



BC FIRST NATIONS
HOUSING &
INFRASTRUCTURE
COUNCIL

Prepared by:

CLOSING THE INFRASTRUCTURE GAP

British Columbia Regional Analysis

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1.0 Executive Summary

1.1 Report Purpose

The purpose of this report is to isolate the costs British Columbia-specific infrastructure needs as part of the Closing the Infrastructure Gap mandate. This extraction and isolation support regional stakeholders in quantifying the magnitude of investment needed as well as highlighting variations between the various asset classes, based on local First Nation community interests.

This report could not have been prepared without its basis in the previous reports commissioned by Assembly of First Nations (AFN) and Indigenous Services Canada (ISC) or the AFN on housing, schools and infrastructure, the latter covering a broad range of facilities, such as wastewater, site servicing and emergency services. BTY Group is indebted to the authors of these reports for their participation in this study and to AFN and ISC for their invaluable input and guidance.

While a great deal of effort has been expended in deriving the proposed budgets presented below, it should be recognized that the issues facing First Nations on reserve are complex and multi-faceted. Every effort has been made to use the best information available, but future updates will be required as further research and study reveals, in greater detail, the emerging needs of First Nations in British Columbia.

This report is based on the findings resulting from the Closing the Infrastructure Gap by 2030 – A Collaborative and Comprehensive Cost Estimate Identifying the Infrastructure Investment Needs of First Nations in Canada published in March 2023. Therefore, this study includes budgets for 2023-2025 and does not consider the implementation of any project since that publish date. This methodology ensures that the comparisons, figures, and conclusions highlighted are directly relatable to past works.

1.2 Project Background

The AFN and ISC co-developed a report to quantify the capital and operating costs to “Close the Infrastructure Gap by 2030” (CTIG 2030). The funding required to Close the Infrastructure Gap by 2030 represents a critical step towards urgently needed investment in Indigenous communities to advance economic reconciliation between First Nations and the Government of Canada.

Limited access to essential infrastructure including housing, education, healthcare, connectivity, and other capital buildings and services across First Nations communities has resulted in long-standing intergenerational inequalities compared to the social infrastructure services that are regularly and consistently provided to most Canadians.

The investments called for in this proposal are supported by extensive AFN technical studies that comprise decades of national data, including:

- AFN Report: Cost Analysis of Current Housing Gaps and Future Housing Needs in First Nations
- AFN National First Nations Assets Needs Study
- AFN First Nations Education Infrastructure Capital Needs Assessment
- AFN First Nations Education Infrastructure Operation and Maintenance Needs Assessment

This report focuses specifically on the British Columbia need identified in the above reports.

The AFN led a team of industry experts to utilize this research and expand upon it to determine the federal investments needed to Close the Infrastructure Gap by 2030. The AFN detailed the investment required in the November 2022 report titled *“Closing the Infrastructure Gap By 2030 – A Collaborative and Comprehensive Cost Report Identifying the Infrastructure Investment Needs of First Nations in Canada”*.

2.0 Introduction

2.1 Report Objectives

The CTIG 2030 Report identifies, defines, and quantifies the costs associated with implementing major improvements to living conditions on reserves across Canada. The current report isolates the associated scope and costs specific to the Province of British Columbia for all asset classes contemplated in the CTIG 2030 Report - March 2023 and extrapolates this scope to 2040. The budgets included within this report have been determined by incorporating the same methodology as the CTIG 2030 Report and do not include the evaluation of an implementation or prioritization plan. The report includes, but is not limited to, new investment in a wide range of capital and O&M investment needs.

Realizing the objectives of this report would bring the Province of British Columbia closer to achieving First Nations resiliency and sustainability and would provide First Nations peoples in the region with improved access to essential community infrastructure and services. The Report also discusses the impact of delivering this program within the context of the British Columbia economy and the capacity of its construction industry.

2.2 Project Team

In addition to BTY Group, the following team members participated in or provided key information in the development of the previous CTIG 2030 Report, which formed the basis of the current report:

- Assembly of First Nations ("AFN")
- Indigenous Services Canada ("ISC")
- Associated Engineering ("AE")
- First Nations Engineering Services Ltd. ("FNESL")
- Institute of Fiscal Studies and Democracy ("IFSD")
- Planetnetworks ("Planetnetworks")

3.0 Methodology

3.1 General Approach

The purpose of the current report is to extract and distill the British Columbia results of the CTIG 2030 Report to assist the BCAFN in their advocacy work. As such, it reflects the same methodology, source data and analysis used in the CTIG 2030 Report commissioned by AFN and ISC.

The following reports, previously prepared for AFN and ISC by its consultants, made key contributions to the CTIG 2030 Report, and subsequently this report:

- AFN – Cost Analysis of Current Housing Gaps and Future Housing Needs in First Nations, 2021, IFSD
- AFN – First Nations Education Infrastructure Capital Needs Assessment 2021, FNESL
- AFN – First Nations Education Infrastructure Operations and Maintenance Needs Assessment, 2022, FNESL
- AFN – National First Nations Asset Needs Study, 2022, AE
- AFN – First Nations On-Reserve Housing and Related Infrastructure Needs, July 2020, FNIGC (reference only).

Refer to the CTIG 2030 Report for a detailed description of the methodology for all asset classes.

This review, in the first instance, aims to provide an estimate of the Capital and O&M costs prepared by other team members. The estimated costs and scope of work inherent in them for Asset replacement, sustainment, growth, and upgrades across Canada have formed the basis of this analysis and verification.

In the instances where granular data were unavailable to allow a comprehensive analysis, appropriate uplifts have been applied to existing summary cost tables (provided to BTY) to ensure they include contingencies and soft costs and reflect changes in the market since the time of pricing by others and cost increases assumed to occur in future years. We note that numbers in the tables throughout this report may not sum to the total due to rounding.

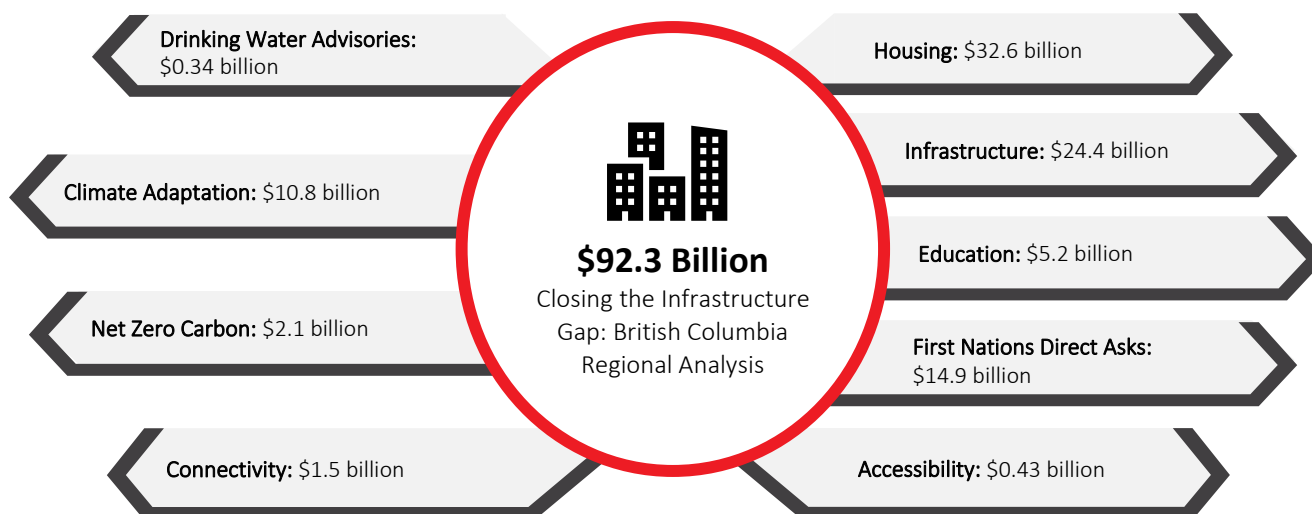
3.2 Definitions

For a full list of definitions, refer to **Appendix 1**.

4.0 Funding Requirements Summary – British Columbia

An overall summary of the British Columbia funding requirement is presented below in Table 1.

Figure 1: Closing the British Columbia Infrastructure Gap Cost Summary



The following table provides a summary of the funding requirements for the fiscal years 2023-2024 to 2039-2040 to help satisfy the requirements of the British Columbia - Closing the Infrastructure Gap program and includes the need identified in the CTIG 2030 Report. The forecast annual expenditure has been forecast based on a linear model for each asset class.

