ This annual company-wide event is focused on creating increased awareness of organizational diversity through education initiatives, reminders on our relevant policies and procedures, and an annual theme. In 2021, we explored the theme of *Unconscious Bias* and how it affects our behaviour and decisions.

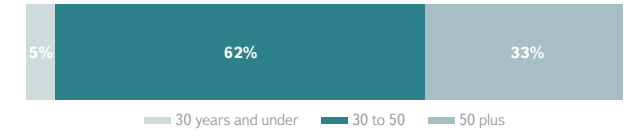
Resources and information included: articles, videos, tips, and activities including the *Project Implicit Bias Tests* developed by Harvard University. Awareness activities included a workforce survey and a Q&A to share how Trans Mountain works to create a diverse and inclusive workplace every day. Diversity Days culminated in a virtual keynote speech by Dr. Steve L. Robbins, a highly respected expert with extensive research in human behaviour, diversity and inclusion, who spoke about the power of leveraging our differences and recognizing our biases. More than 450 individuals participated in the session and all executives participated in a separate session tailored to senior management.

**REFLECTING ON RECONCILIATION** ■ In July 2021, we hosted a virtual session with the founder of Reconciliation Canada, Chief Dr. Robert Joseph. The goal of the session was to engage in dialogue in a safe and supportive space to create bridges between Indigenous peoples and all Canadians. Reconciliation Canada believes that these conversations can help us build vibrant, resilient and sustainable communities.

**OUR TEAM**

**AGE DEMOGRAPHICS**

2021 workforce



**DESIGNATED GROUPS**

	2019	2020	2021
Indigenous people	1.8%	1.8%	<b>2.7%</b>
People with disabilities	0.3%	0.3%	<b>1.1%</b>
Visible minorities	13.1%	13.8%	<b>15.3%</b>
Women	28.0%	29.0%	<b>29.0%</b>

Employee-only data. Percentages are based on self-disclosed data.

**NATIONAL DAY FOR TRUTH AND RECONCILIATION** ■

On September 30, 2021, in recognition of the National Day for Truth and Reconciliation, we participated in Orange Shirt Day across Trans Mountain. This is a day to commemorate the history and legacy of residential schools in Canada and to honour the survivors and their communities. We provided stories, resources and distributed a template to develop a Personal Reconciliation Action Plan for all staff. Colleagues were encouraged to wear orange shirts.

**JUNETEENTH** ■ In 2021, we announced that employees in the United States would have a day off to recognize Juneteenth. Juneteenth commemorates the end of slavery in the United States and has been celebrated since the late 1800s.

ABOVE: Workers in Kamloops show off their shirts for Orange Shirt Day in recognition of the National Day for Truth and Reconciliation.

# RELATIONSHIPS WITH INDIGENOUS COMMUNITIES

Through the course of our daily operations, we have formed relationships with numerous Indigenous communities and groups. In Alberta, the existing pipeline system spans the traditional territories of Treaty 6, Treaty 8, and the Metis Nation of Alberta (Zone 4). In British Columbia, the system crosses many traditional territories and 15 First Nation reserves. These Indigenous communities are our neighbours, and we respect their values, culture, and unique interests in the land.

For the Expansion Project, we will only cross reserve lands with the consent of the First Nation.

We endeavour to identify areas where we can provide opportunities for Indigenous people. We also hope to leave a positive legacy that endures beyond the Expansion Project; that Indigenous communities are in a more sustainable position than when we first engaged with them. The following are some of the ways we strive to provide long-term benefits for Indigenous communities.

## CONTRIBUTING TO RECONCILIATION

Reconciliation with Indigenous Peoples will require ongoing dialogue and collaboration among governments, businesses, communities, and individuals. Trans Mountain is playing a role by working to develop lasting and respectful relationships and improving economic opportunities for Indigenous communities.

For more than 15 years we have been contributing to Indigenous business development, employment, education and training, capacity building, and creating legacies for Western Canadian Indigenous communities.

The discovery of the unmarked graves of children at the site of the former Kamloops Indian Residential School and at other schools across Canada, has undoubtedly touched all Canadians. The tragic events have had a deep impact on the Trans Mountain community, and we have endeavoured to provide support to Indigenous communities in a meaningful way through donations to both the Indian Residential School Survivors Society, the Kamloops Aboriginal Friendship Society, and the Orange Shirt Society. Our efforts to support the healing and recovery process with the communities along our pipeline and marine corridors will continue. Learn about how we recognized and reflected on our shared history with Indigenous Peoples by honouring *National Indigenous Peoples Day* and the *National Day for Truth and Reconciliation* on [page 36](#).

The discoveries are part of a much broader dialogue on reconciliation that must occur between the Indigenous and non-Indigenous peoples in Canada. This dialogue is about listening, working to understand and healing.

At Trans Mountain, we will continue to do our part in advancing reconciliation with Indigenous communities. As an important step in this process, we plan to establish an Indigenous advisory council in 2022 to provide advice to our leadership team and guide our reconciliation efforts. From this, we plan to develop an Indigenous Reconciliation Action Plan by the end of 2022 for publication in 2023, which will contain elements of economic reconciliation. We recognize that how we move forward will shape our collective experience and we remain committed to building a brighter shared future.

RIGHT: Participants in the Outland Youth Employment Program (OYEP). Continuing our partnership with the program provides opportunities for Indigenous youth (ages 16-19). Read more on [page 39](#).

### OUR PERFORMANCE

~ 140

Indigenous communities and groups in BC and Alberta (including marine) engaged in 2021.

> 12,000

points of engagement with Indigenous communities in 2021.

### BUILDING INDIGENOUS AWARENESS

In the coming year, we will be working to enrich our understanding and awareness of Indigenous history and culture. By the end of 2022, we plan to have all employees and contractors complete a mandatory company-wide Indigenous cultural awareness training module.



**INTENTIONAL AND RESPONSIVE ENGAGEMENT**

We seek to meaningfully engage with Indigenous people and their communities, tailoring our engagement to respect each community’s diverse needs, governance principles and protocols. Our approach to engagement is to come from a place of openness and respect, to share mutual benefits and work toward mutual understanding. For the Expansion Project, we intentionally took an inclusive approach to engagement and welcomed input and discussion with all Indigenous communities, even those not necessarily recognized by the Crown for consultation purposes. Guided by our Indigenous Relations Policy, our engagement efforts have included 157 Indigenous communities and groups culminating in more than 12,000 points of engagement (which include meetings, open houses and informal conversations) in 2021. We are committed to understanding the needs and interests of Indigenous groups, including considerations of traditional knowledge and heritage resources (read more on [page 21](#)). We are open to hearing concerns, and where possible, adjust our construction and operations to reflect Indigenous perspectives.

**EMPLOYMENT AND BUSINESS OPPORTUNITIES**

We are working hard to support the sustainability of Indigenous, local, and regional communities along the pipeline corridor through the creation of employment and business opportunities during construction, post construction and in support of operations. Building the 980 kilometres of new pipeline and associated facilities will require more than 20,000 individuals, the majority being residents from British Columbia and Alberta. We recognize that most employment opportunities will be made available through construction-related contracts. As of December 31, 2021, Trans Mountain and our contractors have hired approximately 19,600 people, of whom 2,100 (10.7%) are Indigenous.



**Contracting Indigenous Businesses During the Expansion Project**

We are also committed to maximizing business opportunities for Indigenous groups. As our contractors identify specific business opportunities along each section of the Project, we communicate these to Indigenous communities and identify potential partners through our vendor system. As of December 31, 2021, Trans Mountain and our contractors have hired approximately 5,130 businesses, of which 760 are Indigenous businesses. This is approximately 15% of the total businesses hired.

**MUTUAL BENEFITS AGREEMENTS**

Mutual Benefits Agreements (MBAs) are intended to help build long-term relationships based on shared interests. They are important not only for formally acknowledging our commitments for which we are accountable, but also to share prosperity and to build capacity and opportunities. MBAs are tailored to community needs and provide different types of defined project benefits. However, there are broad categories of benefits such as, but not limited to, financial compensation, community investment, business opportunities, environmental commitments, employment and training and emergency management and response.

**STORY**

**INVESTING IN LONG-LASTING ASSETS TO SUPPORT COMMUNITIES IN THE FUTURE**

For the Expansion Project, we use existing campsites to temporarily accommodate construction workers and develop yards for industrial laydown or for new camp facilities. In 2021, we invested in projects that will result in assets that Indigenous communities can use for years to come. For example:

We completed upgrades at the Chawathil First Nation Telte Yet Campsite in Hope, BC including 15 additional camping sites, new washroom facilities, as well as power, sewer and water to all 40 sites (existing and new). During Expansion Project construction, rental income from the campsite goes to support programs for youth and elders. Once the site is no longer needed for accommodations, it will provide long-term social and economic benefits for the Chawathil First Nation.

We have worked with multiple First Nations (Leq’a:mel, Shxw’owhamel, Popkum, etc.) to develop yards that can later be used for housing, schools, soccer fields, or the establishment of a business such as a roadside restaurant or gas station. The yards are flat, cleared areas, sometimes capped with gravel. Yard development provides direct economic investment into the community, while also leaving the community with a space that can then be leased to other businesses or used for community development projects.

ABOVE: We completed upgrades at the Chawathil First Nation Telte Yet Campsite in Hope, BC. Once the site is no longer needed for accommodations, it will provide long-term social and economic benefits for the Chawathil First Nation.

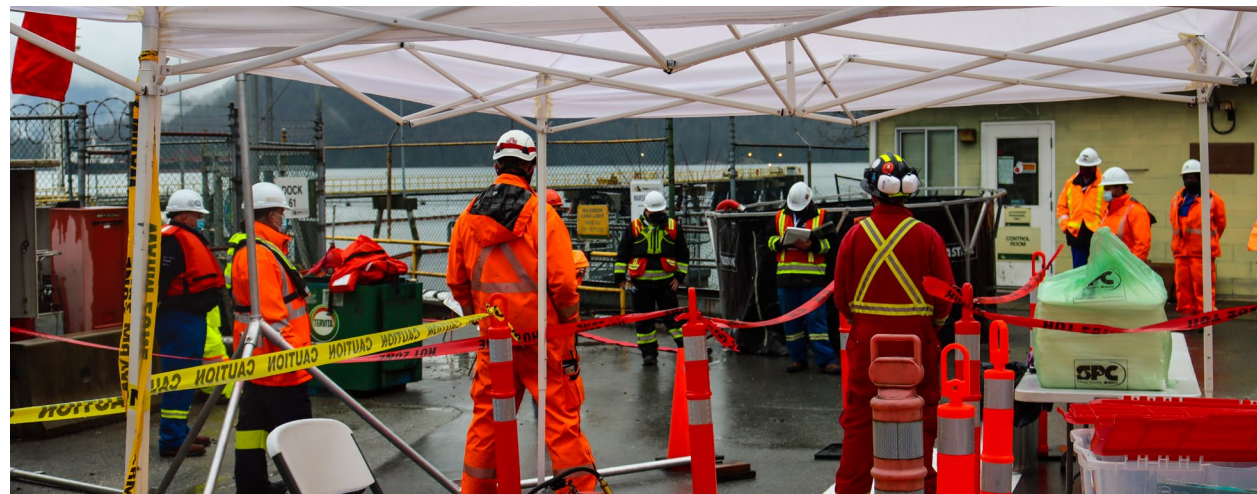
**CAPACITY BUILDING**

We strive to enhance Indigenous peoples’ long-term prosperity through direct and meaningful participation in the Canadian economy and in our operation and construction activities. We build capacity by helping individuals develop or strengthen valuable skills or expertise. Our training programs aim to maximize Indigenous participation in available employment opportunities. Some examples include:

- Our general construction contractors provide training to Indigenous, local, and regional residents, in addition to the training programs offered by Trans Mountain. Contractors provide mentorship, apprenticeship, construction readiness/close-to-qualified training, and on-the-job training. Several training sessions and courses were held in 2021 and included construction and fire safety certifications, confined space awareness, traffic control, security, defensive driving, ground disturbance, fall protection, and first aid.
- In 2021, we continued to sponsor the online Project Management Extension Certificate program for Indigenous women through Mount Royal University in Calgary, Alberta. The program is exclusively for Indigenous women, which allows for additional support and more open and inclusive dialogue. The participants have access to mentors to support their learning and extend their networking circles.

