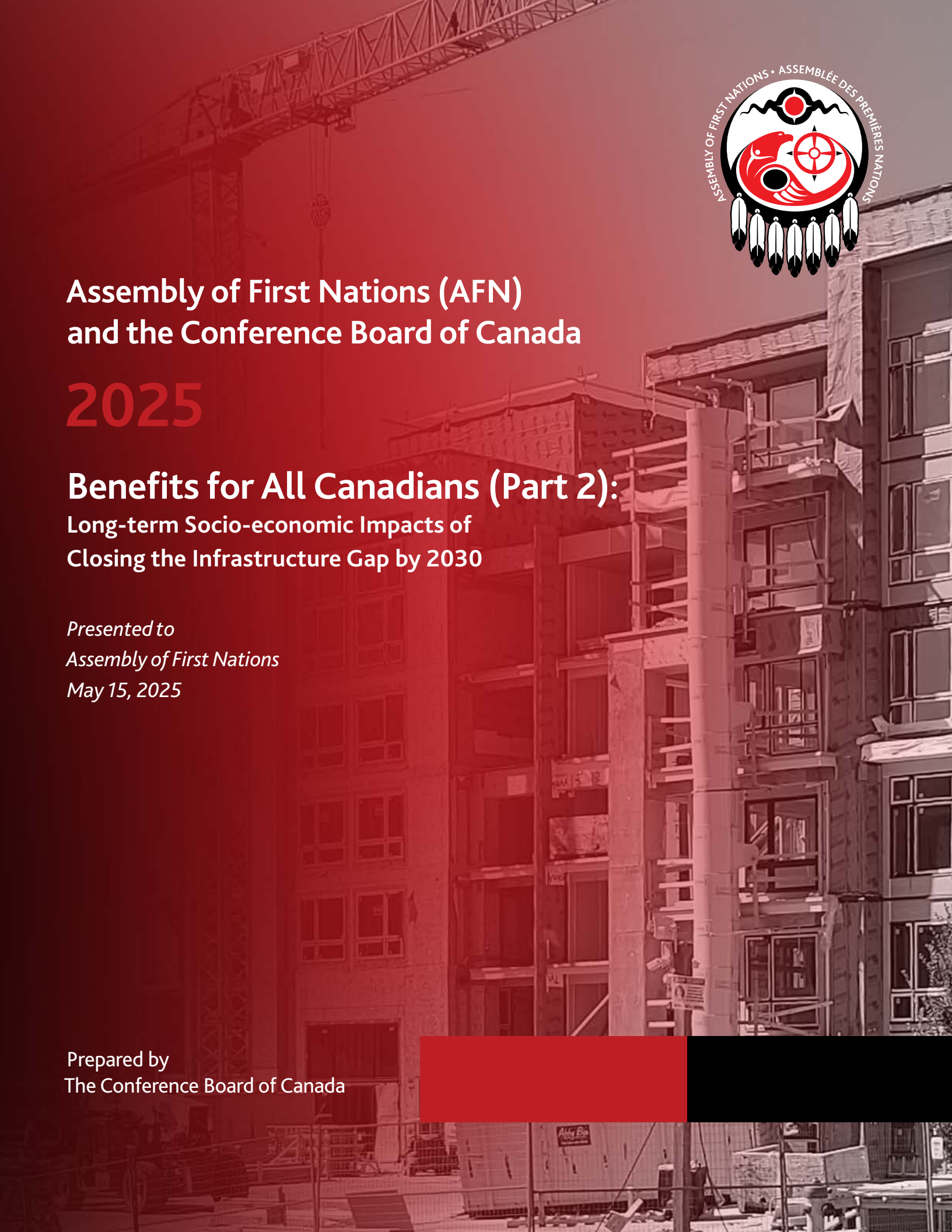

Assembly of First Nations (AFN) and the Conference Board of Canada

2025

Benefits for All Canadians (Part 2):

Long-term Socio-economic Impacts of Closing the Infrastructure Gap by 2030

Presented to
Assembly of First Nations
May 15, 2025

Prepared by
The Conference Board of Canada


ASSEMBLY OF FIRST NATIONS • ASSEMBLÉE DES PREMIÈRES NATIONS

Benefits for All Canadians (Part 2):
Long-term Socio-economic Impacts of Closing the Infrastructure Gap by 2030

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Contents

Key Findings

- **Infrastructure investment effects:** The $349.2-billion investment required to close the infrastructure gap between First Nations and non-First Nations communities is projected to generate 308.9 billion in GDP, $202.7 billion in labour income, and $86.7 billion in government revenues. The investment will support nearly 338,300 full-year jobs annually, including 31,448 jobs for First Nations individuals.
- **Long-term socio-economic returns:** Closing the infrastructure gap will have long-term socio-economic benefits, including better educational attainment, enhanced health and well-being, higher productivity, and more robust economic development across Canada.
- **Greater inclusion and accessibility:** Investment in accessibility is essential to support First Nations individuals with disabilities, who represent an estimated 32 to 41 percent of individuals on reserves. Infrastructure that addresses accessibility will enhance quality of life, boost employment and productivity, and reduce caregiving and healthcare costs. Moreover, applying an accessibility lens across all infrastructure areas ensures that projects are inclusive, resilient, and sustainable for First Nations communities. Accessibility also highlights the benefits of inclusive design, which improves the user experience for everyone—not just persons with disabilities.
- **Housing as a key to social well-being:** Improving housing conditions not only addresses physical needs but is crucial for tackling social issues such as overcrowding, mental health problems, and substance abuse within First Nations communities. Further, investments in housing will lead to improvements in educational attainment and greater participation of First Nations individuals in the labour market.
- **Social infrastructure:** Building community-focused infrastructure, such as Friendship Centres and community centres, will enhance social cohesion and reduce isolation in First Nations communities.
- **All-season roads:** Investment in all-season roads will help improve educational attainment, reduce the barriers to receiving timely medical care, decrease the cost of food, improve food security in remote First Nations, and bolster tourism and cultural events.
- **Resilience in emergencies:** Investments in roads and climate-adaptation measures will increase the resilience of First Nations in the face of emergencies, enabling quicker response times and reducing the negative impacts of climate-related disasters.
- **Sustainability and environmental stewardship:** Net-zero and climate adaptation projects will help address environmental impacts while further positioning First Nations as leaders in stewardship and resilience. The 2023 Assembly of First Nations National Climate Strategy empowers this leadership by integrating First Nations' rights and knowledge into climate policies through the First Nations Climate Lens, focusing on governance, infrastructure, and resilience to support sustainable, culturally grounded solutions.
- **Education infrastructure:** Investments in education infrastructure will help preserve First Nations languages and cultural practices and contribute to economic growth within First Nations and Canada by improving skills development and fostering employment opportunities.

- **Digital connectivity impact:** Ensuring high-speed internet access across First Nations will boost educational opportunities, healthcare access, and economic development.
- **Greater access to water and sanitation systems:** Inadequate access to water and sanitation systems has been a long-standing issue for many First Nations in Canada, leading to drinking water advisories. As of May 8, 2025, 38 long-term drinking water advisories were in effect, affecting 36 communities. Investment in drinking water and wastewater treatment systems will help improve physical and mental health, reduce healthcare costs, and increase productivity and workforce participation.
- **Tourism and industry development:** Infrastructure investments, such as all-season roads, will open new areas for tourism and industry development, which in turn will create new economic opportunities for local communities.
- **Improved safety:** Investments in infrastructure, particularly in areas affected by climate change, enhance community safety and reduce risks from flooding, permafrost thaw, and extreme weather events.
- **Intergenerational benefits:** Infrastructure projects designed with long-term intergenerational benefits in mind help ensure that improvements to infrastructure, health, and education support not just benefit current generations but also future ones.
- **Community empowerment through capacity-building:** First Nations-led projects have been proven to foster skill development within communities, helping them develop long-term economic independence and increasing their ability to manage future projects sustainably.
- **Traditional First Nations knowledge:** Combining First Nations' traditional ecological knowledgeknowledge systems with mainstream scientific methods in climate adaptation and land use planning has led to more effective and culturally appropriate solutions to environmental challenges.

Benefits for All Canadians (Part 2):
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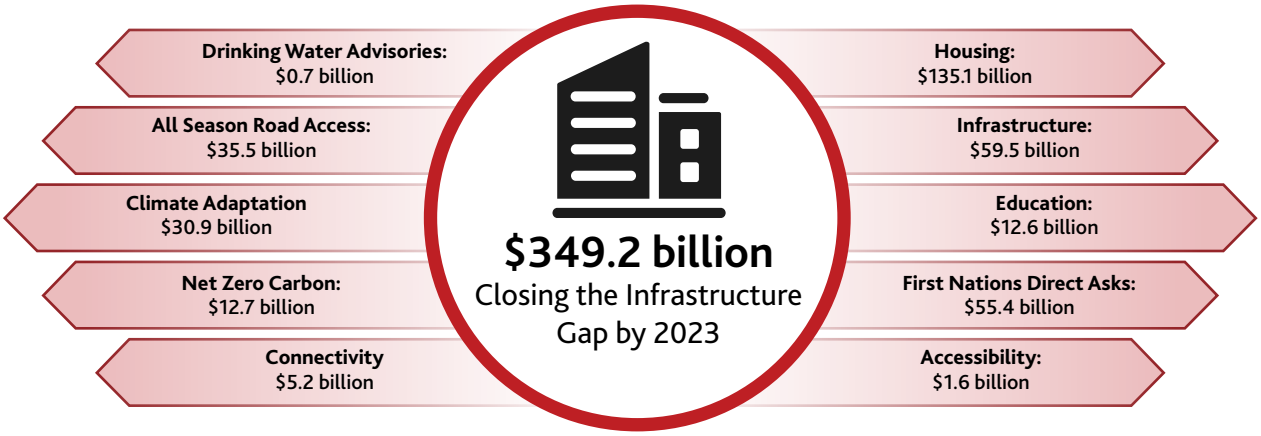
1. Introduction

The lack of access to critical infrastructure, such as housing, education, healthcare, internet, and other essential services, has perpetuated deep-rooted structural inequality across First Nations in Canada. This disparity has led to poorer health outcomes, limited educational opportunities, and fewer economic opportunities for First Nations compared with non-First Nations populations. Going forward, addressing the infrastructure divide is essential to ensure that First Nations have equitable access to resources and opportunities.

In its 2023 report, *Closing the Infrastructure Gap by 2030*, the Assembly of First Nations, in partnership with Indigenous Services Canada (ISC), quantified the infrastructure deficiencies currently faced by more than 600 First Nations across the country.[1] By their accounts, an estimated $349.2 billion is required to close the infrastructure gap between First Nations and non-First Nations communities. The gap is spread across 10 infrastructure areas (see Exhibit 1), ensuring access to clean drinking water (clean drinking water); providing access to all-season roads (all-season road access); preparing infrastructure for extreme weather events (climate adaptation); increasing energy efficiency (net-zero); providing internet and telephone service (digital connectivity); building educational facilities (education); building housing sufficient for growing populations (housing); improving accessibility measures (accessibility); maintaining public infrastructure (infrastructure); and improving community and cultural infrastructure (direct asks). For a detailed description of each infrastructure area, please see Appendix A.

Exhibit 1: The 10 infrastructure areas



Source: Adopted from Assembly of First Nations, *Closing the Infrastructure Gap by 2030.*

In our previous report, *Benefits for All Canadians (Part 1): Economic Impact of Closing the Infrastructure Gap* (August 2024), we examined the economic impacts of spending to build and maintain the 10 infrastructure areas in terms of output, gross domestic product, employment, labour income, and government revenues. These benefits represent only the tip of the iceberg of the broader socio-economic benefits expected to arise from closing the infrastructure gap.

1 Assembly of First Nations, *Closing the Infrastructure Gap by 2030*.

In this report, we discuss the long-term socio-economic benefits generated from closing the infrastructure gap for First Nations. These benefits include improved access to healthcare, increased educational attainment, growth in industries, and overall expansion in national output and labour productivity. We include literature reviews and case studies based on interviews with 18 individuals of First Nations communities, allowing for a nuanced understanding of the current challenges faced by First Nations and the lasting benefits of closing the infrastructure gap.

Our interviews were sourced from a diverse range of institutions and organizations, including First Nations technical institutes, financial institutions, regional assemblies of Chiefs, political territorial organizations, tribal councils, and representatives from individual First Nations. By engaging directly with these leaders and experts, we gained first-hand knowledge of the intricacies, challenges, and enhanced social benefits associated with relevant infrastructure projects. The case studies offered deeper understanding and unique perspectives on project benefits that a single economic model cannot capture.

2. Economic impact of Closing the Infrastructure Gap

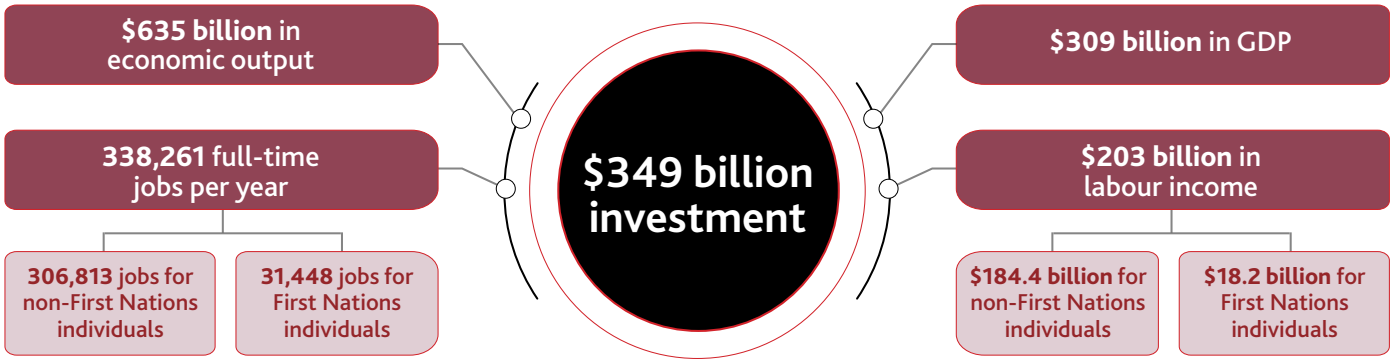
Using The Conference Board of Canada's Economic Impact Assessment (EIA) model, we estimated the total, direct, indirect, and induced impacts of closing the infrastructure gap across five economic variables: output, gross domestic product (GDP), employment, labour income, and government revenues (i.e., taxes). (See Appendix B for the detailed methodology.)

Overall, the estimated $349.2 billion required to close the First Nations infrastructure gap across the 10 infrastructure areas will generate $635.3 billion (in 2023 dollars) in output over the seven-year period from 2023 to 2030. (See Exhibit 2.) Over the same period, the investment will generate $308.9 billion in GDP, $202.7 billion in labour income, and $86.7 billion in government revenues. In addition, these investments are expected to support nearly 338,300 full-year jobs annually, of which 31,448 will be held by members of First Nations.[2] In the sections below, we provide a detailed summary of each infrastructure area and the economic impacts as well as the wider socio-economic benefits from closing the gap in each area.

2 Jobs are measured in person-years of employment (i.e., full-year jobs), which represents the number of full-time jobs in a one-year period. In real terms, this could be one person working for a full year or four people working full-time for three months. Moreover, if one person works a job for seven years, that counts as seven jobs over the seven-year period.

Exhibit 2: Investment to close the First Nations infrastructure gap would generate significant economic benefits across the country

(total economic impact from 2023 to 2030)*



*Includes direct, indirect, and induced impacts
Source: The Conference Board of Canada.

2.1 Infrastructure

Investment in First Nations is needed to maintain and operate existing public infrastructure, expand capacity for growing populations, and upgrade to meet current building codes and safety standards. Infrastructure includes non-residential buildings (e.g., administrative, recreational, community), transportation assets (e.g., roads, bridges, and dikes), grounds (e.g., ports and wharfs), utilities (e.g., wastewater pipes, treatment facilities), and vehicles (e.g., fire trucks, water trucks, garbage trucks). The investment in infrastructure will comprise a $38.0-billion investment in capital and a $21.5-billion investment in operations and maintenance (O&M). Investment projects in this area are in addition to investments in other nine infrastructure areas.

The First Nations infrastructure that we assessed in this study included 12,600 km of roads, 406 bridges, 7,400 km of pipelines, over 6,700 buildings, 1,400 treatment systems, and almost 1,000 vehicles.[3] This asset portfolio was worth approximately $45.8 billion in 2022, depreciating at approximately $730 million per year due to wear and tear. Based on information recorded by ISC, 10 per cent of these assets are either in poor condition or not operational.[4] Without investment, more assets will deteriorate, potentially resulting in irreversible socio-economic damages such as long-term drinking water advisories and compromised environmental and safety conditions.

3 Assembly of First Nations, *Closing the Infrastructure Gap by 2030.*
4 Assembly of First Nations.

2.1.1 Economic impact assessment results

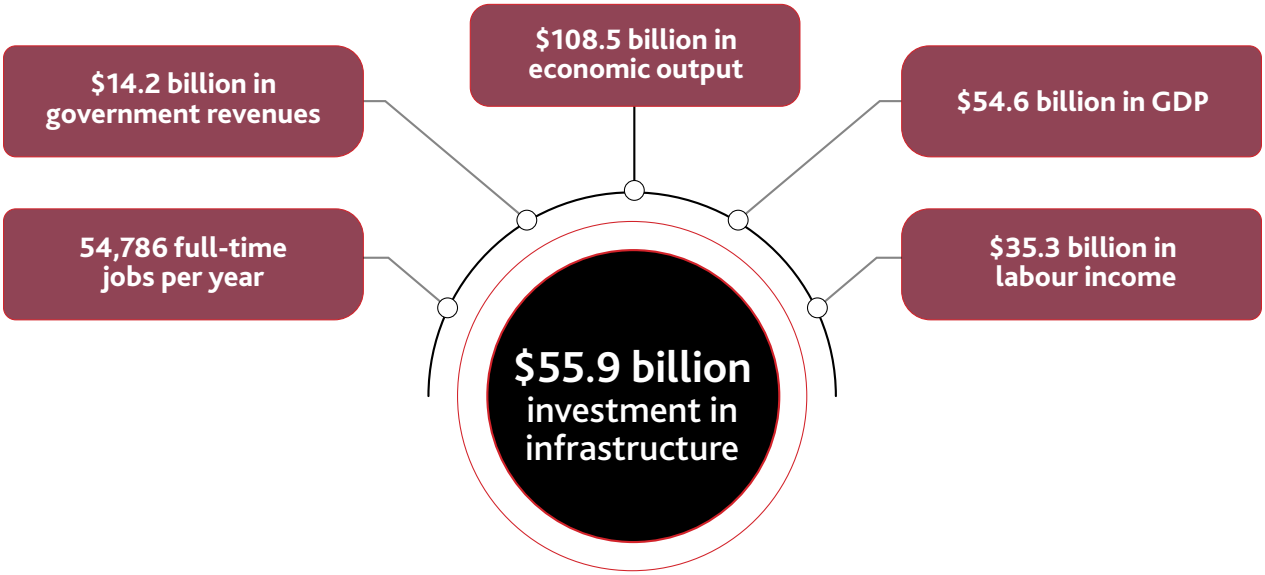
Investment spending on infrastructure is projected to generate $108.5 billion (in 2023 dollars) in gross national output over the 2023–30 period. (See Exhibit 3.) This means that every dollar spent on infrastructure investment will add $1.82 to Canada's gross output. While gross output measures the total value of economic activity, a generally acceptable measure of additional welfare is the added value of the economic activity, also known as GDP. When accounting for only the added value of economic activity, the investment will generate $54.6 billion in GDP for Canada: $33.8 billion during the capital phase and $20.8 billion during the O&M phase.

It is estimated that the spending will support nearly 383,501 full-year jobs nationwide over the next seven years, equivalent to an average of 54,786 jobs per year. Of the jobs created, 14 per cent will be in engineering construction, followed by 11 per cent in repair construction, 10 per cent in retail trade, and 9 per cent in administrative and support, and waste management and remediation services. The investments in infrastructure projects will generate $35.3 billion in labour income.

In addition, $14.2 billion will be generated in government revenues over the next seven years, with $6.5 billion added to federal taxes, $5.2 billion to provincial taxes, and $1.5 billion to municipal taxes. The overall contribution to government revenues equates to $0.24 in tax revenues for every dollar invested in infrastructure.

Exhibit 3: Total economic impact of $55.9-billion spending on infrastructure over seven years

(total economic impact from 2023 to 2030)*



*Includes direct, indirect, and induced impacts
Source: The Conference Board of Canada.

The economic impacts produced by the EIA model represent only the tip of the iceberg of the possible socio-economic benefits that will be generated from investing in First Nations infrastructure. While our economic impact results demonstrate significant increases in output, GDP, employment, labour income, and government revenues from the extensive construction, repair, and maintenance activities involved, they do not extend beyond the immediate supply chain impacts of the spending.[5] As a result, these values underestimate the broader socioeconomic benefits to First Nations and non-First Nations communities that cannot be fully quantified.

The broader socio-economic impacts of First Nations' infrastructure investments are discussed for specific infrastructure areas in subsequent sections. These include additional long-term benefits from infrastructure investment that are not captured by the EIA model results, such as improved educational attainment, enhanced health outcomes, boosted tourism, greater entrepreneurial opportunities, and cultural preservation.

2.2 Housing

Investment in housing is essential to provide First Nations with access to adequate homes that can accommodate their expanding populations. These efforts should focus on constructing new homes, renovating existing ones, and carrying out necessary repairs and maintenance. Many First Nations do not have access to adequate housing, which is vital for physical, mental, spiritual, and economic well-being.[6] According to Canada's 2021 Census of Population, people in First Nations communities are four times more likely to live in crowded housing and six times more likely to live in housing in need of major repairs than non-First Nations people.[7] Crowded and unsafe housing is associated with many negative outcomes, including family violence, substance abuse, suicide, poor physical and mental health, barriers to education and employment, and migration from the community, which contributes to cultural loss.[8] Poor housing conditions pose serious health risks—among which is exposure to mould and other hazardous substances that lead to a range of physical health issues, from respiratory problems to chronic illnesses.[9]

The Assembly of First Nations estimates that $135.1 billion is required to improve housing infrastructure. This includes fixing existing homes, where 31 per cent need minor repairs and 34 per cent require major repairs, and tackling overcrowding, replacing old units, and building new homes to meet rapid population growth. Of the $135.1-billion investment, $114.7 billion will be allocated to capital expenses and $20.4 billion to O&M. [10]

5 For a detailed analysis of the economic impacts of closing the infrastructure gap, please refer to The Conference Board of Canada report *Benefits for All Canadians (Part 1): Economic Impact of Closing the Infrastructure Gap*.
6 Office of the Auditor General of Canada, Reports of the Auditor General of Canada to the Parliament of Canada.
7 Ibid.
8 Ibid.
9 Ibid.
10 Assembly of First Nations, *Closing the Infrastructure Gap by 2030*.

2.2.1 Economic impact assessment results

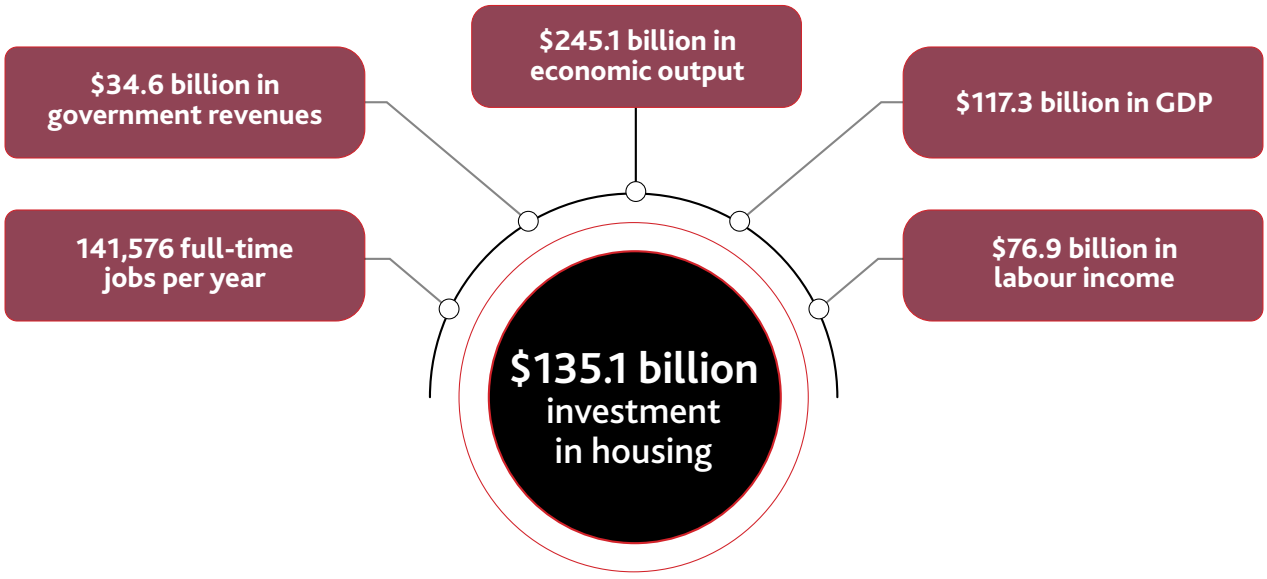
Investment spending on housing is projected to generate $245.1 billion (in 2023 dollars) in gross national output over the 2023–30 period. (See Exhibit 4.) This means that every dollar spent will add $1.81 to Canada's total output, which measures the total value of economic activity. When accounting for only the added value of economic activity, the investment will generate $117.3 billion in GDP for Canada: $97.3 billion during the capital phase and $20 billion during the O&M phase.

It is estimated that the spending will support nearly 991,035 jobs nationwide over the 2023–30 period, equivalent to 141,576 jobs per year. Of the jobs created, 36 per cent will be in residential construction, followed by 10 per cent in administrative and support, and waste management and remediation services, 10 per cent in manufacturing, and 10 per cent in retail trade. The spending on housing infrastructure will generate $76.9 billion in labour income.

In addition, $34.6 billion will be generated in government revenues, with $16.6 billion added to federal taxes, $11.0 billion to provincial taxes, and $7.0 billion to municipal taxes. The overall contribution to government revenues equates to $0.26 in tax revenues for every dollar invested in housing.

Exhibit 4: Total economic impact of $135.1-billion spending on housing over seven years

(total economic impact from 2023 to 2030)*



*Includes direct, indirect, and induced impacts
Source: The Conference Board of Canada.

2.2.2 Long-term socio-economic benefits

Improved health outcomes

Investment in adequate housing will improve mental health for First Nations individuals. A recent systematic review highlights the link between housing conditions and well-being, finding that overcrowding worsens mental health due to a lack of privacy, insufficient personal space, and conditions of social inertia, which entails forced routines that hinder growth or change.[11] Overcrowding is also correlated with higher levels of depression, anxiety, and stress. With over one-third (35.7 per cent) of First Nations individuals living in crowded housing on reserve, investment in housing infrastructure could improve health outcomes for nearly 112,000 people.[12] Improved health outcomes would foster greater engagement in both society and the economy.

Investing in adequate housing will improve the physical health of many First Nations individuals. In 2021, 37 per cent of First Nations lived in homes needing major repairs.[13] Poor conditions—such as mould infestation, poor ventilation, and structural defects—contribute to infectious diseases and respiratory issues.[14] As a result, many First Nations individuals face increased health challenges, which hinder their ability to work effectively and drives absenteeism. Better housing will have positive effects on education, employment, and income.[15]

2.2.3 Vignette 1: Housing

Investment in housing infrastructure is essential to provide First Nations communities with acceptable housing to meet the needs of their growing populations. Access to adequate, suitable, and affordable housing is an ongoing issue in many First Nations.[16] Addressing the issue includes constructing new homes, renovating existing ones, and ensuring ongoing repairs and maintenance. Achieving this will require $114.7 billion in capital investment and $20.4 billion for O&M.[17]

First Nations-led housing initiatives are transforming sustainable, community-centred development in Canada and simultaneously fostering stronger relationships between First Nations and non-First Nations communities. Interviews were conducted with leaders involved in housing projects by the Tzeachten First Nation, the Squamish First Nation, and the Chippewas of Nawash. The three housing projects involved partnerships between First Nations and non-First Nations organizations, and a mixture of First Nations own-source funding and government funds. The findings from the interviews with representatives from each housing project are discussed below.

Community-driven approaches and cultural preservation

Representatives from the three First Nations communities (Tzeachten First Nation, the Squamish First Nation, and the Chippewas of Nawash) shared how their communities' cultural values shaped their project plans and project implementation. In Tzeachten First Nation, British Columbia, a 23-unit

11 Riva and others, *Can Homes Affect Well-Being?*
12 Statistics Canada, *Indigenous Population Profile, 2021 Census of Population.*
13 Ibid.
14 Lyeo and others, *Ten questions concerning First Nations on-reserve housing in Canada.*
15 Habitat for Humanity, *How does housing affect children's education?;* and Brennan, *The Impacts of Affordable Housing on Education.*
16 Office of the Auditor General of Canada, *Reports of the Auditor General of Canada to the Parliament of Canada.*
17 Assembly of First Nations, *Closing the Infrastructure Gap by 2030.*

affordable housing project created in partnership with BC Housing was designed to meet the specific needs of Tzeachten members, especially young adults, students, and families. Tzeachten ensured the housing was tailored to these groups, addressing overcrowding and creating a supportive environment for members at pivotal stages of life. Located near community amenities like sports complexes and gardens, this project emphasizes social cohesion, safe and accessible spaces, and healthy living.

> *"A lot of them [newly housed members] are our own members who are now able to come home … specifically Elders. The message from the Elders is now they're able to be in the community and being able to access … health and wellness and cultural programs and services."*[18] *– Chief Derek Epp, Tzeachten First Nation, B.C.*

The Squamish Nation's Seṅáḵw in Vancouver, British Columbia, also advocates for community-driven solutions and retaining control over infrastructure projects to ensure their cultural values are prioritized. The Squamish Nation led a larger-scale housing project in partnership with private developer, Westbank, that will add 6,000 housing units across 11 towers focusing on rentals. Two hundred units are reserved for Squamish Nation members to rent, with additional units priced below market rate to help tackle Vancouver's affordability crisis. This ensures the community directly benefits from affordable housing. Operating on a 120-year lease, the project secures long-term revenue for the Squamish Nation. Stemming from a historic legal victory over early 1900's land expropriation, Seṅáḵw represents both a significant reclamation and an economic opportunity for the Squamish people.