Table 1: Yearly Cost Data by Infrastructure Type to Close the Infrastructure Gap in British Columbia

Closing the British Columbia Infrastructure Gap 2040 (\$ millions)	2023 to 2024	2024 to 2025	2025 to 2026	2026 to 2027	2027 to 2028	2028 to 2029	2029 to 2030	2030 to 2031	2031 to 2032
Housing									
Total Capital Cost	670	703	1,097	1,130	1,164	1,198	1,234	1,265	1,297
Total O&M	293	307	480	6494	509	524	540	553	567
Housing Subtotal	962	307	1,576	1,624	1,672	1,722	1,774	1,818	1,864
Education									
Total Capital Cost	64	67	104	107	111	114	117	120	123
Total O&M	89	94	146	151	155	160	164	169	173
Education Subtotal	153	160	250	258	266	274	282	289	296
Infrastructure									
Total Capital Cost	302	317	495	510	525	541	557	571	585
Total O&M	417	437	682	703	724	746	768	787	807
Infrastructure Subtotal	719	754	1,177	1,213	1,249	1,287	1,325	1,358	1,392
SUB-TOTAL	1,834	1,925	3,004	3,094	3,187	3,283	3,381	3,465	3,552
Connectivity									
Total Capital Cost	44	46	71	73	76	78	80	82	84
Connectivity Subtotal	44	46	71	73	76	78	80	82	84
Climate Adaptation									
Total Capital Cost	195	204	319	328	338	348	359	368	377
Total O&M	125	132	205	211	218	224	231	237	243
Climate Adaptation Subtotal	320	336	524	540	556	573	590	605	620

Closing the British Columbia Infrastructure Gap 2040 (\$ millions)	2023 to 2024	2024 to 2025	2025 to 2026	2026 to 2027	2027 to 2028	2028 to 2029	2029 to 2030	2030 to 2031	2031 to 2032
Net Zero									
Total Capital Cost	62	65	101	104	107	110	114	117	119
Net Zero Subtotal	62	65	101	104	107	110	114	117	119
Drinking Water Advisory									
Total Capital Cost	2	2	4	4	4	4	4	4	4
Total O&M	8	8	13	13	13	14	14	15	15
Drinking Water Advisory Subtotal	10	10	17	17	17	18	18	19	19
Accessibility									
Total Capital Cost	13	13	21	21	22	23	23	24	25
Accessibility Subtotal	13	13	21	21	22	23	23	24	25
First Nations Direct Asks									
Total Capital Cost	441	463	722	744	766	789	813	833	854
First Nations Direct Ask Subtotal	441	463	722	744	766	789	813	833	854
TOTAL FUNDING	2,723	2,858	4,459	4,593	4,731	4,874	5,019	5,144	5,273

Closing the British Columbia Infrastructure Gap 2040 (\$ millions)	2032 to 2033	2033 to 2034	2034 to 2035	2035 to 2036	2036 to 2037	2037 to 2038	2038 to 2039	2039 to 2040	Total (\$ million)
Housing									
Total Capital Cost	1,329	1,396	1,479	1,553	1,592	1,632	1,673	2,286	22,697
Total O&M	581	610	647	679	696	714	732	1,000	9,925
Housing Subtotal	1,910	2,006	2,126	2,232	2,288	2,346	2,405	3,286	32,622
Education									
Total Capital Cost	126	133	141	148	151	155	159	217	2,156
Total O&M	177	186	197	207	212	217	223	305	3,025
Education Subtotal	303	319	338	355	363	373	382	522	5,181
Infrastructure									
Total Capital Cost	600	630	668	701	719	737	755	1,032	10,245
Total O&M	827	868	921	967	991	1,016	1,041	1,423	14,125
Infrastructure Subtotal	1,427	1,498	1,589	1,668	1,710	1,753	1,796	2,455	24,370
SUB-TOTAL	3,641	3,823	4,053	4,255	4,362	4,471	4,582	6,262	62,173
Connectivity									
Total Capital Cost	86	91	96	101	103	106	109	148	1,474
Connectivity Subtotal	86	91	96	101	103	106	109	148	1,474
Climate Adaptation									
Total Capital Cost	386	406	430	452	463	475	486	665	6,660
Total O&M	249	261	277	291	298	306	313	428	4,249
Climate Adaptation Subtotal	635	667	707	742	761	780	800	1,093	10,849

Closing the British Columbia Infrastructure Gap 2040 (\$ millions)	2032 to 2033	2033 to 2034	2034 to 2035	2035 to 2036	2036 to 2037	2037 to 2038	2038 to 2039	2039 to 2040	Total (\$ million)
Net Zero									
Total Capital Cost	122	129	136	143	147	150	154	211	2,091
Net Zero Subtotal	122	129	136	143	147	150	154	211	2,091
Drinking Water Advisory									
Total Capital Cost	4	5	5	5	5	5	5	7	74
Total O&M	15	16	17	18	18	19	19	26	263
Drinking Water Advisory Subtotal	19	21	22	23	24	24	25	34	337
Accessibility									
Total Capital Cost	25	26	28	29	30	31	32	43	429
Accessibility Subtotal	25	26	28	29	30	31	32	43	429
First Nations Direct Asks									
Total Capital Cost	875	919	974	1,023	1,048	1,075	1,101	1,505	14,944
First Nations Direct Ask Subtotal	875	919	974	1,023	1,048	1,075	1,101	1,505	14,944
TOTAL FUNDING	5,404	5,676	6,016	6,317	6,474	6,637	6,803	9,296	92,297

The Housing, Education and Infrastructure amounts have been derived from previous studies undertaken by Assembly of First Nations (AFN) consultants. BTY Group has reviewed these studies and, in some instances, modified the funding requirements in the studies' conclusions.

The budgets for the remaining asset categories, focusing on such issues as climate adaptation, eliminating drinking water advisories, Connectivity, Net-Zero Carbon, and providing accessibility, have been developed as part of the current budgeting exercise.

Where possible, the unit rates employed for capital and O&M costs have been assessed/verified using BTY's Internal Cost Database, with consideration to geographical location and remoteness of the asset.

In all cases, the budgets for each fiscal year have been escalated to the year in which they are planned to be required. For further details of the approach, refer to CTIG 2030 Report.

5.0 British Columbia – Capital and O&M Budgets by Asset Class

5.1 Infrastructure

5.1.1 Approach and Assumptions

The primary source of information for this study was data compiled by ISC and the First Nations Asset Needs study undertaken by Associated Engineering (AE) and published in March 2022.

AE's defined paradigms, including sizes, for each type of facility and made use of construction unit rates to develop Capital Replacement Values (CRVs) for each type of facility to arrive at budgeted amounts. These budgets were then adjusted by zone to reflect local market conditions. O&M costs were estimated based on standard periodic replacement intervals and percentages of CRVs. This report was a major undertaking that culminated in the identification of a 20-year investment need of \$73 billion in 2021 dollars. Readers are encouraged to acquaint themselves with the details of AE's report to gain a greater understanding of its scope and methodology.

BTY Group reviewed AE's base unit rates for the broad scope of work under consideration in British Columbia and derived a CRV (capital replacement value) total for all the assets using AE's quantities. The total value of the portfolio was within 10% of AE's value, well within an acceptable range given the high-level analysis undertaken. BTY did not replicate AE's modelling of the funding needs beyond this unit rate review. The funding needs developed by AE were marked up to allow for escalation since the date of pricing in 2021, escalation to the year in which costs assumed to be incurred, contingencies and soft costs to provide a more comprehensive view of the funding requirement.

AE's review was for a 20-year timeframe, so the resulting British Columbia costs were then adapted to the 2040 timeline of this report, including preparing an annual cash flow. This includes the need from 2019-2030, with expenditure being assumed between 2023 and 2040.