Participants have the option to attend additional classes to prepare for their Project Management designation. Over 50 women have now participated in the program.

- We continued our partnership with Outland Youth Employment Program (OYEP) to deliver an initiative that works toward equity and provides opportunity for Indigenous youth (ages 16-19) through land-based education, training, and work opportunities. Participants are fully immersed in a six-week natural resource-based work environment that includes on-the-job safety training, time management, skill-building, remote work experience, and lessons on managing personal work-life balance. The program enables youth to build confidence, leadership skills, and earn high school credits. 26 youth participated in the program in 2021.
- We have helped the Simpcw First Nation grow their business capacity in several new lines of business— timber marketing, waste wood disposal, and aggregate development and hauling. We provided funding and worked with them to create a commercial model that would both support the Project and help them to execute the new lines of business. With these new business capabilities, the Simpcw First Nation can continue to use their timber marketing skills and facilities in the future.



**STORY**

**FOSTERING COMMUNITY RESILIENCY IN THE FACE OF EXTREME WEATHER EVENTS**

Acknowledging the challenges faced by many BC communities as a result of the both the pandemic and flood events, we provided funds to the Nooaitch Indian Band to help enhance emergency response capacity within the community and within the Nicola Valley. The funds could be used at the discretion of the community and based on the Nooaitch Indian Band’s current emergency preparedness and response priorities.

Similarly, we provided funding to the Simpcw First Nation to help build their capacity in the area of emergency response. During the 2021 wildfire season, these capabilities enabled them to use their existing program and their own equipment to quickly set up an attack crew composed of all Indigenous people. The Simpcw First Nation now has contracts with the provincial government and is one of the initial crews called in for these types of emergencies.

To exercise our combined response capabilities, the Simpcw First Nation participated in our emergency response exercises in May 2021, simulating a spill during freshet on the North Thompson River.



**WATCH THIS VIDEO TO LEARN MORE ABOUT OUR EMERGENCY RESPONSE EXERCISE WITH SIMPCW FIRST NATION**

LEFT: Full scale emergency response debrief at Westridge Marine Terminal.

IN FOCUS

# HELPING LOCAL AND INDIGENOUS COMMUNITIES DURING FOREST FIRES AND FLOODS

In November 2021, rivers in the Pacific Northwest and interior of BC reached unprecedented flow levels. The heavy rainfall event had catastrophic impacts on communities and infrastructure due to the severity of the storm, and caused widespread flooding. The flood also impacted our operations and, following a 21-day precautionary shutdown, we safely restarted operations on December 5, 2021. Heavy flooding in the Coldwater, Coquihalla (pictured below), and Nooksack rivers meant that roads and bridges were washed out and access to some remote communities was completely cut off. Trans Mountain employees and contractors were on the ground to help the most affected communities and individuals. The following are some of the areas in which we were able to help local and Indigenous communities in this time of need:



### BRIDGE RE-BUILD

Trans Mountain and our contractors worked around the clock to re-build a bridge that was washed out completely cutting off the Nooaitch First Nation near Merritt, BC, leaving them without power or supplies.

### SUPPLIES AND VOLUNTEERS

Crews delivered supplies and volunteered at the Hope Secondary School temporary shelter while road access to Hope was cut off.



### DELIVERING ESSENTIAL SUPPLIES

Trans Mountain and our construction contractor for the BC Interior, delivered food, water, fuel, and supplies to the Nooaitch Indian Band and the Lower Nicola Indian Band.



### ENABLING ROAD ACCESS

Crews delivered a pallet of water and installed matting to open up road access for stranded Coldwater Band members.



### HELICOPTERING FOOD AND WATER

Trans Mountain and our construction contractors responsible for the Hope segment of the project assisted the District of Hope, Indigenous communities, and local organizations by helicoptering in and delivering supplies such as food, water, and blankets.

### ACCOMMODATION FOR EVACUEES

We provided emergency accommodation to City of Merritt staff, first responders, and Indigenous community members in one of our workers' camps (Merritt Camp Community). More than 20 evacuees from surrounding Indigenous communities remained in the camp throughout the holiday period.





## IN FOCUS

## PROVIDING SUPPORT DURING WILDFIRES

In summer 2021, the wildfire season in BC began earlier than usual, with drought conditions and a series of severe heat waves leading to widespread fire activity. More than 1,600 fires burned nearly 8,700 square kilometres of land last year, making it the third worst on record in terms of area burned. The following are some of the ways we supported local and Indigenous communities during this time:

### DELIVERING ESSENTIAL SUPPLIES

We arranged for transport of traditional food supplies for evacuees displaced to other areas of the province.

### FACILITATING COMMUNICATION

We connected Indigenous communities to provincial and federal supports and provided information on disaster relief efforts.

### ACCOMMODATION FOR EVACUEES

We housed more than 100 evacuees from surrounding communities and First Nations, along with 40 firefighters in our Merritt Camp Community.

### DELIVERING ESSENTIAL SUPPLIES

We supported community needs by supplying mobile cellular tower trailers, water, and food to communities in need.

### ACCOMMODATION IN CLEARWATER

We made additional camp space available in Clearwater, BC to evacuees as space across the province was running short.



RIGHT: Crews in the Coquihalla-Hope region assisted the Hope Fire Department and the BC Wildfire Service in putting out a fire in the Laidlaw community.

# RELATIONSHIPS WITH LANDOWNERS

**We are committed to building and maintaining positive relationships with landowners based on mutual respect and trust. We have relationships with approximately 2,900 landowners along the existing pipeline route that has been in operation for more than 65 years. We value these continued interactions and know that every day the safe operation of our pipeline is dependent on these relationships. Our key objective is to treat each landowner fairly and equitably.**

## ENGAGING LANDOWNERS AND BUILDING RELATIONSHIPS

Our land teams have been working directly with all landowners for decades. Our Land and Right-of-Way team interacts with landowners, and responds to their inquiries and concerns. More recently, our land teams have been focused on the Expansion Project and landowners who are, or may be, affected by the Project. As a good neighbour, we are doing several things to enhance these relationships.

- In 2021, we developed a New Landowner Engagement Procedure which augments our processes for how we reach out to new landowners and provide Project information (including direct contact such as a scheduled face-to-face visit or door knock). We also defined our procedures for relocation of landowners for intrusive work.

- To support the Expansion Project, we have dedicated Land Representatives for each area of the pipeline in recognition of the importance of timely and effective communications and being responsive to landowners' concerns related to project construction activities.
- We continue to minimize impacts to landowners by hosting detailed pre-construction meetings to capture any changes to the Project over the past few years and to update any relevant landowner requests.
- Our Land and Right-of-Way team is dedicated to the existing pipeline operations and is primarily based in Burnaby, BC and Edmonton, AB. This team provides local knowledge and manages long-lasting relationships with our private and public landowners.

Questions and issues often arise during pipeline construction, so we work together with landowners to find jointly equitable solutions. We also recognize that the duration of this Project has been hard on landowners and has affected some of these relationships. We welcome feedback and encourage landowners to raise any concerns with us through their land agent or Senior Land Representative, via email or phone. Complaints may also be filed through the Canadian Energy Regulator. We proactively communicate with all landowners on a regular basis through in-person visits, mailouts, emails, and/or Landowner Update newsletters.

## STORY

### SAFETY IS A SHARED RESPONSIBILITY

Every day we work with landowners and others, to help protect the pipeline and the environment. We do this through a variety of programs.

**PUBLIC AWARENESS PROGRAM** ■ helps maintain the safety of the pipeline and the right-of-way by informing and educating people who live and work in the area. Through our New Landowner Engagement Procedure, we gather current landowner contact information and help new landowners understand what it means to have the pipeline on their property.

**DEPTH OF COVER PROGRAM** ■ ensures sufficient cover over the top of the underground pipe, which is especially important in agricultural areas where tilling is practiced. Each year different sites are assessed and remediated based on exposure and risk.

**VEGETATION MANAGEMENT PROGRAM** ■ ensures clear access and line-of-sight along the right-of-way through the ongoing management of vegetation and weeds.

**DAMAGE PREVENTION PROGRAM** ■ reduces the potential for unsafe digging that may cause pipeline damage. Examples include pipeline markers along the right-of-way and creating awareness about the need to "Click Before You Dig". We also use surveillance and monitoring (including ground patrols and an aerial patrol program) to assess potentially threatening activities in a 30-metre zone from the centreline of the pipeline.

# RELATIONSHIPS WITH COMMUNITIES

**Operating and building pipeline infrastructure affects approximately 35 communities along the route and marine corridor, many of which are in urban areas. To build respectful, transparent, and collaborative interactions, and to develop long-term, effective relationships, we continue to regularly engage with communities in a variety of ways. In 2021, our efforts included more than 2,800 points of engagement reaching well over 50,000 individuals (including, but not limited to, meetings and events organized by Trans Mountain, meetings and events attended by Trans Mountain, notifications issued about projects which may impact community members, and inquiries through our public inquiry line).**

## ENGAGING WITH COMMUNITIES

Building on more than 65 years of operations, we meet with our neighbours and those impacted by, and interested in, our business to provide factual and relevant information; and to provide opportunities for those impacted to share their concerns and interests with us. To honour our commitments, we host events, provide newsletters and updates, make safety and public awareness presentations, and participate in community events, regulatory processes, and informal meetings. Community members can expect a timely and accurate response to their interests and concerns, with their concerns considered and addressed to the extent practical and compliant with regulatory conditions and requirements.

BELOW: As part of Community Benefits Agreements in local communities, we celebrated the Coquitlam Foundation's Trans Mountain Education Fund in 2021.

As a result of these conversations, we continually improve and optimize our planning and mitigation measures to address concerns about our pipeline operations, emergency response, and safety. We are committed to earning trust and continuing to work with communities to gather feedback and support collaborative efforts to mitigate the impacts of our operations while enhancing safety and protecting the environment.

## COMMUNITY BENEFITS AGREEMENTS

We invest in the communities where we operate to foster economic and social well-being. In recognition of the effects of pipeline construction, we have worked with communities to develop Community Benefits Agreements, which provide a range of benefits to residents. Our aim is to leave positive legacy impacts in surrounding communities. Community Benefits Agreements designate funds for priority projects as unique as the communities themselves, from parks to bike paths and local education initiatives, to drinking water infrastructure. Trans Mountain has announced 21 agreements with local governments along more than 95 per cent of the pipeline route that will provide more than \$16 million in funds to help with various locally determined projects. As part of Community Benefits Agreements in local communities, we celebrated the opening of the Ledgeview Clubhouse in the City of Abbotsford and the Coquitlam Foundation's Trans Mountain Education Fund in 2021. We also delivered funds for local infrastructure upgrades to the Village of Valemount, City of Merritt and District of Hope. Last year, the total value we contributed as part of our community benefits program was \$5.8 million.

## OUR PERFORMANCE

**22**

Community Awareness and Emergency Response Sessions (mostly virtual) were held in 2021.

