

1 **7 VALUED COMPONENTS EFFECTS ASSESSMENT**

2 **7.12 Infrastructure and Services**

3 As specified in Section 5.0 of the Application Information Requirements (**AIR**), Infrastructure and Services
4 has been identified as a valued component (**VC**) to be assessed for the Project. This section describes and
5 assesses the potential effects on Infrastructure and Services from the Project (during all Project phases).

6 This assessment is linked to other VC assessments, either through integration (information from other
7 VCs is incorporated into this assessment) or support (information from this assessment is incorporated
8 into the assessment of other VCs).

9 Components of this assessment integrate information, including existing conditions and Project
10 information, including Project labour force and mitigation measures, from the following VCs and
11 Application sections:

- 12 • Employment and Economy (Section 7.10) – the labour analysis, and assessment of potential
13 effects on housing affordability, cost of living, and regional economy have been integrated into
14 this assessment
- 15 • Human Health (Section 7.14) – information on health infrastructure and services, as well as
16 mitigation, and assessment of potential effects have been integrated into this assessment
- 17 • Community Health and Wellness (Section 7.13) – information on health infrastructure and
18 services, as well as mitigation, and assessment of potential effects have been integrated into this
19 assessment
- 20 • Summary of Human and Community Well-being (Section 21.0)– information on health
21 infrastructure and services, as well as mitigation, and assessment of potential effects have been
22 integrated into this assessment
- 23 • Effects on Current and Future Generations (Section 22.0) – integrates the assessment findings on
24 environmental, economic, social, cultural, and health components that influence people and
25 communities, as well as mitigation measures

26 Likewise, the above VC sections will integrate information from Infrastructure and Services, including
27 existing conditions and mitigation measures, as well as results from the assessment to inform their
28 assessments. The Community Health and Wellness assessment, in particular, relies on existing conditions
29 for housing, childcare, and emergency services, which are presented in this section.

30 Information on existing conditions with respect to infrastructure and services has also been incorporated
31 from and into the Indigenous nations effects assessment sections (Sections 11.0 to 19.0).

1 **7.12.1 Overview**

2 This section provides a brief summary of the Infrastructure and Services VC assessment.

3 During all Project phases, from an infrastructure and services perspective, the Project is expected to
4 interact with the procurement of labour, goods, and services, and the land transportation of workforce
5 and materials. The Project has the potential to result in the following effects on infrastructure and
6 services:

- 7 • Change in infrastructure and services
- 8 • Change in accommodation availability
- 9 • Change in transportation infrastructure

10 In assessing the potential effects of the Project on infrastructure and services, existing conditions within
11 the Project local and regional assessment area were considered. Primary and secondary data indicates
12 that:

- 13 • The population of the local assessment area (**LAA**) was approximately 35,000 in 2021
- 14 • As of June 2022, the total registered Indigenous population of the regional assessment area (**RAA**)
15 was 10,859
- 16 • Nisga'a had the largest registered population with 4,242 members
- 17 • Additional childcare spaces are required
- 18 • Demand for homes in the LAA is outpacing the existing supply

19 To reduce or avoid adverse residual effects and enhance positive residual effects the following have been
20 identified as key mitigations:

- 21 • Provide security personnel and access control at Site
- 22 • Develop and implement emergency management and response including fire prevention and
23 protection measures. Appropriate fire response equipment and personnel trained to use it will be
24 maintained at Site
- 25 • Develop and implement a community feedback tool or process to receive and address community
26 suggestions, concerns, and complaints
- 27 • Develop and implement traffic safety measures for Project-related travel between Prince Rupert,
28 Terrace, and Gingolx

29 With the implementation of the key mitigation measures identified above, adverse residual effects include
30 a decrease in childcare availability, changes in housing availability, additional demands on transportation
31 and infrastructure and ambulance services due to the remote location of the Project. Positive residual
32 effects include revenue for municipal services to improve access to local infrastructure and services.
33 Sub-populations may experience differential adverse and positive residual effects.

1 Other industrial and marine projects in the area (i.e., proposed LNG facilities, the third-party powerline,
2 and LNG Canada Export Terminal) have the potential to interact cumulatively with the Project adverse
3 residual effects on infrastructure and services, including the construction and operation of both the
4 third-party transmission line and pipeline. Adverse residual cumulative effects on infrastructure and
5 services, accommodation and transportation infrastructure are expected to be moderate in magnitude.
6 Adverse residual cumulative effects on housing availability may result in an exceedance of housing
7 capacity, or a decrease in the quality of a service provided, on an ongoing basis, which cannot be mitigated
8 with current or anticipate programs, policies, or mitigation measures. The Proponents will continue to
9 communicate Project information and predicted demands on infrastructure and services to the
10 responsible authorities to assist with their planning.