5.1.2 Infrastructure Capital Budget

Table 2: Infrastructure – Capital Cost Data

Closing the Infrastructure Gap 2040 (\$ millions)	2023 to 2024	2024 to 2025	2025 to 2026	2026 to 2027	2027 to 2028	2028 to 2029	2029 to 2030	2030 to 2031	2031 to 2032
Infrastructure									
Infrastructure Capital Cost	302	317	495	510	525	541	557	571	585
TOTAL CAPITAL COST	302	317	495	510	525	541	557	571	585

Closing the Infrastructure Gap 2040 (\$ millions)	2032 to 2033	2033 to 2034	2034 to 2035	2035 to 2036	2036 to 2037	2037 to 2038	2038 to 2039	2039 to 2040	Total (\$ million)
Infrastructure									
Infrastructure Capital Cost	600	630	668	701	719	737	755	1,032	10,245
TOTAL CAPITAL COST	600	630	668	701	719	737	755	1,032	10,245

5.1.3 Infrastructure O&M Budget

Table 3: Infrastructure – Operation and Maintenance Cost Data

Closing the Infrastructure Gap 2040 (\$ millions)	2023 to 2024	2024 to 2025	2025 to 2026	2026 to 2027	2027 to 2028	2028 to 2029	2029 to 2030	2030 to 2031	2031 to 2032
Infrastructure									
Infrastructure O&M Cost	417	437	682	703	724	746	768	787	807
TOTAL O&M COST	417	437	682	703	724	746	768	787	807

Closing the Infrastructure Gap 2040 (\$ millions)	2032 to 2033	2033 to 2034	2034 to 2035	2035 to 2036	2036 to 2037	2037 to 2038	2038 to 2039	2039 to 2040	Total (\$ million)
Infrastructure									
Infrastructure O&M Cost	827	868	921	967	991	1,016	1,041	1,423	14,125
TOTAL O&M COST	827	868	921	967	991	1,016	1,041	1,423	14,125

5.2 Housing

5.2.1 Approach and Assumptions

The review of the Housing report prepared by the Institute of Fiscal Studies and Democracy (IFSD) in 2021 aimed to provide the Assembly of First Nations (AFN) with up-to-date housing costs for On-Reserve Housing and Related Infrastructure.

A report prepared by the First Nations Information Governance Centre and titled “First Nations On-Reserve Housing and Related Infrastructure Needs” was issued in July 2020 and formed an important basis for the IFSD Report “Cost analysis of current housing gaps and future housing needs in First Nations”, the final report of which was issued on October 18, 2021.

The results of the FNIGC report were based on a questionnaire distributed to First Nations requesting information on the existing housing stock, housing subsidy and ownership, housing major and minor repair needs, system capacity and current and future needs. The questionnaire also asked about the types of housing data that First Nation communities record with respect to housing and infrastructure.

The survey sample representing all seven regions, Yukon, British Columbia, Saskatchewan, Ontario, Quebec, New Brunswick, Atlantic (including Nova Scotia; Prince Edward Island; and Newfoundland and Labrador) were included in the results.

85,738 housing units were reported by respondents across the participating regions, mostly single-family homes (91%). The total apartment housing units reported was 1,386. Emphasis was also given to the availability and need for serviced lots. A serviced lot refers to a parcel of land that has the required utilities for a housing unit (water, wastewater, sewer, power), but not to the off-parcel requirements to bring the services to the lot boundary.

IFSD’s report “Cost analysis of current housing gaps and future housing needs in First Nations” was issued on July 30, 2021, under a mandate from AFN. IFSD took a three-part approach:

- 1) Ten First Nations collaborated with IFSD to build in-depth case studies and analyses on housing needs, costs, opportunities, and challenges.
- 2) Cost estimation of current and future needs using data from FNIGC’s survey for AFN with consideration of growth factors such as population, migration, and inflation.
- 3) Performance measurement for well-being: A future-focused framework was developed by leveraging best practices from other jurisdictions, a holistic wellbeing understanding of housing, with consideration of First Nations care and control of delivery.

The above approach identified the following housing needs in British Columbia only.

Table 4: British Columbia Housing Needs

British Columbia Housing Need	Overcrowd	Migration	Replace outdated units	New Units (2019-2021)	New Units (2022-2040)	New Units (2022-2030)	Total New Units (2019-2030)	Service New Lots	Minor Renos	Major Renos
Units	4398	16084	2156	554	6719	2986	26178	23689	4983	5273

BTY has reviewed the unit costing for all housing needs in British Columbia and adjusted it based on current rates as of August 2022, considering current market conditions. Assumptions made during BTY’s evaluation of the Housing report are as follows:

New Units

- Assumes there was or is an existing structure that was or will be removed, and therefore the lot has already been serviced and a new unit is needed on that lot
- Assumes that all residential units are 1,500 sf single-family homes
- Assumes site serviced lots already exist to accommodate new units
- Assumed 20% for soft costs

Service New Lots

- Assumes major infrastructure cost is part of the asset replacement need, and local tie-in to services is only required. Streetlighting, roads and mains is included in the infrastructure asset budget.
- Assume 5,000 sf lots.
- Assume 10% of all lots serviced will require rock blasting.
- Driveway assumed to be included in house construction cost.
- Assume 10% of Service Lots in Zones 3 and 4 will have decentralised water and wastewater systems.
- Assume all service connections are within 50m of house.
- Assume all services are within 5m of the property line
- Assume 20% for soft costs

Minor Renovations

- Replacement of windows and doors, roof covering and the exterior cladding and various interior works.
- Assume 10% of overall construction cost.

Major Renovations

- Replacement of many components of a dwelling (for example, windows and doors, roof, floor covering, exterior cladding, plumbing, electricity, heating, insulation, etc.).
- Assume 1,500 sf single-family homes.
- Assume major renovations to be 30% of overall construction cost.
- Existing FN Housing Operation and Maintenance
- Based on 1.95% of construction cost per annum.
- This calculation is based on a % of the construction cost. Due to the unknown quantities in each Zone/region, we have used the average unit cost across Canada.
- O&M excludes electricity, water, property tax, insurance, internet, and TV.

New Housing Operation and Maintenance

- This calculation is based on a percentage of the construction cost and considers the cost of construction for all regions and zones.
- Based on 1.95% of construction cost per annum.
- Applies to all new housing units.

This cost distribution was completed and BTY applied cumulative escalation rates to the capital and O&M costs based on their anticipated year of expenditure.

5.2.2 Housing Capital Cost Budget

The following table summarises the cash flow requirements for the Housing capital program to 2040.

Table 5: Housing – Capital Cost Data

Closing the Infrastructure Gap 2040 (\$ millions)	2023 to 2024	2024 to 2025	2025 to 2026	2026 to 2027	2027 to 2028	2028 to 2029	2029 to 2030	2030 to 2031	2031 to 2032
Housing									
Housing Capital Cost	670	703	1,097	1,130	1,164	1,198	1,234	1,265	1,297
TOTAL CAPITAL COST	670	703	1,097	1,130	1,164	1,198	1,234	1,265	1,297

Closing the Infrastructure Gap 2040 (\$ millions)	2032 to 2033	2033 to 2034	2034 to 2035	2035 to 2036	2036 to 2037	2037 to 2038	2038 to 2039	2039 to 2040	Total (\$ million)
Housing									
Housing Capital Cost	1,329	1,396	1,479	1,553	1,592	1,632	1,673	2,286	22,697
TOTAL CAPITAL COST	1,329	1,396	1,479	1,553	1,592	1,632	1,673	2,286	22,697

5.2.3 Housing Operations and Maintenance

The following table summarizes the Housing O&M funding cash flow requirements. The quantity of existing housing units was provided in the IFSD Housing report.

Table 6: Housing – Operations and Maintenance Cost Analysis

Closing the Infrastructure Gap 2040 (\$ millions)	2023 to 2024	2024 to 2025	2025 to 2026	2026 to 2027	2027 to 2028	2028 to 2029	2029 to 2030	2030 to 2031	2031 to 2032
Housing									
O&M Cost (Existing Housing)	293	307	480	494	509	524	540	553	567
TOTAL O&M COST	293	307	480	494	509	524	540	553	567

Closing the Infrastructure Gap 2040 (\$ millions)	2032 to 2033	2033 to 2034	2034 to 2035	2035 to 2036	2036 to 2037	2037 to 2038	2038 to 2039	2039 to 2040	Total (\$ million)
Housing									
O&M Cost (Existing Housing)	581	610	647	679	696	714	732	1,000	9,925
TOTAL O&M COST	581	610	647	679	696	714	732	1,000	9,925

5.3 Education

5.3.1 Approach and Assumptions

BTY was provided with the AFN First Nations Education Infrastructure Capital Needs Assessment, issued by First Nations Engineering Services Ltd (FNESL) in August 2021 and the AFN First Nations Education Infrastructure Operation and Maintenance Needs Assessment also issued by FNESL in January 2022.

First Nations Engineering Services Ltd. was retained to complete a National First Nations Education Infrastructure Capital Needs Assessment over a 20-year planning period. Its capital needs assessment report was issued in August 2021 and was followed by an assessment of O&M requirements in January 2022. The studies focused on two main asset types: schools, including provision for outdoor learning, and teacherages, to provide on-reserve accommodation for teaching staff.