**\$5.8**

million contributed in 2021, as part of our community benefits program.



## COMMUNITY INVESTMENT

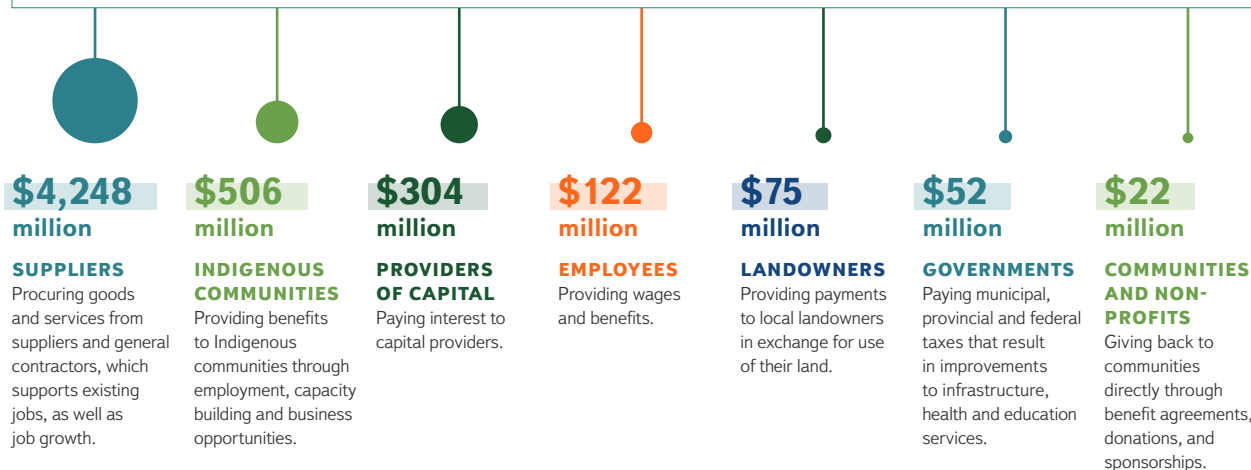
We encourage our employees and contractors to be active members of their communities. We support our local communities through our community investment program, volunteerism, and by supporting local speaking opportunities. Our community investment program focuses on areas that reflect what we value: Education, Community Well-Being, and Environmental Stewardship. Read more on the next page.

# ECONOMIC CONTRIBUTION TO CANADA

The financial success of our business allows us to contribute to the Canadian economy. Our contributions also help to build resiliency in the Indigenous and local communities along our pipeline route.

## \$5,425 MILLION

In 2021, we generated positive economic value in the following ways:



### STORY

#### COMMUNITY INVESTMENT



In 2021, Trans Mountain granted \$287,995 in financial and in-kind contributions in 43 communities along the pipeline and marine corridor as part of our community investment program. These contributions were made to support community events and initiatives designed to address the needs of the community across our areas of focus.

Last year, we also raised more than \$130,000 for United Way, which includes the company’s match of employee contributions. Our donations to United Way supported critical relief and urgent recovery efforts for communities directly impacted by the BC and Washington state floods.

For our 2021 campaign we received a workplace excellence award from the United Way of Calgary. The award celebrates noteworthy campaigns that demonstrated industry excellence by exhibiting strong management support, a significant increase in both Leadership giving and total donations, a surge in employee involvement, and/or has taken a fresh and innovative approach to their United Way campaign.

# GOVERNANCE

At Trans Mountain, we believe strong and effective governance is essential for creating a culture of integrity, proactively controlling risks, and achieving strong business performance.

# CORPORATE GOVERNANCE

We see good corporate governance as critical to helping us achieve sustained success and creating lasting benefits for all our stakeholders: our customers, employees, business partners, regulators, and the communities where we live and work.



## CORPORATE STRUCTURE

Trans Mountain Corporation (TMC) was incorporated in 2018 as a federal Crown corporation for the purpose of purchasing and managing assets related to the pipeline and Expansion Project. Our Board of Directors is ultimately accountable to Parliament through Canada Development Investment Corporation (CDEV), a federal parent Crown corporation, and the Minister of Finance. As Crown corporations, TMC and CDEV operate at arm’s-length from the government and have a high degree of responsibility to maintain the public trust and account fully and openly for operations and decisions.

## BOARD FORM AND FUNCTION

Our Board of Directors is appointed by CDEV and in 2021, was composed of 12 members, 11 of whom were considered independent including the Chair. The Board is responsible for the stewardship of our company with overall responsibility to oversee and supervise the management, businesses, and activities, while exercising their independent judgment to strengthen management and accountability.

The Board carries out its mandate through four standing committees: the Audit Committee; the Environmental, Health and Safety Committee; the Human Resources, Compensation, Nominating and Governance Committee; and the Expansion Project Oversight Committee.

## BOARD DIVERSITY

We have a Board with qualified, knowledgeable and committed individuals who understand our business and the context in which we operate. At Trans Mountain, we value diverse points of view and believe that diversity of thoughts, experiences and perspectives can lead to better decision making. In our current Board of Directors, we have four women (representing 33% of the Board) and two Indigenous individuals (17%). Indigenous Board members can play a role in ensuring we consider Indigenous perspectives and the Indigenous world view in our strategy and plans.

ABOVE: Our executive team and leaders tour the Expansion Project.

### OUR TEAM

#### BOARD COMPOSITION AND INDEPENDENCE

Size of Board	12
Number of Independent Directors	11
Separate Chair and CEO	Yes
Independent Chair (required)	Yes
Comprehensive Board Assessment Process	Yes
Board Meetings Held in 2021	6
Average Meeting Attendance	100%

#### BOARD RENEWAL AND DIVERSITY

Mandatory Retirement Age	No
Average Director Tenure	3 years
Women Board Members	33%
Indigenous Board Members	17%

#### ETHICS

Code of Conduct for Directors, Officers and Employees	Yes
---	-----

All chart information as of December 31, 2021.

# GOVERNANCE FOR ENVIRONMENTAL AND SOCIAL MATTERS

## ROLE OF THE BOARD

The Board oversees the conduct of our business, directs management of the company, and considers all major issues affecting the company, some of which include environmental and social matters. At Trans Mountain, the Board as a whole is responsible for providing oversight over critical environmental and social risks, including climate-related risks (read more on [page 53](#)). Specifically, this includes reviewing our targets and programs, overseeing the management of our ESG opportunities and risks, monitoring our ESG performance and reporting and overseeing the allocation of resources needed to meet environment, health and safety, and other relevant requirements and regulations. The Board receives a quarterly update on corporate risks, which includes environmental and social risks.

## ROLE OF MANAGEMENT

Our executive team reports environmental and safety-related performance and issues quarterly to the Environmental, Health and Safety Committee of the Board. Reporting includes key performance indicators, security updates, marine activity, developing issues in operations, and any environmental or safety incidents or near misses. Our executive team sets our goals and strategy that are executed by our operations and subject matter expert teams.

## ESG TEAMS

In 2021, we enhanced ownership and accountability for ESG across our company. We created two new teams to support the implementation of ESG practices across our company.

**ESG EXECUTIVE STEERING COMMITTEE** ■ This committee includes our President and CEO, Chief Financial Officer, Chief Operating Officer, Vice President Finance and Executive Vice President Project Services, Integration & Strategic Development. This committee provides executive leadership on ESG and supports the Board as well as the rest of the executive team in the review and approval of our environmental and social goals to ensure their effective implementation in alignment with our business ambitions.

**SUSTAINABILITY WORKING GROUP** ■ This team is composed of subject-matter experts across relevant business and support functions. Through cross-functional collaboration, this team reviews sustainability priorities and supports the implementation of sustainability initiatives. We have assigned each sustainability priority to key owners, who are responsible for mobilizing and empowering our employees to continue to drive our sustainability efforts forward.

## OUR MANAGEMENT SYSTEMS

As required by the Canada Energy Regulator, we have an Integrated Safety and Loss Management System (ISLMS). Our ISLMS helps us support and protect the safety and security of the public, our employees and contractors, the environment and company assets.

## OUR TEAM

### GOVERNANCE FOR ENVIRONMENTAL AND SOCIAL MATTERS



## COMMUNICATING TO OUR OWNER

Trans Mountain provides information about our risks and risk management strategies, and material health, safety and environmental matters to CDEV on a quarterly basis. All significant health and safety, security and environmental incidents are promptly reported to CDEV and do not wait until our quarterly report.

ISLMS covers the procedures, processes, and guidelines that our employees must follow in conducting our operations in a safe, environmentally responsible, and sustainable manner. The system is subject to routine audits to support continuous improvement. Learnings from these audits help drive continuous improvement throughout the pipeline’s lifecycle.

# CYBERSECURITY

The growing level of threat to cybersecurity is a risk affecting organizations of all sizes and in all industries. Resilience to cyber threats is exceptionally important for companies like ours that own and operate energy infrastructure. We maintain an advanced cybersecurity program that protects both our information and digital assets (Information Technology) and our physical assets and systems (Operational Technology).

## INFORMATION TECHNOLOGY

Our cybersecurity program aligns to ISO 27001 and the [National Institute of Standards and Technology \(NIST\) Cybersecurity Framework](#). We complete an annual maturity and risk assessment to ensure our cybersecurity program meets industry standards and best practices. We include cybersecurity as part of our Enterprise Risk Management approach.

## OPERATIONAL TECHNOLOGY

We place high attention on maintaining the cybersecurity of our operational technology systems as they directly impact physical systems and the delivery of oil and gas to our customers. Our network is divided into multiple risk-based segments to ensure our critical systems and assets are incrementally protected from malware and malicious actors. We align with [CSA Z246](#), a standard that applies to all petroleum and natural gas industry systems and focuses on the use of a security management program and risk management to address security issues.

## PROMOTING CONTINUED SECURITY AWARENESS

In 2021, we enhanced our company-wide efforts around cybersecurity awareness and training through:

**CYBERSECURITY TRAINING COURSE** ■ In 2021, we introduced mandatory annual cybersecurity training. Each new user in the company is required to take this standardized training when they join the company.

**CYBERSECURITY AWARENESS PROGRAM** ■ Our ongoing company-wide awareness program includes monthly awareness bulletins, departmental sessions and cybersecurity lunch and learn sessions such as How to Break up With Your Old Password and Top 10 Security Threats for 2022.

**CYBER SECURITY AWARENESS MONTH** ■ As part of our annual observance of [Cyber Security Awareness Month](#) each October, in 2021 we distributed articles, provided a cyber awareness quiz to employees and hosted three lunch and learn sessions. We also offered personal cyber health awareness and education sessions which encouraged safe practices at home and work, such as Cybersecurity at Home and How to Harden Your Home Network.

**PHISHING TESTING** ■ We conducted regular phishing tests as part of our cyber program in which our employees received emails from a seemingly trustworthy source. We monitor click rates and the notification/reporting rates.

## MAINTAINING CYBERSECURITY WHILE WORKING FROM HOME

Like many organizations, we have had to adjust to the decentralization of our workforce. This has meant a larger focus on ensuring secure remote access and using cloud-based digital collaboration systems. We have implemented increased end-point and system protection including anti-malware, multifactor authentication, and scrutiny over geographical network and/or cloud activity.

## OUR PERFORMANCE

IN 2021:

10

cyber awareness sessions offered.

537

individuals attended cyber awareness sessions.

567

hours of cyber awareness training completed.

## LESSONS LEARNED FROM COLONIAL PIPELINE ATTACK

Following the Colonial Pipeline attack, we conducted an incident review and applied findings from the incident in a vulnerability assessment of our systems and processes. While our review found that there was no direct risk to Trans Mountain, we took the opportunity to re-emphasize the importance of several of our cybersecurity protocols with employees including password hygiene, phishing awareness, and reporting unusual activity.