11 7.12.2 Relevant Statutes, Policies and Frameworks

12 The management of Infrastructure and Services is subject to several statutes, policies, and frameworks.
13 These are identified in the AIR and Table 7.12–1, which provides a list of the key legislation, policy, and
14 regulatory guidance documents applicable to the assessment of Infrastructure and Services. Section 6.0
15 identifies additional sources of information on existing conditions collected for this VC and applicable
16 standards and guidance that have been identified by the Project to date.

Table 7.12–1 – Summary of Key Legislation, Policy, and Regulatory Guidance Documents for Infrastructure and Services

Regulation or Policy	Description
Federal	
<i>Canada Health Act</i>	Canada's federal legislation for publicly-funded health care insurance; facilitates reasonable access to insured health services without financial or other barriers.
<i>Public Health Act</i>	Promotes health and the prevention/control of chronic diseases and injuries; prevents and controls communicable diseases; prepares for and responds to public health emergencies; strengthens intergovernmental collaboration on public health and facilitates national approaches to public health policy and planning.
Provincial	
<i>Public Health Act</i>	Addresses public health issues, including: prevention and control of communicable diseases; health promotion and protection; chronic disease and injury prevention; prepares for and responds to public health emergencies. Works in concert with the <i>Drinking Water Protection Act</i> and <i>Food Safety Act</i> .
Nisga'a Lisims Government	
None currently identified	
Other Indigenous Nations	
Resources from the First Nations Information Governance Centre	Information available from the First Nations Information Governance Centre was reviewed; however, none was specifically used in the development of the assessment of infrastructure and services.

Table 7.12–1 – Summary of Key Legislation, Policy, and Regulatory Guidance Documents for Infrastructure and Services

Regulation or Policy	Description
Municipal	
<i>Community Charter</i>	<p>The Community Charter provides the statutory framework for all municipalities in B.C. except the City of Vancouver. The Community Charter sets out municipalities' core areas of authority, including:</p> <ul style="list-style-type: none"> ▪ Broad powers (for example, municipal services, public health regulation and entering into agreements) ▪ Property taxation ▪ Financial management ▪ Procedures (for example, adopting bylaws) ▪ Bylaw enforcement
Local Government Act	<p>The <i>Local Government Act</i> is the primary legislation for regional districts and improvement districts, setting out the framework for structure and operations, as well as the main powers and responsibilities. Certain municipal provisions of the Local Government Act also apply to municipalities for matters not covered by the Community Charter (for example, municipal tax sales).</p>
Infrastructure Master Plans	<p>City of Terrace Parks and Recreation Master Plan Northwest Regional Airport Master Plan 2014</p>
Airport Master Plan	<p>Prince Rupert Airport Master Plan Northwest Regional Airport: Airport Master Plan 2014</p>
Official Community Plans	<p>City of Prince Rupert Official Community Plan 2021 City of Terrace Official Community Plan 2018 Kitsumkalum First Nation Land Use Plan 2018 Kitselas First Nation Land Use Plan 2019 Kitselas First Nation Comprehensive Community Plan 2021 District of Port Edward Official Community Plan 2020</p>
Housing plans	<p>Greater Terrace Housing Needs Assessment 2020 Housing Needs Regional Summary North Coast Regional District Electoral Areas and Municipal Regions 2022 District of Port Edward Housing Needs Assessment 2020</p>
Child Care Needs Assessments	<p>City of Prince Rupert Child Care Assessment and Action Plan 2020</p>
Service provider management/development plans and strategies	<p>BC Hydro and the BC Utilities Commission review and plan for the electricity needs of BC residents and industrial customers. None of these plans were specifically used in the development of this assessment of infrastructure and services.</p>

1 **7.12.3 The Influence of Consultation and Engagement**

2 The development of the AIR and this assessment was influenced by consultation with members of the
3 working group, Indigenous nations, and the public. This section describes information and concerns
4 related to Infrastructure and Services shared through consultation with government agencies,
5 stakeholders, Indigenous nations, and community members.