An assumption in the study is that schools will offer the same grades as are currently offered and considered Additions and New Construction for Schools and Teacherages.

This cost distribution was completed and BTY applied cumulative escalation rates to the capital and O&M costs based on their anticipated year of expenditure.

The following table summarizes the capital funding requirement for British Columbia for education assets to 2040:

5.3.2 Education – Capital Cost Data

Table 7: Education – Capital Cost Data

Closing the Infrastructure Gap 2040 (\$ millions)	2023 to 2024	2024 to 2025	2025 to 2026	2026 to 2027	2027 to 2028	2028 to 2029	2029 to 2030	2030 to 2031	2031 to 2032
Education									
Capital Cost Schools	50	53	82	84	87	89	92	94	97
Capital Cost Teacherage	14	14	22	23	24	25	25	26	26
TOTAL CAPITAL COST	64	67	104	107	111	114	117	120	123

Closing the Infrastructure Gap 2040 (\$ millions)	2032 to 2033	2033 to 2034	2034 to 2035	2035 to 2036	2036 to 2037	2037 to 2038	2038 to 2039	2039 to 2040	Total (\$ million)
Education									
Capital Cost Schools	99	104	111	116	119	122	125	170	1,694
Capital Cost Teacherage	27	29	30	31	32	33	34	27	462
TOTAL CAPITAL COST	126	133	141	148	151	155	159	217	2,156

5.3.3 Education – Operations and Maintenance Cost Data

The following table summarises the annual Education O&M funding requirement.

Table 8: Education – Capital Cost Data

Closing the Infrastructure Gap 2040 (\$ millions)	2023 to 2024	2024 to 2025	2025 to 2026	2026 to 2027	2027 to 2028	2028 to 2029	2029 to 2030	2030 to 2031	2031 to 2032
Education									
O&M Schools	75	79	123	127	130	134	138	142	145
O&M Teacherages	14	15	23	24	25	26	26	27	28
TOTAL O&M COST	89	94	146	151	155	160	164	169	173

Closing the Infrastructure Gap 2040 (\$ millions)	2032 to 2033	2033 to 2034	2034 to 2035	2035 to 2036	2036 to 2037	2037 to 2038	2038 to 2039	2039 to 2040	Total (\$ million)
Education									
O&M Schools	159	156	166	174	178	183	188	256	2,544
O&M Teacherages	28	30	31	33	34	344	35	49	481
TOTAL O&M COST	177	186	197	207	212	217	223	305	3,025

5.4 Drinking Water Advisory

5.4.1 Approach and Assumptions

BTY was provided with the Associated Engineering memo that identifies the infrastructure investment required to address ongoing water quality issues on First Nations reserves and specifically to end long-term drinking water advisories (DWAs).

Ending long-term drinking water advisories is a complex process and requires collaboration between First Nations communities, Province of British Columbia, and the Government of Canada, and a range of other key interested parties for each specific site, which may include local governments, landowners, municipalities, and industry. It is not all about water treatment. 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 development of sustainable, practical best-practice solutions typically encompasses:

- Comprehensive feasibility studies – to identify a range of site-specific solutions and allow the optimum solution to be selected for the situation.
- Project development – taking account of labour, material, and equipment availability for both construction and ongoing operations and maintenance of any developed or upgraded infrastructure.
- Training and support of operations and maintenance staff.
- Ongoing operations and maintenance of the facilities – including monitoring and testing.
- First Nations water stewardship and guardian programs proven to decrease water advisories at source.

This cost distribution was completed and BTY applied cumulative escalation rates to the capital and O&M costs based on their anticipated year of expenditure.

5.4.2 Drinking Water Advisory – Capital and O&M Cost Data

The following table summarises the Capital and O&M funding requirements to address the current Long Term Drinking Water Advisories in British Columbia by 2040.

Table 9: Drinking water Advisory – Capital Cost Data

Closing the Infrastructure Gap 2040 (\$ millions)	2023 to 2024	2024 to 2025	2025 to 2026	2026 to 2027	2027 to 2028	2028 to 2029	2029 to 2030	2030 to 2031	2031 to 2032
Drinking Water Advisory									
Capital Cost Drinking Water Advisory	2	2	3	4	4	4	4	4	4
O&M Drinking Water Advisory	8	8	13	13	13	14	14	15	15
TOTAL CAPITAL COST	10	10	16	17	17	18	18	19	19

Closing the Infrastructure Gap 2040 (\$ millions)	2032 to 2033	2033 to 2034	2034 to 2035	2035 to 2036	2036 to 2037	2037 to 2038	2038 to 2039	2039 to 2040	Total (\$ million)
Drinking Water Advisory									
Capital Cost Drinking Water Advisory	4	5	5	5	5	5	5	7	74
O&M Drinking Water Advisory	16	16	17	18	18	19	19	27	263
TOTAL CAPITAL COST	20	21	22	23	23	24	24	34	337

5.5 All Season Access Roads

5.5.1 Approach and Assumptions

Estimates to maintain and upgrade Forest Service Roads that BC First Nations depend on to access their communities and emergency egress routes are captured in Section 5.6 Climate Adaptation.

5.6 Climate Adaptation

5.6.1 Approach and Assumptions

BTY was provided with the Associated Engineering memo that identifies the additional financial investment necessary to manage the risk of climate change to First Nations infrastructure by 2040. Risk is defined here as the combined impact of:

- The likelihood of the event based on available climate projection data and specific to the region in which the asset is situated.
- The exposure of the asset to climate hazards, which is specific to its location.
- The consequence of the climate event, expressed in terms of the asset type, its size, and its value. Consequence was appraised in terms of potential damage to the asset resulting from chronic issues, such as declining road surface conditions resulting from more frequent extreme heat events or more acute events such as severe storms.

The funding requirements were divided into five categories: Buildings, Housing, Transportation, Utility and Emergency Preparedness. In addition, the preservation and enhancement of natural assets such as firebreaks will be necessary to mitigate the threat created by climate change. Refer to the CTIG Report for further detail.

These costs do not include the need for increased emergency preparedness as access/egress routes and supply chains are disrupted, First Nations will require additional resources and support to prepare adequate response plans to respond to climate-related disruptions as they occur. It is vital that First Nations are positioned to anticipatorily plan for increases in local climate risks that will affect the levels of service provided by their utilities and other infrastructure, either through the development of adaptation plans and the development of climate-ready emergency response plans.

This cost distribution was completed and BTY applied cumulative escalation rates to the capital and O&M costs based on their anticipated year of expenditure.

5.6.2 Climate Change – Capital and Operational and Maintenance Cost Data

The following table summarises the Capital and O&M funding requirement to manage the proposed adaptations to manage the risk of climate change to First Nations assets based on assessed risks.

Table 10: Climate Change – Capital and O&M Cost Data

Closing the Infrastructure Gap 2040 (\$ millions)	2023 to 2024	2024 to 2025	2025 to 2026	2026 to 2027	2027 to 2028	2028 to 2029	2029 to 2030	2030 to 2031	2031 to 2032
Climate Adaptation									
Capital Cost Climate Adaptation	195	204	319	328	338	348	359	368	377
O&M Climate Adaptation	125	132	205	211	218	224	231	237	243
TOTAL CAPITAL AND O&M COST	320	336	524	540	556	573	590	605	620

Closing the Infrastructure Gap 2040 (\$ millions)	2032 to 2033	2033 to 2034	2034 to 2035	2035 to 2036	2036 to 2037	2037 to 2038	2038 to 2039	2039 to 2040	Total (\$ million)
Climate Adaptation									
Capital Cost Climate Adaptation	386	406	430	452	463	475	486	665	6,600
O&M Climate Adaptation	249	261	277	291	298	306	313	428	4,249
TOTAL CAPITAL AND O&M COST	635	667	707	742	761	780	800	1,093	10,849

5.7 Net Zero Carbon

5.7.1 Approach and Assumptions

BTY was provided with the Associated Engineering memo that identifies the additional financial investment necessary to put First Nations on the path to Net-Zero Carbon by 2050.

An important part of achieving Canada's net-zero future starts by Closing the Infrastructure Gap by 2040 for First Nations. The need to reduce the carbon emitted by existing federally funded infrastructure and prepare new facilities on First Nation lands for net-zero capacity is an immediate starting point to deliver on the Canadian Net-Zero Emissions Accountability Act and carbon emissions reduction target.

The scope and costs evaluated in this report constitute Tier 2 in the energy hierarchy. The first two tiers of the energy hierarchy are also intended to manage Scope 1 emissions, defined by the international Greenhouse Gas Protocol as those directly resulting from an organization's facilities and vehicles, which are the primary form of emissions by First Nations.