As cyber incidents increase worldwide, we are continually improving the technology and tools available to our security operations centre, where events are analyzed, correlated and investigated to identify and prevent real security threats.



# ETHICS

## POLICIES AND ETHICS HOTLINE

We are dedicated to conducting our business ethically and responsibly, and to upholding our core values of safety, integrity, respect and excellence in all we do. Our [Code of Business Conduct and Ethics](#) outlines how our values translate into everyday behaviour, establishes high standards of ethical conduct, and incorporates company policies and the laws and regulations we must follow. Our Whistleblower Policy states that there will be no retaliation (discipline, loss of job, or any other type of retaliation) against anyone who, in good faith, reports a compliance or ethics concern. We also maintain an Ethics Hotline through a third-party company, which provides a confidential and anonymous way to report potential unethical behaviour or wrongdoing that is not in compliance with the Code. All reports are dealt with expeditiously, investigated and resolved as appropriate. Ethics matters are presented to the Audit Committee quarterly.

## CODE OF CONDUCT TRAINING

All personnel must complete annual awareness training of the Code. The training module provides an overview of the Code, reviews key areas in plain language, and ends with a knowledge evaluation to ensure accountabilities are understood. 100% of our employees completed ethics training in 2021.

RIGHT: Employees working in our offices and operations roles (photo) must complete annual ethics training.



# WORKING WITH RESPONSIBLE CONTRACTORS

As an extension of Trans Mountain, it is important that all contracted companies embody our values of safety, integrity, respect, and excellence. We expect all contracted companies to work to the high standards of safety and environmental protection we set for ourselves, and to assist us in fulfilling our commitments to Indigenous communities. The following processes and programs we have in place ensures a consistent approach from the third parties that work on our behalf.

**CHOOSING SAFE CONTRACTORS** ■ As part of the evaluation process, each general construction contractor must be registered with ISNetworld, the online contractor and supplier management platform we use for pre-qualifying and monitoring contractors for work. All contracted companies must meet our ISNetworld requirements including demonstrating technical capabilities, having adequate safety practices and appropriate insurance in place. We have teams of Trans Mountain safety inspectors that work alongside contractors (read more about contractor safety on [page 32](#)). For individual contractors, we have a Contractor Competency Assurance program that provides additional rigour around training by detailing the competencies each contractor must have to complete a job and identifying the specific training required.

#### **MONITORING ENVIRONMENTAL PRACTICES** ■

All contracted companies must meet our environmental commitments, respect heritage resources, and report any environmental incident in the course of the work. To monitor adherence with our policies, we have a team of Trans Mountain employees and environmental inspectors who work alongside each contracted company.



#### **ENSURING CONTRACTORS HELP US MEET OUR SOCIAL**

**COMMITMENTS** ■ We must rely on our contracted companies to help us meet our commitments to Indigenous communities. For the Project, each contracted company must sign our Owners' Requirements, a special contract which outlines contractor's responsibilities to maximize the hiring of Indigenous peoples (read more about Indigenous employment on [page 38](#)).

#### STORY

### **CONTRACTOR PRE-QUALIFICATION PROCESS FOR HIGH-RISK ACTIVITIES**

Trans Mountain has implemented a Contractor Pre-Qualification Process for contractors performing or overseeing higher risk activities. These contractors include mobile equipment operators, inspectors, labourers, and those completing shoring handling and vapour barrier installation activities. The process includes pre-approving contractors at the proposal stage of projects, ensuring documentation and procedures around the training and implementation of these activities meet Trans Mountain's requirements. Individuals are pre-approved for high-risk activities and tracked in a database that is easily accessible for hiring managers, ensuring only trained personnel are utilized for these activities. This streamlined process reduces the risk of contractors completing activities they are not qualified to do.

ABOVE: We have a Contractor Pre-Qualification Process for contractors performing or overseeing higher risk activities.

# TCFD

We have prepared this section of the report to outline our responses to recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).

# ADVANCING CLIMATE DISCLOSURES

In 2018, the Task Force on Climate-related Financial Disclosures (TCFD) published a framework to improve and increase reporting of climate-related financial information. Since climate change presents financial risk to the global economy, capital providers want clear, comprehensive, high-quality information on the impacts of climate change on businesses. This requirement includes the risks and opportunities presented by changes in temperatures, climate-related policy, and emerging technologies. In Canada, the Federal government announced that Canadian crown corporations with assets of \$1 billion or more are required to adopt TCFD recommendations for the calendar year 2022, which will be published in 2023.

At Trans Mountain, we are taking a phased approach to identifying and managing climate-related risks. We are focusing on understanding risks and opportunities, developing plans, building internal capacity, and contributing to climate resiliency in communities along the pipeline corridor. The table below illustrates our progress and plans around the four thematic areas contained in the TCFD framework—governance, risk management, strategy, and metrics and targets. In the next few pages, we provide information related to the four recommendations, including scenario analysis.

	PHASE 1 ■ 2020	PHASE 2 ■ 2021	PHASE 3 ■ 2022+
<b>GOVERNANCE</b>	Disclose the role of the Board and management in overseeing risks, including climate-related risks	<b>Disclose current governance structure for climate-related risks</b> <b>Create a sustainability working team and an ESG executive steering team</b>	Review our governance structure in 2022 to support improved governance over our most relevant ESG topics at the Board committee level, including climate
<b>RISK MANAGEMENT</b>	Identify and manage risks in alignment with our Enterprise Risk Management (ERM) program	<b>Enhance and disclose risk management processes</b>	Formally classify climate-related risks and opportunities and enhance our climate-related risk analysis within our ERM program
<b>STRATEGY</b>	Disclose key physical risks	<b>Identify and disclose energy transition-related risks and opportunities</b> <b>Evaluate and disclose the qualitative impact of transition-related risks and opportunities, and associated timeframes</b> <b>Conduct qualitative scenario analysis using the IEA's Net Zero by 2050 and Announced Pledges scenarios</b>	Enhance climate-related transition and physical risk analysis including quantitative assessments
<b>METRICS AND TARGETS</b>	Disclose Scope 1 and Scope 2 emissions	<b>Engage third party to conduct pre-assurance of our Scope 1 and Scope 2 GHG emissions</b>	Develop and publish a Scope 1 and Scope 2 emissions reduction plan by the end of 2022 Develop an Expansion Project construction emission offset plan by the end of 2023

# I. GOVERNANCE

## BOARD OVERSIGHT OF CLIMATE-RELATED RISKS AND OPPORTUNITIES

The Board acknowledges that climate change and the energy transition are creating risks and opportunities for our business, our shippers (customers) and society as a whole. The Board oversees the conduct of our business, directs the management of the company, and considers all major issues affecting the company, which include environmental and social matters. At Trans Mountain, the Board as a whole is responsible for providing oversight over critical environmental and social risks, including climate-related risks, as this reflects our company-wide approach to addressing these risks. The Board receives a quarterly update on corporate risks, which includes environmental and social risks, and starting in 2022, will include climate-related risks.

Some of the Board responsibilities include:

- Receiving reports on risks, including physical risks and natural hazards due to extreme weather events, policy and technological risks
- Considering the results of climate scenario analysis undertaken in early 2022 for energy transition risks and opportunities that may impact our strategy
- Reviewing and approving the climate-related disclosures in our ESG report
- Overseeing the development of GHG emissions reduction targets and plans

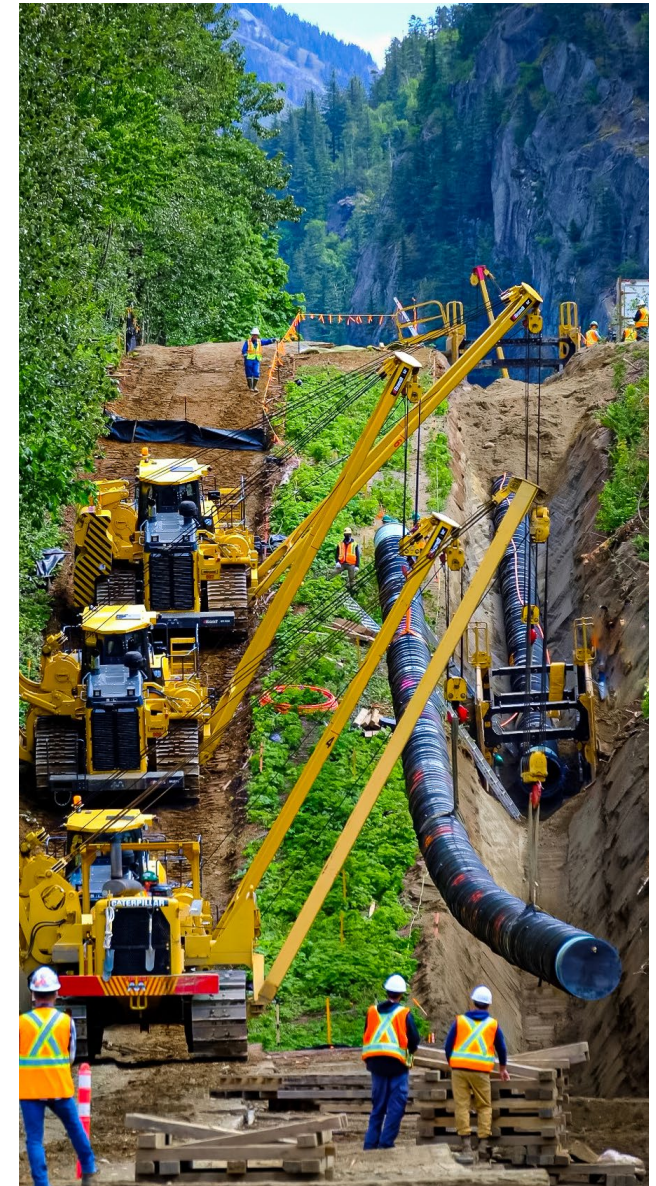
## MANAGEMENT'S ROLE IN ASSESSING CLIMATE-RELATED ISSUES

Our executive management team reports environmental and safety-related performance quarterly to the Environment, Health and Safety Committee of the Board. Reporting includes key performance indicators, GHG emissions, management systems, security updates, marine activity, developing issues in operations, and any environmental or safety incidents. Our executive management team sets our goals and strategy that are executed by our operations and Project teams.

Our executive management team is directly responsible for:

- Directing the development and implementation of ESG programs and activities, including climate-related actions.
- Oversight of progress, performance and reporting on ESG and climate-related matters.
- Leading external engagement and advocacy on climate-related matters.

In 2021, we created an ESG Executive Steering Committee to provide executive leadership on ESG and climate-related issues. The ESG Executive Steering Committee supports the Board of Directors and coordinates efforts of the sustainability working group which is a cross company group of leaders with responsibilities to implement ESG objectives. (Read our ESG Commitments on [page 11](#)).



ABOVE: Crews lowering pipe in at Hunter Creek in the Coquihalla-Hope region.

## II. RISK MANAGEMENT

### RISK IDENTIFICATION

We have a formal Enterprise Risk Management (ERM) program to identify, evaluate, manage, and communicate our risk exposures in a manner consistent with our business objectives and risk tolerance. Our ERM program helps us monitor and evaluate financial, operational, strategic, and compliance risks. Some of those risks are environmental and social in nature. Management critically reviews and updates our risk registry every quarter. Material risks are reported to the Board of Directors quarterly.