> *"It's a source of pride … people are looking at this to say, 'Look what we can do when we organize around getting our land back and partnering to create a return to value for our people.'" – Sean Ruzicka, Executive Vice President of Business Development & Partnerships, Nch'ḵay' Development Corporation, B.C.*

The Chippewas of Nawash in Ontario partnered with Habitat for Humanity to deliver 16 homes to community members between 2018 and 2023, making homeownership more accessible on reserve. This pilot project was led by the Nawash community with support from ISC and the Canadian Mortgage and Housing Corporation (CMHC). The advisors at CMHC served as advocates for the Nawash community by contacting Habitat for Humanity with a proposition for partnership, noting that the project would be driven by Nawash community members. To accommodate the Nawash community's realities and priorities, Habitat for Humanity modified its usual model to enable a deferred homeownership, or "rent-to-own" model, with mortgages held by the First Nations band, rather than the charity.[19] The project brought a renewed sense of hope for better housing options within the community, which is particularly significant as construction occurred amid the global pandemic.

> *"It has given people … hope that they can eventually become homeowners, which is something that was out of reach for so many people. The program is so successful because ultimately you will own your home and . . . can pass [it] on to your children." – Sarah Chegahno, Housing Manager, Chippewas of Nawash, Ont.*

18 Some text in the block quotes has been edited for clarity.
19 Habitat for Humanity uses a family-served metric to record the number of families it serves. A family is served when they move into the home and usually have a loan they need to repay.

The representatives from these three housing projects each maintain that by advocating for community-driven solutions and leading the infrastructure developments, First Nations can retain control over their projects and land and create sustainable housing options that align with local priorities and realities. Chief Epp's advice to other First Nations captures the message across the three representatives interviewed here—that early and sustained community engagement is essential to the success of innovative housing projects. Chief Epp further encourages First Nations to seek creative solutions to their housing deficits, as Tzeachten did with its BC Housing partnership.

Skills development and economic gains

All three housing development projects employed local members and businesses from their respective communities, which benefited the local economy and provided opportunities for building local skills and work experience. The Squamish Nation's project promoted capacity-building by offering training and employment for First Nations individuals. The project required developers to work with the Squamish Nation's procurement team, creating subcontracting and training opportunities for local First Nations' small businesses. This approach promotes long-term social and economic gains through skill development, job creation, and sustainable income for the Squamish Nation.

Meanwhile, the Nawash housing project required each aspiring homeowner to complete volunteer hours to construct their home or have someone do so on their behalf, fostering a strong sense of pride and ownership while providing valuable construction skills and work experience within the community. Additionally, homeowners were trained by Habitat for Humanity in home maintenance and household budgeting. This approach empowered homeowners with skills that they could use to help maintain their homes.

> *"Now that people are owning their own home … and receiving guidance to maintain their home … they're house proud. When you become a Habitat for Humanity family, you have to participate in home maintenance and budgeting." – Sarah Chegahno, Housing Manager, Chippewas of Nawash, Ont.*

The three housing projects also provided economic benefits and opportunities for building relationships with surrounding non-First Nations communities. For instance, the Tzeachten project employed Tzeachten members who worked for non-First Nations businesses, promoting mutual gains between them. The Squamish community project similarly employs non-First Nations businesses. Of its 6,000 expected housing units, 100 units will be priced below market value for First Nations and non-First Nations renters. The Nawash-led project boosted the regional economy by employing local and non-First Nations contractors, showcasing the business acumen of First Nations and project management skills, similar to the Tzeachten-led initiative.

> *"A lot of our … businesses or in our neighbouring community have been coming in, and they've been benefiting from all of these contracts as well." – Sarah Chegahno, Housing Manager, Chippewas of Nawash, Ont.*

The impactful housing projects spearheaded by the Squamish Nation, Chippewas of Nawash, and the Tzeachten community highlight the multifaceted benefits of First Nations-led infrastructure developments. These initiatives not only fostered local economic growth by employing community members and engaging local businesses but also emphasized skill development and capacity-building.

The integration of training programs and the requirement for homeowner participation in construction and maintenance have cultivated a deep sense of community pride and ownership, enhancing the social fabric of the communities involved.

Moreover, these projects have extended their positive impact beyond the immediate communities by involving surrounding non-First Nations businesses and individuals, thereby fostering broader economic and social connections. The approach taken by these First Nations communities demonstrates a sustainable model of development that marries community empowerment with economic independence, setting a precedent for future projects that aim to harness the power of community-driven solutions in addressing housing needs. These efforts underline the potential for such initiatives to serve as blueprints for other communities nationwide, promoting a holistic approach to community development.

Environmental sustainability and stewardship

The Squamish Seṅáḵw project, the Chippewas of Nawash project, and the Tzeachten project each prioritize First Nations' understandings of sustainability in unique ways, showcasing First Nations' commitments to living in relationship with the natural world.

Demonstrating how large-scale projects can engage First Nations' knowledge systems, Seṅáḵw incorporates geothermal energy to reduce its carbon footprint, aligning with urban sustainability goals. Seṅáḵw serves as a model not only for economic and social and urban development but also for harmonizing growth with environmental responsibility, setting a precedent for future First Nations-led projects. Sean Ruzicka highlighted how environmental sustainability is central to First Nations communities, especially when partnering with outside entities to plan and implement infrastructure projects.

> *"The environment is kind of paramount to … everything First Nations do…. Values [including] social, cultural, environmental … have to be filtered into any partnership that we might enter into." – Sean Ruzicka, Executive Vice President of Business Development & Partnerships, Nch'ḵay' Development Corporation, B.C.*

For Nawash, sustainability and respect for the environment are deeply integrated into the housing project. The Nawash project uses energy-efficient systems and appliances, conducts environmental assessments, and includes reforestation efforts to protect the local ecology. All homes were designed to reduce fossil fuel consumption, while environmental assessments informed infrastructure choices that support future eco-friendly developments. Also, due to the energy-efficient design, the housing manager reports finding significantly less mould in these new houses compared with existing rental homes. Moreover, this initiative has not only strengthened family and community ties but has also bridged historical divides with neighbouring communities, fostering respectful, lasting partnerships. Meanwhile, the Tzeachten project supports sustainability by providing community gardens for residents.

> *"A lot of the families living in these units have access to the community garden and are able to … produce their own fruits and vegetables. And it's created a sense of family." – Chief Derek Epp, Tzeachten First Nation, B.C.*

Together, these initiatives highlight innovative approaches of First Nations to sustainable and community-focused development. All three projects set out to create more environmentally friendly and sustainable housing solutions that serve the community's long-term needs without compromising future generations' ability to meet their needs.

Conclusion

The representatives from the three First Nations housing projects agree that by providing adequate, affordable, and safe housing, First Nations individuals will experience an increased sense of security and pride, fewer health issues, and a better quality of life. The interview participants emphasized that the housing projects—both completed and in progress—have resulted in the return of First Nations members to reserves, the promotion of environmental sustainability, and strong partnerships between First Nations and non-First Nations organizations that lay the foundation for future initiatives that will benefit both First Nations and non-First Nations communities. These projects offer a compelling blueprint for investments in First Nations led housing projects, showcasing the potential benefits that extend beyond each Nation itself.

2.3 Direct Asks

Investments included in "direct asks" were based on requests by First Nations to meet their needs and were obtained through a survey conducted by ISC. The direct asks included a range of infrastructure, including transportation; utilities; education, healthcare, community, and recreational facilities; and cultural assets and social programs. (See Table 1 in Appendix F for the complete list.) These projects will require a $55.4-billion investment in capital. Investments in this area are in addition to investments in the other infrastructure areas and do not double-count any investments.

2.3.1 Economic impact assessment results

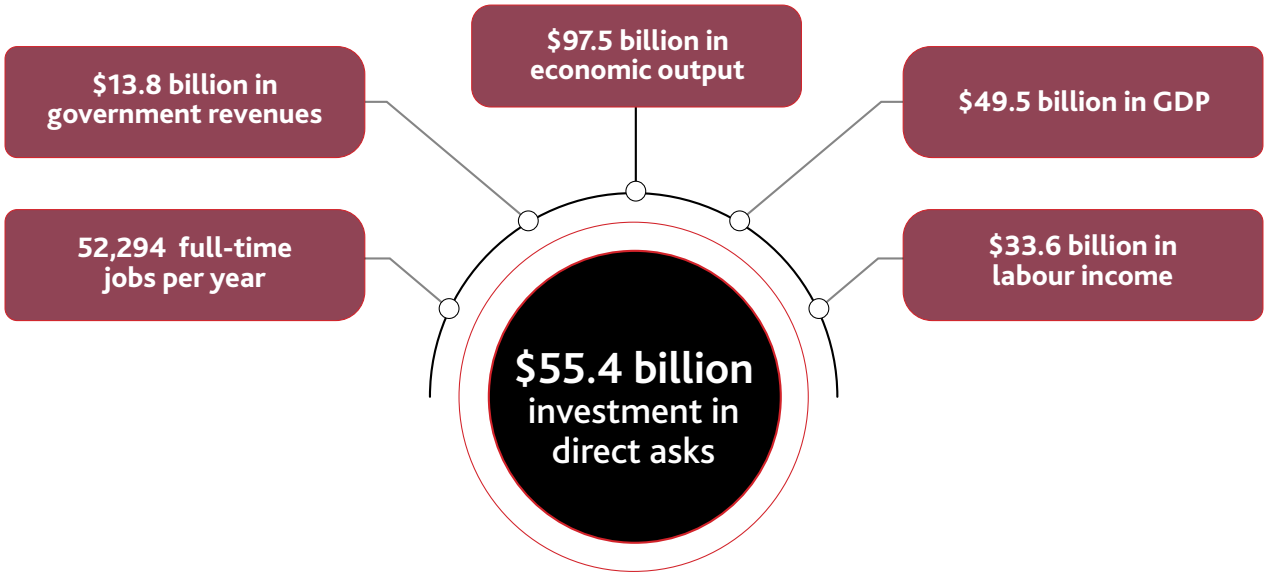
Investment spending on direct asks is projected to generate $97.5 billion (in 2023 dollars) in gross national output over the next seven years. (See Exhibit 5.) This means that every dollar spent will add $1.76 to Canada's total output, which measures the total value of economic activity. When accounting for only the added value of economic activity, the investment will generate $49.5 billion in GDP for Canada, all of which will be in the capital phase.

It is estimated that the spending will support nearly 366,059 jobs nationwide over the next seven years, equivalent to 52,294 jobs per year.[20] One-fifth of jobs will be in repair construction, followed by 14 per cent in retail trade, 12 per cent in non-residential building construction, and 9 per cent in engineering construction. The spending on direct asks will generate $33.6 billion in labour income.

In addition, $13.8 billion will be generated in government revenues over the next seven years, with $7.4 billion added to federal taxes, $4.9 billion to provincial taxes, and $1.4 billion to municipal taxes. The overall contribution to government revenues equates to $0.25 in tax revenues for every dollar invested in direct asks.

Exhibit 5: Total economic impact of $12.6-billion spending on housing over seven years

(total economic impact from 2023 to 2030)*



*Includes direct, indirect, and induced impacts
Source: The Conference Board of Canada.

20 Jobs are measured in person-years of employment, which represents the number of full-time jobs in a one-year period. In real terms, this could be one person working for a full year or four people working for three months. Also, if one person works a job for seven years, that counts as seven jobs in total.

2.3.2 Long-term socio-economic benefits

Community healing

A large majority of the investments will go toward assets such as community and cultural centres, libraries, administrative buildings, community vehicles, ceremonial grounds, museums, and powwow grounds. In addition, investments within direct asks includes expenditures for recreational assets such as trails, arenas, and baseball diamonds. Community engagement is a critical part of First Nations' culture and helps communities heal from trauma and navigate colonization.[21] Continuing to support communities and community initiatives is an essential part of Canada's reconciliation with First Nations.

Published statistics reveal that First Nations have lower literacy scores than the non-First Nations population, which may limit their educational and employment opportunities. In 2012, 35 per cent of off-reserve First Nations individuals had a literacy score of level 3 or higher, compared with 57 per cent of non-First Nations individuals.[22] Improving literacy is important for economic growth, as literacy is the bedrock of human capital. Schwerdt, Wiederhold, and Murray studied a global dataset and found that a 1 per cent rise in literacy rates would lead to a 3 per cent increase in GDP.[23] In a Canadian context, a 1 per cent rise in literacy among First Nations could boost national GDP by over $330 million.[24]

Libraries play a vital role in encouraging and fostering literacy in communities. Yet, more than 500 First Nations, Inuit, and Métis communities in Canada lack access to a public library.[25] In Ontario alone, only 39 of 133 First Nations have a public library.[26] In addition to literacy services, libraries also provide other benefits to people and communities, including employment services, diverse programming (e.g., storytelling, technology training, crafts), language classes to preserve cultural identity, and a safe environment and community hub to support volunteer initiatives and social gatherings.[27]

2.3.3 Vignette 2: Direct asks

Investment in direct asks infrastructure projects is needed to fulfill the specific requests of First Nations communities. First Nations requests addressing specific community needs are gathered through a survey by ISC. These needs span transportation and utilities infrastructure, educational, healthcare, community, and recreational facilities, as well as cultural assets and social programs, requiring a $55.4-billion capital investment.[28] These investments are separate from and do not overlap with other funding areas.

The Mi'kmaw Native Friendship Centre and the Mi'kmaw Family Resource Centre projects in Halifax, Nova Scotia, are off-reserve examples of projects that illustrate the types of community asset infrastructure projects that could be developed on First Nations reserves. Community assets make up 32.9 per cent of direct asks projects. (See Appendix F for the detailed list of infrastructure areas that fall under direct asks.) Though off-reserve, these two projects serve as case studies of the types of

21 Maracle, Connections and Processes.
22 Statistics Canada, *Literacy and numeracy among off-reserve First Nations people and Métis.*
23 *Schwerdt and others, Literacy and Growth.*
24 Calculated as 3 per cent of $11-billion GDP generated on First Nations reserves (estimated using Statistics Canada data: Table 36-10-0695-01 and Table 14-10-0365-01).
25 Burnham, *Establishing & Enhancing Libraries Within Indigenous Communities.*
26 Ontario Library Association, *First Nations Public Libraries in Ontario.*
27 Burnham, *Establishing & Enhancing Libraries Within Indigenous Communities*
28 Assembly of First Nations, *Closing the Infrastructure Gap by 2030.*

infrastructure projects that exemplify the determination of First Nations communities to secure essential infrastructure despite the unique funding challenges faced by urban First Nations organizations. Both projects highlight the importance of culturally informed, community-driven infrastructure and the value of building partnerships—whether between on-reserve and off-reserve members or with non-First Nations organizations and governments—and demonstrate what could be possible on reserve.

The first project entails constructing a new building to house the Mi'kmaw Native Friendship Centre in Nova Scotia. This Centre is crucial to the urban First Nations community, providing essential services for over 30 years despite deteriorating conditions in its old building. With safety hazards like asbestos and water damage, the need for a new facility became urgent. After more than 20 years of advocacy, construction on a purpose-built centre has begun and is expected to be completed in three years. Meanwhile, the Centre has relocated to a temporary, safer location, allowing it to continue offering its 65 programs and employing over 200 staff.

The second project is a roof replacement completed in 2019 for the Family Resource Centre, another key facility connected to the Mi'kmaw Native Friendship Centre. Persistent roof leaks posed serious safety and health risks, threatening its ability to host the Aboriginal Head Start program—a culturally relevant early childhood education initiative.

Gaining visibility

The executive director of the Mi'kmaw Native Friendship Centre, Pamela Glode-Desrochers, explained that these two projects serve as examples of how long it takes for many First Nations communities to become eligible for government funding programs. She further explained that the needs of First Nations peoples are often seen as less important than those of non-First Nations people in society, especially when it comes to funding.

> *"I don't think people see it as a priority for them to fix that. It's just affecting us and nobody else … I've had people say that to me, 'it's not that big of a deal,' but the water literally will run into the back of the building [old Mi'kmaw Native Friendship Centre in Halifax]." – Pamela Glode-Desrochers, Executive Director, Mi'kmaw Native Friendship Centre, Halifax, N.S.*

Additionally, Glode-Desrochers mentioned how the Mi'kmaw community's persistence and resilience in securing an alternative building for the Native Friendship Centre was necessary in the face of multiple rejections that discriminated against their community.

> *"We actually had applied for lands, old schools, whatever we thought we could access through the city. Received letters of, well, basically sorry, but you don't quite fit in that community." – Pamela Glode-Desrochers, Executive Director, Mi'kmaw Native Friendship Centre, Halifax, N.S.*

Community-driven approach and cultural preservation

Community engagement has been key to the success of both projects, bringing local members—including Elders and youth—into the planning process and prioritizing the needs and values of First Nations people. By involving community members in decision-making and prioritizing cultural elements in project planning and implementation, the projects foster intergenerational connections and create a welcoming

environment that strengthens First Nations identity and preserves cultural values within an urban setting. Ultimately, these projects stand as a model for community-driven development, empowering First Nations communities and promoting broader social cohesion and cultural respect within an urban setting.

Glode-Desrochers noted that the Mi'kmaw Native Friendship Centre is at the heart of cultural preservation and a vital source of community connection and belonging. It was important for the new building project to be planned and implemented by and for the community. The Friendship Centre's significance is evident in the dedication of community members who continued to visit the old building despite health risks, underscoring the urgent need for a new facility.

> *"It [Mi'kmaw Native Friendship Centre] is the heart of community … and it provides a safe space and as bad as it was [the] community still loved it because that's all we had. I don't know if people who are not from our community would understand that."* – ***Pamela Glode-Desrochers, Executive Director, Mi'kmaw Native Friendship Centre, Halifax, N.S.***

Partnerships and funding

Partnerships were invaluable to the success of both projects, especially regarding securing funds. The new building project has been supported by partnerships with local Chiefs, ISC, and other agencies, securing crucial funding and resources.

> *"I just know how blessed I've been to be able to work with my Chiefs … it makes all the difference in the world when we do things together, it's successful."* – ***Pamela Glode-Desrochers, Executive Director, Mi'kmaw Native Friendship Centre, Halifax, N.S.***

The urgently needed roof replacement for the Family Resource Centre was funded by the Government of Canada's Aboriginal Head Start Fund. In both projects, the path to success required persistence in trying to gain visibility for the hazardous conditions presented in both the Family Resource Centre and the larger Native Friendship Centre.

The success of these projects also required creative funding approaches, especially given the scarcity of dedicated infrastructure funding available to urban First Nations communities. These projects illustrate how urban First Nations communities can overcome funding barriers to create lasting positive impacts, serving as models for future projects within and beyond the urban First Nations context.

> *"People think because we are in an urban context, funding is easier to access, but infrastructure capital dollars are just unheard of."* – ***Pamela Glode-Desrochers, Executive Director, Mi'kmaw Native Friendship Centre, Halifax, N.S.***

Skills development and economic gains

Both the Family Resource Centre roof replacement project and the new Native Friendship Centre construction project prioritized the empowerment of First Nations businesses by fostering skills development among members and doing their best to employ contractors from within neighbouring First Nations during repairs and construction.

The roof replacement project enabled the Head Start program to expand its offerings, creating additional job opportunities. Similarly, the new Friendship Centre will expand culturally relevant programs and improve learning and employment opportunities. For example, health services, including prenatal care and mental health support, will be enhanced, contributing to better overall health outcomes. This will likely enhance regional health and well-being. Moreover, Glode-Desrochers explains that strengthening the social and economic stability of the First Nations community helps reduce potential social tensions and contributes to a more cohesive environment.

These two projects have not only supported the First Nations community but also fostered greater cultural understanding and social cohesion with the broader Halifax population. The involvement of local contractors expanded programs, and the enhanced visibility of First Nations leadership have stimulated regional economic activity and strengthened relationships between First Nations and non-First Nations residents.

The ripple effects of safer spaces

The main goal of both projects was to create safer spaces for community members and staff. The Family Resource Centre roof replacement project delivered extensive benefits, including a safer, more reliable facility that allowed the Aboriginal Head Start program to expand culturally relevant programming, boosting member participation. The improved conditions also encouraged more Elders and members with special needs to return, reassured by the reduced mould risk and enhanced safety.

> *"Talking to some of the key members after [the roof replacement] … they felt that their isolation actually improved because they wanted to be in the building. They didn't see it as a barrier anymore of coming in because we have Elders and many community members with special needs … and all of a sudden that [unsafe mould, dampness, and flooding] became less of a barrier."* – *Pamela Glode-Desrochers, Executive Director, Mi'kmaw Native Friendship Centre, Halifax, N.S.*

In terms of improved mental health and wellbeing, Ms. Glode-Desrochers emphasized how having the roof repaired significantly reduced stress for families, staff, and children alike.

> *"But just even the mental health of community, I think is huge. I certainly know the morale of staff, mental health around, you know, staff wanting to come to work, especially in the winter, was always and is a challenge in that space. So, you know, it affects so much more than just the building."* – *Pamela Glode-Desrochers, Executive Director, Mi'kmaw Native Friendship Centre, Halifax, Halifax, N.S.*

Federal and provincial governments and even some First Nations communities could benefit from an improved understanding of the major role that social infrastructure, such as Native Friendship Centres, plays in all aspects of First Nations livelihood, especially since community is at the heart of First Nations identity.

> *"It's just so much more than the bricks and mortar we need to look at social infrastructure differently. Government needs to look at infrastructure differently, and I even think our own community needs to look at it differently."* – *Pamela Glode-Desrochers, Executive Director, Mi'kmaw Native Friendship Centre, Halifax, N.S.*

Conclusion

The Mi'kmaw Native Friendship Centre and Family Resource Centre projects in Halifax show how important it is for First Nations communities to have spaces built to fit their needs and culture. Equally important, these projects uncover some of the challenges experienced by First Nations communities in initiating and leading direct asks infrastructure projects. These projects were implemented even though there were many challenges with getting funding and permission. The Mi'kmaw Native Friendship Centre and Family Resource Centre support the preservation and vitality of First Nations culture, bring people together, and foster the community's well-being and development. Allowing community members—including Elders and youth—to lead and plan the projects ensures that community-building thrives and that community values are embedded throughout the process.

The projects highlight not just the physical transformation of spaces but also the broader social and cultural impacts that safe, well-designed spaces can bring to community health, well-being, and engagement. Initiatives like merit-dedicated funding to empower First Nations communities strengthen cultural connections and create safer, more inclusive cities.

2.4 All-Season Road Access

Investment is needed to provide First Nations with access to all-season roads. Over 10 per cent of First Nations are accessible only by airplane, boat and barge, and winter roads after freezing.[29] These winter roads, or ice roads, unlike traditional all-season roads, are highly weather-dependent and lack consistent maintenance, regulation, and safety measures. Milder weather conditions lead to thinner ice, delayed freezing, and premature thawing that reduces road reliability. Unpredictable road access can delay transportation of essential goods and services such as food, diesel fuel, and healthcare services, and leads to higher costs for First Nations.[30] Currently there are around 8,000 km of winter roads serving 67 First Nations that need to be converted to all-season roads (at gravel road standards).[31] Building adequate all-season roads for First Nations across Canada will require a $35.5-billion investment: $29.1 billion in capital and $6.4 billion in O&M.[32]

29 Thompson and others, *The Northern Corridor, Food Insecurity and the Resource Curse for Indigenous Communities in Canada.*
30 Barrette, *The Canadian winter road infrastructure in a warming climate.*
31 Assembly of First Nations, *Closing the Infrastructure Gap by 2030.*
32 Ibid.

2.4.1 Economic impact assessment results

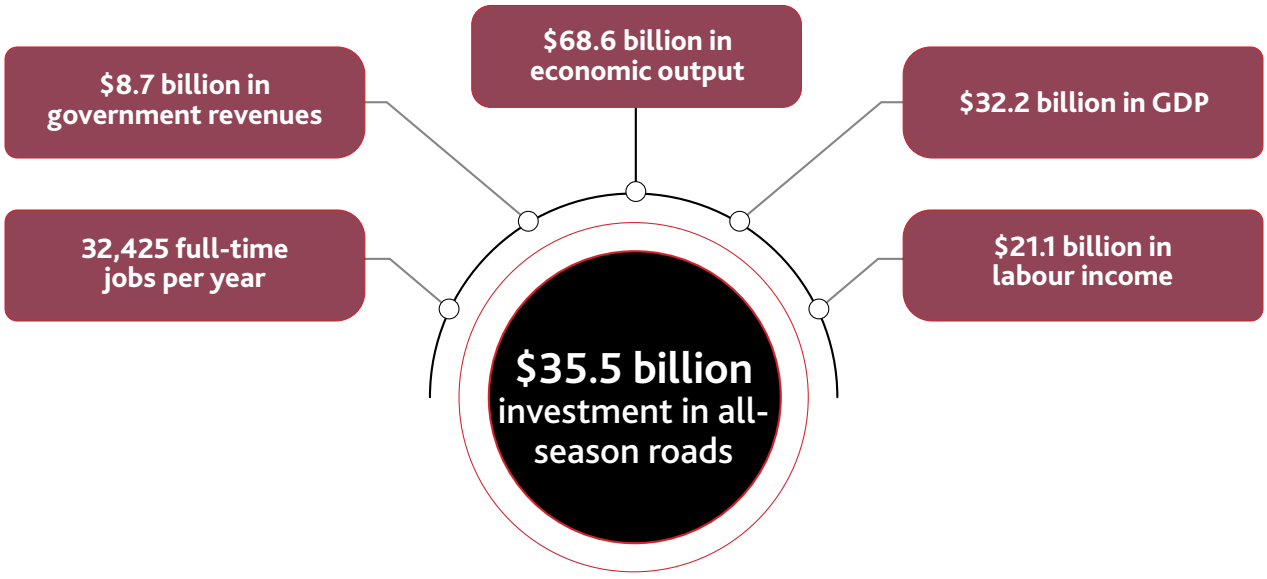
Investment spending on all-season roads is projected to generate $68.6 billion (in 2023 dollars) in gross national output over the next seven years. (See Exhibit 6.) This means that every dollar spent will add $1.93 to Canada's total output, which measures the total value of economic activity. When accounting for only the added value of economic activity, the investment will generate $32.2 billion in GDP for Canada: $26.0 billion during the capital phase and $6.1 billion during the O&M phase.

It is estimated that the spending will support nearly 226,796 jobs nationwide over the next seven years, equivalent to 32,425 jobs per year.[33] Two-fifths of jobs will be in engineering construction, followed by 10 per cent in professional, scientific, and technical services, 8 per cent in retail trade, and 7 per cent in manufacturing. The spending on all-season roads will generate $21.1 billion in labour income.

In addition, $8.7 billion will be generated in government revenues over the next seven years, with $4.7 billion added to federal taxes, $3.2 billion to provincial taxes, and $0.7 billion to municipal taxes. Overall, every dollar invested in all-season roads generates $0.24 in tax revenue.

Exhibit 6: Total economic impact of $35.5-billion spending on all-season roads over seven years

(total economic impact from 2023 to 2030)*



*Includes direct, indirect, and induced impacts
Source: The Conference Board of Canada.

33 Jobs are measured in person-years of employment, which represents the number of full-time jobs in a one-year period. In real terms, this could be one person working for a full year or four people working for three months. Also, if one person works a job for seven years, that counts as seven jobs in total.

2.4.2 Long-term socio-economic benefits

Increased educational attainment

Access to reliable transportation plays an important role in the educational attainment of First Nations students.[34] First Nations students living in communities with better road access have significantly higher rates of high school completion than those without all-season roads. In 2016, 81 per cent of First Nations women and 75 per cent of men living in easily accessible communities had a high school diploma (or equivalent), compared with 50 per cent of First Nations women and 43 per cent of men who live in very remote areas.[35] The development of Highway 10 in the Northwest Territories in the community of Tuktoyaktuk led to a nearly 4 per cent increase in high school completion rates in the region.[36]

Improve health outcomes

The geographic isolation of many First Nations creates a significant barrier to accessing healthcare services.[37] First Nations individuals living on reserve often need to travel to urban areas for advanced medical treatment and specialist care—sometimes by plane due to a lack of all-season roads.[38] The lack of accessible healthcare has created health disparities between First Nations and the non-First Nations population, resulting in higher rates of chronic conditions like asthma and diabetes, poorer physical and mental health statuses, and significantly lower life expectancy rates among First Nations.[39] As of 2011, the life expectancy for the First Nations population was 72.5 years for males and 77.7 years for females, which is 8.9 years shorter for males and 9.6 years shorter for females compared with the non-First Nations population.[40]

Improved access to healthcare through the development and maintenance of reliable all-season roads reduces the barriers to receiving timely medical care, thereby lowering rates of chronic conditions and hospitalizations. Lavoie and others found that communities with local road access to primary healthcare services showed a lower rate of hospitalization.[41] In addition, improved road infrastructure will also facilitate the delivery of healthcare resources to First Nations on reserve and the mobility of healthcare professionals.

First Nations without road access face a higher rate of food insecurity compared with remote First Nations with road access.[42] Food insecurity leads to poorer health outcomes, specifically increasing the prevalence of nutrition-related chronic illness such as obesity and diabetes.[43] Batal and others found that almost half of First Nations households on reserve were food insecure, compared with just 12 per cent of

34 Layton, *Distance as a Factor for First Nations, Metis, and Inuit High School Completion.*
35 Statistics Canada's Index of Remoteness categorizes the degree of remoteness for communities based on their travel costs and distance to large urban centres. Very remote areas are those with very limited accessibility, earning a remote index (RI) score above 0.55.
36 Fellows and others, *A Socio-economic Review of the Impacts of Northwest Territories' Inuvik to Tuktoyaktuk Highway 10.*
37 Hori and others, *Community vulnerability to changes in the winter road viability and longevity in the western James Bay region of Ontario's Far North.*
38 Nguyen and others, *Barriers and Mitigating Strategies to Healthcare Access in Indigenous Communities of Canada.*
39 Statistics Canada, *Unmet health care needs during the pandemic and resulting impacts among First Nations people living off reserve, Métis and Inuit.*
40 Statistics Canada, *Life expectancy of First Nations, Métis and Inuit household populations in Canada.*
41 Lavoie and others, *Have investments in on-reserve health services and initiatives promoting community control improved First Nations' health in Manitoba?*
42 Thompson and others, *The Northern Corridor, Food Insecurity and the Resource Curse for Indigenous Communities in Canada.*
43 Batal and others, *First Nations households living on-reserve experience food insecurity.*

non-First Nations households.[44] They also found that weekly food basket costs were $112 to $140 higher in remote First Nations communities without road access compared with non-remote communities. Food insecurity damages physical health and cognitive function, resulting in increased absenteeism and reduced productivity. Investment in all-season roads can help decrease the cost of food and improve food security in remote First Nations, leading to better health outcomes for many First Nations individuals.