Therefore, the focus is on the following:

- Improving the Energy Efficiency of First Nations Residential and Non-Residential Buildings
- Improving the energy efficiency of First Nations Vehicles and Fleet Infrastructure
- Improving the energy efficiency of First Nations Utility Systems, Building Utility Scale Renewable Systems

This cost distribution was completed and BTY applied cumulative escalation rates to the capital and O&M costs based on their anticipated year of expenditure.

Refer to the CTIG Report for further details.

5.7.2 Net Zero Carbon – Capital Cost Data

The following table summarises the Capital funding requirement to improve the energy efficiency of First Nations Housing, Vehicles and Fleet Infrastructure and Light-Duty Vehicles, by 2040.

Table 11: Net Zero – Capital Cost Data

Closing the Infrastructure Gap 2040 (\$ millions)	2023 to 2024	2024 to 2025	2025 to 2026	2026 to 2027	2027 to 2028	2028 to 2029	2029 to 2030	2030 to 2031	2031 to 2032
Net Zero Carbon									
Capital Cost Net Zero Carbon	62	65	101	104	107	110	114	117	119
TOTAL CAPITAL COST	62	65	101	104	107	110	114	117	119

Closing the Infrastructure Gap 2040 (\$ millions)	2032 to 2033	2033 to 2034	2034 to 2035	2035 to 2036	2036 to 2037	2037 to 2038	2038 to 2039	2039 to 2040	Total (\$ million)
Net Zero Carbon									
Capital Cost Net Zero Carbon	122	129	136	143	147	150	154	211	2,091
TOTAL CAPITAL COST	122	129	136	143	147	150	154	211	2,091

5.8 Connectivity

5.8.1 Approach and Assumptions

BTY was provided with the memo prepared by Planetnetworks Consulting, its sub-consultant, which identifies the extent of the wired and mobility wireless infrastructure gaps in First Nation communities and provides capital budgets to resolve the gaps and ensure every First Nation community has:

- A fibre backbone to the Internet
- Fibre-to-the-home (FTTH) last mile, and
- LTE or 5G mobility services

5.8.2 Connectivity – Capital Cost Data

The following table summarises the Capital funding requirement necessary for every First Nations community to have a fibre backbone, FTTH wired last mile and LTE or 5G mobility services.

Table 12: Connectivity - Capital Cost Data

Closing the Infrastructure Gap 2040 (\$ millions)	2023 to 2024	2024 to 2025	2025 to 2026	2026 to 2027	2027 to 2028	2028 to 2029	2029 to 2030	2030 to 2031	2031 to 2032
Connectivity									
Capital Cost Connectivity	44	46	71	73	76	78	80	82	84
TOTAL CAPITAL COST	44	46	71	73	76	78	80	82	84

Closing the Infrastructure Gap 2040 (\$ millions)	2032 to 2033	2033 to 2034	2034 to 2035	2035 to 2036	2036 to 2037	2037 to 2038	2038 to 2039	2039 to 2040	Total (\$ million)
Connectivity									
Capital Cost Connectivity	86	91	96	101	103	106	109	148	1,474
TOTAL CAPITAL COST	86	91	96	101	103	106	109	148	1,474

5.9 Accessibility

5.9.1 Approach and Assumptions

BTY was provided with the Associated Engineering memo that identifies the cost of retrofitting First Nation building assets across all categories to meet the requirements of the Accessible Canada Act (ACA), exclusively to buildings. It does not include other important accessibility measures related to communications, technology, and of a more universal organizational or attitudinal nature. Three major categories of measures emerged for residential and non-residential construction and were applied against all assets listed in the registry either as:

- Category 1: a bundle of minor measures such as grab bars in bathrooms or washrooms.
- Category 2: a bundle of more extensive measures such as widening corridors and entries, replacing change rooms in recreation centres with fully accessible design, or changing vanity and kitchen counter heights to accommodate wheelchair users.
- Category 3: a bundle of measures including elevators or stair lifts, ceiling rails to enable transport of a bed-bound person to a bath, exterior ramps, and secondary fire exits. Note that secondary fire exits are now mandatory under Canadian fire codes.

For a list of measures necessary to improve the accessibility of First Nation residential and commercial assets in British Columbia, refer to the CTIG Report for further details.

O&M costs are included in the Infrastructure O&M budget, as all accessibility improvements are specific to the assets included in Infrastructure study.

This cost distribution was completed and BTY applied cumulative escalation rates to the capital and O&M costs based on their anticipated year of expenditure.

5.9.2 Accessibility – Capital Cost Data

The following table summarises the Capital Cost funding requirement to retrofit First Nations building assets for accessibility.

Table 13: Accessibility - Capital Cost Data

Closing the Infrastructure Gap 2040 (\$ millions)	2023 to 2024	2024 to 2025	2025 to 2026	2026 to 2027	2027 to 2028	2028 to 2029	2029 to 2030	2030 to 2031	2031 to 2032
Accessibility									
Capital Cost Accessibility	13	13	21	21	22	23	23	24	25
TOTAL CAPITAL COST	13	13	21	21	22	23	23	24	25

Closing the Infrastructure Gap 2040 (\$ millions)	2032 to 2033	2033 to 2034	2034 to 2035	2035 to 2036	2036 to 2037	2037 to 2038	2038 to 2039	2039 to 2040	Total (\$ million)
Accessibility									
Capital Cost Accessibility	25	26	28	29	30	31	32	43	429
TOTAL CAPITAL COST	25	26	28	29	30	31	32	43	429

5.10 First Nations Direct Ask

5.10.1 Approach and Assumptions

Indigenous Services Canada has worked with the Assembly of First Nations, in part, to quantify the infrastructure needs of First Nations communities.

An ISC-led engagement took place with individual First Nations throughout the spring and summer of 2022. ISC provided First Nations across Canada with a letter requesting communities submit a list of their infrastructure asset needs, ordered in terms of paramount of need. No restrictions were placed on the type, quantity, or cost of assets for communities to identify what is required to close their infrastructure gaps.

Responses were received throughout the summer and early fall; by October 24th, 2022, 91 of the 189 First Nation communities responded to this survey, equating to 48% of First Nations in British Columbia.

Asset lists were examined by Indigenous Services Canada, and the costing of assets, if provided by communities, was evaluated against previously completed projects and industry information. Costing figures originated from communities, and unless costing was outside of normal ranges for similar projects, the values were included as-is.

The First Nation Direct-Asks that were received as a part of the cost report exercise were then compared against the AFN National First Nation Assets Needs Study to ensure no overlap of infrastructure costs occurred and that a comprehensive and complete number was compiled into the final cost report. Any excluded information in this exercise has been further qualified in the cost reports subsections and appendices.

The following Infrastructure Asset Categories have been included in the First Nations Direct Ask, as defined by ISC.

- **(CA) 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.
- **(TR) Transportation Infrastructure** – Includes Roads, Bridges, Waterways, Airports and Tunnels within the community.
- **(WW) Water, Wastewater and Utilities** – Includes water treatment plants, lift stations, water and wastewater pipes, lagoons, in-city hydro, and connections.
- **(SW) Solid Waste and Recycling** – Includes waste processing areas, landfills, garbage trucks.
- **(ET) Education and Training** – Includes schools, vocational training, Indigenous language training.
- **(ES) Emergency Services** – Includes fire, ambulance, police.
- **(HS) Health** – Includes all Health-related Assets, nursing stations, clinics, long term care homes.

- **(SP) Social Programs** – Includes Social Work, Child Care, Men’s, and Women’s Shelters. Includes Elders Complexes not identified as Long-Term Care homes.
- **(CU) Cultural Assets** – Includes cultural centres, ceremonial grounds, powwow grounds, museums.
- **(CO) Community Assets** – Includes community centres, community costs and studies, libraries, community workshops and storage areas, ATR additions to reserve, administrative buildings. Includes all vehicles for the community.
- **(RA) Recreation Assets** – Includes trails, arenas, baseball diamonds.
- **(ED) Economic Development** – Includes gas stations, hotels

This cost distribution was completed and BTY applied cumulative escalation rates to the capital and O&M costs based on their anticipated year of expenditure.