### RISK ASSESSMENT AND MANAGEMENT

We use a common risk matrix across the company but evaluate risks to our operations and to the Expansion Project separately. Using the risk matrix, risk owners, Management and the Risk group determine the consequences and likelihood of the identified risk by examining the effect that the risk may have on our financial position, reputation, environmental impact, and/or the safety and health of employees, contractors, or communities. Once assessed, risks are then prioritized based on their likelihood, anticipated severity, anticipated time horizon, and the impact level on our strategy. Our Enterprise Risk Management program helps us identify risks, allocate resources, track progress, monitor trends, and mitigate risks, including ESG and climate-related ones.



### CLIMATE-RELATED RISKS INTEGRATION INTO RISK MANAGEMENT

We provide a quarterly ERM update to our executive management team and Board of Directors with any new observations or issues related to any of our key risk areas and an overall assessment of each of those risks. Some of the areas in which we are incorporating climate-related risks into our business include:

- **RISK ASSESSMENT** ■ In 2021, we formally added a climate-related risk component to our Enterprise Risk Management program.

- **CAPITAL ALLOCATION** ■ We consider climate-related financial risks and the GHG impact of proposed projects.
- **STRATEGIC PLANNING** ■ We are enhancing our consideration of the impact of climate-related risks and opportunities in our long-term strategy.

ABOVE: Crews gathered to hear former President and CEO, Ian Anderson speak at a North Thompson worksite.

# III. STRATEGY

## CLIMATE-RELATED SCENARIOS

In early 2022, we undertook a qualitative transition scenario analysis. To allow for comparability with other companies and to align with the TCFD recommendations, we used two scenarios developed by the International Energy Agency (IEA): The Announced Pledges Scenario (APS) and the Net Zero Emissions by 2050 scenario (NZE).

### SCENARIOS OVERVIEW

We believe scenario analysis is a valuable tool to challenge our assumptions about the future, spark meaningful conversations about our long-term strategy and encourage better decision-making. However, it is important to note that scenarios are hypothetical constructs that use assumptions and estimates to highlight central elements of a possible future, and are not a forecast, prediction, or sensitivity analysis. These are some of the key assumptions contained in the scenarios we analyzed:

### Announced Pledges Scenario

- This scenario is premised on full, on-time implementation of all country commitments and results in warming of approximately 2.1°C in 2100.
- Global oil demand is 96.1 million barrels per day (mbd) in 2030 and 76.7 mbd in 2050.
- Global heavy oil and bitumen production rises from 3.3 mbd in 2020 to 3.8 mbd in 2030 before falling to 2.3 mbd in 2050.
- Oil demand in the Asia Pacific region grows from 30 mbd in 2020 to 38 mbd in 2030, before declining back to 30 mbd by 2050.

### Net Zero Emissions by 2050

- This scenario is outcome driven and considers energy sector and consumption actions required to limit warming to 1.5°C.
- Global oil demand falls to 72 mbd in 2030 and to 24 mbd in 2050.
- Residual demand for oil largely stems from use of non-combusted products, which constitutes 70 per cent of oil demand in 2050.
- Roughly 50 per cent of all fossil fuels in use in 2050 are in plants equipped with carbon capture, utilization and storage (CCUS).
- No new pipelines are needed in this scenario, though existing pipelines play a key role, especially in linking production of low-emissions liquids and gases with consumption.

### LEARNINGS FROM SCENARIOS

To conduct scenario analysis, our senior leaders and executives attended several facilitated workshops over the course of three months. Discussing the future of the company within this context, leadership developed insight into the level of resiliency that Trans Mountain already has and the changes we would need to make in the case of an accelerated energy transition. Specifically, we learned that:

- There are several elements of our business that contribute to our resiliency (details on the next page).
- In general, we are resilient to 2030 under both scenarios.
- In the longer term (to 2050), our business remains resilient under the Announced Pledges Scenario, but lower prices and volumes (severe contraction of oil) under the Net Zero by 2050 scenario might present challenges. However, we have the tools and flexibility necessary to make changes to compete and increase our resiliency in the long run (details on [page 57](#)).

## SOURCES OF RESILIENCE, TO 2030

In the next 10 years, we believe we will remain competitive and resilient, including in a Net Zero by 2050 scenario in which there is a rapid energy transition. Read about our thinking beyond 2030 on the next page. We define resiliency as our ability to respond and withstand regulatory and market challenges brought on by the energy transition. The following six characteristics contribute to the resiliency of our business to 2030:

### 1. OUR ENVIRONMENTAL AND SOCIAL PERFORMANCE ■

- Canada has a stringent regulatory environment, a high degree of regulatory oversight and strong climate change policies. Companies involved in Canada’s energy system, like Trans Mountain, must have robust environmental, social and governance practices to continue operating in Canada. Additionally:
- Trans Mountain has made significant investments in environmental protection systems, asset integrity, leak monitoring, spill response, and biodiversity protection on land and water. Read more on [pages 14, 17 and 18](#). We have an impressive track record and have loaded petroleum on marine vessels in BC with no spill incidents from tankers in more than 65 years of operation.
  - We have been able to continue making progress in the construction of the Expansion Project despite challenging conditions, such as the 2021 BC floods ([page 60](#)) and wildfires ([page 59](#)).
  - Trans Mountain makes concerted efforts to build strong relationships with Indigenous communities along the pipeline corridor ([page 37](#)). We continue to strengthen those relationships and contribute to the prosperity of communities as the Expansion Project advances.

All these practices contribute to safe and reliable operations, and are critical to our resiliency to societal, political and regulatory changes.

### 2. OUR ABILITY TO ACCESS WORLD MARKETS ■

A point illustrated in the scenarios is that developed and emerging economies will experience the energy transition at different paces. In the Announced Pledges Scenario, oil demand in the Asia Pacific region grows from 30 mbd in 2020 to 38 mbd in 2030 and even in the Net Zero Emissions by 2050 scenario, China would only reach carbon neutrality in 2060. Our Expansion Project includes a significant increase in the capacity of the Westridge Marine Terminal which will allow Canadian energy to reach world markets, including the Pacific Rim, where customers seek diversity of supply and oil demand is forecasted to rise. Canada is a stable, reliable, trading partner and this access would add market diversity for Canadian production that does not exist today.

- ### 3. OUR CARBON COMPETITIVENESS ■
- We have a low GHG footprint and can help our customers compete in markets that are increasingly focused on carbon. We use electrically driven pumps to move the fluid through the pipeline, the vast majority (95 per cent) of our GHG emissions are generated from purchased electricity. We source 58 per cent of that electricity from the BC grid, which has a much lower GHG intensity than other Western Canadian provinces (see sidebar). BC has a low GHG intensity since most electricity is generated from hydroelectric power plants.

### 4. INCREASINGLY LOWER INTENSITY OF CANADIAN OIL ■

As the world transitions to different types of energy, national policies will increasingly give preference to responsibly sourced and lower emissions based oil. Canadian oil sands companies have decreased their carbon intensity by 22 per cent from 2011 to 2018 (see sidebar), with the potential for further reductions as new technologies emerge. Additionally, in 2021, Canada’s five largest oil sands companies created the [Oil Sands Pathways to Net Zero](#) committing to achieve net-zero GHG emissions by 2050, in line with Canada’s climate change goals. Our Expansion Project will provide increased capacity that can support responsible Canadian oil production and bring oil to the markets where it is needed.

## OUR PERFORMANCE

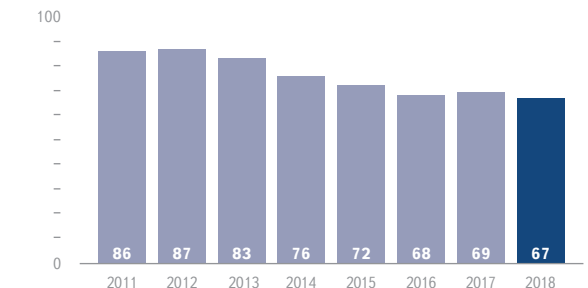
### GRID INTENSITY OF WESTERN CANADIAN PROVINCES

	g CO <sub>2</sub> e / kWh
<b>SASKATCHEWAN</b>	660
<b>ALBERTA</b>	620
<b>BRITISH COLUMBIA</b>	18.6

Source: National Inventory Report 1990-2019: Greenhouse Gas sources and sinks in Canada. [Part 3](#).

### EMISSIONS INTENSITY FROM ALBERTA OIL SANDS

kg CO<sub>2</sub>e/barrel



Source: [Canadian Energy Centre](#)

- ### 5. SYSTEM FLEXIBILITY ■
- At Trans Mountain, we have extensive experience transporting a broad range of products, from diluted heavy oil to synthetic, light and refined products. This expertise can be applied in decades to come to other products such as liquid biofuels as the world energy mix evolves.
- ### 6. LONG-TERM CONTRACTS ■
- Our customers share our belief that Canada will continue to be a key provider of global energy. This belief has secured the Expansion Project with long-term contract commitments (take-or-pay contracts) with our shippers that cover 80 per cent of the expanded capacity and range from 15 to 20 years. These contracts make us more resilient to many of the transition-related risks in the short- to medium-term.



**OUR THINKING BEYOND 2030**

Climate change is an important issue requiring global action across countries and industries. We remain committed to working with governments and stakeholders to advance strategies that will reduce emissions along the energy value chain now and in the future. In the next few decades, society must find ways to meet the world’s energy demand while striving to meet its decarbonization goals. We believe that Canada, with its third largest proven oil reserves in the world<sup>1</sup>, will continue to play a leading role in the global energy landscape to 2030 and beyond.

**Announced Pledges Scenario**

In the Announced Pledges Scenario, global oil demand is expected to fall to 77 mbd in 2050. The abrupt reduction in demand from the COVID-19 pandemic has presented a real-world ‘stress test’ for our industry. The pandemic’s impact on energy markets is similar to changes expected in the Announced Pledges Scenario (see sidebar). During the early months of the pandemic when oil demand was reduced from 100 mbd to 83 mbd<sup>2</sup>, our pipeline continued to be oversubscribed. Given the moderate contraction and the sources of business resilience explained on the previous page, we believe we would continue to be resilient beyond 2030 in this scenario.

**Net Zero Emissions by 2050 Scenario**

In order to meet the goals outlined in the Net Zero (NZE) scenario, the IEA expects that global oil demand would need to reach 24 mbd in 2050 and West Texas Intermediate oil prices would need to be around \$25 per barrel in 2050.

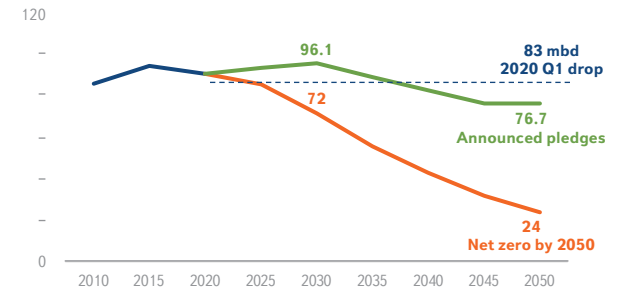
One of the elements that received the most public attention after the publication of the NZE scenario was the idea that no more investment in oil gas development would be needed. It is important to note that the IEA stated “Beyond projects already committed as of 2021, there are no new oil and gas fields approved for development in our pathway, and no new coal mines or mine extensions are required.” Projects committed in 2021, like the Expansion Project, are assumed to be completed.

Although this scenario is not a forecast, we believe that in order to compete in a world experiencing this low oil price environment and severe oil demand contraction, we would need to make substantial changes to how we operate our business. Some of the factors we could leverage in a NZE scenario are:

- **FURTHER DECARBONIZE OUR OPERATIONS** ■ We already have a low GHG intensity but in a NZE scenario we would need to maintain our leadership and outcompete our peers on the basis of carbon. We plan to continue to make investments to further decarbonize our operations. This would help differentiate our offering in a world increasingly focused on carbon and contribute overall to the reduced lifecycle carbon intensity of Canadian crude oil.
- **LEVERAGE COMMERCIAL TOOLS** ■ Although we rely on long-term contracts with our shippers, we can use a variety of commercial tools to align our offering with evolving upstream and downstream drivers. We would need to use these tools in a way that is commensurate with the regulatory and market changes we were observing and which may include changes to tolls, risk allocation, return expectations, incentives and other mechanisms related to carbon.