Boost to tourism

All-season roads encourage leisure activities, such as fishing and snowmobiling, while promoting tourism and cultural events like hockey tournaments and traditional First Nations festivities.[45] The development of Highway 10 in the Northwest Territories increased tourism activity to the local region of Tuktoyaktuk. On an annual basis, the development of Highway 10 is expected to generate $2.7 million in tourism activity, while creating 22 full-time-equivalent jobs in the Northwest Territories.[46]

Industry development

The development of all-season roads will improve access to remote areas across the country, potentially bringing substantial benefits to First Nations communities that want to engage in projects with various industries. These roads will facilitate travel and transportation while creating new economic opportunities by improving access to critical minerals and other natural resources. This will boost local economies by enabling efficient extraction and distribution, creating jobs, and fostering regional growth.

Vignette 3: All-season road access

Investment in all-season road infrastructure is essential to ensure that many rural and remote First Nations have reliable year-round access. About 8,000 km of winter roads need to be upgraded to all-season gravel roads, which will require $29.1 billion for construction and $6.4 billion for ongoing maintenance.[47]

The completion of all-season roads has fundamentally transformed members' lives and the economies of Shoal Lake 40 First Nation in Manitoba and Simpcw First Nation in British Columbia, exemplifying how infrastructure investments can yield benefits for First Nations communities and non-First Nations neighbouring regions. These projects underscore the power of community-led initiatives that foster not only physical connectivity but also social, economic, and cultural revitalization.

> *"With the completion of the road … housing construction, the water treatment plant construction, the school construction, the cost of everything goes down." – Bill Wahpay, Councillor, Shoal Lake 40 First Nation, Ont.*

44 Ibid.
45 Barrette and others, *The Canadian winter road infrastructure in a warming climate.*
46 Government of Northwest Territories, *Inuvik Tuktoyaktuk Highway Project.*
47 Assembly of First Nations, *Closing the Infrastructure Gap by 2030.*

The Freedom Road project, completed in 2019, connected Shoal Lake 40 First Nation, located on the border between Manitoba and Ontario, to the Trans-Canada Highway for the first time.[48] Before Freedom Road, Shoal Lake 40 faced extreme isolation, relying on a seasonal barge to access essential services, which restricted residents' movements and limited their economic and social engagement. Community members were often forced to traverse dangerous ice in winter or navigate a strict schedule for barge crossings, which reduced opportunities and left Shoal Lake 40 isolated from nearby towns and vital resources.

Simpcw First Nation, located in British Columbia, completed its own vital road infrastructure project in 2023, replacing a neglected gravel road that provided limited access to services and caused excessive wear on vehicles. For more than three decades, the road's poor condition posed a safety hazard and delayed emergency response times.

Community-driven approach and cultural preservation

Both Shoal Lake 40's Freedom Road and Simpcw First Nation's paved road projects were rooted in a community-driven approach, placing the values and priorities of each Nation at the heart of planning and development. For Shoal Lake 40, Freedom Road ended long-term isolation by connecting residents directly to the Trans-Canada Highway, providing continuous access to essential services and nearby communities. This road became not just an infrastructure project but a symbol of autonomy and connection, deeply tied to the community's sense of freedom and engagement. Simpcw's project similarly involved significant community input and was led by Chief George Lampreau, who held regular meetings to update members and gather feedback, making sure that the project was completed in alignment with Simpcw cultural values and community needs. Both projects highlighted the importance of First Nations-led planning, with Shoal Lake 40 and Simpcw ensuring that decisions directly benefited their members and reinforced cultural connections.

> *"We have regular meetings with our membership to update them on what's going on, keep them involved and so that they're aware and have input. You know, it's right down to talking about the best timing to do the project." – Chief George Lampreau, Simpcw First Nation, B.C.*

Partnerships and funding

In both cases, securing funding and government partnerships was essential to bring these projects to life after years of advocacy. Shoal Lake 40 partnered with the federal government, the Province of Manitoba, and the City of Winnipeg. They also leveraged a unique procurement model that enabled the community to manage the project themselves, ultimately creating local employment and ensuring community oversight. Simpcw partnered with British Columbia's Ministry of Highways and Dawson Construction, creating a joint effort to transform the deteriorated gravel road into a safe, paved route.

48 Shoal Lake 40 First Nation, located on a peninsula between Indian and Snowshoe Bays on Shoal Lake, was forcibly cut off from the mainland over a century ago during the construction of the Greater Winnipeg Water District Aqueduct. In 1915, the City of Winnipeg expropriated over 3,000 acres of the First Nation's ancestral land, including a burial ground, to build the aqueduct that would supply the city with drinking water. This construction involved diverting the Falcon River and creating a channel that isolated the community, leaving it accessible only by boat, ferry, or ice road. The community's isolation was compounded by the fact that while Winnipeg received clean water from Shoal Lake, Shoal Lake 40 was left with contaminated water.

These partnerships were crucial for overcoming the funding and logistical barriers that often hinder infrastructure projects in rural and remote First Nations communities.

"You know the big thing on making these projects happen is partnerships making good partners." – Chief George Lampreau, Simpcw First Nation, B.C.

Skills development and economic gains

The Freedom Road and Simpcw road projects created immediate job opportunities and supported skill-building within the communities. For Freedom Road, approximately 30 per cent of the workforce was made up of Shoal Lake 40 members, who gained skills valuable for future projects. Cost savings from no longer relying on a seasonal ferry allowed Shoal Lake 40 to reinvest in essential resources, like a water treatment plant and new housing. The road also boosted economic growth beyond Shoal Lake 40, as residents could access nearby cities like Kenora and Winnipeg for services, employment, and shopping. Simpcw's project similarly brought local economic benefits by reducing vehicle wear, improving emergency response times, and enhancing access to community resources. Both projects illustrate how infrastructure investments foster economic independence and resilience within First Nations communities, while also benefiting nearby non-First Nations communities through increased commerce, tourism, and regional safety. These roads have strengthened connections and cultural exchange between First Nations and surrounding communities, showing that investments in First Nations can create shared social, economic, and cultural gains across entire regions.

Environmental sustainability and stewardship

Environmental sustainability and respect for the land played a significant role, especially in Simpcw's project. Guided by its Territorial Stewardship Plan, which includes an First Nations Protected Conservation Area, Simpcw prioritized protecting the environment from industrial impact during construction, reflecting a commitment to sustainable development.[49] Shoal Lake 40's Freedom Road, while more focused on addressing isolation and access, also respected the natural landscape as part of its cultural identity.[50] Together, these projects underscore how infrastructure development within First Nations communities can prioritize environmental stewardship, with Simpcw setting an example of sustainable road construction that aligns with cultural values and ecological preservation.

The ripple effects of all-season roads

The new all-season roads in Shoal Lake 40 and Simpcw First Nations have brought many benefits that go beyond just their communities. For Shoal Lake 40, the Freedom Road ended years of being cut off from nearby towns, allowing people to travel to places like Kenora and Winnipeg for jobs, shopping, and other services. This also allows community members easier access to service centres for medical appointments and enables ambulances to reach the community more quickly and safely.

"[Instead of] walking across dangerous ice or boating across to closest landing to access their vehicles, they can just drive right from their house to a service centre." – Bill Wahpay, Councillor, Shoal Lake 40 First Nation, Ont.

49 Simpcw, Territorial Stewardship Plan.
50 Ibid.

Moreover, this easier road access has helped local businesses and brought in tourists who want to see Shoal Lake's culture and natural beauty. Simpcw's newly paved road has made the area safer by reducing emergency response times, so people can get healthcare faster. The road also makes it easier for kids from both First Nations and non-First Nations communities to get to school, encouraging learning and cultural exchange. Altogether, these roads have improved safety, well-being, and economic opportunities, helping build stronger connections between First Nations and neighbouring communities.

"The better roads have really made a difference on people [outside our community] wanting to come and attend events [in our community] and that's been a real positive benefit in that way." – Chief George Lampreau, Simpcw First Nation, B.C.

Finally, all-seasons roads in these two First Nations communities have resulted in savings on ferry fees in Shoal Lake, expensive car maintenance in the Simpcw community, and the cost of brining in water services and water bottles. These savings have allowed the communities to invest in other local infrastructure.

"We're expanding. We have clean drinking water. We're building houses, we're expanding into more areas of our land." – Bill Wahpay, Councillor, Shoal Lake 40 First Nation, Ont.

Conclusion

Shoal Lake 40 and the Simpcw First Nations have shown how all-season roads can create powerful changes—enhancing connectivity, safety, economic opportunity, and cultural preservation for First Nations communities and their neighbouring regions. Shoal Lake 40's Freedom Road has opened doors for greater economic integration and tourism, breaking the community's isolation. Simpcw's paved road offers a model of sustainable development that respects both cultural and environmental priorities. These projects provide a roadmap for future infrastructure investments that empower First Nations communities, honour their stewardship of the land, and strengthen bonds between First Nations and non-First Nations communities.

2.5 Climate Adaptation

First Nations are disproportionately affected by climate change, due the structural legacy of colonialism, as well as the location of communities in highly vulnerable impact-areas, such as coastal, forest, and Arctic regions, among others. Specific impacts of climate change are region-specific. First, coastal communities face rising sea levels, intensified coastal erosion, increased coastal squeeze, and more severe storm surges. Second, interior communities have more frequent and severe forest fires, increased incidents of drought, and harsher precipitation events. Northern communities also have challenges related to permafrost thaw, ground subsidence, and increasing snow loads.[51] These climate changes put First Nations infrastructure—and consequently, their livelihoods—at serious risk. Preparing First Nations buildings, roads, bridges, and utility infrastructure to a path of resilience against the impacts of climate change is estimated to cost $30.9 billion.

2.5.1 Economic impact assessment results

Investment spending climate adaptation is projected to generate $57.8 billion (in 2023 dollars) in gross national output over the next seven years. (See Exhibit 7.) This means that every dollar spent will add $1.87 to Canada's total output, which measures the total value of economic activity. When accounting for only the added value of economic activity, the investment will generate $27.5 billion in GDP for Canada: $21.3 billion during the capital phase and $6.2 billion during the O&M phase.

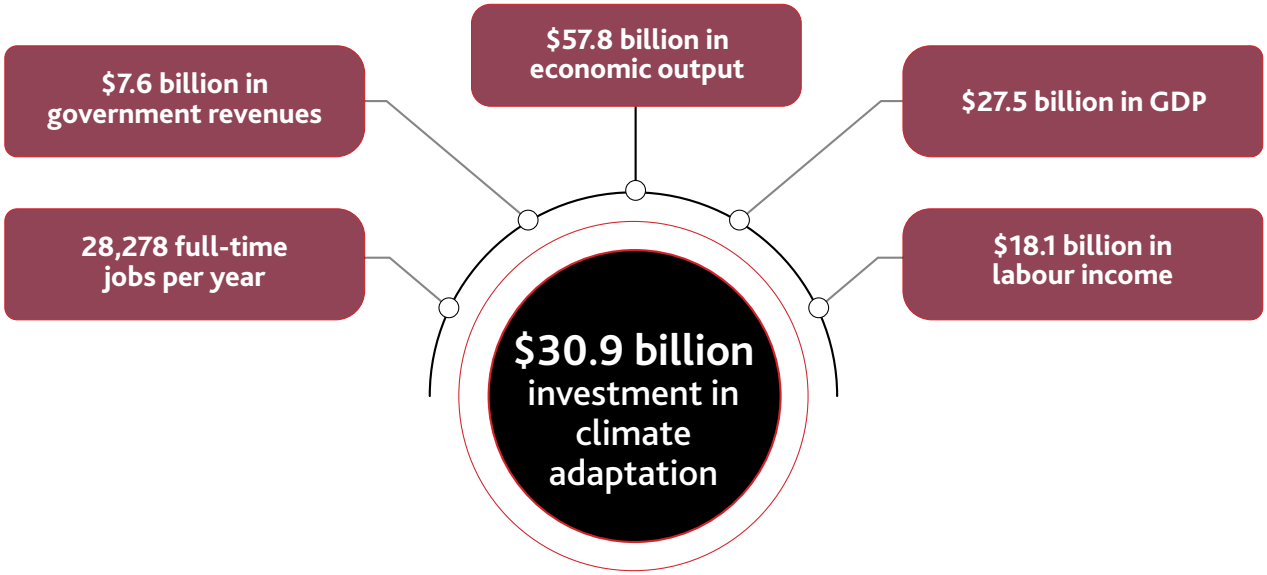
It is estimated that the spending will support nearly 197,947 jobs nationwide over the next seven years, equivalent to 28,278 jobs per year. One-fifth of jobs will be in engineering construction, followed by 10 per cent in residential construction, 9 per cent in retail trade, and 9 per cent in professional, scientific, and technical services. The spending on climate adaptation will generate $18.1 billion in labour income.

In addition, $7.6 billion will be generated in government revenues over the next seven years, with $4.0 billion added to federal taxes, $2.7 billion to provincial taxes, and $979.3 million to municipal taxes. The overall contribution to government revenues equates to $0.25 in tax revenues for every dollar invested in climate adaptation.

51 Assembly of First Nations, *Closing the Infrastructure Gap by 2030.*

Exhibit 7: Total economic impact of $30.8 billion-spending on climate adaptation over seven years

(total economic impact from 2023 to 2030)*



*Includes direct, indirect, and induced impacts
Source: The Conference Board of Canada.

2.5.2 Long-term socio-economic benefits

Alleviating costs

Weather-related disasters are happening more often and getting more expensive. In Canada from 1980 to 2010, there were on average five catastrophic weather-related disasters per year, costing a total of $12.7 billion. More recently, insured payouts for catastrophic weather events reached $1 billion in 2019 and 2020, $2 billion in 2021, $3 billion in 2022 and 2023, and $8.9 billion in 2024.[52] The Canadian Climate Institute estimates that the costs of catastrophic events could see natural disasters decrease GDP by roughly 0.8% by 2050.[53] Climate adaptation investment will help mitigate risk and reduce the costs of extreme weather events.

Since 2010, weather-related disaster costs equalled 5 to 6 per cent of annual GDP growth. In 2016, a year marked by extreme weather and sluggish GDP growth[54], disaster costs amounted to one-third of Canada's total GDP growth.[55] The Canadian Climate Institute estimates that in 2025, Canada will experience $25 billion in losses due to climate-related events, which is equal to 50 per cent of projected

52 Insurance Bureau of Canada, *Emergency Preparedness Week*.
53 Canadian Climate Institute, *Damage control*.
54 Canadian Climate Institute, *Tip of the Iceberg*.
55 Canadian Climate Institute, *Damage Control*.

2025 GDP growth. This is equal to $620 per person of lost national income.[56] For First Nations, this would account for almost $264 million in lost national income.[57]

Investment in proactive adaptation can substantially reduce overall economic damages of climate change. The Canadian Climate Institute estimates that for every dollar spent on adaptation measures, $13 to $15 will be returned in direct and indirect benefits.[58] Direct benefits include cost savings from preventing infrastructure damage (less repairs and replacements), while indirect benefits account for avoided disruptions to supply chains, preserved labour productivity, and prevented income losses due to damage.[59] Consequently, the $30.9-billion investment needed to adapt infrastructure in First Nations could lead to $402 to $464 billion in benefits.

Improving safety

First Nations communities are facing increased risks to their safety as climate change is compounding existing infrastructure decline, including by deteriorating critical infrastructure, including buildings, roads, and airports. Early adaptation investments in rebuilding homes and buildings in the Northwest Territories, for example, could reduce damages five-fold over the course of the century.[60]

Climate change is also leading to permafrost thaw and rapid erosion, which are severely affecting building foundations, road stability, and runway integrity, putting the well-being of these communities at risk. For instance, without climate change adaptation measures, the costs associated with permafrost damage to runways are projected to reach $7 million annually by 2040.[61] Permafrost thaw destabilizes the ground, causing cracks and uneven surfaces that can make roads unusable. This highlights the critical importance of all-season roads for First Nations, as reliable, durable infrastructure is essential to maintain year-round access to vital services, supplies, and economic opportunities, reducing isolation and supporting community resilience.

Climate change is expected to increase the frequency and intensity of extreme weather events, further threatening the operational reliability of airports. Adaptation measures such as regular monitoring and mapping of permafrost areas will help reduce service disruptions and improve safety. Investing in climate-resilient materials when maintaining and replacing roads can also reduce climate change–related damage costs by up to 98 per cent—equivalent to $5 billion in annual savings nationally over the next few decades and up to $13 billion annually by the end of the century.[62]

Food insecurity

Climate change is also exacerbating food insecurity for First Nations by disrupting traditional food systems. Changes in temperature and weather patterns affect animal behaviour and migratory routes, making it harder to predict and access key species relied upon for subsistence hunting and fishing. Additionally, shifting ecosystems impact the availability of plants and berries, further threatening food

56 Ibid.
57 Amounts to $620 per person multiplied by 425,652 individuals living on First Nations reserves. Population based on Statistics Canada's 2021 Census of Population.
58 Canadian Climate Institute, *Damage Control.*
59 Ibid.
60 Canadian Climate Institute, *Due North.*
61 Ibid.
62 Climate Change Institute, *Under Water.*

sovereignty. These disruptions not only undermine nutrition and health but also weaken cultural practices tied to land and food, increasing vulnerability in First Nations communities. Addressing climate change will thus help restore these ecosystems and support the food security and cultural resilience of First Nations.

2.5.3 Vignette 4: First Nations climate change adaptation initiatives

The following vignette is based on our literature review findings, which highlight how First Nations across Canada are addressing climate adaptation in ways that respond to the specific environmental changes affecting their lands, water sources, and cultural practices.[63] The AFN National Climate Strategy, launched in 2023, empowers First Nations to lead climate action by integrating First Nations' rights, knowledge, and worldviews into federal and provincial policies. It introduces the First Nations Climate Lens and focuses on governance, infrastructure, and resilience to support sustainable, culturally grounded solutions. By weaving First Nations knowledge systems with mainstream scientific methods and engaging community members across generations, First Nations communities are creating sustainable solutions that align with their cultural values while bolstering local resilience. This vignette highlights how First Nations in various regions—coastal, boreal, and Northern—are leading climate adaptation efforts that emphasize First Nations sovereignty, cooperation, cultural preservation, and environmental stewardship.

Investment in climate adaptation infrastructure is needed to prepare First Nations assets for climate change and safeguard them against extreme weather events. This includes targeted upgrades to housing, non-residential buildings, utilities, and transportation infrastructure, such as reinforcing building cladding and roofs, regularly resurfacing roads, and enhancing water monitoring and testing. The initiative will require a capital investment of $24.5 billion and an additional $6.5 billion for O&M.[64]

Infrastructure and environmental monitoring

First Nations are leading initiatives to address the impacts of climate change on their infrastructure and environments. For example, the Liidlii Kue First Nation in Fort Simpson, Northwest Territories, has initiated a climate change adaptation Indigenous knowledge and land use impact study to monitor environmental changes, such as permafrost degradation and shifting water levels.[65] This work empowers the community to document climate impacts on local ecosystems, providing a foundation for data-driven adaptation planning. Involving community members in research partnerships with allied university researchers and organizations ensures that these plans are deeply informed by traditional ecological knowledge, reinforcing the role of First Nations as environmental stewards of their land.

In Ontario, the Grand Council Treaty No. 3 considers infrastructure and environmental monitoring as part of Manito Aki Inakonigaawin, a governance framework that uses traditional Anishinaabe laws to guide land and resource management.[66,67,68] Although formalized in 1997, this law has guided Anishinaabe relations with the land for generations, with a focus on protecting the environment in the face of

63 Reed and others, *For our future.*
64 Assembly of First Nations, *Closing the Infrastructure Gap by 2030.*
65 Dehcho Collaborative on Permafrost, *Dehcho Collaborative on Permafrost.*
66 The Anishinaabe Nation in Treaty #3, *Manito Aki Inakonigaawin.*
67 Grand Council Treaty #3, *Manito Aki Inakonigaawin.*
68 Grand Council Treaty #3, *Manito Aki Inakonigaawin Information Package.*

changes, including climate impacts. The written version allows Treaty N°. 3 communities to engage effectively with external stakeholders, ensuring that development respects First Nations sovereignty and ecological values. A prime example of Manito Aki Inakonigaawin in action is its Project Application Framework, which requires that development proposals undergo Anishinaabe-led approvals.[69] This framework was applied to the Highway 17 Twinning project through the Niiwin Wendaanimok (Four Winds) Partnership, involving collaboration between four Treaty N°. 3 communities and Ontario's Ministry of Transportation.[70] The project's Harmonized Impact Assessment followed traditional Anishinaabe planning phases like visioning and scouting, ensuring that climate resilience and environmental protection were prioritized. This process demonstrates how Manito Aki Inakonigaawin facilitates sustainable development that aligns with climate adaptation and First Nations-led environmental governance.[71]

The Tsleil-Waututh Nation (TWN) in British Columbia has undertaken significant climate change adaptation initiatives to enhance community resilience and environmental stewardship. In 2018, TWN initiated a phased, community-based Climate Change Resilience Planning (CCRP) process to assess vulnerabilities and implement strategies addressing climate impacts.[72,73] This process led to the development of a CCRP, outlining a 10-year action plan with 36 high-priority actions across five key focus areas.[74]

A notable project under this plan is the Collaborative Shoreline Adaptation Visualization. Partnering with the University of British Columbia's School of Architecture and Landscape Architecture, TWN developed a vision for a coordinated, resilient, and healthy shoreline.[75] This project integrates traditional ecological knowledge with scientific approaches to address sea-level rise and coastal erosion, ensuring the shoreline's sustainability for future generations of residents and visitors, whether First Nations or non-First Nations.

Health and community safety

Climate change adaptation in First Nations communities also involves a focus on health and safety. Fort McPherson, a predominantly Gwich'in community in the Mackenzie Delta region of the Northwest Territories, is particularly vulnerable to the impacts of climate change, including permafrost thaw, flooding, and wildfire risks. Located along the Peel River and accessible via the Dempster Highway, Fort McPherson faces significant infrastructure challenges as climate impacts accelerate. Permafrost thaw in this region—characterized by warm, ice-rich ground—has destabilized buildings, water lines, and sewage systems, all of which were originally designed for stable permafrost conditions. This thawing not only undermines the stability of critical infrastructure but also complicates maintenance for the community, which relies on limited resources to manage ongoing climate-induced risks.[76]

69 Grand Council Treaty #3, *Manito Aki Inakonigaawin Project Application Framework.*
70 Weppler, "Blog."
71 Grand Council Treaty #3, *Manito Aki Inakonigaawin.*
72 Tsleil-Waututh Nation, *Climate Action.*
73 Tsleil-Waututh Nation, *TWN Climate Change Resiliency Plan.*
74 Tsleil-Waututh Nation, *Climate Change Resilience Plan.*
75 Tsleil-Waututh Nation, *TWN Shoreline Conceptual Adaptation and Visualization Project.*
76 WSP Canada Inc., *Assessment of Climate Change Impacts on Infrastructure in All NWT Communities.*

Flooding poses another major challenge. Fort McPherson is susceptible to seasonal flooding, particularly from spring ice jams along the Peel River. These floods have historically dislodged property, such as cabins, and threaten community infrastructure and safety. A severe ice jam in 2013 highlighted these vulnerabilities, demonstrating the urgent need for resilient infrastructure and response planning. Additionally, the community's water intake at Deep Lake has previously been compromised by nearby wildfires, which pose a significant risk due to high Fire Smart hazard ratings in certain areas.[77]

To address these interconnected climate risks, Fort McPherson has developed a range of adaptive strategies. Slope stability assessments are conducted regularly to monitor the effects of permafrost thaw, particularly around critical infrastructure like fuel storage tanks, which are vulnerable to temperature fluctuations. The community has implemented snow management practices to insulate permafrost during spring melt, helping preserve ground stability. Ground temperature sensors have also been installed near key infrastructure to provide early warnings of potential risks due to thaw.

The community is also exploring a comprehensive flood response plan to better prepare for future ice jam events. This plan, combined with infrastructure monitoring and permafrost management efforts, is intended to build resilience in the face of climate change, ensuring the safety and well-being of Fort McPherson's residents. These proactive adaptations illustrate Fort McPherson's commitment to safeguarding its community through both traditional knowledge and scientific monitoring, addressing climate challenges head-on to secure a sustainable future.[78]

Wildfires have been a major concern for communities in the Northwest Territories. In 2023, the neighbouring communities of Hay River and Kátł'odeeche First Nation faced significant challenges due to severe wildfires. The Kátł'odeeche First Nation, home to approximately 300 residents, and the nearby town of Hay River, with over 3,000 residents, were both evacuated in mid-May as wildfires threatened their safety.

The wildfire caused extensive damage, particularly to the First Nation, where more than a dozen buildings, including the band office, were destroyed. In response, both communities collaborated closely with territorial authorities to manage the crisis. The Government of Northwest Territories activated emergency management organizations to support the local response, providing resources for planning, coordination, and support to community emergency management operations.

As the immediate threat subsided, efforts shifted toward recovery and rebuilding. According to insurance estimates, the combined wildfire damage to Hay River and Yellowknife led to over $60 million in insurance claims, underscoring the extensive financial toll of the fires. The Department of Municipal and Community Affairs worked with the Kátł'odeeche First Nation to assess its damage and plan for recovery, including detailed damage assessments and environmental reviews to identify any spills or environmental hazards. Housing NWT began work to replace destroyed assets, such as housing units and the Judith Fabien Group Home.

This collaborative approach between Hay River, the Kátł'odeeche First Nation, and territorial authorities highlights the importance of coordinated emergency response and recovery efforts. By working together, the communities and their territorial counterparts have demonstrated resilience and a commitment to rebuilding in the face of natural disasters.

77 Ibid.
78 Ibid.

Food security and sustainable agriculture

Food security is another central focus for First Nations as climate change affects traditional food sources. The Ka'a'gee Tu First Nation in the Northwest Territories has initiated the Northern Agriculture Futures project to mitigate food insecurity by promoting local food production.[79] Through greenhouse and community garden projects, it aims to reduce dependency on imported foods, which can be both costly and unreliable due to supply chain disruptions. These initiatives also address cultural needs by enabling access to traditional foods, aligning with the community's commitment to food sovereignty.[80]

Similarly, the Northern Tutchone people of the Selkirk First Nation in Yukon have established the Keeping Our Traditions project.[81] This initiative aims to address the decline in salmon populations—a traditional food source—due to changing water temperatures and ecosystem dynamics. By focusing on traditional food practices, the project sustains youth engagement in harvesting and hunting, thus preserving cultural food practices that support dietary and cultural resilience.[82]

Traditional knowledge and capacity-building

Across Canada, First Nations communities integrate traditional knowledge into climate adaptation and capacity-building initiatives. The Climate Change Council of the Northwest Territories, for instance, provides a collaborative platform for Indigenous governments in the region to share adaptation strategies informed by traditional knowledge.[83] This council fosters a collective approach to climate adaptation, allowing communities to coordinate responses and exchange insights. By supporting intergenerational learning, it ensures that traditional knowledge is preserved and applied in climate-resilience efforts.

In another example, the Sahtú Youth Network, also in the Northwest Territories, trains youth in climate adaptation techniques and data collection.[84] This initiative empowers young community members by equipping them with both traditional ecological knowledge and scientific skills, fostering a new generation of climate leaders within the community. Integrating youth in adaptation efforts not only builds capacity but also ensures that climate adaptation strategies evolve with cultural continuity.[85]

Likewise, the Manito Aki Inakonigaawin framework used by Grand Council Treaty No. 3 in Ontario highlights how traditional governance structures can inform contemporary climate adaptation. Beyond environmental stewardship, this framework supports non-First Nations capacity-building by embedding First Nations knowledge into governance and land-use policies applicable to all partners and stakeholders in the Treaty No. 3 region.[86] Such initiatives ensure that First Nations knowledge informs sustainable development, illustrating the strength of combining First Nations governance with climate adaptation strategies.

79 Van De Woestyne, *'Reimagining' the future of agriculture in Northern Canada.*
80 Price and others, *Agroecology in the North.*
81 Arctic Institute of Community-Based Research, *Selkirk First Nation Project.*
82 Selkirk First Nation and Arctic Institute of Community-based Research, *Adapting to Climate Change and Keeping Our Traditions.*
83 Government of Northwest Territories, *Climate Change Council.*
84 Wohlberg, *Sahtú youth research impacts of climate change on land, livelihood through new network.*
85 Sahtú Youth Network, *Sahtú Youth Network.*
86 Grand Council Treaty #3, *Manito Aki Inakonigaawin.*

Conclusion

Examining these initiatives across Canada reveals several common strategies that enhance resilience and support First Nations self-determination in climate adaptation. First, First Nations communities often integrate traditional knowledge with scientific methods to monitor environmental changes and inform climate-responsive infrastructure planning. For example, the Liidlii Kue First Nation's adaptation study combines First Nations knowledge with scientific data to track permafrost changes, similar to the TWN's use of Coast Salish principles in environmental monitoring. This combination provides a more comprehensive approach to managing climate impacts on the land.

Health and community safety also feature prominently in adaptation efforts. Fort McPherson and other Northwest Territories communities' local environmental monitoring and resilience assessment procedures show how First Nations address climate-driven health risks with both preventive and responsive strategies. These initiatives underscore the critical connection between environmental justice, health resilience, and community-led safety measures.

Initiatives like the Ka'a'gee Tu First Nation's agriculture project and the Keeping Our Traditions project in Yukon also demonstrate the importance of food sovereignty in climate adaptation. By promoting sustainable local food sources, First Nations communities are reducing dependency on imported goods while preserving traditional diets and food practices. This approach not only addresses nutritional needs but also fosters cultural resilience.

Capacity-building is a final common theme, with councils and initiatives like the Climate Change Council and the Sahtú Youth Climate Leadership Initiative in the Northwest Territories supporting intergenerational knowledge transfer and climate literacy. These programs illustrate the value of preparing future leaders in climate resilience, ensuring that adaptation strategies are both sustainable and culturally relevant.

First Nations communities across Canada are leading climate adaptation efforts with approaches that prioritize cultural continuity, community empowerment, and First Nations governance. From monitoring environmental changes to fostering health resilience and food sovereignty, these initiatives provide a model for climate adaptation that respects both First Nations rights and environmental sustainability. This comparative analysis underscores the importance of First Nations-led adaptation models, demonstrating how First Nations across Canada are building resilience and collaborating with non-First Nations partners in ways that reflect and honour their unique cultural and environmental contexts.