5.10.2 First Nations Direct Ask – Capital Cost Data

The following table summarizes the Capital Cost funding requirement defined by the output of the ISC Survey:

Table 14: First Nation Direct Ask - Capital Cost Data

Closing the Infrastructure Gap 2040 (\$ millions)	2023 to 2024	2024 to 2025	2025 to 2026	2026 to 2027	2027 to 2028	2028 to 2029	2029 to 2030	2030 to 2031	2031 to 2032
First Nation Direct Ask									
Capital Cost First Nation Direct Ask	441	463	722	744	766	789	813	833	854
TOTAL CAPITAL COST	441	463	722	744	766	789	813	833	854

Closing the Infrastructure Gap 2040 (\$ millions)	2032 to 2033	2033 to 2034	2034 to 2035	2035 to 2036	2036 to 2037	2037 to 2038	2038 to 2039	2039 to 2040	Total (\$ million)
First Nation Direct Ask									
Capital Cost First Nation Direct Ask	875	919	974	1,023	1,048	1,075	1,101	1,505	14,944
TOTAL CAPITAL COST	875	919	974	1,023	1,048	1,075	1,101	1,505	14,944

6.0 Market Outlook and Construction Industry Trends

Current economic conditions in Canada are rife with uncertainty. Growth projections have been scaled back across many industries as the country reacts to tariff action implemented by the Trump Administration in the USA. Global markets are also bracing for moderate growth forecasts as geopolitical tensions and trade disputes have rippling impacts worldwide.

From a broad perspective, Canada’s construction sector is diverse and region-specific. While the industry has been resilient in light of recent tariff threats, growth has slowed dramatically in major cities such as Vancouver and Toronto. Other factors, such as persistent inflation and cautious consumer sentiment has reigned in growth outlook for the near future.

Several key factors are driving shifts throughout the industry in the current market:

 Tariffs	Tariffs levied against Canadian exports to the US have led to substantial uncertainty in the market, making business planning difficult and jeopardizing industries such as lumber, steel, aluminum, and manufacturing across Canada. After extreme trade tension and a “Liberation Day” in April 2025, conflict deescalated slightly with most trade between Canada and the US continuing unhindered through the CUSMA agreement. However, as at Q2 2026, US tariffs on Canadian steel and aluminum reached new highs while lumber sales to the US have been impacted by anti-dumping duty increases. Generally speaking, construction input materials affected by tariffs lowers exports and creates excess supply in domestic markets, typically causing pricing to stabilize or decrease. Producers may opt to constrain production to control supply or source new export clientele.
 Bank of Canada Overnight Rate	The Bank of Canada has an ongoing objective to maintain the annual inflation rate at roughly 2%. A key instrument for this purpose is the Policy Interest Rate, or Overnight Rate, which is the short-term interest rate provided by the Bank of Canada and informs financial institutions of the target interest rate for overnight loans. The Bank of Canada reviews and amends the Overnight Rate eight times per calendar year as part of their monetary policy. Towards the end of 2024, the threat of tariffs combined with signals of a slowing economy prompted the Bank of Canada to decrease the overnight rate at a steady pace through most of 2025, it presently sits at 2.25%. The rate has been held for the past three meetings in Q2, and present forecasts anticipate that the rate will stay at 2.25% by the end of 2026. Low interest rates help incentivize borrowing and investment, which should boost economic output.
 Demand Shifts	Markets have shifted drastically from peaks in 2023/2024 as both tariff risk, a sluggish job market, and caps on population growth through immigration are implemented. In traditionally competitive markets such as Toronto and Vancouver, demand for new luxury housing types has declined as investors become more cautious with their capital. Residential development has instead shifted to the Prairies, Quebec, and Atlantic Canada as major cities in these provinces often offer a lower cost of living.



Employment

Employment across all sectors has been steadily increasing, however current trends show stagnating full-time employment growth as well as a sharp increase in youth unemployment. A high level of unemployment overall (6.4% in Aug 2026, 6.5% for British Columbia) highlights excess labour supply in the market. Canada also suffers from one of the lowest workforce productivity levels across developed nations. These trends make growing the economy a challenge, as youth are increasingly struggling to enter the workforce, and businesses are not incentivized to grow their headcounts domestically.

6.1 Inflation and Macroeconomic Environment

British Columbia's economic outlook for 2025 and beyond will be shaped by various factors including inflation, interest rates, government expenditure, housing and infrastructure demand, and shifts in consumer spending. These factors, as well as labour availability, industry capacity, and investment commitments will have a significant impact on the construction industry now and into the foreseeable future.

British Columbia's economy has begun to decelerate due to a variety of factors:

- Tariffs implemented by the Trump Administration currently include 50% on aluminum and steel products, 35% on non-CUSMA exempt items, and 10% on energy. British Columbia's domestic lumber industry has felt the impacts as tariffs and existing duties make exports challenging for local suppliers.
- British Columbia's residential construction market has contracted as demand pulls back. New residential housing starts are down 8.2% at the time of publication compared to a year prior.
- Population growth is tapering back as government measures reduce immigration. Interprovincial migration into British Columbia is relatively low due to the high cost of living; many residents choose more affordable destinations such as the Prairies.

The projected real GDP growth for the province is around 1.8% in 2025 due to the continued threat of tariffs, moderating population growth, and fewer residential housing project starts taking place. The province is forecasting a \$10.9 billion deficit in 2025/26, \$10.2 billion for 2026/27, and \$9.9 billion for 2027/28. These figures incorporate the province's Budget 2025 commitment of \$45.9 billion in capital investment for transportation, healthcare, and education infrastructure.

While near future GDP growth is projected to be nominal, British Columbia is supported by a diverse local economy, is a desirable place to live for potential residents, and has a robust labour pool. Despite headwinds in residential construction, major long-term infrastructure projects, particularly in the healthcare sector, continue to provide stability for workers.

6.2 Construction Trends

Permits

Building Permit activity provides insight into planned projects achieving a key milestone in the development cycle and is a useful leading indicator of residential and non-residential construction activity in a region.

In British Columbia, recent permit activity has shown little growth year over year, supporting market observations around an overall deceleration in momentum. When we compare year to date (YTD) figures, from 2024 to 2025 we observe:

YTD Change, BC, 2024 to 2025	Residential	Infrastructure
Value of Permits	18.1%	14.5%
Number of Permits	1.2%	-30.6%

The charts below show both residential and infrastructure building permit figures in British Columbia, both in dollar value and number of permits issued. Residential consists of both single dwellings and multiple dwelling construction, while infrastructure captures institutional, industrial, and commercial activity.

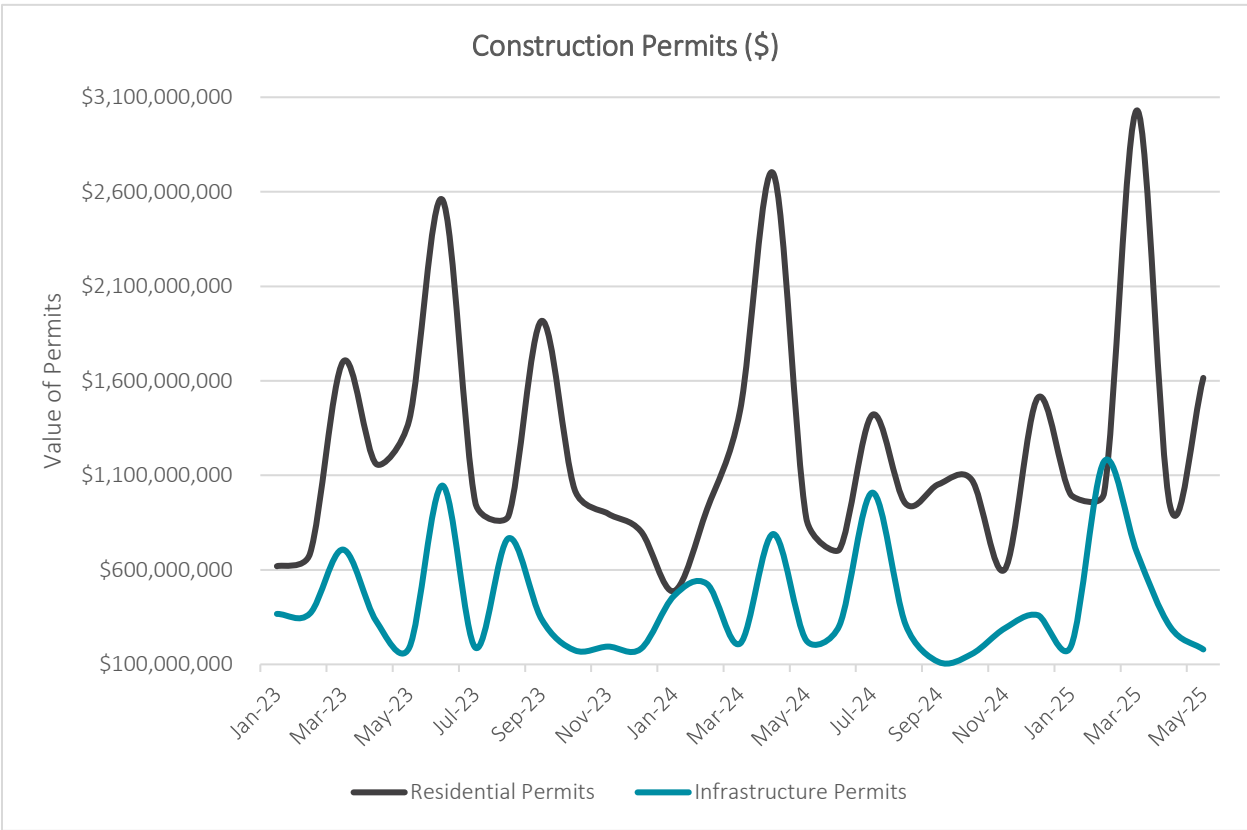


Figure 2: Construction Permits in British Columbia, 2023 to 2025, by Dollar Value