**OIL DEMAND**

million barrels per day (mbd)



Data source: World Energy Model

The pandemic’s impact on energy markets is similar to changes expected in the Announced Pledges Scenario.

- **INVEST IN INCREASED FLEXIBILITY** ■ In a NZE scenario, demand for liquid fuels for transportation would be severely contracted and the remaining demand would be driven by non-combusted uses. We would evaluate taking a portion of the pipeline out of service or repurposing a portion of the line to transport alternatives such as ammonia, natural gas liquids, or others. To increase our resiliency, we would need to invest in technology to further increase the flexibility of our pipeline system and enable the continued transportation of new or different products. If we see signposts of a NZE scenario, we would start by implementing technical and administrative changes to facilitate shipment of other products.

<sup>1</sup> [https://www.canadianenergycentre.ca/worldwide-oil-reserves-and-investments-key-facts/#:~:text=Canada%20has%20the%20world's%20third,Venezuela%20\(304%20billion%20barrels\)](https://www.canadianenergycentre.ca/worldwide-oil-reserves-and-investments-key-facts/#:~:text=Canada%20has%20the%20world's%20third,Venezuela%20(304%20billion%20barrels))

<sup>2</sup> <https://www.iea.org/reports/oil-2021>

# III. STRATEGY

## CLIMATE CHANGE-RELATED PHYSICAL RISKS

**Physical risks include chronic (changes in temperature or weather patterns) and acute changes in climate (extreme weather events). At this point, we are focusing on acute changes since we believe those could have the greatest impact on our operations. Our operational assets are located in Alberta, British Columbia, and Washington state. The climate-related risks with the highest likelihood to affect our assets are wildfires, winter storms, land flooding, and rising sea levels on the British Columbia coastline, where our marine terminal is located. In 2021, we experienced three of these types of events.**

### Wildfires

Our pipeline system passes through urban centres, farmlands, grasslands, mountains, and valleys. As our pipeline is buried, the risk to our assets from wildfires or forest fires is relatively low across the full route. To mitigate this risk, we protect our above-ground assets (storage terminals and pump stations) through procedures, training, detailed wildfire response planning, and by maintaining an adequate inventory of response equipment. Our pump stations are within gravelled, fenced-in industrial sites, with no equipment against the fence line. As well, we have the ability to remotely turn off pump stations along the line, if required, due to an approaching fire. Read our 2021 response to wildfires on [page 59](#).

### Winter storms

Increases in the severity of winter storms poses a specific risk to the users of our marine terminal as storms can result in vessel delays. We mitigate this risk by investing in weather prediction technology, terminal management systems to better respond to system backups and weather delays, and by requiring our customers to use larger, more powerful escort vessels (tugboats) throughout their vessels' entire transit within Canadian waters year-round. We design and maintain our pipeline system to be resilient to changes in weather and a wide range of temperatures. February 2021 saw an extended extreme cold weather system come through BC and Alberta, but we experienced no significant impacts to our facilities or operations.

### Land flooding

As weather patterns change, flooding events may increase in frequency or severity. We design and maintain our pipeline system to be resilient. Our geohazard program helps us monitor for ground movement or water-related hazards. We design our system to be able to withstand a 1 in 200-year flood. We maintain our pipeline through a regular inspection and maintenance program (read about our asset integrity program on [page 14](#)). To prepare and respond quickly in case of a flood event, we continually monitor the weather and the flow rates in the watercourses crossed by our pipeline and conduct additional aerial and ground inspections of the right-of-way when flow rates reach a certain level.

These additional inspections verify that the integrity of the pipeline is not compromised in a flood event, and that any pooled water on the right-of-way does not threaten the continued safe operation of the pipeline system. Some flood events may result in a pipeline shutdown which can be completed remotely for all segments. The pipeline was safely restarted on December 5, 2021, following a 21-day precautionary shutdown as a result of heavy rains and flooding in BC. Read more on [page 60](#).

### Rising sea levels

If not accounted for through design and construction, sea level rise could impact terminals, like our Westridge Marine Terminal located in the north side of the Metro Vancouver area. We have prepared for possible long-term impacts by accounting for the potential sea level rise in the detailed design of the terminal. In particular, the design ensures that the deck elevation of the structures is set high enough to avoid flooding or wave damage should the predicted sea level rise occur.

## IN FOCUS

## RESPONDING TO EXTREME WEATHER EVENTS

**Our regularly scheduled emergency response exercises help prepare us for many types of incidents, including natural disasters. In 2021, we experienced a historic wildfire season followed by historic flooding events which tested our emergency response capabilities, and our use of the Incident Command System to manage them. Response starts at the beginning of the season with continuous monitoring of conditions by our Emergency Management Team to identify threats early and prepare for response to minimize damage, wherever possible.**

BELOW: During the 2021 wildfire season, more than 80 workers from an Expansion Project crew jumped in to help when a fire broke out in the Laidlaw community, near Hope.



**WILDFIRES** ■ The Province of British Columbia experienced one of its worst wildfire seasons on record during the summer of 2021. In total almost 1,600 separate fires burned across some 870,000 hectares of land. At Trans Mountain, we take the risk of wildfire very seriously and are prepared for a wide variety of potential scenarios. We maintain several wildfire equipment trailers and caches of equipment to help protect our facilities in areas of increased risk. The extent of the risk in 2021 was unusual, however, not one we were unprepared for. Both Trans Mountain and our Expansion Project crews assisted in the BC wildfire efforts. In several instances, our contractors helped put out fires, including multiple vehicle fires. In one instance, around 80 workers from a crew working on the Expansion Project jumped in to help when a fire broke out in the Hope, BC area.



ABOVE: A sprinkler system wets the perimeter at the Kamloops Terminal from the fence line.

We protected several locations from approaching wildfire resulting in zero losses and no pipeline shutdowns. These fires had widespread impact to communities, which Trans Mountain supported throughout the season. Read about how we supported communities during the wildfires on [page 41](#).

We responded to the challenging wildfire season by:

- Implementing wildfire prevention and safety plans including the deployment of additional resources to provide worksite wetting, fire watch, and fire fighting.
- Implementing a virtual Incident Command System to monitor and coordinate fire threats across the pipeline including active mapping of Trans Mountain infrastructure and work activities in relation to wildfire locations, wildfire size, fuel condition and weather forecasts, and smoke predictions.
- Close coordination with the command of other provincial and community-level response agencies to share information and coordinate priorities.
- Deploying structure protection strategies to protect above ground infrastructure threatened by advancing wildfires.

IN FOCUS

## RESPONDING TO EXTREME WEATHER EVENTS CONT'D



**FLOODS** ■ In November 2021, an extreme rainfall event caused widespread flooding in the Pacific Northwest and interior of BC. The extreme weather event caused significant impacts on communities and infrastructure. Much of the impacted area had been affected by wildfires in the summer months, which resulted in many communities leaving their home for the second time in just a few months.

BELOW: Equipment supports the pipeline to allow crews to access the pipe after flooding in the Coldwater area and conduct inspection and repair.



The pipeline was shutdown as a precaution prior to the peak rainfall. Due to the flooding, there were multiple areas of our pipeline system between Hope and Merritt, BC where the pipeline needed to be accessed and repaired before restarting the line. Protective berms designed to protect the pipeline from floods were damaged during the flooding events. Despite dozens of areas in which the pipeline was exposed, the berms were successful in protecting the pipeline resulting in damage at one location, and no leaks. Our crews worked diligently to repair the minor damage to the pipeline, rebury the pipeline, reinforce river berms and stabilize slopes. Following a 21-day precautionary shutdown, we safely restarted operations on December 5, 2021.

ABOVE: Aerial view of crews dewatering in order to conduct pipeline repairs due to flooding in the Coldwater area.

RIGHT: Trans Mountain personnel worked to install temporary bridges to improve access as a result of bridge washouts and created dikes to protect the pipeline after flooding in the Coldwater area.

We responded to the various challenges of the emergency situation by:

- Employing helicopters and heavy equipment to clear roads, install temporary bridges, access impacted areas, and divert watercourses away from the right-of-way.
- Airlifting crews as necessary to ensure 24/7 site monitoring and maintenance at Sumas Pump Station which had no road access due to the flooding in the Sumas Lake region.
- Completing inspections for all areas where pipe was exposed, which involved ongoing water management to dewater exposed pipe locations for proper examination.
- As a precaution, deploying spill-response equipment trailers to areas where work was being completed and staging emergency response teams in key areas prior to our restart (including deploying booms at multiple locations and often tethering them to an anchoring system for added safety).
- Read more about our support to local and Indigenous communities during the floods on [page 40](#).



# III. STRATEGY




## TRANSITION-RELATED RISKS AND OPPORTUNITIES

**Transition-related risks are regulatory, market, technological and reputational risks arising from the energy transition. The table below outlines our current understanding of the most important transition-related risks that can impact Trans Mountain.**





As we have not yet completed an impact quantification analysis, the words “Low”, “Medium”, and “High” in the Estimated Impact column indicate *relative* impact, for example “Low” means lower relative to other risks.

TRANSITION-RELATED RISKS	ESTIMATED IMPACT	TIMEFRAME	RISK MITIGATION
<p><b>REDUCED DEMAND FOR OIL</b> Accelerated adoption of electric vehicles in advanced economies and increased use of biofuels may lead to faster declines in oil demand.</p>	HIGH		<ul style="list-style-type: none"> <li>– In the near term, <u>access to world markets</u> is critical. Operational integrity and safety preserve access to Asia Pacific (and other) markets where market fundamentals support crude oil demand longer term.</li> <li>– In the future, leverage <u>commercial tools</u> to compete in an environment with excess takeaway capacity.</li> </ul>
<p><b>SUSTAINED LOWER OIL PRICES</b> Some scenarios suggest that we will have an accelerated decline in oil prices, which will be sustained during the transition. If lower prices materialize and stay low for a longer period of time, shippers might default on their contracts.</p>	HIGH		<ul style="list-style-type: none"> <li>– In the near-term, maintain cost advantage compared to other modes of transport.                             <ul style="list-style-type: none"> <li>– Pipelines &lt;\$10/barrel</li> <li>– Rail \$10-20/barrel</li> <li>– Trucking &gt;\$20/barrel</li> </ul> </li> <li>– In the future, leverage <u>commercial tools</u> to deal with a price environment that challenges customers (shippers).</li> </ul>
<p><b>CARBON COMPETITIVENESS OF CANADIAN OIL</b> The cost to further reduce the carbon intensity of Canadian oil to competitive levels might not be economic (if we have lower prices).</p>	HIGH		<ul style="list-style-type: none"> <li>– In the near-term, analyze and demonstrate (and potentially enhance) our <u>carbon competitiveness</u>.</li> <li>– In the future, <u>further decarbonize our operations</u> and <u>increase flexibility</u>.</li> </ul>
<p><b>GHG REGULATION – LARGE EMITTERS</b> Regulations for large emitters (TIER, OPBS) might become more stringent to align with Canada’s commitment to net-zero by 2050 and potentially include a cap on emissions from oil and gas production. This does not affect Trans Mountain but it does affect our customers.</p>	MEDIUM		<ul style="list-style-type: none"> <li>– In the near-term, stay informed about GHG reduction efforts from our customers and industry.</li> <li>– In the future, remained focused on the needs of shippers. We believe that access to world markets or prices can help maintain production in a potentially higher cost environment.</li> </ul>
<p><b>PERCEPTION AROUND FOSSIL FUELS</b> Societal perceptions of fossil fuels are increasing pressure on energy companies to reduce emissions.</p>	HIGH		<ul style="list-style-type: none"> <li>– In the near-term, analyze and demonstrate our <u>carbon competitiveness</u>.</li> <li>– In the future, <u>accelerate towards a net-zero aspiration</u>.</li> </ul>