2.6 Net-Zero

The 2030 Government of Canada Emissions Reduction Plan is an ambitious and achievable roadmap that outlines a sector-by-sector path for Canada to reach its emissions reduction target of 40% below 2005 levels by 2030 and net-zero emissions by 2050.[87] Investing in energy-efficient infrastructure on First Nations land is a key part of this plan. By improving their energy efficiency (reducing carbon emissions), First Nations can reduce their contributions to greenhouse gases, however it is worth noting that the total contribution by First Nations to Canada's emission profile is minimal. Net-zero initiatives also offer new economic opportunities for First Nations, such as participation in renewable energy projects.[88]

2.6.1 Economic impact assessment results

Investment spending net-zero is projected to generate $22.9 billion (in 2023 dollars) in gross national output over the next seven years. (See Exhibit 8.) This means that every dollar spent will add $1.80 to Canada's total output, which measures the total value of economic activity. When accounting for only the added value of economic activity, the investment will generate $10.9 billion in GDP for Canada, all of which will be in the capital phase of the project.

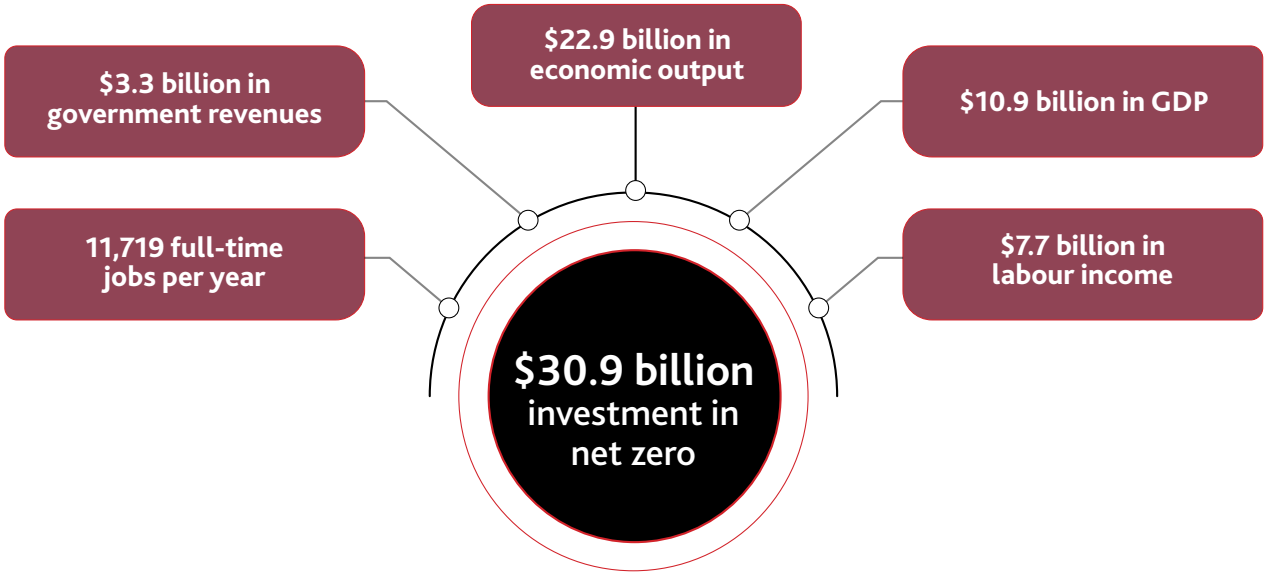
It is estimated that the spending will support nearly 82,035 jobs nationwide over the next seven years, equivalent to 11,719 jobs per year.[89] In all, 35 per cent of jobs will be in residential construction, followed by 12 per cent in retail trade, 10 per cent in manufacturing, and 6 per cent in professional, scientific, and technical services. The spending on net-zero will generate $7.0 billion in labour income.

In addition, $3.3 billion will be generated in government revenues over the next seven years, with $1.6 billion added to federal taxes, $1.1 billion to provincial taxes, and $599.3 million to municipal taxes. The overall contribution to government revenues equates to $0.26 in tax revenues for every dollar invested in net-zero.

87 Government of Canada, *2030 Emissions Reduction Plan: Clean Air, Strong Economy.*
88 Whyte, *Indigenous Climate Change Studies.*
89 Jobs are measured in person-years of employment, which represents the number of full-time jobs in a one-year period. In real terms, this could be one person working for a full year or four people working for three months. Also, if one person works a job for seven years, that counts as seven jobs in total.

Exhibit 8: Total economic impact of $12.7-billion spending on net-zero over seven years

(total economic impact from 2023 to 2030)*



*Includes direct, indirect, and induced impacts
Source: The Conference Board of Canada.

2.6.2 Long-term socio-economic benefits

First Nations leadership and environmental stewardship

Over the past two decades, First Nations communities and organizations have been leading renewable energy projects. Currently, the First Nations, Métis, and Inuit population are beneficiaries of almost 20 per cent of Canada's electricity-generating infrastructure, and the majority of the infrastructure produces renewable energy.[90] The number of medium- and large-scale renewable energy projects, including hydro, wind, solar, and bioenergy, with First Nations involvement, including sole-ownership, co-ownership, and defined financial benefits, has grown by 29.6 per cent since 2017.[91]

Smaller First Nations clean energy projects are also gearing up. According to Indigenous Clean Energy estimates, 1,700 to 2,100 micro and small renewable energy systems are led by Indigenous leadership and partnerships.[92] Indigenous leadership in clean energy projects fosters environmental stewardship by aligning traditional knowledge with sustainable practices leading to environmental and community health in the long term. For instance, the T'Sou-ke First Nation Solar Project in British Columbia represents the commitment to environmental stewardship. For the solar project, T'Sou-ke installed a

90 Canadian Institute for Climate Choices, *Waves of Change*.
91 Ibid.
92 Indigenous Clean Energy, *Accelerating Transition*.

total of 440 photovoltaic solar panels that provide 75 kw of power.[93] In fact, their self-reliant energy grid spared them from blackouts to the ice storm a roughly a decade ago. By shifting from reliance on fossil fuels to renewable solar energy, the project significantly reduces the community's carbon footprint. The surplus energy exported to the provincial grid offsets emissions elsewhere, amplifying the socio-economic impact.

Energy independence and cost savings

Energy prices in remote communities are on average higher than in the rest of Canada, due to their reliance on diesel for electricity and heating.[94] The dependence on fossil fuels leaves remote communities vulnerable to fluctuating fuel costs, contributing to financial instability and restricting access to affordable energy. Diesel combustion also contributes to local environmental degradation, including air pollution, and is linked to public health issues such as respiratory illnesses.[95]

Investing in renewable energy systems and zero-emission technologies can reduce reliance on diesel, resulting in fewer greenhouse gas emissions and improved air quality.[96] Financially, such investments offer long-term savings by lowering fuel transportation and maintenance costs, while also generating revenue through energy production and job creation in the clean energy sector.[97]

Energy-efficient housing retrofits in First Nations also provide an opportunity to reduce energy consumption and cost savings. Canada's building sector accounts for approximately 18 per cent of national greenhouse gas emissions.[98] The socio-economic benefits of this investment are substantial. Projections suggest that deep retrofits and housing improvements in First Nations are estimated to generate $1 billion in household energy savings over a decade and boost home values by $11 billion.[99] Improving energy efficiency and transitioning to net-zero infrastructure aligns with Canada's emission goals, promotes energy independence, and boosts savings for the community.[100]

2.6.3 Vignette 5: Net-zero

Investment in net-zero initiatives is essential to enhancing energy efficiency and reducing carbon emissions in housing, non-residential buildings, vehicles, and utilities within First Nations communities, while acknowledging the gap in housing stock facing First Nations. Proposed upgrades include installing energy-efficient LED lighting, improving building insulation, installing high-performance windows and doors, upgrading heating systems, using biocovers in place of traditional landfill covers, and transitioning to electric vehicles. These and other relevant net-zero improvements will require a capital investment of $12.7 billion.[101]

93 Pai and Carr-Wilson, *Towards 'Total Transition'*.
94 Pembina Institute, *Diesel Subsidies*.
95 Chang and others, *Chronic respiratory disease in Indigenous peoples*.
96 Pembina Institute, *Diesel Reduction Progress in Remote Communities*.
97 Pembina Institute.
98 Natural Resources Canada, *The Canada Green Buildings Strategy*.
99 Ibid.
100 A deep retrofit refers to a comprehensive renovation of a building aimed at significantly improving its energy efficiency and overall performance.
101 Assembly of First Nations, *Closing the Infrastructure Gap by 2030*.

The Atlin Hydro Project, the Simpcw First Nation's Net-Zero Housing Project, and the Atikamekw of Wemotaci Electrification Project illustrate how First Nations-led infrastructure projects can pioneer sustainable, net-zero solutions while fostering economic independence and community resilience.

The Atlin Hydro Project was completed in 2009 by the Taku River Tlingit First Nation in Atlin, British Columbia. This hydroelectric project was designed to harness the power of nearby lakes to meet the energy needs of the community. Before the project's completion, the Taku River Tlingit community relied on over 1.2 million litres of diesel fuel annually. Now, nearly all energy comes from hydroelectric power, reducing greenhouse gas emissions by 99 per cent and dramatically boosting the community's energy independence.

Completed in 2023 in partnership with Paradigm Modular Homes, the Simpcw Net-Zero Housing Project involved constructing 15 energy-efficient homes to address high-energy costs and the need for durable, eco-friendly housing. These homes are designed to minimize energy consumption, promoting self-sufficiency and environmental stewardship, while alleviating health risks associated with poor housing conditions.

In 2002, an agreement was made with Hydro-Québec to bring electricity to the entire community of Wemotaci in Quebec. This connected the community to Hydro-Québec's hydroelectric power grid, which significantly reduced carbon emissions. Previously, the community relied on diesel fuel for energy, which produces significantly higher emissions than hydroelectricity. The community began switching heating systems in public facilities, like the arena, to electric, and is now replacing oil-based heating with electric in both public and residential buildings.

Community-driven approach and cultural preservation

The Atlin Hydro Project, Wemotaci Electrification Project, and Simpcw Net-Zero Housing Project all exemplify distinct approaches to net-zero infrastructure development in First Nation communities, reflecting unique community priorities and cultural values.

The Atlin project, fully owned by the Taku River Tlingit First Nation, ensured that economic benefits stayed within the community, empowering local decision-making and aligning with community priorities for self-sufficiency and economic independence. Similarly, the Simpcw project, led by the Simpcw First Nation, focused on meeting community housing needs while fostering self-reliance. Both projects maximized local benefits and strengthened governance by being community-led. For its part, the Wemotaci project, developed with Hydro-Québec, met a vital need for sustainable energy. Although not entirely community-led, it effectively combined external support with local input to meet shared environmental goals.

The Atlin project integrated traditional knowledge and values through active community involvement, strengthening the Taku River Tlingit people's connection to their land and heritage. The Simpcw project similarly promoted cultural continuity by encouraging members to return to their traditional lands and engage in community life through sustainable housing.

"We have away-from-home members wanting to move back, and now we have space. The new ranch we bought, and everything is going to tie into bringing more people home." – Chief George Lampreau, Simpcw First Nation, B.C.

The Wemotaci project, while a partnership effort, allowed the Atikamekw community to live sustainably on their traditional lands, aligning with First Nations values of environmental care. Each project supported cultural practices and reinforced ties to the land, preserving community identity amid modernization efforts.

Partnerships and funding

In terms of partnerships and funding, each project used different sources of support and agreed that partnerships were necessary to these infrastructure projects.

> *"Partnerships are huge for us. When we have opportunities like that, we like to take advantage and form the necessary partnerships." – Chief George Lampreau, Simpcw First Nation, B.C.*

The Atlin project combined government funding, community investments, and an energy purchase agreement with BC Hydro, ensuring financial stability. External consultants provided technical expertise throughout. The Simpcw project partnered with Paradigm Modular Homes and combined own-source funding with government support from ISC, enabling the community to oversee and direct the project efficiently. The Wemotaci project also benefited from its partnership with Hydro-Québec, and this partnership has paved the way for a larger-scale project involving the installation of a $9-billion wind farm in the Saguenay–Lac-Saint-Jean region. Announced in July 2024, this new wind farm project is a partnership among the Pekuakamiulnuatsh First Nation, Atikamekw of Wemotaci, the Municipality of Domaine-du-Roy, and Hydro-Québec.[102] The wind farm project is set to begin in August 2025 and could accommodate up to 3,000 MW of wind power capacity and include several wind farms with investments totalling $9 billion. Construction is scheduled to begin in 2028, with an expected completion date of 2030. By becoming shareholders in the projects, the First Nations communities and the municipality will be able to benefit from independent revenues.

Skills development and economic gains

Skills development and economic gains were important outcomes of these projects, with each generating unique benefits.

> *"We wanted a project that would bring in revenue to the First Nation, create jobs and capacity through employment and training, and be a sustainable source of own-source revenue … it met a lot of sustainable economic development goals." – Stuart Simpson, Original Development Officer, Project Lead, and Manager, Taku River Tlingit First Nation, B.C.*

The Atlin project created significant economic impact, generating around $2 million annually, which supports job creation, skills training, and broader community development initiatives. Training in trades, project management, and environmental stewardship expanded local capacity. The Simpcw project also created short-term construction jobs and provided skills in trades and project management, establishing a foundation for future expansion in the community. The Wemotaci project lowered energy costs and increased local employment opportunities by requiring contractors to hire Atikamekw members.

Profits from these projects were used to support expansions into other sectors, particularly for the Atlin project and the Simpcw project. The $2 million in annual revenues from the Atlin project helped fund

102 CBC News, *Hydro-Québec announces $9B wind power project, one of the largest in North America.*

housing, skills-training, and secured $20 million in grants for further renewable energy projects. The Simpcw project fostered economic growth and skills development, supporting future housing expansion and food security initiatives, such as a community-owned ranch for self-sufficiency. For its part, the Wemotaci project focused on reducing energy costs and creating local jobs but did not generate re-investable profits for expansion into other sectors.

> *"We wanted 100 per cent Indigenous ownership of this project, to ensure all profits are reinvested in our community's goals, like education, employment, and housing." – Stuart Simpson, Original Development Officer, Project Lead, and Manager, Taku River Tlingit First Nation, B.C.*

Each of these three First Nations projects brought benefits to surrounding non-First Nations communities and the broader region, albeit in different ways. The Atlin project not only provided renewable energy to the Taku River Tlingit First Nation but also supplied surplus energy that contributed to the regional grid, benefiting non-First Nations communities in terms of reliable, clean power. This shift away from diesel reduced regional air pollution, creating environmental benefits beyond the First Nation. The project also created jobs that involved local contractors, some of whom were non-First Nations, boosting the regional economy.

For the Wemotaci project, the transition from diesel to hydroelectric power in the Atikamekw community of Wemotaci indirectly supported regional environmental goals by lowering overall carbon emissions. By reducing the community's dependency on diesel, the project contributed to regional air quality improvement, benefiting surrounding areas. Non-First Nations contractors and suppliers were also engaged in various phases, providing economic benefits to nearby towns.

The Simpcw project generated regional economic growth through job creation during the construction phase, employing both First Nations and non-First Nations workers. This influx of activity brought business to local suppliers and contractors, strengthening the local economy. As more community members returned home due to improved housing, regional demand for goods, services, and infrastructure also increased, positively impacting nearby businesses and contributing to regional economic vitality.

In all three cases, the projects strengthened economic ties, reduced environmental impact, and supported local employment, benefiting both First Nations and non-First Nations communities in the region.

Environmental sustainability and stewardship

Environmental sustainability and stewardship were central to all three projects, each addressing carbon reduction and energy efficiency. The Atlin project shifted the community from diesel fuel to renewable hydroelectric power, reducing greenhouse gas emissions by 99 per cent and embodying First Nations principles of environmental care and sustainable resource management. Similarly, the Wemotaci project replaced diesel power with hydroelectricity in public and residential buildings, reducing the community's dependence on fossil fuels and its carbon footprint. The Simpcw project-built homes to net-zero standards, producing as much energy as they consume, aligning with sustainability goals and climate change mitigation efforts.

Conclusion

In conclusion, each project achieved notable successes in enhancing sustainability, economic growth, and cultural resilience while also benefiting nearby non-First Nations communities. The Atlin Hydro Project has had a transformative impact through its revenue generation and skills-building initiatives, providing a sustainable economic foundation while supplying clean energy to the regional grid and creating jobs involving local contractors. The Wemotaci Electrification Project effectively addressed immediate energy needs and environmental goals, improving air quality and reducing pollution for surrounding areas, though it has not delivered the same kind of revenue-generating opportunities as Atlin. The Simpcw Net-Zero Housing Project integrated modern housing solutions with cultural preservation, improving living conditions, supporting community continuity, and stimulating local economies by increasing demand for regional goods and services. Collectively, these projects demonstrate how First Nations-led infrastructure initiatives can balance environmental goals, economic growth, cultural integrity, and regional benefits.

2.7 Education

The Assembly of First Nations found that 202 First Nations schools are overcrowded and require additions (38 per cent) and an additional 56 require immediate replacement (11 per cent). The lack of adequate education facilities are combined with continued teacher shortages, lower levels of funding, and a reduced quality of education.[103] As a result, First Nations students experience reduced skills development, limited opportunities, and a diminished sense of self-worth.[104] In 2021, 52.2 per cent of First Nations individuals aged 18 to 24 on reserve and 73.3 per cent off reserve had a high school diploma or equivalent, compared with 89.6 per cent of non-First Nations individuals in the same age group, highlighting the persistent gap in educational attainment.[105]

Closing the educational gap will require a $12.6-billion investment, $8.0 billion in capital and $4.6 billion in O&M.[106] This investment will go toward replacing outdated schools, ensuring on-reserve housing for teachers, and upgrading current facilities.[107] While ensuring the longevity of schools and teacherages is crucial, they must also be culturally appropriate for First Nations communities.

2.7.1 Economic impact assessment results

Investment spending on education is projected to generate $22.4 billion (in 2023 dollars) in national output over the next seven years. (See Exhibit 9.) This means that every dollar spent will add $1.77 to Canada's total output, which measures the total value of economic activity. When accounting for only the added value of economic activity, the investment will generate $11.3 billion in GDP for Canada: $6.8 billion during the capital phase and $4.5 billion during the O&M phase.

103 Indigenous Services Canada, *Let's talk on-reserve education.*
104 Ibid.
105 Statistics Canada, *Status First Nations people in Canada.*
106 Assembly of First Nations, *Closing the Infrastructure Gap by 2030.*
107 Ibid.

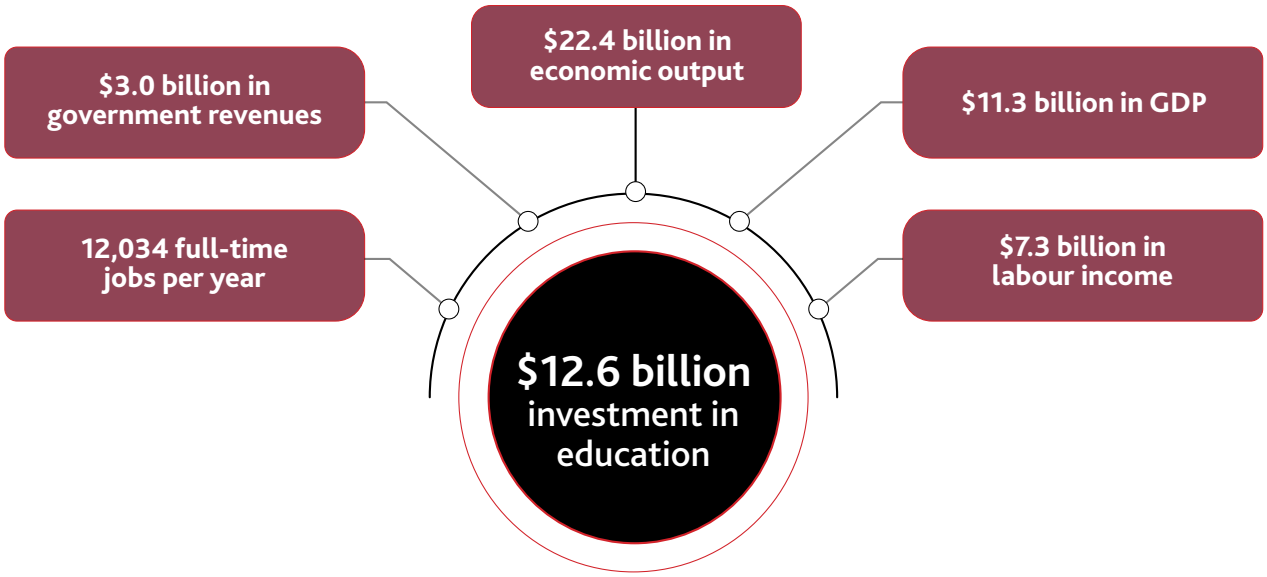
It is estimated that the spending will support nearly 84,240 jobs nationwide over the next seven years, equivalent to 12,034 jobs per year.[108] One-quarter of jobs will be in non-residential building construction, 14 per cent in administrative and support, and waste management and remediation services, 9 per cent in retail trade, and 7 per cent in professional, scientific, and technical services. The spending on education will generate $7.3 billion in labour income.

In addition, $3.0 billion will be generated in government revenues over the next seven years, with $1.5 billion added to federal taxes, $1.1 billion to provincial taxes, and $440.6 million to municipal taxes. The overall contribution to government revenues equates to $0.24 in tax revenues for every dollar invested in education.

Exhibit 9: Total economic impact of $12.6-billion spending on education over seven years

(total economic impact from 2023 to 2030*)

*Includes direct, indirect, and induced impacts
Source: The Conference Board of Canada.



108 Jobs are measured in person-years of employment, which represents the number of full-time jobs in a one-year period. In real terms, this could be one person working for a full year or four people working for three months. Also, if one person works a job for seven years, that counts as seven jobs in total.

2.7.2 Long-term socio-economic benefits

Improved productivity

The link between educational attainment and individual labour market outcomes has been well established in the literature.[109] In particular, investments in human capital make individuals more productive by developing knowledge and skills needed in the workforce. As a result, higher education leads to higher income, improved employment opportunities, and higher living standards. Specifically, in 2018, 92 per cent of Indigenous women who graduated with a bachelor's degree or higher in 2015 were employed. This is significantly higher than the 78 per cent employment rate among Indigenous women with degrees below the bachelor level.[110]

In addition, education builds skills within First Nations that can drive economic development. With more qualified and skilled workers, First Nations can leverage their own resources to create a self-sustaining economy, reducing dependence on non-First Nations businesses.

Cultural preservation

Improving educational opportunities for First Nations individuals will also aid in the preservation of languages and cultural practices.[111] The proportion of First Nations people who can speak an Indigenous language has been steadily decreasing in recent years. In 2016, 44.9 per cent of First Nations individuals living on reserve could speak an Indigenous language compared with 13.4 per cent living off reserve. In 2021, these percentages fell to 39.8 per cent for those living on reserve and 8.0 per cent for those living off reserve.[112] Investing in education programs that incorporate First Nations languages and traditions will play a crucial role in cultural preservation, ensuring that these vital aspects of identity are passed down to future generations.

2.7.3 Vignette 6: Education

Investment in education infrastructure is necessary to ensure First Nations have adequate educational facilities. This includes building and renovating schools—with provisions for outdoor learning—and constructing teacherages (on-reserve accommodations for teaching staff). In addition, training First Nation teachers from within their own communities is essential to reduce reliance on external educators who may lack local language skills and cultural understanding. Building this local capacity ensures students receive education that reflects their identity and values while easing housing pressures caused by incoming educators.

First Nations-led education infrastructure projects are reshaping the delivery of culturally relevant education in First Nations communities around the country. Four remarkable examples of this—the Mamawmatawa Holistic Education Centre in Constance Lake First Nation, Ontario, the Paul First Nation School in Alberta, the Kehewin Cree Nation in Alberta, and the Listuguj Mi'gmaq Government in Quebec—highlight the importance of schools that integrate First Nations culture into their everyday

109 Lauder and Mayhew, *Higher Education and the Labour Market*.
110 Arriagada, *The achievements, experiences and labour market outcomes of First Nations, Métis and Inuit women with bachelor's degrees or higher*.
111 Statistics Canada, *First Nations youth*.
112 Statistics Canada, *The Aboriginal languages of First Nations people, Métis and Inuit*.

operations. The schools go beyond traditional educational roles, serving as community hubs and providing tailored programs and services that support student well-being and cultural identity.

The Mamawmatawa Holistic Education Centre project was led by the Constance Lake First Nation in Ontario. It serves 250 to 300 students from Kindergarten through Grade 12. The school was built in 2000 to improve local access to education, eliminating the need for students to travel up to 40 km to attend school in neighbouring communities. The holistic model includes supportive programs like hot breakfast and lunch services, aiming to create a nurturing educational environment that helps students focus on their studies regardless of home circumstances. Nearly half of the teaching staff are First Nations. The school's curriculum integrated First Nations values and cultural learning.

The Paul First Nation Project involved building a modern school that opened in 2020 to support both cultural preservation and community engagement. The school serves approximately 470 students from Kindergarten to Grade 9. Despite challenges with subcontracting and limited local hiring, the project resulted in a school that provided much-needed space for cultural and language programs, including Cree language instruction and land-based learning. The school also implemented programs for students to engage in traditional practices, like hand drumming and dance.

The Kehewin Cree Nation project built a new school and opened it during the COVID-19 pandemic to meet both educational and cultural needs within the community. The school serves 320 students, offering classes from Kindergarten through Grade 12. The school incorporates Cree language classes, cultural activities such as powwow dancing, and a hot meal program. The project prioritized student well-being, with programs designed to connect students with their cultural roots. This new facility became a cornerstone for cultural continuity and community pride, positively impacting educational outcomes and family involvement.

The Listuguj Mi'gmaq Government Education project focused on expanding and improving the Alaqsite'w Gitpu School facilities to address growing educational needs, increase student capacity, and incorporate more space for cultural activities. The school serves approximately 250 students from Nursery to Grade 8. Initiated in 2018 with design planning, the expansion/construction of this project began in 2019 and concluded in 2020, amounting to a $7-million investment. The expansion has provided a comprehensive environment more conducive to teaching outdoor education and technology, cultural engagement, and community involvement (e.g., a gym that is open to community members year-round).

Community-driven approach and cultural preservation

The four First Nations—Constance Lake, Paul Nation, Kehewin, and Listuguj Mi'gmaq Government—used a community-led approach in their infrastructure projects by involving local members in the planning, design, and construction of their school buildings. Cultural preservation was at the heart of these projects.

In Constance Lake, community leadership ensured that nearly half of the teaching staff came from within the First Nation, creating a school environment where students saw their own culture reflected in the faculty and curriculum. The involvement of local families, the hiring of First Nations teachers, and the creation of a parent–teacher ad hoc committee were crucial in ensuring that the community felt ownership over the school.

"Coming to a school where you recognize yourself spiritually, emotionally, and physically helps students immensely. About 50 per cent of our teachers are First Nations, and this makes a real difference." – Gaetan Baillargeon, Education Director, Constance Lake First Nation, Ont.

Paul Nation's project focused on designing spaces for hands-on cultural programs, such as land-based learning and traditional drumming, which connected students to their heritage within the school setting. By actively integrating community input and honouring local traditions, each First Nation shaped educational spaces that aligned with cultural values and supported a strong sense of identity and belonging. The Chief and Council along with other community members were involved with major decisions about the new school.

"It was up to Chief and Council and their community, things that they did about the naming of the school and where the school would go … community leaders and members were deeply involved in key decisions, ensuring the project reflected local values and needs." – Nicole Callihoo, Education Director, Paul First Nation, Alta.

The Kehewin project engaged community leaders and families to prioritize Cree language instruction and traditional practices, creating a school culture that preserved First Nations identity and involved parents and Elders in activities.

"Here in the community, the idea was to always, you know, maintain the culture, maintain the language as best as possible." – William John, Band Administrator, Kehewin Cree Nation, Alta.

The Listuguj Mi'gmaq Government used a community-led approach for the Alaqsite'w Gitpu School expansion, actively involving community members in the project's planning and implementation stages. They hosted presentations in 2018 where community members reviewed project plans and preliminary designs and provided feedback. This inclusive approach ensured that the project aligned with community educational and cultural priorities, highlighting the Listuguj Mi'gmaq Government's commitment to collaborative development.

"We have in our tender policy also [things] like inclusion of the contractor [being] obliged like for 30 per cent of our local workforce." – Bassem Abdrabou, CEO and Director of Infrastructure, Listuguj Mi'gmaq Government, Que.

Each First Nation's school project prioritized cultural representation and community involvement, creating educational spaces that reflect First Nations identity and values. From hiring First Nations staff and incorporating local language instruction to involving community leaders in planning and decision-making, these projects fostered environments where students see their heritage honoured and actively preserved within their schools.

Partnerships and funding

These four school projects illustrate diverse funding and management structures that influenced the level of local community involvement and control. While Constance Lake achieved significant community control and Listuguj implemented local workforce policies, Kehewin and Paul Nation were limited by their reliance on external contractors, showcasing both the challenges and essential role of partnerships in driving successful, community-centred educational infrastructure.

In Constance Lake, federal funding was directed to the First Nation itself and managed by the Constance Lake Education Authority, providing the community with substantial control over the project's planning and implementation. This local management, however, still required additional funding from Ontario to cover non-academic needs, such as a hot meal program, highlighting the necessity for external support in certain areas.

The Kehewin project followed a different path, initially seeking funding from both provincial and federal sources before receiving support from ISC. While the project maintained some community involvement, it relied heavily on non-First Nations contractors like Genmec for construction, limiting opportunities for local hiring. Nonetheless, the involvement of nearby companies provided economic benefits to surrounding communities by generating local employment and revenue.

In the Paul Nation's project, funding and management were largely federally controlled, with the contract awarded to the lowest-bidding company. This arrangement posed challenges, as the contractor hired only a minimal number of local First Nations workers and frequently subcontracted work, which complicated project oversight and increased post-construction maintenance issues. The reliance on subcontracting reduced community involvement and made it difficult to ensure quality, highlighting the challenges of federally managed, low-bid funding models in meeting community-driven goals.