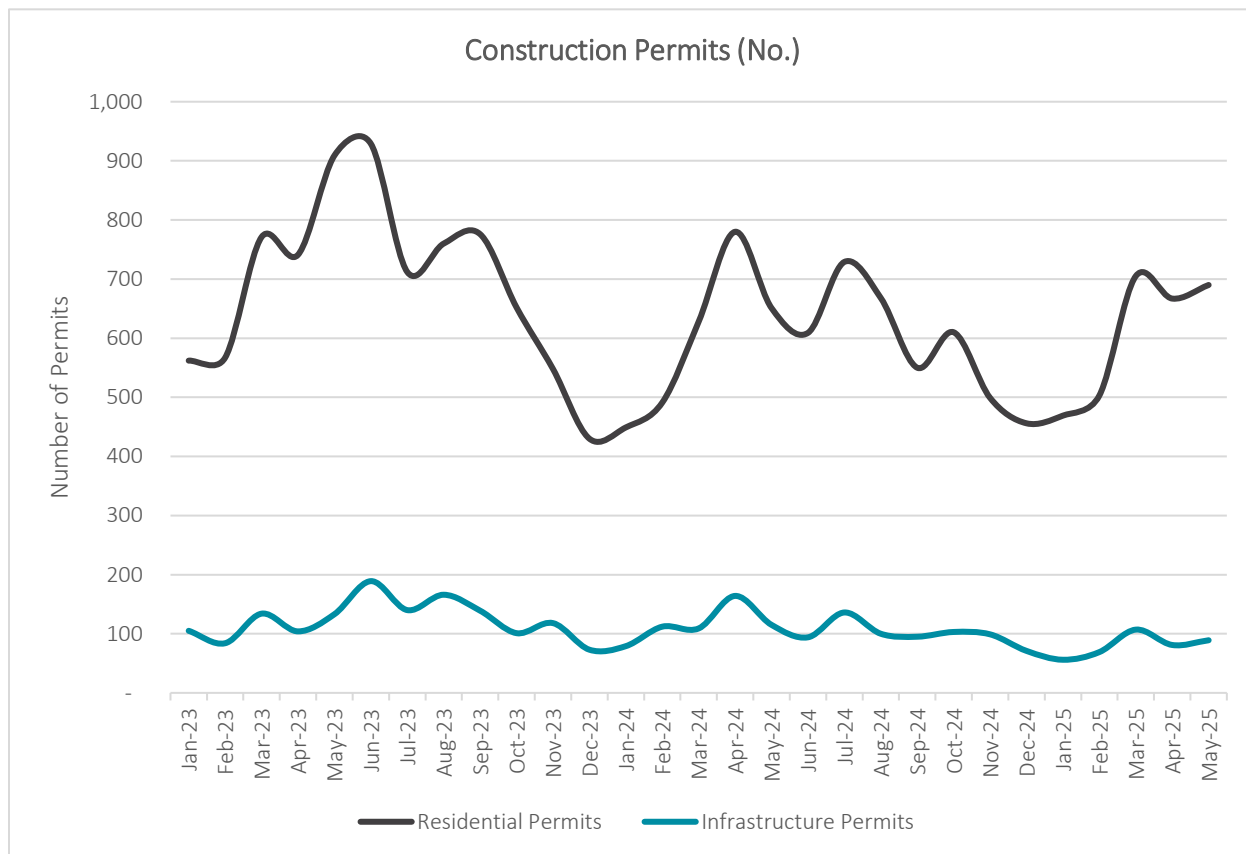


Figure 3: Construction Permits in British Columbia, 2023 to 2025, by Number of Permits

The number of permits issued on the residential side has been relatively flat thus far, while infrastructure building permits have declined significantly compared to last year. Building permit values have increased, likely in part due to cost variations and the types of projects going to market.

Labour Force

British Columbia’s construction labour force has been steadily growing and boasts one of the lowest unemployment rates across the provinces. In June 2025, more than 268,000 workers were employed in the construction sector with an accompanying unemployment rate of just 4.1%.¹ The workforce has grown by around 7.5% YTD compared to 2024. With current demand decelerating as well as the organic growth in the workforce, skilled trades have been easier to procure and deploy onto projects.

According to BuildForce Canada’s forward projections to 2034 in British Columbia, a significant number of workers will need to be trained and integrated by 2034: *“The challenge for British Columbia’s construction sector will lie in addressing the hiring gap created by the combination of growth and prospective retirements. The industry faces a*

¹ Statistics Canada. Table 14-10-0022-01 Labour force characteristics by industry, monthly, unadjusted for seasonality

potential hiring requirement of 60,100 workers over this period, much of which is driven by the retirement of 43,800 workers, or 23% of the 2024 labour force.”²

Maintaining labour levels and incentivizing training will be a critical component to supporting growth in the industry, as one of the major challenges is resource allocation between residential and non-residential construction.

Capacity Utilization Rate

An important consideration is that to support any significant investment in infrastructure and subsequent demand for construction, labour force participation likely needs to grow in tandem. A related metric that can be considered is Statistics Canada’s Capacity Utilization Rate (CUR). It provides insights into the construction industry’s productivity output.

Capacity utilization is defined as the percentage of actual output relative to potential output. The primary purpose of the CUR is to highlight how efficiently industries operate in relation to their maximum potential. Several factors may influence the CUR, such as the employment rate, demand, seasonality, government stimuli, and the state of the economy.

Figure 3 highlights the construction industry’s CUR³ since 2021:

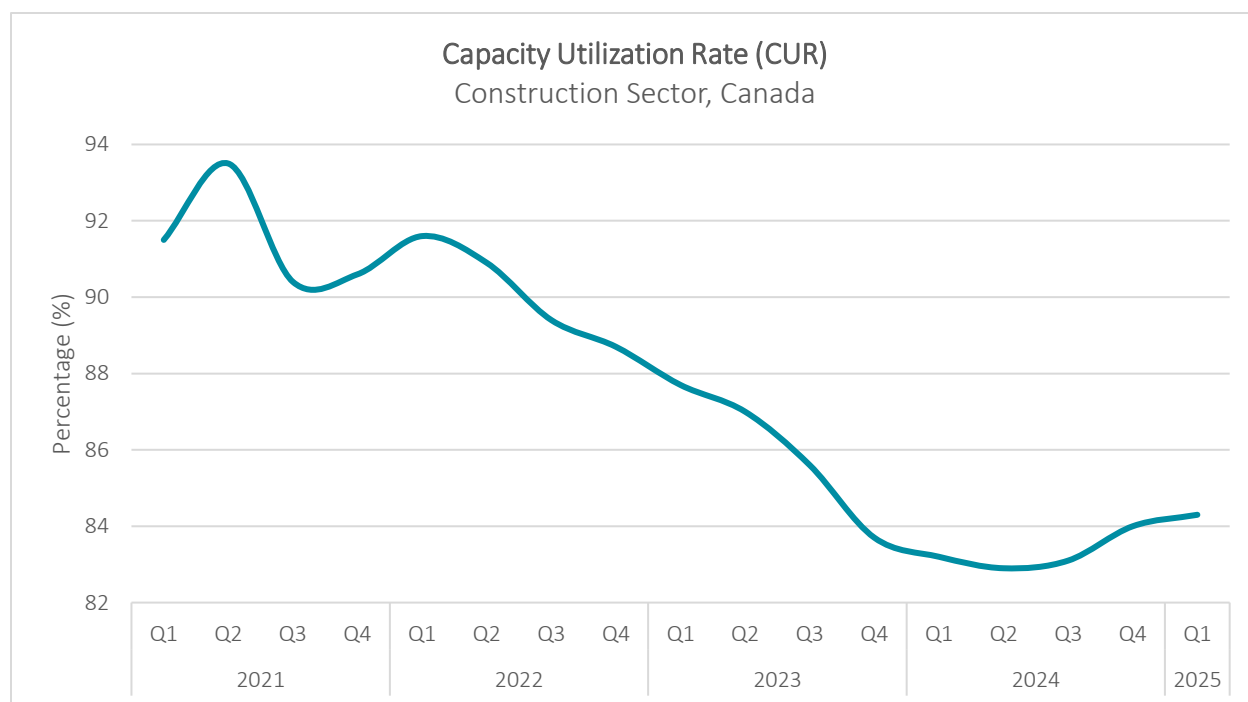


Figure 4: Construction Industry Capacity Utilization Rate (Canada)