**TRANSITION-RELATED RISKS**

	ESTIMATED IMPACT	TIMEFRAME	RISK MITIGATION
<p><b>CLEAN FUEL REGULATION</b> The Clean Fuel Standard will come into force in December 2022. It will require liquid fossil fuel primary suppliers to reduce the lifecycle carbon intensity of their liquid fossil fuels.</p>	MEDIUM	 <p>1-3 yrs    3-10 yrs    10-30 yrs</p>	<ul style="list-style-type: none"> <li>- In the near term, understand the implications for refiners (obligated parties under this regulation).</li> <li>- In the future, invest to <u>increase flexibility</u> to ship increased volumes of lower carbon intensity fuels.</li> </ul>
<p><b>INCREASED DEMAND FOR ALTERNATIVE FUELS</b> The IEA expects demand for biofuels (ethanol, renewable diesel, green methanol and others) to grow over the next few years.</p>	MEDIUM	 <p>1-3 yrs    3-10 yrs    10-30 yrs</p>	<ul style="list-style-type: none"> <li>- In the near term, work with shippers to facilitate shipment of products that are aligned with demand.</li> <li>- In the future, invest to <u>increase flexibility</u> and <u>commercial tools</u> to accommodate emerging products.</li> </ul>
<p><b>PERCEPTIONS AROUND PIPELINES</b> Negative perceptions around pipelines, direct (environmental impacts of pipeline operations) or indirect (as enablers of fossil fuels) can impact our ability to operate.</p>	LOW	 <p>1-3 yrs    3-10 yrs    10-30 yrs</p>	<ul style="list-style-type: none"> <li>- In the near term, continue current <u>environmental and social performance</u>.</li> <li>- In the future, engage with Indigenous communities regarding carbon initiatives or offsets.</li> </ul>

**TRANSITION-RELATED OPPORTUNITIES**

	ESTIMATED IMPACT	TIMEFRAME	HOW CAN WE TAKE ADVANTAGE OF THIS OPPORTUNITY?
<p><b>CLEAN FUEL REGULATIONS</b> This regulation will create greater demand for carbon credits.</p>	LOW	 <p>1-3 yrs    3-10 yrs    10-30 yrs</p>	<ul style="list-style-type: none"> <li>- Explore opportunities to become Clean Fuel Regulation credit creator.</li> </ul>
<p><b>VOLATILITY IN OIL MARKETS</b> Canadian oil, especially oil sands, are more resilient to volatile prices, since they require less operating capital.</p>	MEDIUM	 <p>1-3 yrs    3-10 yrs    10-30 yrs</p>	<ul style="list-style-type: none"> <li>- In the near term, support Canadian oil by maintaining <u>access to world markets</u>.</li> <li>- In the future, maximize throughput, especially where Canadian oil can provide stability in periods of volatility and global supply disruptions.</li> </ul>
<p><b>ADVANCEMENT IN CARBON-RELATED TECHNOLOGIES</b> Advancements in technology present great opportunities for us to further reduce the GHG intensity of our operations.</p>	MEDIUM	 <p>1-3 yrs    3-10 yrs    10-30 yrs</p>	<ul style="list-style-type: none"> <li>- In the near term, monitor developments in technology.</li> <li>- In the future, invest in technologies that help us meet our environmental and business goals.</li> </ul>
<p><b>STRATEGIC SUPPLY (NORTH AMERICA/GLOBAL)</b> Increased awareness and importance of energy security drives changes in global oil markets.</p>	HIGH	 <p>1-3 yrs    3-10 yrs    10-30 yrs</p>	<ul style="list-style-type: none"> <li>- In the near term, there are constraints in the ability of the Canadian energy sector to respond to geopolitical changes in supply and demand.</li> <li>- In the future, we can support and pursue changes to regulatory and economic drivers that enhance the ability of Canadian producers to respond to global events.</li> </ul>

# IV. METRICS AND TARGETS

We track and manage the greenhouse gas (GHG) emissions generated by our daily operations. Most of our emissions are Scope 2 since we use electrically driven pumps to move the fluid through the pipeline (see [page 23](#)).

GHG EMISSIONS (TONNES CO <sub>2</sub> e)			
	2019	2020	2021
Scope 1 GHG emissions	4,552	5,567	<b>5,685</b>
Scope 2 GHG emissions	121,197	106,234	<b>116,015</b>
<b>TOTAL GHG EMISSIONS</b>	125,749	111,801	<b>121,700</b>

We support the Government of Canada’s ambition to be net zero by 2050 and in the next two years, we plan to:

- Develop and publish a Scope 1 and Scope 2 emissions reduction plan by the end of 2022.
- Develop an Expansion Project construction emission offset plan by the end of 2023.



RIGHT: Trans Mountain workers inspecting new infrastructure at the Kamloops Terminal.

# APPENDICES



# OTHER ESG-RELATED QUESTIONS

We sometimes receive questions about ESG topics which are not covered previously in this report. The following provides additional information on these topics:

## What do you do with the waste from construction activities?

All employees, contractors and consultants are required to comply with applicable environmental regulations and Trans Mountain policies for the handling, storage, transportation, and disposal of waste. Waste is characterized, classified, and labelled so that it may be properly recycled or disposed of at approved facilities. Waste is recycled when possible and waste minimization is encouraged.

## What do you use water for? Where does it go after it was used?

Our regular operations of the pipeline do not require large volumes of water. We primarily use water for hydrostatic testing which is a type of pressure test that fills the pipe with water after a repair or before new installation to make sure it is working properly. Utilized water is tested, and if it meets applicable discharge criteria then it is returned to the environment. If it does not meet criteria, it is treated until criteria is met, or taken to a third-party facility for disposal.

During the Expansion Project, our main uses of water are hydrostatic testing, dust suppression, horizontal directional drilling, cleaning, and worker camps. In determining the potential water sources required for use during the Expansion Project and the volumes and rates of withdrawal, many key environmental factors are considered including: fish and other aquatic species; source water quality, quantity, location and other characteristics; and duration, rates and total volumes of withdrawal. We obtain applicable water use permits from the appropriate government authorities prior to installing pumps, temporarily filling, or conducting any associated clearing, topsoil salvage or grading. In addition, water discharge or wastewater disposal is conducted in accordance with required approvals.

## What is your process for deactivating pipelines or facilities which are end-of-life?

Once a pipeline is no longer operational, we follow all regulatory requirements around draining and cleaning the pipeline of any hydrocarbons, filling the pipe with an inert filler material such as nitrogen gas, and maintaining cathodic protection on the pipe to ensure it does not corrode. Although our main pipeline is not near its end of life, we are required by the Canada Energy Regulator (CER) to set aside funds that are protected in a trust to cover costs associated with abandonment. Trans Mountain will collect these funds over 40 years from our customers who transport petroleum products through our pipeline system. We file annual updates with the CER regarding the status of the fund. At the end of 2021, the fair value of the investments in the Trans Mountain Pipeline Reclamation Trust was approximately \$96 million. Read more about the trust on our [website](#).

# PERFORMANCE TABLE

CONTEXT	UNIT	2019	2020	2021
<b>PRODUCT THROUGHPUT</b>				
Trans Mountain Pipeline	barrels/day	314,000	312,000	<b>299,000</b>
Puget Sound Pipeline	barrels/day	203,000	196,000	<b>189,000</b>
Westridge Marine Terminal	barrels/day	21,000	39,000	<b>35,000</b>
<b>ENVIRONMENT</b>				
<b>ASSET INTEGRITY</b>				
Pipelines operated	km	1,275	1,275	<b>1,275</b>
Total inspections conducted	count	3,716	4,429	<b>4,742</b>
Kms of liquid pipeline inspected (all types of inspections not just in-line inspections)	km inspected	1,989	1,154	<b>1,477</b>
Percentage of liquid pipelines inspected	per cent	156	91	<b>73</b>
<b>SPILLS FROM PIPELINES</b>				
Number of pipeline incidents	count	0	0	<b>0</b>
<b>SPILLS AT FACILITIES<sup>1,R</sup></b>				
Total number of reportable spills	count	2	1	<b>1</b>
Volume of reportable spills	m <sup>3</sup>	76	190	<b>7</b>
<b>CONSTRUCTION-RELATED SPILLS</b>				
Total number of reportable spills	count	9	50	<b>34</b>
Volume of reportable spills	m <sup>3</sup>	0.009	125	<b>41</b>
<b>LAND</b>				
Total land owned, leased, and/or operated <sup>R</sup>	acres	20,348	21,110	<b>21,506</b>
Land owned, leased, and/or operated within sensitive areas	per cent	39	40	<b>35</b>
Total surface disturbance	acres	739	2,121	<b>5,970</b>
Impacted area reclaimed or restored <sup>2</sup>	acres	37	10	<b>402</b>

NR = not reported

<sup>R</sup> Numbers have been restated since the publication of our 2020 report.

<sup>1</sup> Reportable spills include commodities and other hazardous materials.

<sup>2</sup> Land is considered reclaimed once the pre-disturbance assessment (PDA) is completed.

ENVIRONMENT CONTINUED	UNIT	2019	2020	2021
<b>CLIMATE CHANGE AND GHG EMISSIONS</b>				
Scope 1 GHG emissions (direct) <sup>R</sup>	tonnes CO <sub>2</sub>	4,552	5,567	<b>5,685</b>
Scope 2 GHG emissions (indirect)	tonnes CO <sub>2</sub>	121,197	106,234	<b>99,360</b>
Total GHG emissions <sup>R</sup>	tonnes CO <sub>2</sub>	125,749	111,801	<b>105,045</b>
Construction-related emissions <sup>3</sup>	tonnes CO <sub>2</sub>	4,976	91,118	<b>150,540</b>
<b>DIRECT EMISSIONS BY SOURCE</b>				
Stationary combustion emissions <sup>R</sup>	tonnes CO <sub>2</sub>	660	696	<b>680</b>
Emissions from Westridge VCU/flaring	tonnes CO <sub>2</sub>	1,887	2,952	<b>2,746</b>
Fugitive emissions	tonnes CO <sub>2</sub>	77	76	<b>77</b>
Venting/tank vapours	tonnes CO <sub>2</sub>	682	666	<b>620</b>
Fleet <sup>R</sup>	tonnes CO <sub>2</sub>	1,246	1,178	<b>1,561</b>
<b>AIR EMISSIONS</b>				
VOCs	tonnes	120	125	<b>90</b>
PM <sub>10</sub>	tonnes	130	101	<b>78</b>
NOx	tonnes	66	265	<b>149</b>
SOx	tonnes	5	17	<b>10</b>
<b>ENVIRONMENTAL AND INDIGENOUS MONITORING (EXPANSION)</b>				
Technical field studies and monitoring by third-party consultants	person days	2,557	13,771	<b>20,443</b>
Indigenous monitoring	person days	389	2,801	<b>5,038</b>
Environmental inspection <sup>R</sup>	person days	2,443	9,978	<b>15,474</b>

<sup>3</sup> Includes fuel consumption from contracted companies' vehicles.