The Listuguj Mi'gmaq Government's school expansion project was fully funded by ISC, involving a $7-million investment. The expansion included the addition of eight new classrooms, a cafeteria, and an expanded gymnasium, significantly enhancing the educational facilities for the community. The project adhered to the community's tender policy, which mandates that contractors ensure 30 per cent of the project workforce consists of local community members.

Each project navigated different funding and management structures that influenced the degree of local involvement, with Constance Lake achieving the highest level of community control, Kehewin balancing external contractors with community input, and the Paul Nation community facing limitations due to a federally managed, lowest-bid approach. Although, there were challenges expressed in the various funding situations, the interview participants agree that partnerships were paramount to the projects.

"Without those partnerships, we're dead in the water. We don't get enough funding for all of those things. We just don't." – *Nicole Callihoo, Education Director, Paul First Nation, Alta.*

Skills development and economic gains

School infrastructure projects across First Nations communities, such as Constance Lake, Paul Nation, Kehewin, and Listuguj, have created substantial local employment opportunities, improved skills development, and contributed to economic growth. By prioritizing community-led approaches and partnerships with neighbouring non-First Nations businesses, these projects have boosted local economies, supported job creation, and strengthened regional economic ties.

The Constance Lake project provided local employment opportunities during the building phase and by hiring First Nations staff for teaching, daycare, and administrative roles, boosting the local economy and creating sustainable job opportunities within the community. Constance Lake members who were employed during the construction project phase had opportunities to build project management and carpentry skills.

In the Paul Nation's project, due to the limited hiring of local workers, fewer direct economic gains were felt by the community from the construction phase. The new school facility fostered educational growth and cultural skills-building, which had a long-term positive effect on students' educational experiences.

> *"We've had a lot of families here who are getting their children back from care, immediately enrolling them in our new school because of our focus on language, culture, and traditional teachings. It's a place where students feel truly supported and can thrive."* – ***Nicole Callihoo, Education Director, Paul First Nation, Alta.***

The Kehewin school has become the largest employer on the reserve, with a range of staff positions funded through programs like Jordan's Principle. The school's emphasis on high teacher retention and competitive pay contributed to local employment stability and helped many community members find work in the education sector.

> *"The school is by far the biggest employer on the reserve. We have upwards of 63 people employed within the Education Department. Most of our support workers are members from the community. The school [plays a] significant role in providing local employment and supporting the community's economic development."* – ***William John, Band Administrator, Kehewin Cree Nation, Alta.***

The Listuguj Mi'gmaq school expansion project brought substantial skills development and economic benefits to both the First Nations and neighbouring non-First Nations communities. The interview participant highlighted that one challenge that the local construction workers face in terms of skills development is the lack of recognition from funders and regulatory bodies in the construction industry.

> *"I would say like one of the most important challenges that we still have to work on is getting our workforce recognized by funders and by regulatory bodies in the area … so it is really hard like to get our workforce recognized."* – ***Bassem Abdrabou, CEO and Director of Infrastructure, Listuguj Mi'gmaq Government, Que.***

The use of a community-driven tender policy in the Listuguj Mi'gmaq project requiring contractors to employ at least 30 per cent of their workforce locally allowed community members to gain valuable construction skills, fostering long-term workforce development within Listuguj. The $7-million investment directly boosted the local economy by employing First Nations contractors and purchasing materials from nearby businesses, providing an economic lift for non-First Nations communities during COVID-19. The project stimulated entrepreneurship with new businesses emerging in landscaping, equipment rentals, and other construction-related services, further supporting both First Nations and non-First Nations economies. This approach ensured that the project not only improved educational infrastructure but also delivered broad, lasting economic gains across the region.

Environmental sustainability and stewardship

The four school projects—Constance Lake, Paul First Nation, Kehewin, and the Listuguj Mi'gmaq Government—each incorporated environmental stewardship through land-based education and traditional practices, though each approach differed in focus and implementation.

The Constance Lake school emphasized outdoor learning spaces alongside environmental education, providing students with direct engagement with the land. This model fostered a general respect for nature and sustainable living principles by teaching students to view the environment as an integral part of their lives and education. Teaching students to respect nature aligns with First Nations ways of knowing and being in the world. The school's Education Director, Gaetan Baillargeon, explains that the students feel seen and comfortable in their new school building.

> *"People feel proud of where they're going instead of having a school that's falling apart.… It's helping a lot because when kids look at the school, they feel comfortable, and they feel seen."*
> *– Gaetan Baillargeon, Education Director, Constance Lake First Nation, Ont.*

The Paul Nation's school also dedicated space for land-based learning because there is more space to do so now in the new school building. There's a broader goal in the curriculum of intertwining cultural and environmental teachings, using experiential learning approaches. This integration aimed to build students' awareness of both cultural values and environmental responsibility, encouraging a balanced approach to caring for the land that went beyond practical skills to emphasize a holistic sense of stewardship. Land-based learning activities have had a profound impact on the students, helping them connect with their culture and traditions in meaningful ways.

> *"Our boys [students] have gone out, they brought a moose home and got to process it here at the school. And then our hot lunch program used the meat for our program. That's the enrichment of cultural programs and hands-on learning experiences provided by land-based education." – Nicole Callihoo, Education Director, Paul First Nation, Alta.*

The Kehewin school also took a more hands-on approach, integrating specific land-based programs where students learned practices like hunting and processing local game, which were then incorporated into the school's meal programs. This approach connected students with sustainable resource use, promoting respect for natural cycles and instilling an understanding of how traditional practices can support community needs in a sustainable way.

The Listuguj Mi'gmaq school expansion project emphasized environmental sustainability and stewardship as core values, integrating efforts to design and build facilities that minimized environmental impact and aligned with sustainable principles. The project incorporated environmentally friendly materials and focused on creating long-term, energy-efficient infrastructure for future generations. It also emphasized educating students about environmental stewardship while simultaneously incorporating technology, aiming to instill a sense of responsibility toward the land and natural resources through the curriculum and school activities, which is similar to the Constance Lake project. This dual focus on sustainable building practices and environmental education reflects a holistic approach to sustainability within the community's educational goals.

In all four projects, environmental stewardship was grounded in First Nations traditions, yet each school tailored its programs to align with specific community values: Constance Lake and the Listuguj Mi'gmaq focused on outdoor and experiential education, Paul Nation blended cultural and environmental teachings to instill a comprehensive understanding of land stewardship, and Kehewin emphasized sustainable food practices.

Conclusion

All four projects achieved substantial benefits in education, cultural preservation, and local employment, contributing to community resilience. The Constance Lake project was particularly successful in creating a culturally integrated, community-led school environment that reinforced First Nations identity. The Paul First Nation's project was transformative for student engagement, as the expanded space allowed for rich cultural programming that connected students with their heritage. The Kehewin project significantly impacted employment, making it the reserve's largest employer and supporting ongoing engagement with nearby communities. The Listuguj Mi'gmaq education project promoted cultural representation, enriched the curriculum, and boosted economic growth by integrating First Nations identity and using a community-driven approach for sustainable benefits. Collectively, these projects demonstrate how First Nations-led educational initiatives can promote cultural preservation, generate economic benefits for both community members and nearby non-First Nations businesses, and foster environmental stewardship within First Nations communities and their surrounding regions.

2.8 Digital Connectivity

In its report, *Closing the Infrastructure Gap by 2030*, the Assembly of First Nations found that 457 First Nations (61 per cent) of the 748 studied did not have access to high-speed internet. These findings are consistent with existing literature, indicating that nearly 60 to 66 per cent of First Nations do not have reliable access to high-speed internet.[113] By contrast, roughly 98 per cent of homes in urban areas of Canada have such access.

Digital connectivity can improve education outcomes, increase access to healthcare services, facilitate the preservation of First Nations cultures and languages, foster entrepreneurship, and create employment opportunities. The Assembly of First Nations estimates that $5.2 billion is needed to provide digital connectivity for all First Nations communities.[114] This investment includes providing wired and mobility wireless connectivity to First Nations and installing necessary fibre backbone across the nation.

2.8.1 Economic impact assessment results

Investment spending digital connectivity is projected to generate $8.4 billion (in 2023 dollars) in national output over the next seven years. (See Exhibit 10.) This means that every dollar spent will add $1.62 to Canada's total output, which measures the total value of economic activity. When accounting for only the added value of economic activity, the investment will generate $3.7 billion in GDP for Canada, all of which will be in the capital phase of the project.

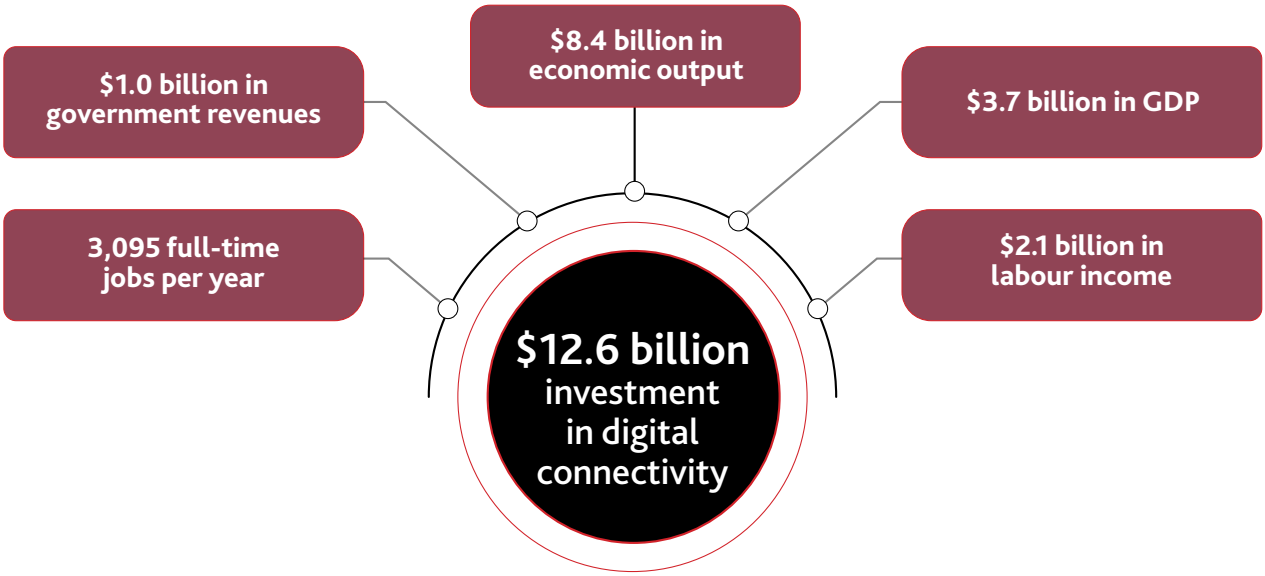
It is estimated that the spending will support 21,663 jobs nationwide over the next seven years, equivalent to 3,095 jobs per year.[115] One-fifth of jobs will be in engineering construction, followed by 14 per cent in information and cultural industries, 13 per cent in professional, scientific, and technical services, and 9 per cent in retail trade. The spending on digital connectivity will generate $2.1 billion in labour income.

In addition, $989 million will be generated in government revenues over the next seven years, with $539.7 million added to federal taxes, $367.1 million to provincial taxes, and $82.7 million to municipal taxes. The overall contribution to government revenues equates to $0.19 in tax revenues for every dollar invested in digital connectivity.

113 Schrumm, *Building Bandwidth*; and Assembly of First Nations, *Closing the Infrastructure Gap by 2030.*
114 Assembly of First Nations, *Closing the Infrastructure Gap.*
115 Jobs are measured in person-years of employment, which represents the number of full-time jobs in a one-year period. In real terms, this could be one person working for a full year or four people working for three months. Also, if one person works a job for seven years, that counts as seven jobs in total.

Exhibit 10: Total economic impact of $5.2-billion spending on digital connectivity over seven years

(total economic impact from 2023 to 2030)*



*Includes direct, indirect, and induced impacts
Source: The Conference Board of Canada.

2.8.2 Long-term socio-economic benefits

Bringing education to First Nations

Digital connectivity can improve education in First Nations by providing access to a range of online learning opportunities. Proximity to an educational institution is positively associated with educational attainment, since proximity has been linked to lower costs of schooling, more community support, and the presence of role models or mentors who have also pursued education.[116] Digital connectivity enhances education outcomes by bringing learning opportunities to First Nations and removing the cultural barriers and lack of social support linked to leaving the community to pursue education.

In 2016, 91 per cent of Canadians aged 20 to 24 in the non-Indigenous population had completed high school, with 70.8 per cent of First Nations living off reserve and 45.5 per cent living on reserve.[117] This disparity is likely related to access, as nearly half of First Nations students lack a high school on their reserve and must leave their community to pursue education. Around 95,000 First Nations individuals aged 5 to 19 live on reserve.[118] With roughly two-thirds of First Nations lacking stable internet access, an estimated 63,300 First Nations youth could benefit from improved connectivity.

116 Layton, *Distance as a Factor for First Nations, Métis, and Inuit High School Completion.*
117 Anderson, *Chapter 4: Indigenous Youth in Canada.*
118 Statistics Canada, *Indigenous Population Profile, 2021 Census of Population.*

The Keewaytinook Internet High School (KiHS) provides virtual learning for some First Nations students on the Kuhkenah Network (K-Net).[119] KiHS's success has increased substantially since its inception in 1999. At the time of inception, other (non-virtual) First Nations high schools had a completion rate of 19 per cent, on average. However, by 2009–10 the KiHS program held a completion rate nearing 55 per cent, nearly three times higher.[120]

Access to healthcare

A higher proportion of First Nations individuals living on reserve reported being without a regular healthcare provider, compared with their non-First Nations counterparts. In 2018, the First Nations Regional Health Survey found that 21.3 per cent of First Nations people living on reserve reported not having a primary healthcare provider.[121] By comparison, only 14.5 per cent of the non-First Nations population cited such an issue from 2017 to 2020.[122]

Investment in digital connectivity would allow more First Nations individuals to seek medical expertise that would otherwise be very expensive to access. In 2005, Fort Severn received access to K-Net, an information and communication technologies service provided from First Nations people in Sioux Lookout. Before this development, medical care was accessible only by flight, with an average visit to a doctor in the city from Fort Severn costing over $1,200. In many cases children and the elderly are accompanied by an escort, which increases the average cost of visiting a doctor to over $3,000. The development of digital connectivity allowed for 105 doctor–patient consults via telehealth, saving almost $160,000 in one year.[123] In addition, improved access to healthcare could reduce wait times, reduce absenteeism (school or work), and lessen the burden on emergency rooms or local healthcare clinics.

Cultural preservation and community engagement

Digital connectivity has enabled several story-telling activities that support First Nations youth in Canada to articulate and understand their struggles related to their First Nations identity.[124] Digital connectivity can also be used to promote knowledge-sharing, empowerment, and provide a means to preserve culture. Many First Nations individuals film the stories and wisdom of Elders for future generations, and the resulting video documentaries are accessible through websites or shared through YouTube.[125]

Community members may be resistant to the introduction of technology, fearing it will threaten the preservation of their communities, history, and culture.[126] However, the investment in digital connectivity presents an opportunity for building self-determination in communities, through empowering and enabling communities to take ownership and control of the information and communications technologies in their own community.

119 Carpenter, *Utilizing Technologies to Promote Education and Well-Being.*
120 Potter, *Keewaytinook Internet High School.*
121 Graham and others, *First Nations, Inuit and Métis People Living in Urban Areas and Their Access to Healthcare.*
122 Yangzom and others, *Primary health care access among First Nations People living off reserve, Métis and Inuit, 2017 to 2020.*
123 Keewaytinook Okimakanak Research Institute, *C-Band Public Benefit Keewaytinook Okimakanak.*
124 Loebach and others, *Keyboard warriors?*
125 Hudson, *The Impact of Internet Access in Indigenous Communities in Canada and the United States.*
126 Yoo and others, *Internet Connectivity Among Indigenous and Tribal Communities in North America.*

Entrepreneurship and employment opportunities

Digital connectivity is vital for economic development. There is a clear positive link between broadband access and economic growth.[127] One study found that growth in GDP per capita is 2.7 to 3.9 per cent higher after the introduction of broadband.[128] The introduction of digital connectivity creates employment opportunities in the construction and maintenance of digital infrastructure and through access to online/virtual or telecommuting jobs.

Reliable, affordable digital connectivity is essential to support entrepreneurship among First Nations, where small and medium-sized businesses have grown steadily in recent years. Improved connectivity enables the use of point-of-sale systems and online banking, while expanding e-commerce opportunities—allowing artists to market their work, performers to promote events, and businesses to sell directly to consumers on- and off-reserve.

2.8.3 Vignette 7: Digital connectivity

For many rural and remote First Nations, digital connectivity depends on new investments in reliable backbone infrastructure, fibre-to-the-home, satellite internet, and LTE or 5G mobile services. Achieving the necessary telecommunications ecosystem will require a capital investment of $5.2 billion.[129]

The Clear Sky Connections Fibre Project, along with initiatives by Eeyou Communications and the Norway House Cree Nation, is leading a transformative shift in digital connectivity across First Nations communities in Canada. These projects address not only the technical need for high-speed internet but also the essential need for improved healthcare, education, and economic opportunities. By enabling virtual learning, telemedicine, local employment, and cultural preservation, they're strengthening community resilience, supporting economic growth, and empowering First Nations communities to thrive while retaining cultural identity.

> *"Connectivity is foundational. It's about more than just broadband; it's about giving our communities access to healthcare, education, and economic opportunities. It's about empowering our people to thrive in today's world without losing who we are." – Sandra George, Project Management Team, Clear Sky Connections, Man.*

The Clear Sky Connections Fibre Project, initially launched in 2013 by the Assembly of Manitoba Chiefs to support health services, has since evolved into a province-wide initiative. Its goal is to connect all 63 First Nations communities in Manitoba with high-speed fibre optic infrastructure. By 2024, Clear Sky Connections had successfully brought reliable broadband to numerous communities, opening doors to essential services like online education, telemedicine, and remote work opportunities. This robust digital infrastructure has become a powerful tool for bridging the digital divide.

Eeyou Communications is a company that provides digital connectivity to a vast region in Eeyou Itschee/Northern Quebec. It owns and controls a fibre optic network that connects 14 communities, nine Cree communities, and five municipalities. The company provides connectivity to residential clients as well as hospitals, schools, administration offices, and travel associations. This supports not only essential

127 Minges, *Exploring the Relationship Between Broadband and Economic Growth.*
128 Czernich and others, *Broadband Infrastructure and Economic Growth.*
129 Assembly of First Nations, *Closing the Infrastructure Gap by 2030.*

community services but also economic activity. It also has a 25 per cent ownership stake in a cellular company called Eeyou Mobility, which serves all 14 communities, and is constructing a series of 49 communication towers for cellular road coverage along the Billy Diamond Highway, used not only by the Cree but also by mining and transport companies.

The Norway House Cree Nation in Manitoba first connected to a wireless network in 2008 and is currently in the process of upgrading to fibre connectivity. Due to the swampy and remote nature of its territory, it has faced many challenges along the way. These challenges were solved with perseverance and partnerships with neighbouring communities and by using Manitoba Hydro towers and co-locating with Bell. Like the Cree Nation communities served by Eeyou Communications, the Norway House Cree Nation network supports not only personal use but also healthcare services, education, and business.

Community-driven approach and cultural preservation

Each project takes a community-driven approach, focusing on the unique needs and goals of First Nations communities. Clear Sky Connections is owned by 44 of Manitoba's 63 First Nations communities, ensuring that local perspectives shape its development. This ownership structure enables direct community input in decision-making, fostering a governance model that values cultural preservation and economic resilience. This ownership model also fosters community empowerment and cohesion. Clear Sky supports cultural initiatives like language revitalization and virtual heritage archives, using technology as a tool for both connectivity and cultural continuity.

> *"Broadband isn't just about accessing the internet. It's about maintaining connections to family, language, and culture. It's about making sure our communities aren't left behind as the world moves forward." – Frank Horn, Project Management Team, Clear Sky Connections, Man.*

Eeyou Communications similarly prioritizes community-centred management across its network in Eeyou Istchee, Northern Quebec, providing internet access to nine Cree communities and five municipalities. The network maintains cultural connections while supporting essential services and economic activities, aligning technological growth with the preservation of Cree heritage and family connections.

The Norway House Cree Nation, a smaller-scale project, has also taken a community-centred approach. Despite facing geographical challenges, it has expanded digital access within its community by partnering with neighbouring communities. Norway House uses its network to strengthen cultural connections and community health, enabling access to education and healthcare while respecting local identity and practices.

Partnerships and funding

All three projects leverage strategic partnerships to secure funding and resources. Clear Sky Connections initially focused on health services before expanding into a comprehensive digital initiative. By collaborating with regional stakeholders, Clear Sky broadened its scope to serve Manitoba's First Nations communities with high-speed internet, securing both funding and resources for its fibre optic infrastructure. Their partnerships and funding sources include the federal government, Government of Manitoba, private telecom companies, the Indigenous Connectivity Institute (a division of Clear Sky used for education and training), healthcare providers, educational institutions, community-based organizations, and Manitoba First Nations communities. Clear Sky places great value on its partnerships with First Nations communities in this project.

> *"We work with the individual communities on how to utilize it [technology/connectivity], both from the business ends, the economic, and the technical side." – Bill Murdoch, Executive Director, Clear Sky Connections, Man.*

Eeyou Communications has fostered impactful partnerships within Eeyou Istchee. A 25 per cent ownership stake in Eeyou Mobility, a cellular company, extends coverage to all 14 communities it serves and supports critical infrastructure along the Billy Diamond Highway. This road coverage not only benefits the Cree Nation but also supports industries like mining and transportation, highlighting Eeyou's ability to collaborate across sectors to benefit First Nations and regional needs alike.

Norway House Cree Nation has partnered with Manitoba Hydro and Bell, leveraging existing towers to overcome challenges posed by swampy and remote terrain. These collaborations have allowed Norway House to gradually expand its network while minimizing the need for new infrastructure, demonstrating the value of utilizing existing assets in remote areas. However, more sufficient spectrum allocation is needed to enable service providers to deliver improved telecommunications within these communities. All three projects rely on strategic partnerships to secure essential funding and resources, collaborating with various public and private entities to expand digital infrastructure. These partnerships help each initiative address unique regional challenges and broaden their impact on community connectivity and access.

Skills development and economic gains

A core aspect of each project is its emphasis on skills development and economic opportunities for local residents. Clear Sky Connections has focused on training First Nations youth in broadband network management and technical skills, fostering skilled jobs within the communities and reducing dependence on external contractors. This initiative has created sustainable employment opportunities while building a local knowledge base to maintain and develop the network further. It has also enabled regional collaboration among First Nations communities and non-First Nations communities.

> *"This isn't just about better internet speeds. It's about saving lives with telehealth, giving kids access to quality education, and creating opportunities for businesses to thrive. Connectivity is foundational to all of that." – Bill Murdoch, Executive Director, Clear Sky Connections, Man.*

Eeyou Communications similarly supports local employment and technical training, promoting job stability and professional development within the Cree communities it serves. It has supported local employment by training community members in technical and network management skills, creating a locally skilled workforce capable of operating and maintaining the network independently. Eeyou Communications has also encouraged economic growth by enabling a range of digital services that benefit local businesses, such as remote monitoring for health and education facilities, which boosts regional service delivery and reduces dependency on external contractors.

Norway House Cree Nation also emphasizes local workforce upskilling, with its connectivity network enabling residents to attain new technological and project management skills.

"We've had to do our own training basically of our crew of our maintenance crews. . . . We had to learn how to program the radios [and] the routers at the tower … and our battery packs. We've had to sort of learn them [different skills] . . . [to] just to get the work done."
– Shawn Scribe, Director of Information Technology, Norway House Cree Nation, Man.

Local entrepreneurs, such as the Norway House mukluk designer, have also expanded their businesses online, demonstrating how digital connectivity and working remotely empowers First Nations entrepreneurs to reach wider markets and participate actively in the digital economy.

"There's a couple smaller businesses that have been able to [use the network] … [one small business] does a lot of work remotely … been quite successful." – Shawn Scribe, Director of Information Technology, Norway House Cree Nation, Man.

The emphasis on local skills development and economic opportunities in these connectivity projects is creating pathways for sustainable employment and empowering community-driven network management. By fostering a technically skilled workforce and enhancing entrepreneurial reach, these initiatives strengthen economic independence and regional collaboration among First Nations and non-First Nations communities.

Environmental sustainability and stewardship

Environmental stewardship is an integral part of each project, with efforts to ensure infrastructure development aligns with ecological values. Clear Sky Connections has developed community-led infrastructure, incorporating sustainability considerations and respecting local environmental priorities to reduce its ecological footprint.

Eeyou Communications demonstrates its commitment to sustainability by using its network to support climate resilience initiatives. For example, its fibre network enables remote monitoring of water quality and facilitates climate studies conducted by the Cree Nation Government. Eeyou Communications is also using its network for weather and earthquake monitoring, contributing to environmental research while minimizing impact.

Norway House Cree Nation, with limited access to infrastructure due to challenging terrain, employs an eco-conscious approach by co-locating its equipment on existing Manitoba Hydro towers. This approach minimizes additional infrastructure needs and demonstrates a thoughtful, resourceful use of available resources to reduce environmental disruption.

Each connectivity project underscores a commitment to environmental stewardship by aligning infrastructure development with ecological values and sustainable practices. Through innovative strategies like remote monitoring, climate resilience initiatives, and resourceful co-location, these initiatives not only support essential connectivity but also contribute to environmental preservation and research in First Nations communities.

The ripple effects of the projects

The projects create ripple effects that enhance various aspects of community life, from healthcare to tourism. Clear Sky Connections has improved access to essential services, allowing for virtual learning, telemedicine, and remote work opportunities. This expanded access enables First Nations communities to thrive in the digital economy while maintaining cultural roots.

> *"The pandemic made everyone feel what our communities have been facing for years: isolation from services and opportunities. Connectivity isn't a luxury; it's a necessity. And it's time we bridge that digital divide for good."* ***Frank Horn, Project Management Team, Clear Sky Connections, Man.***

Eeyou Communications' impact extends to broader infrastructure areas. Its network supports essential services for the whole region, including health, education, and even mining. The Billy Diamond Highway coverage benefits both community members and industries, while improved connectivity supports tourism, with the fibre network enabling visitors to access reliable service.

Norway House Cree Nation's network has strengthened healthcare and educational access, providing residents with tools to pursue advanced studies and remote healthcare consultations. This connectivity has enhanced community well-being and economic opportunities, with local businesses using the internet to expand their reach.

> *"We run our own clinic, and the clinic requires a lot of software, a lot of remote help. And so that's what we were able to put in a server at that location and … they're able to dial in if they need … remote support."* ***– Shawn Scribe, Director of Information Technology, Norway House Cree Nation, Man.***

Non-First Nations communities have also reaped benefits from the connectivity projects led by Clear Sky Connections, Eeyou Communications, and Norway House Cree Nation. For the Clear Sky project, the expanded network facilitates stronger regional collaboration, enabling more efficient emergency response systems, healthcare services, and economic growth across both First Nations and non-First Nations communities. Eeyou Communications' fibre optic network in Eeyou Istchee and Northern Quebec includes five non-First Nations municipalities alongside nine Cree communities, offering these municipalities access to high-speed internet for hospitals, schools, and businesses. Eeyou's partnership with Eeyou Mobility has also extended cellular coverage along the Billy Diamond Highway, benefiting both Cree communities and non-First Nations entities like mining and transport companies that rely on the highway for operations. In Manitoba, the Norway House Cree Nation's network, developed in collaboration with Manitoba Hydro and Bell, has improved internet access for remote and non-First Nations neighbouring areas. The infrastructure built has contributed to enhanced service reliability, allowing better access to education and healthcare resources for all communities in the region.

The whole network provides a positive impact for the whole region. Especially during the pandemic, you know, everything shut down and we were an essential service. That's how the whole territory functioned." – Alfred Loon, President, Eeyou Communications, Que.

Overall, these connectivity projects have enabled both First Nations and non-First Nations communities to enjoy enhanced internet services and contributed to regional socio-economic development, resource-sharing, and a more integrated digital landscape in underserved areas.

Conclusion

Digital connectivity is foundational to accessing the latest in educational, healthcare, and economic opportunities for not only First Nations communities but for non-First Nations communities alike. Entrepreneurship in the form of small businesses that are physically remote from their customers can now do business around the world. Healthcare facilities are able to connect remotely to experts and information to better serve their clients, and students are able to link up to educational resources far and wide. The establishment of affordable and reliable internet connectivity also allows for greater opportunities for language and cultural preservation, as well as connecting and reconnecting members to their communities.

2.9 Accessibility

Investment in accessibility is needed to ensure the inclusion of First Nations persons with disabilities. To close the infrastructure gap, an investment of $1.6 billion is needed to retrofit existing residential and non-residential buildings with accessibility measures.[130] This includes installing handrails, widening corridors and entryways, adjusting counter heights, adding exterior ramps, and similar retrofits.[131] These measures will improve mobility and access within First Nations. An accessibility lens will be applied to all infrastructure projects, ensuring that these investments benefit everyone by creating environments that are easier to navigate and use—not only for persons with disabilities but for all community members. Embedding accessibility in infrastructure design promotes greater inclusion, usability, and resilience across First Nations.