² BuildForce Canada. Construction and Maintenance Looking Forward Report 2025-2034

³ Statistics Canada. Table 16-10-0109-01 Industrial capacity utilization rates, by industry

Recently, the CUR has showed growth since the low point of 2024, suggesting that the labour force has grown, new project volumes have remained steady, and the economy has remained resilient. Despite this, the CUR is still far below highs seen in 2021 and 2022.

British Columbia's construction industry, in its current state, has spare capacity to bear a portion of the additional infrastructure investment needed as outlined by the Closing the Infrastructure Gap mandate. Investment in infrastructure to close the infrastructure gap for First Nations in British Columbia would not only improve socioeconomic outcomes for communities, but bolster job growth, create economic opportunities, and improve infrastructure access for all residents of the province.

6.3 Future Investment

6.3.1 Existing Plans

The provincial government, as per the Budget 2025/26 announcement, plans to allocate \$20.2 billion in capital spending for 2025/26, growing to \$20.3 billion in 2026/27 before dropping to \$19.3 billion in 2027/28. Investment highlights include, but are not limited to:

- \$15.5 billion over three years in capital spending for the health sector;
- \$4.6 billion over three years to support kindergarten to grade 12 education students in B.C. schools;
- \$4.7 billion over three years for post-secondary institutions;
- \$45 million over three years in new, stable funding for the First Peoples' Cultural Council to support First Nations-led language and culture preservation initiatives;
- \$15.9 billion over three years in transportation infrastructure investments;
- \$2.8 billion in capital spending for housing over the next three years;

When compared to the funding requirements needed to help close the infrastructure gap in British Columbia, the Province has planned to invest roughly \$60 billion in the next three years for housing and infrastructure improvements across the region. Considering the total CTIG ask for British Columbia to 2040 is \$92.3 billion, this figure is both reasonable and feasible. In addition, there is likely overlap in both objectives, as broad investment in healthcare (for example) will benefit First Nations and non-First Nations alike. However, some imbalances need to be addressed, such as a substantial need for housing (\$32.6 billion CTIG need vs. \$2.8 billion budgeted).

Beyond the need for investment, improvements and innovations will be needed to deliver the significant infrastructure need for both British Columbia and Canada. These include, but are not limited to:

- Streamlined procurement mechanisms and delivery methods to maximize efficiency, either by bundling related infrastructure projects together and/or with robust contract structures that balance risk between public and private sector participants equitably;
- Alternative financing methods that enable the private sector to contribute some of the capital for the projects needed; and
- Engagement of the public to drive engagement and encourage labour force participation and worker productivity.

The required investment in infrastructure for British Columbia is significant, with a diverse range of asset classes that need modernization to meet present and future demand. A consistent and collaborative approach between the public and private sectors, education and training programs, innovative financing techniques, stable government planning and funding programs, and engagement of the construction industry will all be critical to drive the monumental amount of infrastructure needed to close the gap.

7.0 Next Steps

The budgets provided in this report concentrate on a wide range of asset classes. The BCAFN are fully aware that further work is required to ensure that the needs of First Nations are fully addressed during the remainder of the decade. The response to these factors will be an ongoing commitment to enhancing the process of gathering data from First Nations in British Columbia and refining the processes for determining the needs of First Nations relative to the rest of the Canadian population.

8.0 Ownership and Copyright

8.1 Report Reliance

All information, reports, publications, documentation, copyright, trademarks, materials, drawings, books, manuals, or other deliverables resulting from the provision of Services, and all right, title, and interest to the same shall, as between the company and the Consultant, be and remain the property of the Assembly of First Nations. Notwithstanding the above, ownership and copyright over materials and documentation created by the Consultant prior to this Agreement, shall be and remain the property of the BTY Consultancy Group Inc., however BTY Consultancy Group Inc. grants a perpetual license for the use of such materials and documentation to AFN.

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8.2 Reporting Qualifications

This Report has been prepared based on information provided to us by the Client up to the issue date of this Report. BTY Group does not accept any liability or accountability for information that has not been provided or made available to us at the time of preparing this report. Any advice, opinions, or recommendations within this report should be read and relied upon only in the report's context.



BC FIRST NATIONS
HOUSING &
INFRASTRUCTURE
COUNCIL

CLOSING THE INFRASTRUCTURE GAP

APPENDICES

APPENDIX 1

Definitions

Definitions

Asset

An asset is an item or thing of value (ISO 55000). In this study, asset refers to physical assets such as buildings, ports and wharves, treatment equipment, pipes, civil structures, and vehicles.

Asset Age

An asset's age (in Years) is based on the number of years since the construction (or in-service date) for each asset to the current year (i.e., 2022).

Asset Category

Highest level of categorization of assets in the Integrated Capital Management System (ICMS). All assets fit into one of the five Categories (i.e., Buildings, Grounds, Transportation, Utility and Vehicles).

Asset Code

The three-digit code describes a unique asset type in the ICMS, incorporating the Category, Class, and Sub-Class (e.g., A5A).

Asset Class

The middle level of categorization of assets in the ICMS further refines the asset category (e.g., Roads, Recreational Buildings, Water Supply).

Asset Inventory

The data extracted from the ICMS containing all assets included in the study.

Asset Sub-Class

The bottom level of categorization of assets in the ICMS further refines the Class of the asset. (e.g., Gravel Roads, Libraries, Water Mains, Other).

Asset Type

Refers in general terms to different kinds of assets, not strictly following the ICMS classification system.

Capital Cost

Fixed one-time expenses incurred on the construction enhancement, purchase of land or equipment related to the project.

Capacity Utilization Rate

The ratio of an industry's actual output to potential output.

Current Replacement Value (CRV)

The total cost in 2022 \$CAD to replace the particular asset and make it functional, including purchase, construction, installation etc. This may be derived from either historical costs or current capital costs.

Contingencies

As defined in Section 3.2.3 of this report.

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Privileged and Confidential

Expected Service Life (ESL)

The asset's expected life before it will no longer meet its functional need(s). This may vary significantly from a short-lived asset, such as computers/vehicles (e.g., five years), to a long-lived asset, such as a building foundation (e.g., 60 years).

Growth

The term growth generally means an increasing number of people, i.e., population increases. Growth as an investment driver is the investment required to accommodate the needs of a growing population. This study comprises making assets bigger (upsizing) and adding new assets to service the population.

Operations and Maintenance (O&M)

Investments in operations and maintenance ensure that an asset achieves its planned service life. These include immediate repairs and periodic replacement of components.

Remaining Service Life (RSL)

The number of years remaining from the asset's current age to the end of its ESL.

Regional Factors

As defined in Section 3.2.1 of this report.

Service Centre

Defined by ISC as a community where suppliers, materials, and equipment, as well as skilled and semi-skilled labour, are available and where at least one financial institution and minimum provincial and federal services are available.

Sustainment

Sustainment refers to the investment required to maintain current levels of service. It includes renewing assets at end of life and refurbishing/rehabilitation of assets.

School

A building designed to provide instruction inclusive of learning spaces and environments.

Teacherage

A building that provides both a school and or a residence for teachers.

Upgrades

Upgrade refers to the improvement of an asset through either upsizing or modification (e.g., retrofits) to meet changing regulatory requirements.

Zone

Degree of remoteness regarding proximity to a service centre. Each First Nation is assigned a Zone (i.e., score of 1-4, with four being the most remote), and all assets within that Nation are in the same Zone.

Zonal Factors

Adjustment factors to reflect the impact of remoteness on construction costs.