SOCIAL	UNIT	2019	2020	2021
<b>SAFETY (OPERATIONS AND EXPANSION)</b>				
Recordable injury rate – employees	count per 200,000 exposure hours	0.00	0.59	<b>0.00</b>
Recordable injury rate – contractors		0.43	0.52	<b>0.58</b>
Recordable injury rate – combined		0.38	0.53	<b>0.56</b>
Lost-time injury rate – employees	count per 200,000 exposure hours	0.00	0.00	<b>0.00</b>
Lost-time injury rate – contractors		0.04	0.05	<b>0.04</b>
Lost-time injury rate – combined		0.04	0.05	<b>0.04</b>
Fatalities	count	0	1	<b>0</b>
Motor vehicle accidents <sup>4</sup>	count	6	119	<b>150</b>
<b>LEADING INDICATORS</b>				
Near misses <sup>5</sup>	count	193	312	<b>416</b>
Inspections conducted	count	283	3,613	<b>8,543</b>
<b>WORKFORCE NUMBERS AND RETENTION</b>				
Total number of employees	count	383	390	<b>439</b>
Total number of contractors	count	1,238	1,217	<b>1,582</b>
Turnover rate, voluntary and involuntary	per cent	8	4	<b>6</b>
Turnover rate, voluntary	per cent	7	3	<b>5</b>
<b>DIVERSITY AND INCLUSION</b>				
Women, total workforce	per cent	28	29	<b>29</b>
Women, managers	per cent	25	24	<b>24</b>
Women, Executive Leaders	per cent	27	25	<b>25</b>
Women, Board members	per cent	33	33	<b>33</b>
<b>OTHER DESIGNATED GROUPS</b>				
Indigenous people	per cent	1.8	1.8	<b>2.7</b>
Visible minorities	per cent	13.1	13.8	<b>15.3</b>
People with disabilities	per cent	0.3	0.3	<b>1.1</b>

<sup>4</sup> Vehicle accidents increased due to the increase in construction activities and the associated increase in kilometres driven.

<sup>5</sup> Near misses and inspections conducted are considered leading indicators, for which benchmarks are in place and reporting is encouraged. These numbers are not normalized and reflect improved safety culture and increased exposure hours.

SOCIAL CONTINUED	UNIT	2019	2020	2021
<b>EMPLOYEE AGE CATEGORIES</b>				
30 years and under	per cent	8	8	<b>5</b>
30 to 50	per cent	59	59	<b>62</b>
50 plus	per cent	33	33	<b>33</b>
<b>ECONOMIC CONTRIBUTION</b>				
Value generated <sup>6,8</sup>	\$ million	1,618	3,311	<b>5,425</b>
Value distributed to:				
Suppliers and contractors	\$ million	844	2,792	<b>4,248</b>
Indigenous communities <sup>7</sup>	\$ million	236	268	<b>506</b>
Providers of capital (Government of Canada) <sup>8</sup>	\$ million	143	192	<b>304</b>
Employees (wages and benefits)	\$ million	78	89	<b>122</b>
Landowners	\$ million	53	59	<b>75</b>
Governments <sup>9</sup>	\$ million	48	47	<b>52</b>
Communities and non-profits	\$ million	17	21	<b>22</b>

GOVERNANCE	UNIT	2019	2020	2021
<b>ETHICS</b>				
Employees/contractors who completed Code of Conduct training	per cent	94	98	<b>100</b>
<b>CYBERSECURITY</b>				
Individuals attended cyber awareness sessions	count	NR	250	<b>537</b>
Number of phishing tests <sup>10</sup>	count	NR	4	<b>3</b>

<sup>6</sup> Value generated includes revenue, realized gains and losses on commodity and foreign exchange risk management contracts, and liquidity provided by the company's credit facility.

<sup>7</sup> Payments to Indigenous communities includes direct purchases and royalties paid to Indigenous communities.

<sup>8</sup> Payments to providers of capital include dividends paid to our shareholders and interest paid.

<sup>9</sup> Payments to governments include corporate taxes, property taxes, local and federal taxes, as well as Crown leases, rentals and land acquisitions.

<sup>10</sup> Our goal is to conduct a system-wide phishing test each quarter. However, the fourth test scheduled for Q4 2021 was delayed due to the BC flood response and was conducted in January 2022.

# SASB INDEX

Below are the metrics and reference to qualitative description in this report in alignment with the Sustainability Accounting Standards Board standard for oil and gas midstream companies.

REFERENCE	SASB INDICATOR	2021 DATA OR PAGE
<b>GHG EMISSIONS</b>		
EM-MD-110a.1.	Gross global Scope 1 emissions	5,685 tonnes CO <sub>2</sub> e
EM-MD-110a.1.	Percentage methane	0.00
EM-MD-110a.1.	Percentage covered under emissions-limiting regulations	0
EM-MD-110a.2	Description of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Pages 11, 23-24, 66
<b>AIR QUALITY</b>		
EM-MD-120a.1	NOx (excluding N <sub>2</sub> O)	149 tonnes
EM-MD-120a.1	SOx	10 tonnes
EM-MD-120a.1	Volatile organic compounds (VOCs)	90 tonnes
EM-MD-120a.1	Particulate matter (PM <sub>10</sub> )	78 tonnes
<b>ECOLOGICAL IMPACTS</b>		
EM-MD-160a.1	Description of environmental management policies and practices for active operations	Pages 14-25
EM-MD-160a.2.	Percentage of land owned, leased, and/or operated within areas of protected conservation status or endangered species habitat	35
EM-MD-160a.3	Terrestrial acreage disturbed	5,970 acres
EM-MD-160a.3	Percentage of impacted area reclaimed	402 acres
EM-MD-160a.4	Number of hydrocarbon spills	1 reportable spill
EM-MD-160a.4	Volume of hydrocarbon spills	7 m <sup>3</sup>
EM-MD-160a.4	Volume in Arctic	Not applicable, we do not operate in the Arctic
EM-MD-160a.4	Volume in Unusually Sensitive Areas (USAs)	Not reported
EM-MD-160a.4	Volume of spills recovered	6.5 m <sup>3</sup>

REFERENCE	SASB INDICATOR	2021 DATA OR PAGE
<b>COMPETITIVE BEHAVIOUR</b>		
EM-MD-520a.1.	Total amount of monetary losses as a result of legal proceedings associated with federal pipeline and storage regulations	Not reported
<b>OPERATIONAL SAFETY, EMERGENCY PREPAREDNESS AND RESPONSE</b>		
EM-MD-540a.1.	Number of reportable pipeline incidents	0
EM-MD-540a.1.	Number of reportable pipeline incidents that are significant	0
EM-MD-540a.2.	Percentage of natural gas inspected	We do not have natural gas pipelines
EM-MD-540a.2.	Percentage of liquid pipelines inspected	73
EM-MD-540a.3	Number of accident releases from rail transportation	Not applicable, we do not use rail transportation
EM-MD-540a.3	Number of non-accident releases (NARs) from rail transportation	Not applicable, we do not use rail transportation
EM-MD-540a.4	Discussion of management systems used to integrate a culture of safety and project lifecycles	Pages 40-42

# FORWARD-LOOKING STATEMENTS

This report contains certain forward-looking information and statements (“forward-looking statements”). Forward-looking statements relate to future results or events, are based upon internal plans, intentions, expectations, and beliefs, and are subject to risks and uncertainties that may cause actual results or events to differ materially from those indicated or suggested therein. All statements other than statements of current or historical fact constitute forward-looking statements. Forward-looking statements are typically, but not always, identified by words such as “anticipate”, “estimate”, “expect”, “intend”, “forecast”, “continue”, “propose”, “may”, “will”, “should”, “believe”, “plan”, “target”, “objective”, “project”, “committed”, “aim”, “hope”, “potential” and similar or other expressions indicating or suggesting future results or events. The forward-looking statements reflect Trans Mountain’s beliefs and assumptions with respect to such things as the outlook for general economic and market trends and conditions, industry and ESG trends, the integrity and reliability of Trans Mountain’s assets, and the governmental, regulatory and legal environment.

Forward-looking statements are not promises of future outcomes. There is no assurance that the results or events indicated or suggested by the forward-looking statements, or the plans, intentions, expectations or beliefs contained therein or upon which they are based, are correct or will in fact occur or be realized (or if they do, what benefits Trans Mountain may derive therefrom).

In particular, this report contains forward-looking statements pertaining to, without limitation: plans, targets, and strategies with respect to ESG matters and commitments, including reducing greenhouse gas and other emissions and anticipated reductions in emissions levels; benefits which will result from the Expansion Project including reaching new markets, increasing customer options and increasing profitability; expected costs of the Expansion Project and expected employment that will result; expected generation of emissions; increased pipeline capacity and expansion of the marine terminal; expected timing of projects such as the new crossing at the Coquihalla River and the installation of air stations at Burnaby, Sumas and Edmonton Terminals; expected process for deactivating pipelines or facilities at end-of-life; future response capacity; plans with respect to reconciliation efforts and relationships with Indigenous communities; enhanced disclosure to the public, including our plans with respect to the TCFD framework and the publication of an Expansion Project construction emission offset plan and Indigenous Reconciliation Action Plan; our thinking beyond 2030, including with respect to the NZE scenario and future preferences for low emissions oil; and transition-related risks and opportunities and the estimated impact, time frame and risk mitigation.

Undue reliance should not be placed on these forward-looking statements and information as they are based on assumptions made by Trans Mountain as of the date hereof regarding, among other things: oil and gas industry exploration and development activity levels;

commodity prices; the availability and efficacy of various technologies; the success of our operations; that future results of our operations and related activities will be consistent with past performance and/or anticipated performance and management expectations related thereto; availability of individuals with skills required to execute on our business objectives and strategy; general compliance with Trans Mountain’s plans, strategies, programs and goals across its reporting and monitoring systems among our employees, stakeholders and service providers; our ability to successfully engage Indigenous and other stakeholders; the success of growth projects; and existing regulatory, tax, environmental and other laws and regulations.

While Trans Mountain believes the expectations and assumptions reflected in these forward-looking statements are reasonable as of the date hereof, there can be no assurance that they will prove to be correct. Forward-looking statements are subject to known and unknown risks and uncertainties which may cause actual performance and financial results to differ materially from the results expressed or implied, including but not limited to: our ability to implement our strategic priorities and business plan and achieve the expected benefits; the strength and operations of the oil and natural gas industry and related commodity prices and market conditions; our relationships with external stakeholders, including Indigenous stakeholders; reliance on key personnel and third parties; shortages or disruptions in the availability of labour, human capital and/or materials; actions by governmental and regulatory authorities, including changes in regulatory processes or increased environmental regulation; fluctuations in operating results; adverse general economic and market conditions in Canada, North America and elsewhere; risks related to the current and potential impacts of the COVID-19 pandemic and depressed commodity prices; constraints on, or the unavailability of, adequate infrastructure and technology; changes in the political environment in Canada; the ability to access sources of financing; the effectiveness of our risk management and other programs; ability to expand, update and adapt our infrastructure on a timely and effective basis; technology and security risks including cyber-security risks; reputational risks; potential litigation and disputes; and natural catastrophes.

Readers are cautioned that this list of risk factors should not be construed as exhaustive.

The forward-looking statements contained in this document speak only as of the date of this document. Unless required by law, Trans Mountain assumes no obligation to update forward-looking statements and information should circumstances or management’s expectations, estimates, projections or assumptions change. The forward-looking statements contained in this document are expressly qualified by this cautionary statement.

**Trans Mountain**

300 5th Avenue SW  
Suite 2700  
Calgary, AB T2P 5J2

1-866-514-6700  
[info@transmountain.com](mailto:info@transmountain.com)



**TRANSMOUNTAIN**