Twenty-seven per cent of Canadians reported having one or more disability in 2022.[132] It is estimated that Indigenous peoples are 20 to 50 per cent more likely than non-Indigenous populations to have a disability, a reflection of the higher rate of environmental and trauma-related disabilities and unequal access to healthcare.[133] As a result, an estimated 32 to 41 per cent of individuals on First Nations reserves, equal to 131,000 to 172,000 people, have a disability.[134] Disability prevalence is even higher among seniors.[135]

130 Assembly of First Nations, *Closing the Infrastructure Gap by 2030.*
131 Ibid.
132 Statistics Canada, *The disability rate in Canada increased in 2022.*
133 Assembly of First Nations, Closing the Infrastructure Gap by 2030.
134 Based on population from 2021 Census of Population.
135 Employment and Social Development Canada, *Canada's Disability Inclusion Action Plan.*

2.9.1 Economic impact assessment results

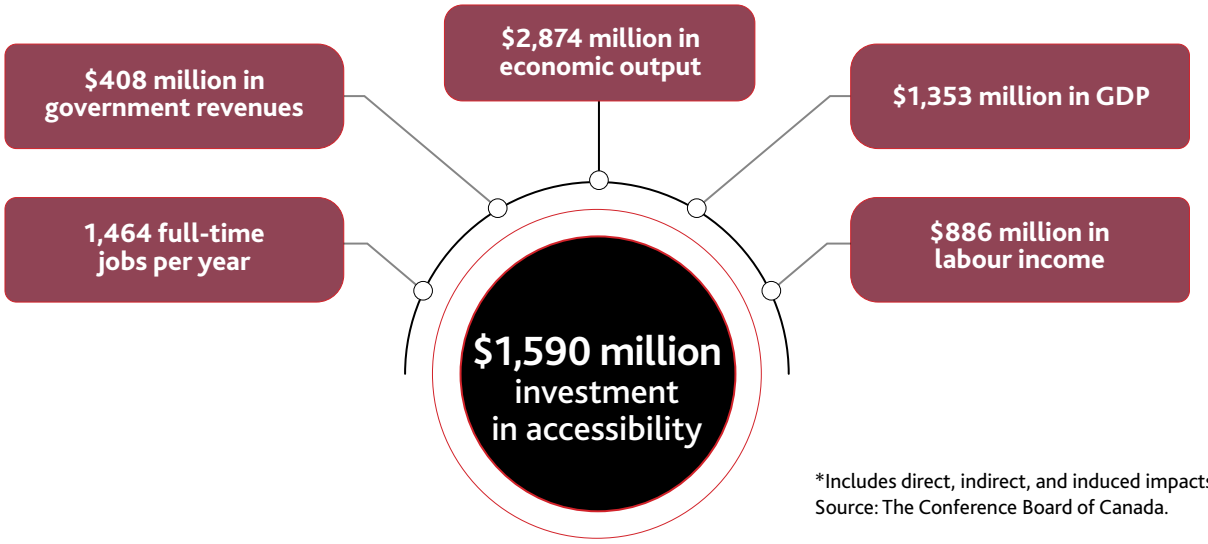
Investment spending of $1.59 billion on accessibility is projected to generate $2.87 billion (in 2023 dollars) in national output over the next seven years. (See Exhibit 11.) This means that every dollar spent will add $1.81 to Canada's total output, which measures the total value of economic activity. When accounting for only the added value of economic activity, the investment will generate $1.35 billion in GDP for Canada.

It is estimated that the accessibility spending will support nearly 10,255 jobs nationwide over the next seven years, equivalent to 1,464 jobs per year.[136] A third of jobs will be in residential construction, followed by 11 per cent in retail trade, and 10 per cent in manufacturing. The spending on accessibility will generate $886 million in labour income.

In addition, $408 million will be generated in government revenues over the next seven years, with $199 million added to federal taxes, $134 million to provincial taxes, and $76 million to municipal taxes. The overall contribution to government revenues equates to $0.26 in tax revenues for every dollar invested in accessibility.

Exhibit 11: Total economic impact of $1,590-million spending on accessibility over seven years

(total economic impact from 2023 to 2030)*



*Includes direct, indirect, and induced impacts
Source: The Conference Board of Canada.

2.9.2 Long-term socio-economic benefits

Inclusion in society

Individuals facing accessibility barriers (including seniors) are unable to fully participate in society. Along with social discrimination, they have lower rates of educational attainment, employment, and earnings,

136 Jobs are measured in person-years of employment, which represents the number of full-time jobs in a one-year period. In real terms, this could be one person working for a full year or four people working for three months. Also, if one person works a job for seven years, that counts as seven jobs in total.

and higher healthcare usage and incidences of poverty.[137] Based on a 2009 study of 10 low- and middle-income developing countries, the exclusion of persons with disabilities from paid employment represented a 3 to 7 per cent loss of potential GDP.[138] By applying these rates to Canada, the lack of accessibility in First Nations would equate to $331 to $771 million in lost GDP in 2021.[139] In addition, in a 2020 study, Tompa and others found that a fully inclusive and accessible society has the potential to create value equal to 17.6 per cent of Canadian GDP.[140] The added value stems from improved quality of life, increased employment leading to higher output and productivity, and reduced caregiving, healthcare, and other expenses. For First Nations, the added value could equal almost $2 billion.[141]

2.9.3 Vignette 8: Current state of accessibility standards for First Nations Infrastructure

The following vignette is based on our literature review findings. First Nations communities in Canada face significant accessibility challenges due to historical and systemic gaps in infrastructure, which impact housing, health services, water access, education, digital connectivity, and community-building. These infrastructure deficiencies make daily living more challenging and have broader socio-economic consequences, emphasizing the urgent need for sustainable and culturally appropriate solutions.

The *Accessible Canada Act* (ACA),[142] enacted in 2019, aims to make Canada barrier-free by 2040, incorporating provisions for Indigenous communities. Recognizing the distinct needs of First Nations, ACA granted a five-year exemption period (ending in 2026) to allow for consultations on adapting these standards in a way that is culturally responsive and relevant to First Nations.[143] These consultations seek to shape a distinct First Nations accessibility law that respects Indigenous rights and governance structures. This process prioritizes engagement and supports First Nations-led development of accessibility standards aligned with Indigenous cultural values and social contexts.

The need for a comprehensive and culturally informed approach

Addressing accessibility in First Nations communities calls for a broad approach, as challenges span healthcare, housing, education, and digital access. This necessity for a holistic approach is underscored by ACA's vision for a barrier-free Canada by 2040, which highlights accessibility as a right that transcends physical limitations. First Nations communities, however, face unique barriers stemming from geographic isolation, economic limitations, and systemic inequalities rooted in colonial history. ACA's exemption period seeks to allow time for developing a culturally relevant framework to ensure that accessibility standards reflect the specific needs of First Nations and their unique social realities.

The challenges are especially significant in healthcare access. Remote First Nations communities often have limited access to primary care, let alone accessible healthcare facilities. In addressing accessibility, culturally responsive solutions include recognizing the First Nations values of interdependence and holistic health. For example, the Two-Eyed Seeing approach, combining Western medical practices with Indigenous perspectives on wellness, reflects these values by acknowledging diverse approaches to health and

137 International Labour Organization, *Brief Profile on People with Disabilities.*
138 Buckup, *The Price of Exclusion.*
139 Statistics Canada, *Table 36-10-0695-01.* We assume 20 per cent of Indigenous GDP is generated on First Nations reserves, based on the share of working-age population living on First Nations reserves.
140 Tompa and others, *Development and implementation of a framework for estimating the economic benefits of an accessible and inclusive society.*
141 Calculated as 17.6 per cent of $11-billion GDP generated on First Nations reserves.
142 *Accessible Canada Act.*
143 Government of Canada, *Accessible Canada Regulations: SOR/2021-241.*

healing.[144] Efforts led by the Assembly of First Nations to co-develop a distinct First Nations accessibility law also embody this principle, incorporating First Nations governance structures and practices.[145] The Assembly of First Nations' Accessibility Hub is a valuable resource that provides culturally relevant tools and guidelines for First Nations to develop solutions that respect local needs, such as ensuring traditional gathering spaces are accessible for Elders and community members with disabilities.

Efforts to address health access barriers

In response to widespread disparities in health accessibility, several government programs and initiatives directly address barriers First Nations individuals face in accessing health and social services. Joyce's Principle, named in memory of Joyce Echiuran, advocates for culturally safe health services that respect First Nations traditions and counter systemic discrimination in healthcare.[146] Joyce's Principle calls for healthcare environments that incorporate Indigenous healing practices alongside Western medicine, acknowledging the cultural importance of these practices in First Nations communities. The federal government has also allocated funds to enhance Indigenous health services, with a focus on creating culturally safe spaces and traditional health practices. These measures aim to improve wellness outcomes, particularly for Elders and individuals with disabilities, who are often disproportionately affected by accessibility barriers in healthcare.

Physical infrastructure challenges on reserves

Many physical infrastructure facilities on reserves, including healthcare centres, schools, and community buildings, lack accessibility features commonly found in non-First Nations communities across Canada. The First Nations National Building Officers Association has highlighted that many older buildings in First Nations communities do not meet current building codes and lack adequate accessibility, including wheelchair access, wide hallways, and accessible restroom facilities.[147]

Infrastructure upgrades often overlook the cultural aesthetics important to First Nations, such as the symbolic significance of certain materials or designs. Addressing these gaps involves updating physical structures and ensuring these changes respect the cultural values and traditions of First Nations. For example, accessible pathways to traditional gathering spaces or land features essential to a community's cultural identity can transform physical accessibility into a culturally affirming experience.

Digital connectivity and socio-economic inclusion

Digital accessibility is also a significant concern. Remote First Nations communities frequently lack reliable internet access, limiting residents' access to education, employment opportunities, and essential services, particularly telemedicine and e-health supports. Many First Nations organizations are calling for substantial improvements in digital infrastructure to bridge these gaps. For example, Indigenous-led initiatives like the First Mile Connectivity Consortium advocate for community-centred connectivity solutions, highlighting the need for accessible, reliable internet as a means of inclusion in the digital economy and education.[148] Improved digital connectivity is not only essential for basic services but also

144 Jeffery and others, *Two-Eyed Seeing*.
145 Assembly of First Nations, *Building Inclusive and Accessible First Nations Governments*.
146 Joyce's Principle Office, *Joyce's Principle*.
147 Kiedrowski, *Indigenous communities and federal accessibility standards*.
148 First Mile Connectivity Consortium, *First Mile Connectivity Consortium*.

empowers First Nations communities to maintain control over digital infrastructure, supporting First Nations sovereignty and self-governance in the digital realm. (See Vignette 7 for further details on the importance of digital connectivity.)

A culturally responsive accessibility framework

Developing accessibility standards that reflect the diverse realities of First Nations communities requires consultation and engagement with each community. Programs like the Assembly of First Nations' Accessibility Hub provide resources tailored to First Nations, supporting accessible community-led solutions that uphold Indigenous autonomy. For example, the Hub's tools and guidelines offer strategies for creating accessible public spaces that align with cultural values, such as designing entryways for traditional meeting spaces with the needs of Elders in mind or adapting ceremonial sites to ensure wheelchair accessibility without compromising sacred aspects of the environment.[149]

The federal government's comprehensive approach also includes funding allocations specifically for improving Indigenous health and social services. For instance, targeted funds support the construction of culturally appropriate long-term care facilities, aiming to create environments that respect and reflect Indigenous values. These spaces allow for a holistic approach to health, encompassing physical, mental, and spiritual aspects of well-being.

Conclusion

Creating a barrier-free Canada that includes First Nations communities requires a holistic, culturally responsive approach that transcends physical infrastructure and encompasses healthcare, housing, education, and digital inclusion. ACA's five-year exemption period for First Nations seeks to allow time to co-develop accessibility standards that honour First Nations governance and values, leading to a First Nations-specific accessibility law. Ideally, this law will prioritize community-led solutions that respect First Nations cultural and social contexts, fostering an inclusive environment for all. But full implementation will take time and considerable resources.

Accessibility in First Nations communities requires more than infrastructure upgrades—it calls for meaningful inclusion, respect for First Nations values, and a commitment to sustainable, community-centred solutions. By combining traditional knowledge and modern accessibility standards, Canada can better support First Nations in building accessible, resilient communities.

149 Assembly of First Nations, *A First Nations' Accessibility Hub of Excellence.*

2.10 Water and wastewater management

Inadequate access to water and sanitation systems has been a long-standing issue for many First Nations in Canada, leading to drinking water advisories. The goal of closing the infrastructure gap is to end all drinking water advisories in First Nations communities. This will require a $675.0-million investment, $272.0 million in capital, and $403.0 million in O&M.[150]

As of May 8, 2025, there were 38 long-term drinking water advisories in effect, affecting 36, communities (14 in Ontario, 10 in Saskatchewan, six in Alberta, and three in Manitoba, two in Atlantic Canada, and one in Quebec).[151] Drinking water advisories warn people not to drink water that may be unsafe or is known to be unsafe based on test results, requiring people to boil water or purchase commercially packaged water, leading to both time and financial strains. Long-term drinking water advisories are those that have been in place for more than one year.[152] Recurring and prolonged advisories erode residents' trust in their water quality, inciting them to seek unsafe alternatives like untreated lake water, even after the advisory is removed.[153]

2.10.1 Economic impact assessment results

Investment spending on water and wastewater systems is projected to generate $1.2 billion (in 2023 dollars) in national output over the next seven years. (See Exhibit 12.) This means that every dollar spent will add $1.79 to Canada's total output, which measures the total value of economic activity. When accounting for only the added value of economic activity, the investment will generate $610.1 million in GDP for Canada, $231.5 million during the capital phase, and $378.6 billion during the O&M phase.

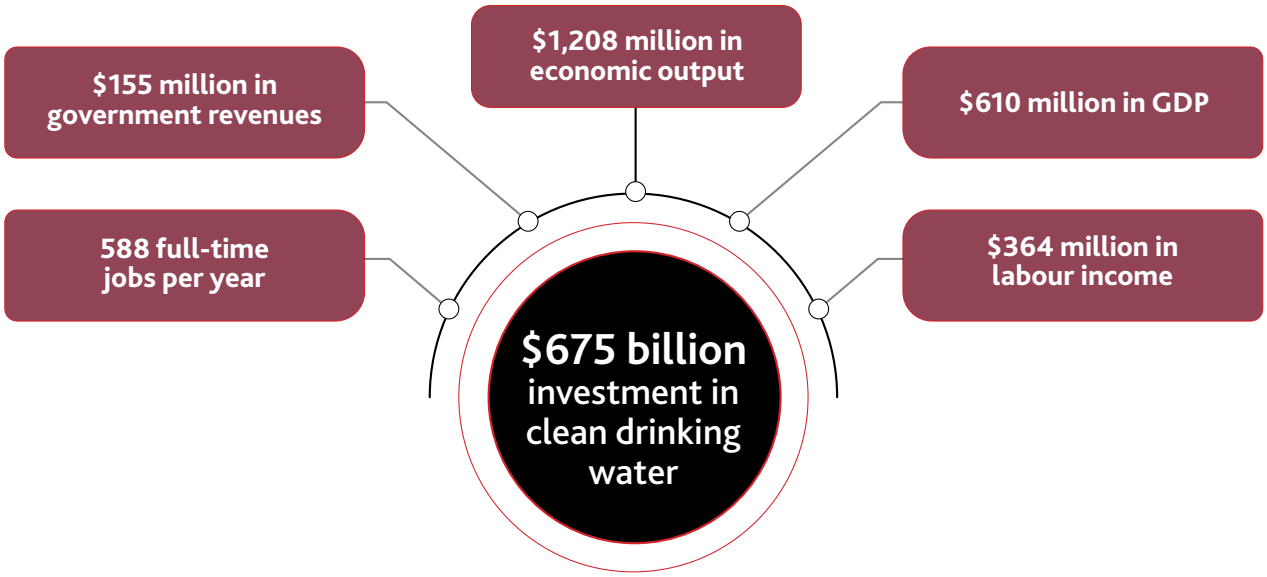
It is estimated that the spending will support nearly 4,117 jobs nationwide over the next seven years, equivalent to 588 jobs per year.[154] One-quarter of jobs will be in the utilities sector, followed by 18 per cent in residential construction, 9 per cent in retail trade, and 7 per cent in manufacturing. The spending on water and wastewater will generate $364.4 million in labour income.

In addition, $155.2 million will be generated in government revenues over the next seven years, with $74.7 million added to federal taxes, $54.1 million to provincial taxes, and $26.4 million to municipal taxes. The overall contribution to government revenues equates to $0.23 in tax revenues for every dollar invested in water and wastewater.

150 Assembly of First Nations, *Closing the Infrastructure Gap by 2030.*
151 Indigenous Services Canada, *Short-term drinking water advisories.*
152 Indigenous Services Canada, *About drinking water advisories.*
153 Office of the Auditor General of Canada, *Report 3—Access to Safe Drinking Water in First Nations Communities.*
154 Jobs are measured in person-years of employment, which represents the number of full-time jobs in a one-year period. In real terms, this could be one person working for a full year or four people working for three months. Also, if one person works a job for seven years, that counts as seven jobs in total.

Exhibit 12: Total economic impact of $675-millionspending on drinking water over seven years

(total economic impact from 2023 to 2030)*



*Includes direct, indirect, and induced impacts
Source: The Conference Board of Canada.

2.10.2 Long-term socio-economic benefits

Improved physical and mental health

Lack of access to water and sanitation has a broad range of negative physical and mental health impacts. Bradford and others found a large number of health conditions associated with unsafe water in First Nations, the most common being gastrointestinal infections, followed by skin problems like eczema, birth defects, and cancer.[155] They found the number of gastrointestinal infections in Indigenous communities was 26 times greater than in the rest of Canada, and cases were more likely to go under-reported due to different perceptions of risk and health.[156] O'Gorman found the likelihood of reporting depression among First Nations individuals is 80 per cent higher for those without running water and one-third higher for those without a toilet and septic system.[157] In turn, investing in water and wastewater infrastructure can help reduce the physical and mental health burden for many First Nations.

155 Bradford and others, *Drinking Water Quality in Indigenous Communities in Canada and Health Outcomes*.
156 Ibid.
157 O'Gorman, *Mental and physical health impacts of water/sanitation infrastructure in First Nations communities in Canada*.

Increase productivity and workforce participation

Approximately 15,170 individuals on First Nations are affected by drinking water advisories, which represents 4 per cent of the total population living on First Nations reserves.[158] Inadequate water impacts the greater economy by decreasing the productivity and workforce participation of those effected. Nawaz and Alvi found that a lack of clean water had a significant negative impact on total factor productivity, based on a time series of 17 developing countries from 1995 to 2015.[159] They found a one per cent increase in population with access to clean drinking water results in a 0.2 per cent increase in total factor productivity, with access to clean water having a larger impact than less malnutrition.[160] Access to clean water allows First Nations individuals to be more productive and participate in the workforce, benefiting the local and broader Canadian economy. First Nations businesses with access to clean drinking water can also be more productive and provide employment, whereas they often must close when drinking water advisories are in effect.[161]

2.10.3 Vignette 9: Water and wastewater systems

Investment is needed to improve water and wastewater infrastructure on reserves and to expand access to water. The water supply chain includes source waters (surface and groundwater), extraction (wells and intakes), treatment, storage (tanks, reservoirs, and cisterns), and distribution through piped and trucked systems. The aim is to end all drinking water advisories in First Nations communities, requiring $272 million in capital and $403 million in O&M funding.[162]

The Listuguj Mi'kmaq Government and Enoch Cree Nation are undertaking significant projects to improve water and wastewater infrastructure, addressing long-standing challenges with access and system reliability. Both projects highlight proactive community efforts to secure safer, more sustainable water management systems.

The Listuguj Mi'kmaq Government in Quebec recently commissioned a new water treatment plant. This project, started in 2020, involves several phases, including the construction of a new treatment plant, upgrading wells, building new reservoirs, and expanding the water network to increase capacity and ensure adequate pressure. Local contractors, including First Nations companies, were involved in the project.

The Enoch Cree Nation in Alberta relies on water from the EPCOR (Edmonton Power Corporation), the utility provider for Edmonton, due to its proximity to the city. The community faces challenges with its existing cisterns and septic systems, leading to frequent boil water advisories. The Enoch community is also implementing a major wastewater project, initiated in 2018, to address issues with outdated lagoons and inadequate wastewater infrastructure. This project aims to establish a system that redirects wastewater to external facilities and includes inspections and upgrades to existing infrastructure.

158 Indigenous Services Canada, *Map of long-term drinking water advisories on public systems on reserves.* Estimation based on the midpoint of the population range of First Nations with drinking water advisories.
159 Nawaz, *The Impact of Malnutrition and Lack of Access to Clean Water on Productivity.*
160 Ibid.
161 Office of the Auditor General of Canada, *Report 3—Access to Safe Drinking Water in First Nations Communities.*
162 Assembly of First Nations, *Closing the Infrastructure Gap by 2030.*

Community-driven approach and cultural preservation

Both the Listuguj Mi'gmaq Government and the Enoch Cree Nation prioritize community-driven solutions to address their water and wastewater infrastructure needs, focusing on long-term growth and improved quality of life. In Listuguj, the new water treatment plant is designed to enhance capacity and pressure, paving the way for projects like a 300-unit housing initiative while addressing vulnerabilities like fire safety and contamination risks. Similarly, Enoch's wastewater project stems from a commitment to provide modern amenities for its members, ensuring access to clean water and reliable sanitation systems. As Troy McDonald, Enoch's Senior Manager of Infrastructure, explains, the goal is for Nation members to enjoy the same conveniences off-reserve residents take for granted, such as clean water and functional septic systems, reflecting a shared vision of cultural preservation and community well-being.

> *What my job is … [is] to help Enoch get moved into the modern amenities of life. Like when I go home [off-reserve], I turn on my tap. I know it's clean water. I go home. I flush my toilet. I know it's going somewhere.… I want it to be where a Nation member goes to their home on the Nation, turns on a tap, doesn't have to worry about a boil water advisory, they don't have to worry about their septic field backing up or anything like that. That's where I want Enoch to get to. – Troy McDonald, Senior Manager of Infrastructure, Enoch Cree Nation, Alta.*

Partnerships and funding

Both communities demonstrate resourcefulness in navigating funding challenges when the federal government's funding model did not align with the growth and development visions of either Nation. The Listuguj Mi'gmaq Government's water project was primarily funded by external government funding agencies, with a significant role played by ISC. Listuguj relied on external partnerships to upgrade its water infrastructure, which enabled capacity-building and improved community management.

Enoch Nation's wastewater project also received substantial financial support from ISC. However, the Nation faced challenges with the federal funding model, as it did not align with its vision for long-term growth and sustainable infrastructure. To address this, it engaged external partners, including the Alberta Capital Region Wastewater Commission and M2 Engineering, to develop a system that diverts wastewater off-reserve. This collaborative approach allowed the Nation to design a system that meets its current needs while preserving land for future development.

Both Nations leveraged innovative partnerships with external stakeholders to address their infrastructure needs and funding challenges, noting the importance of capacity-building and sustainability in infrastructure projects. These collaborations not only fulfilled immediate project objectives but also established a framework for future infrastructure development through strengthened relationships.

> *"Mainly we were trying to develop lots of new development for the community, but with the old (water) system we don't have enough pressure or water to feed water to those areas. So, by having the new systems that will allow us to initiate a new project like the new 300-unit housing project."– Bassem Abdrabou, Director of Infrastructure, Listuguj Mi'gmaq Government, Que.*

Both Nations used strategic partnerships to overcome funding challenges, addressing immediate needs while paving the way for future development.

Skills development and economic gains

Both projects provide significant economic and employment opportunities for their communities. In the Listuguj Mi'gmaq's project, a tendering policy ensures that 30 per cent of employment opportunities go to community members, and contractors include First Nations and non-First Nations businesses. These infrastructure upgrades are expected to stimulate growth in sectors like landscaping and construction. Enoch's infrastructure developments, while not governed by a similar policy, support economic prosperity through broader regional spending and employment. The Enoch Cree Nation has actively developed its own water and wastewater infrastructure to support the River Cree Resort and Casino, as well as broader community needs. In addition, the casino and resort contribute significantly to Alberta's economy and provides employment for approximately 900 people, including opportunities for Nation members.

> *"[O]ne of the things too about our resort is that we've given over half a billion dollars to the Province of Alberta … through our charities to (the) AGLC [Alberta Gaming, Liquor and Cannabis]… because in Alberta, all First Nations casinos have to give gaming proceeds to the province."– Troy McDonald, Senior Manager of Infrastructure, Enoch Cree Nation, Alta.*

For both the Listuguj Mi'gmaq Government and Enoch Nation projects, the interview participants shared the expectation that these projects will continue to provide employment and training opportunities for their community members, thereby ensuring the robustness of the local economies in which they participate.

Both projects contribute to broader regional development and collaboration. While Listuguj's benefits are mostly economic and involve indirect participation by non-First Nations contractors and businesses, Enoch's wastewater project creates strong direct ties with non-First Nations communities through shared infrastructure, employment, and economic contributions.

> *"And when Enoch goes to build something, we don't have a steel mill. We don't have a wood mill. You don't have manufacturing within the Nation, so everything we buy … all that material to build … It's going to come from off the Nation, right? So, we contributed to everyone's economic prosperity around us, through various ways."– Troy McDonald, Senior Manager of Infrastructure, Enoch Cree Nation, Alta.*

Environmental sustainability and stewardship

The water projects led by the Listuguj Mi'gmaq Government and Enoch Cree Nation demonstrate a strong commitment to environmental sustainability and stewardship, with each community tailoring its approach to align with its specific needs and ecological considerations. Listuguj addressed contamination risks and capacity issues in its water system by upgrading reservoirs, pipelines, and treatment facilities to provide safe and reliable water access while minimizing environmental vulnerabilities. Similarly, the Enoch Cree Nation prioritized preserving its natural environment by opting to divert wastewater off-reserve, avoiding the construction of lagoons that could disrupt the local ecosystem and undermining the principles of stewardship held by the Nation.

"You know, we call ourselves keepers of the land. But if we're just flushing our toilets and it's going straight into the rivers, we're not keepers of the land anymore, we're just contributing to the pollutants that affect our environment." – *Troy McDonald, Senior Manager of Infrastructure, Enoch Cree Nation, Alta.*

Through their water projects, the Listuguj Mi'gmaq Government and Enoch Cree Nation exemplify how First Nations communities can balance infrastructure development with environmental responsibility. By integrating sustainability into their plans, they not only meet present needs but also uphold their roles as stewards of their land and resources. These projects serve as powerful examples of how careful design and collaborative efforts can create lasting solutions that prioritize both community well-being and ecological health.

Conclusion

The Listuguj Mi'gmaq Government and Enoch Cree Nation's water and wastewater projects share a commitment to addressing critical infrastructure needs while fostering community growth and environmental stewardship. Listuguj focuses on water system upgrades to enhance capacity and support new developments, while Enoch prioritizes modernizing wastewater infrastructure to improve sanitation and support economic expansion. Both Nations illustrate how community-driven initiatives, strategic partnerships, and a focus on sustainability can create ripple effects that benefit not only their members but also surrounding regions.

3. Closing the Infrastructure Gap: More Than an Economic Investment

This comprehensive approach to data management and analysis ensures that the study's findings are robust, credible, and ethically gathered, providing a solid foundation for understanding the impacts of infrastructure investments in First Nations communities.

The benefits of addressing the infrastructure gap faced by First Nations communities cannot be overstated. This report underscores how investments in critical infrastructure—ranging from housing, healthcare, and education to digital connectivity, water, and transportation—can lead to substantial economic, social, and cultural benefits for First Nations communities and, in turn, for the broader Canadian society.

The estimated $349.2 billion investment required between 2023 and 2030 would generate over $635 billion in national output and add $308.9 billion to Canada's GDP, highlighting the magnitude of the return on investment. The investment would also create nearly 338,300 jobs annually across sectors such as construction, healthcare, education, and infrastructure maintenance. Importantly, nearly 10 per cent of these jobs will be held by First Nations members, fostering economic empowerment. The resulting boost in labour income will stimulate further economic growth and help bridge regional disparities.

Strategic investments in infrastructure will directly contribute to significant improvements in the health, education, and economic opportunities available to First Nations communities. This will help address the root causes of systemic inequality and create conditions for enhanced well-being. The improvements in housing, in particular, will not only provide safer and healthier living conditions but will also foster better mental health, reduce substance abuse, and contribute to more stable families and communities. Housing projects prioritizing cultural and community values have been proven to strengthen social cohesion, reduce overcrowding, and bring people back to their communities, creating lasting benefits for individuals.

Investments in education and digital access will improve literacy, foster entrepreneurship, and support cultural preservation. Additionally, infrastructure investments in digital connectivity and climate adaptation, such as all-season roads, are essential for addressing the geographic and climate-related challenges faced by many First Nations communities. All-season road access will improve mobility, enhance access to healthcare and education, reduce food insecurity, and support tourism and local industries. Investments in climate-resilient infrastructure—particularly in northern and coastal regions—are vital to protecting First Nations communities from increasing threats such as flooding, permafrost thaw, and wildfires. Proactive climate adaptation will reduce long-term costs, minimize disaster recovery expenditures, and enhance safety and well-being.

Integrating traditional ecological knowledge with modern scientific methods has proven to be a highly effective strategy for climate change adaptation. This strategy empowers First Nations communities to protect their lands and resources while contributing to national environmental goals. This combination of knowledge systems offers a holistic approach to sustainability, supporting ecological preservation and the empowerment of First Nations peoples as environmental stewards.

Closing the First Nations infrastructure gap is more than an economic investment—it will fuel economic development, improve health and educational outcomes, and empower First Nations communities. Addressing long-standing infrastructure deficits will help unlock the potential of First Nations communities, ensuring a more inclusive, prosperous, and resilient future for all. The impact of closing the First Nations infrastructure gap extends beyond First Nations to all Canadians, helping to create a more equitable, resilient, and sustainable society.

Appendix A: Overview of the Infrastructure Areas

Accessibility: Investment in this area is needed to improve accessibility and promote the inclusion of First Nations persons with disabilities across health, social services, infrastructure, and housing. Upgrades include installing grab bars in bathrooms, widening doorways, providing exterior ramps, and installing elevators. This will require a $1.6-billion investment in capital.

All-season road access: Investment in this area is needed to provide First Nations with access to all-season roads. Approximately 8,000 km of winter roads need to be converted to all-season roads (at gravel road standards). This will require a $29.1-billion investment in capital and $6.4-billion investment in O&M.

Climate adaptation: Investment in this area is needed to equip First Nations assets to handle climate change and protect them from extreme weather events. This involves site-specific modifications to housing, non-residential buildings, utilities, and transportation infrastructure. Modifications include upgrading cladding and roofs on buildings, regular road resurfacing, and increased monitoring and testing of water. This will require a $24.5-billion investment in capital and $6.5-billion investment in O&M.

Digital connectivity: Investment in this area is needed to provide all First Nations with a fibre backbone to the internet, fibre-to-the-home last mile, and Long-Term Evolution (LTE) or 5G mobility services. This will require a $5.2-billion investment in capital.

Direct asks: Investment in this area is needed to meet the needs of First Nations based on their requests, which were obtained through a survey conducted by Indigenous Services Canada. The assets needed range from transportation and utilities infrastructure to educational, healthcare, community, and recreational facilities, as well as cultural assets and social programs. This will require a $55.4-billion investment in capital. Investments in this area are in addition to investments in the other areas and do not double count any other investments.

Drinking water advisories: Investment in this area is needed to improve on-reserve water and wastewater infrastructure and expand access to clean drinking water. The supply chain for clean drinking water involves source waters (surface water, groundwater), abstraction (groundwater wells and surface water intakes), treatment, storage (tanks, reservoirs and cisterns), transmission, and distribution (both piped systems and trucked water). The goal is to end all drinking water advisories in First Nations. This will require a $272.0-million investment in capital and $403.0-million investment in O&M.

Education: Investment in this area is needed to ensure First Nations have adequate educational facilities. Investments are focused on schools, including provision for outdoor learning, and teacherages (i.e., on-reserve accommodation for teaching staff). This will require an $8.0-billion investment in capital and $4.6-billion investment in O&M.

Housing: Investment in this area is needed to ensure First Nations peoples have access to adequate housing and that housing is sufficient for their growing populations. These investments include building new homes and renovating existing homes, along with the repairs and maintenance needed for housing. This will require a $114.7-billion investment in capital and $20.4-billion investment in O&M.

Infrastructure: Investment in this area is needed to maintain current public infrastructure, increase infrastructure to accommodate growing populations, and upgrade infrastructure to meet current building codes and safety standards. Infrastructure includes non-residential buildings (e.g., administrative, recreation, community), transportation assets (e.g., roads, bridges, ports, wharfs), utilities (e.g., wastewater pipes, treatment facilities), and vehicles (e.g., fire trucks, water trucks). This will require a $38.0-billion investment in capital and $21.5-billion investment in O&M.

Net-zero carbon: Investment in this area is needed to increase energy efficiency (reduce carbon emissions) of First Nations' housing, non-residential buildings, vehicles, and utilities. Upgrades include installing energy-efficient lighting, improving insulation in buildings, installing energy-efficient windows and doors, enhancing heating systems, using biocovers instead of conventional landfill covers, and switching to electric vehicles. This will require a $12.7-billion investment in capital. (Return to Introduction)

Appendix B: Economic Impact Methodology

This study employs The Conference Board of Canada's Economic Impact Assessment (EIA) model at the provincial and territorial level to measure the impacts of closing the infrastructure gap for First Nations in Canada.

The economic impacts of each infrastructure area are based on the costs to close the infrastructure gap in that area, using data provided by the Assembly of First Nations. The total economic impact on the Canadian economy is the sum of the direct, indirect, and induced impacts described below.

Direct impacts: These are the economic impacts directly resulting from investing in the capital and operational phases of each infrastructure area. Direct impacts include the contributions to output, GDP, employment, wages, and government revenue as a result of the direct outlays in infrastructure spending.

Indirect impacts: The indirect, or supply-chain, impacts measure the additional value created by investing in an infrastructure area through the demand for intermediate inputs and support services. These impacts measure the contribution to output, GDP, employment, wages, and government revenue associated with direct spending on intermediate inputs and support services. For example, building housing requires building materials, which creates higher GDP and employment and generates wages and government revenue in the manufacturing industry.

Induced impacts: Induced impacts are derived when employees of the directly and indirectly affected industries spend their earnings and owners spend their profits. These purchases contribute to output, GDP, employment, wages, and tax revenues, and are typically felt across a wide array of consumer-oriented industries. For example, construction workers will spend some of their wages on restaurant meals, resulting in higher GDP and employment and generating wages and government revenue in the food services industry.

The Conference Board's EIA model was developed using Statistics Canada's 2019 detailed input-output tables and multipliers. While 2020 multipliers are available, 2019 multipliers were used because they better represent current economic structures, as 2020 marked the beginning of the COVID-19 pandemic. The EIA model also accounts for inflation and wage increases projected to occur during the period under analysis.

The Assembly of First Nations provided all cost data related to closing the infrastructure gap. Annual cost breakdowns were provided by infrastructure area and by province and territory, covering the fiscal years 2023–24 to 2029–30. For each infrastructure area, the expenditures were aligned with industries that would directly benefit from the spending, based on information provided in the appendices of the *Closing the Infrastructure Gap by 2030: A Collaborative and Comprehensive Cost Estimate Identifying the Infrastructure Investment Needs of First Nations in Canada* report.[163]

Given that spending to close the infrastructure gap spans the fiscal years 2023–24 to 2029–30, labour income is calculated using the wage rates from the midpoint year, 2026.

163 Assembly of First Nations, *Closing the Infrastructure Gap by 2030.*

Direct leakages

To ensure a conservative estimate, the analysis accounted for a portion of planned infrastructure spending flowing to products and services provided by international companies (i.e., international imports). Based on detailed expenditure data, it was estimated that 14 per cent of capital investment expenditures and 7 per cent of O&M investment expenditures would leak to international companies.

Taxes

The EIA model simulates the overall structure of the Canadian economy, where Indigenous businesses and employment represent only a small share of activity. However, since these infrastructure projects are expected to occur primarily within First Nations communities, significantly higher involvement of First Nations individuals and businesses is projected. Our analysis, therefore, considered exemptions for sales, corporate, property, payroll, and income taxes, applicable to First Nations individuals and businesses.[164]

To inform our tax exemption estimates, we considered the potential funding criteria. In particular, the federal government has set a 5 per cent Indigenous procurement target, which ensures a minimum 5 per cent of the total value of contracts are held by Indigenous businesses.[165] In addition, the Canadian Council for Indigenous Business estimates that Indigenous business capacity exceeds 5 per cent within the construction sector.[166] Based on these sources, Table 1 summarizes the share of Indigenous businesses involved in the First Nations infrastructure projects.

Table 1: Share of Indigenous businesses

(per cent)

	Direct	Indirect	Induced
Capital	**25**	**5**	**5**
Operation and maintenance	**35**	**5**	**5**

*Includes self-employed and with employees
Source: The Conference Board of Canada.

These shares represent potential sources where businesses would be exempt from corporate, import, and sales taxes.[167] In addition, since the infrastructure projects are government-funded and primarily located on First Nations reserves, it is assumed that no provincial or federal sales taxes (by First Nations and non-First Nations businesses) will be directly generated from the investment spending.

164 Canada Revenue Agency, *Information on the tax exemption under section 87 of the Indian Act.*
165 Indigenous Services Canada, *Mandatory minimum 5% Indigenous procurement target.*
166 Canadian Council for Indigenous Business, *Industry and Inclusion.*
167 Assuming they are located on a First Nations reserve and are generating income on the reserve.

While the imposition of municipal or local taxes for businesses and workers located off-reserve are assumed to correspond with the municipal government ratios embedded in the Conference Board's EIA model, additional assumptions were developed to account for imposed land-use taxes for Indigenous businesses and workers located on reserve. Specially, it was assumed that 50 per cent of First Nations businesses were located where property taxes were collected. The rates of property taxes in these instances were also assumed to be the same tax rates as their adjacent local governments.[168] While we did extend our analysis on taxes to include potential taxes collected on reserve land, we did not account for any newly imposed First Nations land-use taxes that may apply to non-First Nations businesses. In this case, it was assumed that these rates will be determined on a per use basis as the specifics of each project are finalized.

We also incorporated income tax and payroll tax exemptions based on the estimated shares of First Nations individuals employed. These estimates are discussed in the next section.

First Nations employment

According to Statistics Canada's Labour Force Survey, First Nations employment accounted for roughly 1.7 per cent of all Canadian employment in 2023.[169] Given that the infrastructure projects would primarily take place on First Nations reserves, we assume a higher proportion of First Nations individuals would be employed directly and indirectly to complete the infrastructure projects. The share of First Nations individuals employed varies depending on the stage of the project (i.e., more First Nations people are expected to be employed directly during the O&M phase compared with the construction stage). Table 2 provides the range of employment shares for each phase of the project. These shares were applied across all infrastructure areas and regions.

Table 2: Share of First Nations employed

(per cent)

	Direct	Indirect	Induced
Capital	**5–10**	**1–5**	**5–10**
Operation and maintenance	**25–50**	**1–5**	**5–10**

Source: The Conference Board of Canada.

168 First Nations Tax Commission, *Taxpayers*.
169 Statistics Canada, *Table 14-10-0365-01*.

Based on the midpoint of the shares in Table 2, we estimate that First Nations employment would constitute 9.3 per cent of the total jobs generated across the 10 infrastructure areas. Over the assumed seven-year period to build the infrastructure, this equates to 31,448 person-years of employment for First Nations individuals. Our estimates suggest that this employment would represent roughly 9.0 per cent of current First Nations employment annually.

Although the level of employment is a conservative estimate, significant public and private interventions would be necessary to ensure First Nations individuals have the capacity and skills required to work on the infrastructure projects. The lack of data on employment by industry for First Nations individuals living on reserve prevents a more detailed examination of employment capacity. Given that employment rates are generally lower for First Nations, there may be considerable workforce capacity assuming adequate support and training is provided.[170] Ensuring participation by First Nations will be critical for the success of these projects, particularly for the long-term O&M of each infrastructure project.

Limitations

The Conference Board of Canada's EIA model has several limitations when assessing large-scale investments that extend over a prolonged period.

Firstly, the EIA model assumes no capacity constraints related to physical or labour resources. It also does not account for inflationary pressures, such as rising prices for construction materials and wages, which could result from significant infrastructure investments. Additionally, the economic impacts in this report were estimated before the onset of the global trade tensions involving the United States.

The model also assumes constant returns to scale, whereby increasing the amount of investment by a certain percentage increases output by the same percentage. For example, if you double the investment, then GDP and employment impacts would also double. The investment to close the infrastructure gap is considered on top of all other planned investments in the country, meaning it does not account for any potential crowding-out impacts on other investments. For these reasons, the EIA model results may overestimate the actual, or observed, net economic impacts of the investment spending.

The Conference Board's EIA model also does not account for potential downstream impacts associated with the eventual use and integration of the infrastructure on First Nations. The potential downstream impacts include increasing land values, higher productivity, improved health outcomes (lower health costs), better education (higher wages), and additional business development. As a result, our EIA model likely underestimates the full impact of the investment spending on the communities and regions involved.

170 Statistics Canada, Status First Nations people in Canada.

Appendix C: Interview Methodology

Theoretical basis

The interview guide is informed by a comprehensive literature review and prior research documented in the Assembly of First Nations' report on infrastructure gaps. This guide is shaped to capture detailed qualitative data on the socio-economic impacts of infrastructure investments within First Nations communities. Major themes, which are central to understanding the transformative effects of these projects, are outlined below. For confidentiality and to protect intellectual property, the complete interview guide is provided in Appendix D.

Major themes of the interview guide

The interview guide focuses on exploring a variety of significant aspects to draw a detailed picture of the impacts of infrastructure projects. The major themes covered include:

- **Project impact and outcomes:** Understanding the specific impacts of infrastructure projects on First Nations communities, such as economic growth, social cohesion, and improved living standards.
- **Community involvement:** Evaluating the level of community engagement in the planning and execution of projects, and its effect on project outcomes.
- **Economic opportunities:** Identifying new economic opportunities that have emerged as a result of infrastructure improvements, including job creation and business development.
- **Challenges and barriers:** Discussing the key challenges faced during the implementation of projects and the strategies used to overcome them.
- **Benefits to neighbouring communities:** Exploring the spillover benefits to neighbouring non-First Nations communities as a result of infrastructure projects.
- **Sustainability and future plans:** Assessing the sustainability of the projects and plans for future infrastructure initiatives.
- **Educational and health outcomes:** Investigating the impacts on educational access and health outcomes within the community due to improved infrastructure.
- **Digital connectivity:** Examining the role of enhanced digital infrastructure in community development and its broader social and economic effects.

These themes are structured to elicit comprehensive insights into both the direct and indirect benefits of closing the infrastructure gap, facilitating a deep understanding of the multifaceted effects of these investments.

Interview design and implementation

Target interviews by subpopulation

The study specifically targeted 20 representatives from First Nations communities who are experienced in the completion of infrastructure projects across five defined areas: housing, education, digital connectivity, roads, and environment (including drinking water, net-zero, and climate change adaptation). The target number and focus areas were selected to ensure a comprehensive overview of infrastructure impacts across various community types and geographic locations.

Profile of interviewees

Interviewees were selected based on their roles and direct experiences with infrastructure projects, ensuring a diverse representation that included project leaders, community representatives, and technical experts. These selection criteria aimed to gather rich, first-hand insights across various aspects of infrastructure development, such as project planning, execution, and post-completion impacts.

Exclusion of populations

The study did not include individuals from First Nations communities where infrastructure projects had not been initiated or completed, or where the projects did not align with the five focus areas. This exclusion criterion was applied to maintain a focus on populations that could provide informed and relevant insights based on actual project experiences and outcomes.

Method for identifying interview participants

Participants for the interviews were meticulously identified using a multi-stage selection process:

1. **Expert recommendations:** Initial recommendations from the Assembly of First Nations' Chiefs Committee on Housing and Infrastructure provided an informed starting point for potential participants. These experts offered insights into which communities had undertaken significant infrastructure projects and who the key contacts were within those projects.

2. **K-means clustering analysis:** A supporting K-means clustering method was utilized to categorize communities based on Community Wellbeing and Index of Remoteness scores. This analysis helped to pinpoint First Nations communities that had shown success or notable outcomes in infrastructure development, ensuring a diverse and representative sample of interviewees from various geographic and socio-economic contexts.

3. **Purposive sampling:** Following the clustering and expert recommendations, a purposive sampling strategy was employed to select individuals who had direct involvement and expertise in infrastructure projects. This approach ensured that participants could provide deep, actionable insights into the projects' socio-economic impacts.

4. **Screening for relevance:** Potential participants were further screened to ensure their experiences were directly related to the key areas of housing, education, digital connectivity, roads, and environmental projects, aligning with the research's focus on transformative outcomes.

This methodical approach ensured a balanced representation from each identified cluster and adherence to the study's thematic focus, aiming to capture a broad spectrum of impacts and experiences across First Nations communities.

Recruitment process

- **Initial contact:** First email or telephone outreach made on June 10, 2024.
- **Follow-up:** Telephone follow-ups within two weeks of the initial contact.
- **Reminder:** A second email or telephone reminder made on August 12, 2004, with subsequent follow-up calls.

Interview details

- **Total interviews**: 18 interviews were conducted.
- **Method:** Conducted via phone (1) and video (17).
- **Duration and dates:** Interviews lasted approximately 45 minutes, conducted from July 31, 2024, to October 21, 2024.

Data management and analysis

Anonymity and ethics

The project was conducted in compliance with The Conference Board of Canada's Research Office review process, ensuring that ethical standards were maintained to protect the privacy and integrity of participant data.

Participants were informed of the purpose of the study and the potential use of their responses. Interviewees were also given the option to waive their anonymity if they wished to be identified in the case study vignettes or final report. For those who opted for identification, an additional review opportunity was provided to confirm information attributed to them.

Transcription

The interviews resulted in approximately 20 hours of audio recordings. All interviews were transcribed and paraphrased.

Manual coding and thematic analysis

Manual coding

Manual coding involves the researcher reading through interview transcripts and other textual data to categorically assign tags, or "codes," to segments of text that represent specific themes or concepts identified in the data. The step-by-step approach employed was as follows:

- **Initial reading:** Researchers conducted a thorough reading of the transcripts to familiarize themselves with the content and context, noting initial impressions and potential themes.
- **Developing codes:** Based on the initial readings and research objectives, a series of codes was developed. These predefined codes were derived from the research questions and literature review and designed to capture key concepts and themes related to the socio-economic impacts of infrastructure projects within First Nations communities.
- **Applying codes:** Researchers systematically applied these codes to the data. Each segment of text that related to a specific theme was tagged with a corresponding code from the codebook. This process was done manually to ensure that the context was correctly interpreted and that the codes accurately represented the content.
- **Refinement:** As coding proceeded, some codes were split, combined, or refined to better capture the nuances of the data. This iterative process allowed researchers to adapt the coding strategy to better fit the data, ensuring that all relevant themes were adequately and accurately captured.
- **Cross-checking and consensus:** To ensure reliability, different researchers independently coded the data. Discrepancies in coding were discussed in team meetings where consensus was reached through discussion, ensuring inter-coder reliability.

Interview summaries

Alongside manual coding, researchers created summaries for each interview, which helped in understanding the broader narrative and context of each response. Interview summaries contributed to the thematic analysis as follows:

- **Summarization:** After each interview, the researcher wrote a summary that captured the key points, notable quotes, and the general sentiment of the interview. These summaries provided a quick reference to the content of each interview without needing to revisit the full transcripts repeatedly.
- **Identification of emerging themes:** By reviewing these summaries, researchers could quickly identify emerging themes across interviews. This was particularly useful in recognizing patterns or recurring topics that might not have been initially evident.
- **Contextual clues:** Summaries also helped preserve contextual clues that might be lost in the coding process. Understanding the context in which something was said is crucial for interpreting the data accurately, especially when dealing with culturally specific content.

- **Integration into analysis:** The summaries were used to integrate individual data points into a coherent overall analysis. They helped researchers synthesize information across interviews, enhancing the development of a narrative that linked the coded themes with broader research objectives.

Through the combination of manual coding and interview summaries, the research was able to thoroughly capture and analyze the complex and nuanced views expressed by First Nations communities regarding infrastructure projects. This methodological approach ensured that the analysis was grounded in the actual data, providing a robust basis for identifying the specific and varied impacts of infrastructure investments.

Analytical observations

- **Frequency and intensity of themes:** The analysis focused on the frequency and intensity with which certain themes appeared across the transcripts, highlighting the most significant issues and perspectives expressed by participants.
- **Generalizability:** Given the study's focused sample size, the findings are not generalized to all First Nations communities. However, they provide profound insights into the specific populations studied, offering valuable understandings that could inform policy and decision-making.

Appendix D: Interview Guide

Purpose

The purpose of this project is to provide the Assembly of First Nations with a unique and comprehensive analysis of the broad socio-economic benefits of closing the infrastructure gap between First Nations and settler communities in Canada. This project will build upon and extend the research developed by the Assembly of First Nations in its report *Closing the Infrastructure Gap by 2030: A Collaborative and Comprehensive Cost Estimate Identifying the Infrastructure Investment Needs of First Nations in Canada*, published in April 2024, adding a new layer of understanding and insight. [171] This Assembly of First Nations report estimates the national capital and operational investments needed by the Government of Canada to fulfill its mandate to close the First Nations infrastructure gap by 2030. It is estimated that $349.2 billion in investments is required.

The intent of the semi-structured qualitative interviews is to identify transformative socio-economic outcomes and the critical success factors of projects and investments in five general infrastructure areas:

- housing
- education
- digital connectivity
- roads
- environment

Our goal is to interview 20 representatives from First Nations communities who have experience completing an infrastructure project in one of these five areas and who can speak to any resulting economic and/or social impacts.

Outcomes

Based on the interviews, we aim to identify "success stories" that will be compiled into case study vignettes and included in the final research report. These vignettes will not only highlight positive economic and social impacts on First Nations and their neighbouring communities, but also provide practical insights and lessons learned for future infrastructure projects. We are particularly interested in gaining insights into the economic impacts for non-First Nations communities that have resulted from investing in First Nations infrastructure projects, offering a broader perspective on the benefits of such investments.

Process

Twenty interviews will be conducted between July 30 and August 30, 2024. Each interview will be approximately 60 minutes in length and be conducted through Microsoft Teams. Interviews will be recorded, and all information received will be stored on password-protected servers, ensuring the highest level of data security. Interviews will be transcribed by the research team. Direct and paraphrased quotes from the interview transcripts may be used to discuss the research findings. As a general rule, neither the

171 Assembly of First Nations, *Closing the Infrastructure Gap by 2030.*

research participants nor individuals referred to in the interviews will be personally identifiable from the information presented in the case study vignettes or final report, maintaining the anonymity and privacy of all involved. However, participants will be given the option to waive their right to anonymity if they choose to be identified in the case study vignettes and final report. (In such cases, they will also be given an opportunity to review information attributed to them.) Interview data will be transcribed and analyzed using NVivo qualitative analysis software to facilitate detailed thematic coding.

Interview questions

General questions

1. Can you tell me about the (infrastructure project)?
2. How has this project impacted your community?
3. What were the key challenges faced during the implementation of the project?
4. Did the community members participate in the planning and execution of the project? If so, how? If not, why not?
5. Were First Nations businesses and people involved? If so, how? If not, why not?
6. What impact do you think the project has had on the quality of life in your community? What have been the benefits, if any? What have been the downsides, if any?
7. Can you provide examples of any economic opportunities that arose from the project?
8. Has the project influenced the education and employment rates in your community? If so, how?
9. Did you have support or partnerships for this project?
10. If so, which kinds would you say were most critical to the success of the project?
11. Can you describe any environmental impacts that the project had, whether positive or negative?
12. Has the project affected relationships with neighbouring communities or external contractors? If so, how?
13. (If the First Nation has its own land code under the First Nations Land Management Act [172]): Has your land code affected the development and execution of infrastructure projects in your community? If so, how?

172 Lands Advisory Board and First Nations Land Management Research Centre, *Signatory First Nations*.

Housing

1. Can you describe the infrastructure projects related to housing in your community?
2. Can you describe the changes in living conditions since the new housing infrastructure was developed?
3. Has the availability of new housing affected population growth or migration in your community? If so, how?
4. Have there been any economic benefits that have arisen from the construction and maintenance of new housing? If yes, what are they?
5. Has the new housing infrastructure had an influence on health outcomes in your community? If it has, please elaborate.
6. Do you know any examples of how the projects have created employment opportunities locally? If yes, please explain.
7. Have community members been involved in the planning and building of new housing? If so, how?
8. Has there been any impact on community and social relationships because of the new project(s)?
9. Are you aware of any other benefits to local businesses due to the new infrastructure? If yes, please elaborate.
10. Have non-First Nations construction companies been involved in these projects? What has been the impact?
11. Has the new housing infrastructure affected the overall safety and security of your community? If yes, please elaborate.

All-season roads

1. Can you describe the infrastructure projects related to all-season roads in your community?
2. How has the construction of all-season roads affected your community?
3. Are you aware of any economic benefits that have resulted from improved road infrastructure? If yes, please elaborate.
4. Have all-season roads impacted emergency services and healthcare accessibility? If so, how?
5. Has year-round road access influenced educational opportunities? If yes, please elaborate.
6. Have there been any new employment or business opportunities that have emerged due to improved road access?
7. Are you aware of any examples of how community members have specifically benefited from access to an all-season road?

8. Has the construction of all-season roads affected relationships with neighbouring communities? If so, how?
9. What role did non-First Nations construction companies play in these projects, and what was the impact?
10. Can you describe any environmental concerns that may have been addressed during the construction of these roads?
11. Have all-season roads had an impact on cultural and social activities in your community? If yes, please elaborate.

Climate adaptation

1. Can you describe the climate adaptation infrastructure project(s) undertaken in your community?
2. What were the key drivers for initiating the climate adaptation project(s)?
3. Have these projects improved the community's resilience to climate change? If so, how?
4. Were there any specific challenges you encountered during the project(s)?
5. Has the community been involved in the planning and execution of the projects? If yes, please elaborate.
6. 6. Are you aware of any examples of economic opportunities that arose from climate adaptation initiatives? If yes, please elaborate.
7. Have these projects influenced the overall health and safety of the community? If so, how?
8. Were there any types of support or partnerships that were essential for the success of the project(s)?
9. Have these initiatives impacted relationships with neighbouring communities and external agencies? If yes, please elaborate.
10. Are you aware of any educational programs or workshops conducted to increase awareness about climate adaptation? If yes, please elaborate.

Net-zero

1. Can you describe the infrastructure project(s) your community has undertaken toward net-zero carbon emissions?
2. What challenges, if any, did you face in planning and implementing net-zero carbon initiatives?
3. Have these projects impacted the community's carbon footprint? If so, how?
4. What role, if any, did renewable energy sources play in achieving net-zero carbon goals?
5. Are you aware of any economic benefits arising from net-zero carbon projects? If yes, please elaborate.

6. Have community members been involved in the planning and execution of the project(s)? If so, how?
7. Were there any partnerships or external supports that were crucial to the success of the project(s)?
8. Have net zero carbon projects influenced local employment opportunities? If yes, please elaborate.
9. Have any educational or awareness programs been implemented to support the community's transition to net-zero carbon?
10. Has(have) the project(s) affected relationships with neighbouring communities or external contractors? If yes, please elaborate.

Education

1. Can you describe the infrastructure project(s) related to education in your community?
2. Has the new educational infrastructure impacted access to education for community members? If so, how?
3. Have there been any changes in student performance or graduation rates since the new facilities were built? If yes, what are they?
4. Are there any specific programs that have benefited from the new infrastructure?
5. Has the new infrastructure influenced teacher retention and recruitment in your community? If so, how?
6. In what ways have parents and families been involved in the project(s)?
7. Can you share any stories of students whose educational journeys have improved due to the new infrastructure?
8. How has digital connectivity in schools enhanced the learning experience?
9. Have you observed any other benefits in the community due to improved educational facilities?
10. Have there been any partnerships with non-First Nations educational institutions? If so, have they been beneficial? If yes, how so?
11. Has the new educational infrastructure influenced career aspirations among students? If so, how?

Digital connectivity

1. Can you describe the infrastructure project(s) related to digital connectivity in your community?
2. Has increased digital connectivity impacted daily life in your community? If yes, how? Are you aware of any specific economic benefits that have resulted from improved digital connectivity? If yes, please elaborate.
3. Has access to high-speed internet influenced educational opportunities in your community? If so, how?

4. Has digital connectivity enhanced healthcare services? If so, how?
5. Are you aware of any examples of how local businesses have benefited from improved digital connectivity? If yes, please elaborate.
6. Have there been any digital literacy programs implemented along with the project(s)? What impact, if any, has increased digital connectivity had on communication within the community and with external partners?
7. Are you aware of any new employment or business opportunities that have arisen due to better digital infrastructure?
8. Has digital connectivity had any impact on cultural preservation and the sharing of traditional knowledge? If yes, how?
9. Have there been any partnerships with external tech companies? If so, what has been the impact?

Clean drinking water

1. Can you describe the improvements made to the drinking water infrastructure in your community?
2. How have these improvements impacted the overall health of community members, if at all?
3. Were there any major challenges faced during the upgrade of the drinking water infrastructure? If so, what were they?
4. Are you aware of any examples of economic benefits resulting from improved drinking water infrastructure? If yes, please elaborate.
5. What role did partnerships and external funding play in the success of these projects?
6. Have improvements in drinking water infrastructure affected relationships with neighbouring communities? If so, how?
7. Have there been any changes in local businesses or economic activities due to the availability of clean drinking water? If yes, please elaborate.
8. What ongoing maintenance or future plans are in place to ensure the sustainability of the improved drinking water infrastructure?
9. Can you share any personal stories or testimonials from community members about the impact of improved drinking water on their lives?
10. Are there any lessons learned from the project(s) that can be applied to future infrastructure initiatives in your community?

Appendix E: Interview Participants

Table 1 below outlines the contributions of various interview participants to the Phase 2 report on infrastructure projects across different First Nations in Canada. These individuals provided insights that have been crucial in understanding the scope, impact, and nuances of each project. The discussions covered a range of topics, including housing, education, digital connectivity, and environmental sustainability. It's important to note that some participants were involved in conversations about multiple projects, underscoring the interconnected nature of these initiatives and their roles.

Table 1: Interview participants' contributions

Project number	Infrastructure category	First Nation	Province	Project name	Interview participant
1	Housing	Squamish FN	B.C.	Sḵwx̱wú7mesh Housing Project	Sean Ruzicka
2	Housing	Chippewas of Nawash	Ont.	Nawash-Habitat for Humanity Housing Project	Sarah Chegahno, Frank Horn, Sandra George
3	Housing	Tzeachten First Nation	B.C.	Tzeachten Housing Project	Derek Epp
4	Direct asks	Mi'kmaw First Nation	N.S.	Family Resource Centre Roof Replacement Project	Pamela Glode-Desrochers
5	Direct asks	Mi'kmaw First Nation	N.S.	Mi'kmaw Native Friendship Centre New Building Project	Pamela Glode-Desrochers
6	All-season roads	Simpcw First Nation	B.C.	Road Paving Project	Chief George Lampreau
7	All-season roads	Shoal Lake 40 First Nation	Man.	The Freedom Road Project	Bill Wahpay
8	Net-zero	Taku River Tlingit First Nation	B.C.	Atlin Hydro Project	Stuart Simpson
9	Net-zero	Simpcw First Nation	B.C.	Simpcw Net-Zero Housing Project	Chief George Lampreau
10	Net-zero	Atikamew de Wemotaci First Nation	Que.	Wemotaci Electrification Project	Jon-Evan Quoquochi

Project number	Infrastructure category	First Nation	Province	Project name	Interview participant
11	Net-zero	Atikamew de Wemotaci First Nation	Que.	Wind Farm Project (construction upcoming)	Jon-Evan Quoquochi
12	Education	Paul First Nation	Alta.	New School Project	Nicole Callihoo
13	Education	Constance Lake First Nation	Ont.	Mamawmataw,a Holistic Education Centre Project	Gaetan Baillargeon
14	Education	Kehewin First Nation	Alta.	New School	William John
15	Education	Listuguj Mi'gmaq Nation	Que.	Alaqsite'w Gitpu School Expansion Project	Bassem Abdrabou
16	Digital connectivity	Fisher River Cree Nation	Man.	Clear Sky Connections Fibre Project	Bill Murdoch, Frank Horn, Sandra George
17	Digital connectivity	Norway House Cree Nation	Man.	Fibre Connectivity Project	Shawn Scribe
18	Digital connectivity	Eeyou Itschee Cree Nation	Que.	Eeyou Communications Project	Alfred Loon
19	Water	Enoch Cree Nation	Alta.	Clean Water Project	Troy McDonald
20	Water	Listuguj Mi'kmaq Nation	Que.	Listuguj Water Upgrades Project	Bassem Abdrabou

Source: The Conference Board of Canada.

Appendix F: Direct Asks

Table 1: Infrastructure categories within direct asks

Infrastructure category	Description	Share of cost *(per cent)*
Community accessibility assets	Includes all-weather roads to connect communities, includes hydro and related assets to connect to communities (does not include in-community hydro), external bridges. All assets are external to the community.	21.0
Community assets	Includes community centres, community costs and studies, libraries, community workshops and storage areas, additions to reserve, administrative buildings. Includes all vehicles for the community.	32.9
Cultural assets	Includes cultural centres, ceremonial grounds, powwow grounds, museums.	1.8
Economic development	Includes gas stations, hotels, storefronts.	3.5
Education and training	Includes schools, vocational training, Indigenous language training.	6.4
Emergency services	Includes fire, ambulance, police.	3.4
Health	Includes all health-related assets, nursing stations, clinics, long-term care homes.	12.3
Recreation assets	Includes trails, arenas, baseball diamonds.	2.8
Social programs	Includes social work, childcare, men's and women's shelters. Includes Elders' complexes not identified as long-term care homes.	7.8
Solid waste and recycling	Includes waste-processing areas, landfills, garbage trucks.	1.2
Transportation infrastructure	Includes roads, bridges, waterways, airports, tunnels within the community.	0.5

Source: Assembly of First Nations, *Closing the Infrastructure Gap by 2030.*

Appendix G: Glossary of Terms

Capital costs: Fixed one-time expenses incurred during the capital phase of the project, including the equipment related to the project.

Corporate taxes: Taxes collected by federal and provincial governments on corporations' and other similar legal entities' profits.

Direct impacts: These are the economic impacts directly caused by investing in the construction and operational phases of the 10 infrastructure areas in Canada.

Economic output: Economic output measures the gross value of all economic activity. This measure includes all goods and services produced, both final products and intermediate goods and services, which are used in the production of other goods and services. On the contrary, GDP includes only the value of final goods and services and avoids double counting the value of intermediate goods. For example, if a company buys a car for $500 and then sells the car for $1,000, output will include the intermediate purchase plus the sale of the car ($500 + $1,000), whereas GDP will include only the final sale of the car ($1,000).

GDP multiplier: The GDP multiplier captures the net economic impact of total investment. It is the ratio between the investment across the 10 infrastructure areas and the corresponding total GDP impact. It is calculated as the amount of GDP generated from $1 of spending.

Gross domestic product (GDP): GDP is a measure of the value-added economic activity, expressed in terms of actual prices a purchaser pays after taxes. Unlike economic output, GDP includes only the value of final goods and services, giving a more representative picture of a nation's economic performance by avoiding double counting the value of intermediate goods.

Indirect impacts: Indirect impacts measure the value added that the "direct impact firms" generate through their demand for intermediate inputs or other support services.

Induced impacts: Induced impacts are derived when employees of the directly and indirectly affected industries spend their earnings and employers spend their profits. These purchases lead to another round of employment, wages, income, and tax revenues, and are typically felt across a wide array of consumer-oriented industries.

Labour income: Monetary compensation and benefits paid to wage and salary earners and self-employed individuals. Labour income is presented in gross terms before taxes and other deductions.

Local taxes: Taxes collected from firms and individuals by the municipality and First Nations where they reside.

Operation and maintenance costs (O&M): Expenses incurred during the operational phase of the project, which ensure that an asset achieves its planned lifespan, including repairs and periodic replacement of components.

Output multiplier: The output multiplier captures the total/gross economic impact of total investment. It is the ratio between Canada's investment across the 10 infrastructure areas and the corresponding total output impact. It is calculated as the amount of output generated from $1 of spending.

Personal income taxes: Taxes collected by federal and provincial governments on individuals' income.

Sales tax: Taxes collected by federal and provincial governments on the purchase of goods and services.

Appendix H: Bibliography

Accessible Canada Act. SC 2019, c. 10.

Anderson, Thomas. "Chapter 4: Indigenous Youth in Canada." *Statistics Canada*, December 1, 2021. https://www150.statcan.gc.ca/n1/pub/42-28-0001/2021001/article/00004-eng.htm.

Aragón, Fernando M. "Do better property rights improve local income? Evidence from First Nations' treaties." *Journal of Development Economics* 116 (2015): 43–56. https://www.sciencedirect.com/science/article/abs/pii/S0304387815000401.

Arctic Institute of Community-Based Research. "*Selkirk First Nation Project*." n.d. https://www.aicbr.ca/selkirk-project.

Arriagada, Paula. "The achievements, experiences and labour market outcomes of First Nations, Métis and Inuit women with bachelor's degrees or higher." *Statistics Canada*, October 20, 2021. https://www150.statcan.gc.ca/n1/pub/75-006-x/2021001/article/00009-eng.htm.

Assembly of First Nations. "*Closing the Infrastructure Gap by 2030: A Collaborative and Comprehensive Cost Estimate Identifying the Infrastructure Investment Needs of First Nations in Canada*." March 2023. https://afn.bynder.com/m/367574a3a5cb5abe/original/1-AFN-Closing-the-Infrastructure-Gap-by-2030-National-Cost-Estimate-English-report-1.pdf.

—. "*Building Inclusive and Accessible First Nations Governments.*" 2025. https://afn.ca/a-first-nations-accessibility-hub-of-excellence/.

—. "*A First Nations' Accessibility Hub of Excellence: Building Inclusive and Accessible First Nations Governments.*" 2025. https://afn.ca/a-first-nations-accessibility-hub-of-excellence/#:~:text=As%20part%20of%20the%20Assembly%20of%20First%20Nations%E2.%80%99,array%20of%20culturally%20responsive%20accessibility%20tools%20and%20resources.

Barrette, Paul D., Yuraki Hori, and Amy M. Kim. "The Canadian winter road infrastructure in a warming climate: Toward resilience assessment and resource prioritization." *Sustainable and Resilient Infrastructure* 7, no. 6 (2022): 842–60. https://doi.org/10.1080/23789689.2022.2094124.

Batal, M., H. M. Chan, K. Fediuk, A. Ing, P. R. Berti, G. Mercille, T. Sadik, and L. Johnson-Down. "First Nations households living on-reserve experience food insecurity: prevalence and predictors among ninety-two First Nations communities across Canada." *Canadian Journal of Public Health* 112, Suppl 1 (2021): 52–63. https://doi.org/10.17269/s41997-021-00491-x.

Besley, Timothy J., and Maitreesh Ghatak. "Property Rights and Economic Development." *Handbook of Development Economics* 5 (2010): 4525–95.

Bradford, Lori E. A., Lalita A. Bharadwaj, Udoka Okpalauwaekwe, and Cheryl L. Waldner. "Drinking Water Quality in Indigenous Communities in Canada and Health Outcomes: A Scoping Review." *International Journal of Circumpolar Health* 75, no. 1 (2016). https://doi.org/10.3402/ijch.v75.32336.

Brennan, Maya. "The Impacts of Affordable Housing on Education: A Research Summary." *National Center for Housing Policy*, May 2011. https://nchh.org/resource-library/cfhp_insights_impacts-of-affordable-housing-on-education.pdf.

Buckup, Sebastian. "The Price of Exclusion: The Economic Consequences of Excluding People with Disabilities from the World of Work." *International Labour Organization*, 2009. https://www.ilo.org/publications/price-exclusion-economic-consequences-excluding-people-disabilities-world.

Burnham, J. "Establishing & Enhancing Libraries Within Indigenous Communities." *National Reading Campaign*, 2017. https://www.ourcommons.ca/Content/Committee/421/FINA/Brief/BR8398338/br-external/NationalReadingCampaign-e.pdf.

Canada Revenue Agency. "*Information on the tax exemption under section 87 of the Indian Act.*" Last modified February 20, 2025. https://www.canada.ca/en/revenue-agency/services/indigenous-peoples/information-indians.html.

Canadian Climate Institute. "Tip of the Iceberg: Navigating the Known and Unknown Costs of Climate Change for Canada." *Canadian Climate Institute*, December 2020. https://climatechoices.ca/wp-content/uploads/2020/12/Tip-of-the-Iceberg-_-CoCC_-Institute_-Full.pdf.

—. "*Under Water: The Costs of Climate Change for Canada's Infrastructure.*" September 2021. https://climateinstitute.ca/reports/under-water/.

—. "*Due North: Facing the Costs of Climate Change for Northern Infrastructure.*" June 2022. https://climateinstitute.ca/wp-content/uploads/2022/06/Due-North.pdf.

—. "*Damage Control: Reducing the Costs of Climate Impacts in Canada.*" September 2022. https://climateinstitute.ca/reports/damage-control/.

—. "*The Costs of Climate Change: A Series of Five Reports.*" n.d. https://climateinstitute.ca/reports/the-costs-of-climate-change/.

Canadian Institute for Climate Choices. "*Waves of Change: Indigenous Clean Energy Leadership for Canada's Clean Electric Future*." February 2022. https://climateinstitute.ca/wp-content/uploads/2022/02/ICE-report-ENGLISH-FINAL.pdf.

Canadian Council for Indigenous Business. "*Industry and Inclusion: An Analysis of Indigenous Potential in Federal Supply Chains.*" January 1, 2019. https://wekh.ca/research/industry-and-inclusion-2019-an-analysis-of-indigenous-potential-in-federal-supply-chains/.

Carpenter, Penny. "Utilizing Technologies to Promote Education and Well-Being." *Aboriginal Policy Research Consortium International*, 2010. https://ir.lib.uwo.ca/cgi/viewcontent.cgi?article=1361&context=aprci.

CBC News. "*Hydro-Québec announces $9B wind power project, one of the largest in North America.*" July 4, 2024. https://www.cbc.ca/news/canada/montreal/hydro-quebec-wind-power-project-1.7254233.

Centre for Constitutional Studies. "*Aboriginal Rights*." n.d. https://www.constitutionalstudies.ca/the-constitution/aboriginal-rights/.

Chang, Anne B., Tom Kovesi, Gregory J. Redding, Conroy Wong, Gonzalo G. Alvarez, Rebecca Nantanda, Edgar Beltetón, Maynor Bravo-López, Maree Toombs, Paul J. Torzillo and others. "Chronic respiratory disease in Indigenous peoples: a framework to address inequity and strengthen respiratory health and health care globally." *The Lancet Respiratory Medicine* 12, no. 7 (July 2024): 556–74. https://researchers.cdu.edu.au/en/publications/chronic-respiratory-disease-in-indigenous-peoples-a-framework-to-#:~:text=Here%2C%20we%20review%20evidence%20on%20the%20burden%20of,the%20respiratory%20health%20of%20Indigenous%20peoples%2C%20and%20ou.

Conference Board of Canada, "The Benefits for All Canadians (Part 1): Economic Impact of Closing the Infrastructure Gap." *Assembly of First Nations*, August 30, 2024. https://afn.bynder.com/m/6dd56bbd79afa1d3/original/Benefits-for-All-Canadians-Part-1-Economic-Impact-of-Closing-the-Infrastructure-Gap.pdf.

Crown-Indigenous Relations and Northern Affairs Canada. "First Nation Land Management: Policy and legislation." *Government of Canada*, last modified August 1, 2023.

Czernich, Nina, Oliver Falck, Tobias Kretschmer, and Ludger Woessmann. "Broadband Infrastructure and Economic Growth." *The Economic Journal* 121, no. 552 (May 12, 2011): 505–32. https://doi.org/10.1111/j.1468-0297.2011.02420.x.

Dehcho Collaborative on Permafrost. "*Dehcho Collaborative on Permafrost*." n.d. https://scottycreek.com/DCoP/.

Employment and Social Development Canada. "*Canada's Disability Inclusion Action Plan*." 2022. https://www.canada.ca/content/dam/esdc-edsc/documents/programs/disability-inclusion-action-plan-2/action-plan-2022/ESDC_PDF_DIAP_EN_20221005.pdf.

Environment and Climate Change Canada. "*Government of Canada supports Indigenous climate action with new funding stream under the Indigenous Leadership Fund.*" News release, March 12, 2024. https://www.canada.ca/en/environment-climate-change/news/2024/03/government-of-canada-supports-indigenous-climate-action-with-new-funding-stream-under-the-indigenous-leadership-fund.html.

Fellows, G. Kent, Alaz Munzur, and Jennifer Sunrise Winter. "A Socio-economic Review of the Impacts of Northwest Territories' Inuvik to Tuktoyaktuk Highway 10." *Canadian Journal of Regional Science* 45, no. 3 (2022). https://www.erudit.org/fr/revues/cjrs/2022-v45-n3-cjrs07537/1094686ar.pdf.

First Mile Connectivity Consortium. "*First Mile Connectivity Consultium*." 2016. http://firstmile.ca/fmcc-2/.

First Nations Tax Commission. "Taxpayers: Property Taxation on Reserve." n.d. https://fntc.ca/property-taxation-on-reserve/

Government of Canada. "Accessible Canada Regulations: SOR/2021-241." *Canada Gazette, Part II: Volume 155, Number 26* (December 22, 2021). https://gazette.gc.ca/rp-pr/p2/2021/index-eng.html.

Government of Northwest Territories. "*Climate Change Council*." n.d. https://www.gov.nt.ca/ecc/en/services/climate-change/climate-change-council.

—. Government of Northwest Territories. "*Inuvik Tuktoyaktuk Highway Project*." n.d. https://www.inf.gov.nt.ca/en/ITH.

Graham, Simon, Nicole M. Muir, Jocelyn W. Formsma, and Janet Smylie. "First Nations, Inuit and Métis Peoples Living in Urban Areas of Canada and Their Access to Healthcare: A Systematic Review." *International Journal of Environmental Research and Public Health* 20, no. 11 (May 25, 2023): 5956. https://doi.org/10.3390/ijerph20115956.

Grand Council Treaty #3. "*Manito Aki Inakonigaawin*." n.d. https://gct3.ca/land/manito-aki-inakonigaawin/.

Grand Council Treaty #3, "*Manito Aki Inakonigaawin Information Package*."1997. https://gct3.ca/wp-content/uploads/2023/02/MAI-Toolkit.pdf.

Grand Council Treaty #3, "*Manito Aki Inakonigaawin Project Application Framework*." 2022. https://gct3.ca/wp-content/uploads/2022/07/GCT3-MAI-Framework-Application-.pdf.

Habitat for Humanity. "*How does housing affect children's education?*" 2021. https://www.habitat.org/sites/default/files/documents/21-81776_RD_EvidenceBrief-6-Education_FASH-lores_1.pdf.

Hori, Yukari, William A. Gough, Benita Y. Tam, and Leonard J. S. Tsuji. "Community vulnerability to changes in the winter road viability and longevity in the western James Bay region of Ontario's Far North." *Regional Environmental Change* 18 (March 5, 2018): 1753–63. https://www.semanticscholar.org/paper/Community-vulnerability-to-changes-in-the-winter-in-Hori-Gough/aa818dfd14c2dc0f7e7c8033b8c6205cf451cd0e.

Hudson, Heather E. "The Impact of Internet Access in Indigenous Communities in Canada and the United States: An Overview of Findings and Guidelines for Research." *Internet Society*, February 2020. https://www.internetsociety.org/wp-content/uploads/2020/07/Impact-Indigenous_Communities-EN.pdf.

Hunter, Justine. "Cost of rebuilding B.C. after flooding nears $9-billion." *The Globe and Mail*, February 19, 2022. https://www.theglobeandmail.com/canada/british-columbia/article-cost-of-rebuilding-bc-after-november-storms-nears-9-billion/.

Indian Act. RSC, 1985, c. I-5.

Indigenous Clean Energy. "*Accelerating Transition.*" June 2020. https://indigenouscleanenergy.com/wp-content/uploads/2022/06/ICE-Accelerating-Transition-Data-Report-web.pdf.

—. "*Mandatory minimum 5% Indigenous procurement target*." July 8, 2024. https://www.sac-isc.gc.ca/eng/1691786841904/1691786863431.

Indigenous Services Canada. "*Treaty Land Entitlement*." Last modified April 11, 2017. https://sac-isc.gc.ca/eng/1100100034822/1612127247664.

—. "*About drinking water advisories*." Last modified February 19, 2021. https://www.sac-isc.gc.ca/eng/1538160229321/1538160276874.

—. "Let's talk on-reserve education: Survey report." *Indigenous Services Canad*a, October 29, 2024. https://sac-isc.gc.ca/eng/1509019844067/1531399883352.

—. "*Map of long-term drinking water advisories on public systems on reserves*." Last modified March 11, 2025. https://www.sac-isc.gc.ca/eng/1620925418298/1620925434679#.

—. "*Short-term drinking water advisories*." Last modified May 8, 2025. https://www.sac-isc.gc.ca/eng/1562856509704/1562856530304#wb-auto-6

International Labour Organization. "*Brief Profile on People with Disabilities*." 2012. https://www.ilo.org/publications/brief-profile-people-disabilities.

Insurance Bureau of Canada. "*Emergency Preparedness Week: Western Canada must Get Ready as Severe Weather Season Approaches*." May 5, 2025. https://www.ibc.ca/news-insights/news/western-canada-must-get-ready-as-severe-weather-season-approaches.

Jeffery, Tristan, Donna L. M. Kurtz, and Charlotte Ann Jones. "Two-Eyed Seeing: Current approaches, and discussion of medical applications." *BC Medical Journal* 63, no. 8 (2021): 321–25. https://bcmj.org/articles/two-eyed-seeing-current-approaches-and-discussion-medical-applications.

Joyce's Principle Office. "*Joyce's Principle*." November 2020. *https://principedejoyce.com/en/index*.

Keewaytinook Okimakanak Research Institute. "*C-Band Public Benefit Keewaytinook Okimakanak: A Case Study*." March 28, 2005. http://research.knet.ca/files/05-03-29-Summative-Overview-C-Band-Public-Benefit-KNet1%5B1%5D.pdf.

Kiedrowski, John. "Indigenous communities and federal accessibility standards: A situational review." *First Nations National Building Officers Association*, 2021. https://www.fnnboa.ca/indigenous-communities-and-federal-accessibility-standards.

Lands Advisory Board and First Nations Land Management Resource Centre Inc. "*Signatory First Nations*." n.d. https://labrc.com/signatory-first-nations/.

Lauder, Hugh, and Ken Mayhew. "Higher Education and the Labour Market: An Introduction." *Oxford Review of Education* 46, no. 1 (January 27, 2020): 1–9.

Lavoie Josée Gabrielle, Evelyn L. Forget, Tara Prakash, M. Dahl, Patricia Martens, and John D. O'Neil. "Have investments in on-reserve health services and initiatives promoting community control improved First Nations' health in Manitoba?" *Social Science & Medicine*, 71, no. 4 (August 2010): 717–24. doi: 10.1016/j.socscimed.2010.04.037.

Layton, Jaclyn. "Distance as a Factor for First Nations, Métis, and Inuit High School Completion." *Statistics Canada*, June 21, 2023. https://www150.statcan.gc.ca/n1/pub/81-595-m/81-595-m2023002-eng.htm.

Loebach, Janet, Kate Tilleczek, Brent Chaisson, and Brian Sharp. "*Keyboard warriors?* Visualising technology and well-being *with, for* and *by* indigenous youth through digital stories." Visual Studies 34, no. 3 (November 25, 2019): 281–97. https://doi.org/10.1080/1472586X.2019.1691050.

Lyeo, Joonsoo S., Michael D. Wong, Natalie Clyke, Becky Big Canoe, Penny Kinnear, Helen Stops, Nicholas D. Spence, and Sarah R. Haines. "Ten questions concerning First Nations on-reserve housing in Canada." *Building and Environment* 257 (April 1, 2024). https://doi.org/10.1016/j.buildenv.2024.111544.

Maracle, Gabriel Karenhoton. "Connections and Processes: Indigenous Community and Identity's Place in the Healing Journey." *Turtle Island Journal of Indigenous Health* 1, no. 2 (2021): 18–27. https://jps.library.utoronto.ca/index.php/tijih/article/view/36052/28712.

Minges, Michael. "*Exploring the Relationship Between Broadband and Economic Growth*." World Bank, January 2015. https://documents1.worldbank.org/curated/en/178701467988875888/pdf/102955-WP-Box394845B-PUBLIC-WDR16-BP-Exploring-the-Relationship-between-Broadband-and-Economic-Growth-Minges.pdf.

Natural Resources Canada. *The Canada Green Buildings Strategy: Transforming Canada's buildings sector for a net-zero and resilient future*. Natural Resources Canada, August 16, 2024. https://natural-resources.canada.ca/transparency/reporting-and-accountability/plans-and-performance-reports/departmental-strategies/the-canada-green-buildings-strategy-transforming-canadas-buildings-sector-for-net-zer/26065.

Nawaz, Shahzada Muhammad Naeem, and Shahzad Alvi. "The Impact of Malnutrition and Lack of Access to Clean Water on Productivity." *Journal of Business & Economics* 9, no. 1 (January-June 2017): 66–86. https://www.researchgate.net/profile/shahzad-alvi/publication/324546412_the_impact_of_malnutrition_and_lack_of_access_to_clean_water_on_productivity/links/5ad50837a6fdcc293.

Nguyen, Nam Hoang, Fatheema B. Subhan, Kienan Williams, and Catherine B. Chan. "Barriers and Mitigating Strategies to Healthcare Access in Indigenous Communities of Canada: A Narrative Review." *Healthcare* 8, no. 2 (2020): 112. https://doi.org/10.3390/healthcare8020112.

Office of the Auditor General of Canada. "*Report 3—Access to Safe Drinking Water in First Nations Communities—Indigenous Services Canada*." 2021. https://www.oag-bvg.gc.ca/internet/English/parl_oag_202102_03_e_43749.html.

—. "*Reports of the Auditor General of Canada to the Parliament of Canada: Housing in First Nations Communities*." 2024. https://www.oag-bvg.gc.ca/internet/docs/parl_oag_2024_03_02_e.pdf.

O'Gorman, Melanie. "Mental and physical health impacts of water/sanitation infrastructure in First Nations Communities in Canada: An analysis of the Regional Health Survey." *World Development* 145 (September 2021). http://dx.doi.org/10.1016/j.worlddev.2021.105517.

Ontario Library Association. "*First Nations Public Libraries in Ontario*." n.d. https//accessola.com/first-nation-public-librairies/.

Pai, Sandeep, and Savannah Carr-Wilson. "Towards 'Total Transition': How One First Nation 'Took Its Power Back'." *The Tyee*, November 1, 2018. https://thetyee.ca/Culture/2018/11/01/Total-Transition-First-Nation-Power/.

Pembina Institute. "*Diesel Reduction Progress in Remote Communities*." July 2020. https://www.pembina.org/reports/diesel-reduction-progress-research-summary-pdf

—. "*Diesel Subsidies—Simplified*." June 2021. https://www.pembina.org/reports/diesel-subsidies-simplified-2021-06.pdf.

Potter, Darrin. "Keewaytinook Internet High School: Moving First Nation Students Ahead with Technology in Ontario's Remote North." *Keewaytinook Internet High School*, https://sahtuyouthnetwork.squarespace.com/.

Price, Mindy Jewell, Alex Latta, Andrew Spring, Jennifer Temmer, Carla Johnston, Lloyd Chicot, Jessica Jumbo, and Margaret Leishman. "Agroecology in the North: Centering Indigenous food sovereignty and land stewardship in agriculture 'frontiers'." *Agriculture and Human Values* 39, no. 4 (December 2022): 1191–1206. https://doi.org/10.1007/s10460-022-10312-7.

Reed, G., S. Fox, D. Littlechild, D. McGregor, D. Lewis, J. Popp, K. Wray, N. Kassi, R. Ruben, S. Morales and others. "For our future: Indigenous resilience report." *Government of Canada*, 2024. https://doi.org/10.4095/g273616.

Riva, Alessia, Andrea Rebecchi, Stefano Capolongo, and Marco Gola. "Can Homes Affect Well-Being? A Scoping Review among Housing Conditions, Indoor Environmental Quality, and Mental Health Outcomes." *International Journal of Environmental Research and Public Health* 19, no. 23 (November 30, 2022). https://doi.org/10.3390/ijerph192315975.

Sahtú Youth Network. "*Sahtú Youth Network*." n.d. https://sahtuyouthnetwork.squarespace.com/.

Schrumm, Andrew, Sonya Bell, and Tracee Smith. "Building Bandwidth: Preparing Indigenous youth for a digital future." *Royal Bank of Canada*, July 13, 2021. https://thoughtleadership.rbc.com/building-bandwidth-preparing-indigenous-youth-for-a-digital-future/.

Schwerdt, Guido, Simon Wiederhold, and Scott T. Murray. "Literacy and Growth: New Evidence from PIAAC." *PIAAC Gateway*, January 4, 2020. https://static1.squarespace.com/static/51bb74b8e4b0139570ddf020/t/5e41921d9b373537f6380dbf/1581355550744/2020_Schwerdt_Wiederhold_Murray_Literacy-and-Growth.pdf.

Selkirk First Nation and Arctic Institute of Community-based Research. "*Adapting to Climate Change and Keeping Our Traditions*." Selkirk First Nation, March 2016. https://static1.squarespace.com/static/56afc7218259b53bd8383cb8/t/57ab923e59cc68307527742f/1470861914849/Selkirk+Climate+Change+Adaptation+Plan_CommunityReport_final.%5B2%5D.compressed.pdf.

Simpcw. "*Territorial Stewardship Plan*." n.d. https://simpcw.com/territorial-stewardship-plan/

Statistics Canada. "*Literacy and numeracy among off-reserve First Nations people and Métis: Do higher skill levels improve labour market outcomes?*" May 2016. https://www150.statcan.gc.ca/n1/pub/75-006-x/2016001/article/14630-eng.htm.

—. "*The Aboriginal languages of First Nations people, Métis and Inuit*." October 25, 2017. https://www12.statcan.gc.ca/census-recensement/2016/as-sa/98-200-x/2016022/98-200-x2016022-eng.cfm.

—. "*Life expectancy of First Nations, Métis and Inuit household populations in Canada*." 2019. https://www150.statcan.gc.ca/n1/pub/82-003-x/2019012/article/00001-eng.htm.

—. "*Unmet health care needs during the pandemic and resulting impacts among First Nations people living off reserve, Métis and Inuit*." 2022. https://www150.statcan.gc.ca/n1/pub/45-28-0001/2022001/article/00008-eng.htm.

—. "*Indigenous languages across Canada*." March 29, 2023. https://www12.statcan.gc.ca/census-recensement/2021/as-sa/98-200-X/2021012/98-200-x2021012-eng.cfm.

—. "*Indigenous Population Profile, 2021 Census of Population*." June 21, 2023. https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/ipp-ppa/index.cfm?Lang=E.

—. "*First Nations youth: Experiences and outcomes in secondary and postsecondary learning*." September 21, 2023. https://www.statcan.gc.ca/o1/en/plus/4548-first-nations-youth-experiences-and-outcomes-secondary-and-postsecondary-learning.

—. "*Status First Nations people in Canada: A snapshot from the 2021 Census*." October 18, 2023. https://www150.statcan.gc.ca/n1/pub/41-20-0002/412000022023004-eng.htm.

—. "*The disability rate in Canada increased in 2022*." 2024. https://www.statcan.gc.ca/o1/en/plus/5980-disability-rate-canada-increased-2022.

—. "*Table 14-10-0365-01, Labour force characteristics by region and detailed Indigenous group, inactive*." January 10, 2025. https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1410036501.

—. "*Table 36-10-0695-01, Gross domestic income attributable to Indigenous people by industry*." n.d. https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=3610069501.

Sullivan, Brian K. "Hurricane Fiona Moves North with Up to $4B Economic Damages Estimated Already." *Insurance Journal* (September 20, 2022). https://www.insurancejournal.com/news/national/2022/09/20/685775.htm.

The Anishinaabe Nation in Treaty #3, "*Manito Aki Inakonigaawin: Unofficial Consolidation*." 1997. https://gct3.ca/wp-content/uploads/2017/07/mai_unofficial_consolidated_copy1.pdf.

Thompson, Shirley, Stewart Hill, Annette Salles, Tanzim Ahmed, Ajarat Adegun, and Uche Nwankwo. " The Northern Corridor, Food Insecurity and the Resource Curse for Indigenous Communities in Canada." *The School of Public Policy Publications*, 2023. https://journalhosting.ucalgary.ca/index.php/sppp/article/view/76032.

Tompa, Emile, Amirabbas Mofidi, Arif Jetha, Pamela Lahey, and Alexis Buettgen. "Development and implementation of a framework for estimating the economic benefits of an accessible and inclusive society." *Equality, Diversity and Inclusion* 41, no. 3 (2022): 318–39. https://doi.org/10.1108/EDI-07-2020-0186.

Tsleil-Waututh Nation, "*Climate Action: Climate Change Resilience Planning*." n.d. https://twnation.ca/climate-action-energy-management/climate-action/.

—. "*TWN Climate Change Resiliency Plan*." 2018. https://twnation.ca/wp-content/uploads/2018/08/TaleghaniDoyle_KWLTWN-Ppt.pdf.

—. "*Climate Change Resilience Plan*." January 2021. https://twnation.ca/wp-content/uploads/2021/09/2021_TWN_Climate-Change-Resilience-Plan.pdf.

—. "*TWN Shoreline Conceptual Adaptation and Visualization Project – Project Backgrounder.*" November 2021. https://twnation.ca/wp-content/uploads/2021/11/SAVZ-Project-Backgrounder-for-TWN-website-2Nov2021.pdf.

Van De Woestyne, Kaitlyn. "'Reimagining' the future of agriculture in Northern Canada." *Arctic Focus*. n.d. https://www.arcticfocus.org/stories/reimagining-what-agriculture-could-mean-northern-canada/.

Weppler, April. "Blog: Manito Aki Inaakonigewin // Great Spirit Law." *Canadian Environmental Law Association*, March 27, 2023. https://cela.ca/blog-manito-aki-inaakonigewin-great-spirit-law/.

Whyte, Kyle Powys. "Indigenous Climate Change Studies: Indigenizing Futures, Decolonizing the Anthropocene." *English Language Notes* 55, no. 1-2 (Fall 2017). https://ssrn.com/abstract=2925514.

Wohlberg, Meagan. "Sahtú youth research impacts of climate change on land, livelihood through new network." *Gazette*, February 16, 2015. https://srrb.nt.ca/document-repository/public/media-articles/836-15-02-16-northern-journal-sahtu-youth-research/file.

World Health Organization. "*Global costs and benefits of drinking-water supply and sanitation interventions to reach the MDG target and universal coverage*." 2012. https://iris.who.int/bitstream/handle/10665/75140/WHO_HSE_WSH_12.01_eng.pdf?sequence=l

WSP Canada Inc. "*Assessment of Climate Change Impacts on Infrastructure in All NWT Communities*." July 28, 2021. https://www.maca.gov.nt.ca/sites/maca/files/resources/gnwt_pievc_report_final_released.pdf.

Yangzom, Kelsang, Huda Masoud, and Tara Hahmann. "*Primary health care access among First Nations people living off reserve, Métis and Inuit, 2017 to 2020*." 2023. https://www150.statcan.gc.ca/n1/pub/41-20-0002/412000022023005-eng.htm.

Yoo, Christopher S., Muge Haseki, and Leon Gwaka. "Internet Connectivity Among Indigenous and Tribal Communities in North America - A Focus on Social and Educational Outcomes." University of Pennsylvania Law School, January 5, 2021. http://dx.doi.org/10.2139/ssrn.3760674.

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