6 Refer to Section 6.0 for detailed methods regarding the incorporation of IK into the Application.
7 Table 7.12–2 provides a summary of the topics, key information, including Indigenous knowledge (IK), and
8 concerns that were identified as part of consultation and engagement efforts that relate to Infrastructure
9 and Services, as well as a summary of the outcomes this consultation and engagement had on the
10 assessment.

11 **7.12.3.1 Indigenous Knowledge**

12 Information on IK has been included where made available by Indigenous nations through consultation,
13 information gathering, and voluntary information sharing.

14 Sections 11.0 to 19.0 provide information regarding the alignment of the use of knowledge shared by
15 Indigenous nations with each of their respective policies and protocols, consent for its use and public
16 disclosure, and views regarding the characterization of IK within the Application. Sections 11.0 to 19.0 also
17 describe, as applicable, if feedback regarding the use, public disclosure, or characterization of IK was
18 provided by an Indigenous nation. In this case and as applicable, the Application has considered
19 publicly-available information and non-confidential outcomes of Project consultation activities to date.

20 Refer to Section 6.0 for detailed methods regarding the incorporation of IK into the Application.

Table 7.12–2 – Summary of Key Information, Indigenous Knowledge, and Concerns for the Project Related to Infrastructure and Services

Topic	Key Information and Concerns	Influence on the Assessment
Waste Management	<ul style="list-style-type: none"> ▪ Nisga’a Nation expressed concerns that Project activities and workforce may produce waste that reduces the capacity of local landfills. 	<ul style="list-style-type: none"> ▪ Potential effects on waste management infrastructure are described in Section 7.12.10. ▪ Management of solid and hazardous wastes during the construction and operation phases of the Project is described in Section 1.9.5.1. Where possible, non-hazardous wastes will be recycled or reused. Where reuse is not possible, waste will be stored at the Site and then shipped for disposal at a local landfill, other approved waste disposal facility, or a recycling facility in compliance with applicable legal requirements. No other means for waste management have been considered for the Project. Management of wastewater during the construction and operation phases of the Project is described in Section 1.9.5.2.
Access to infrastructure and services	<ul style="list-style-type: none"> ▪ Nisga’a Nation, Kitselas First Nation and Kitsumkalum First Nation expressed concerns that the presence of the Project workforce may reduce capacity of existing infrastructure and services in LAA communities (housing, police and social services, road use) and affect access by residents. ▪ Nisga’a Nation expressed concerns about potential impacts to their Head Start Program and daycare facilities. ▪ Nisga’a Nation expressed concern about potential impacts to food distribution services. ▪ Haida Nation expressed concern about citizen health and wellbeing and ability to access off-island services. 	<ul style="list-style-type: none"> ▪ Potential effects on capacity of infrastructure and services are described in Sections 7.12.10, 7.12.10.2, and 7.12.10.3. ▪ Sections 7.13.8.1, 7.13.8.2, and 7.13.8.3 provide an assessment of change in community health, community wellness (including access to childcare), and food security, respectively. ▪ The Proponents have committed to developing and implementing a Social and Economic Effects Management Plan. The complete list of Project mitigation measures is found in Appendix A.

Table 7.12–2 – Summary of Key Information, Indigenous Knowledge, and Concerns for the Project Related to Infrastructure and Services

Topic	Key Information and Concerns	Influence on the Assessment
Increased traffic	<ul style="list-style-type: none"> ▪ Nisga’a Nation, Kitsumkalum First Nation and Kitselas First Nation expressed concerns about the impacts of accidents and malfunctions along the road transportation route, with a focus on increased traffic and associated risk for community safety, access, and wildlife (e.g., due to extreme weather). ▪ Nisga’a Nation expressed concern that Project workers may not have the driving skills necessary for navigating the terrain, ocean and weather conditions. 	<ul style="list-style-type: none"> ▪ Potential Project effects on transportation services are described in Section 7.12.10.3. ▪ The Proponents have proposed mitigation measures to address traffic safety concerns, including the transportation of workers to on-Site location; Project crews are expected to be bused from Terrace to Gingolx via Highway 113/Nisga'a Highway and Nass Road, limiting individual vehicle use. An assessment of potential vehicular accidents on Highway 113 and related effects on community safety, access and wildlife is found in Section 9.10, including mitigation measures. ▪ Section 9.0 also describes the prevention and response methods the Proponents will employ to reduce the risk of, and manage potential effects of, terrestrial and marine malfunctions and accidents, including spill and release scenarios. ▪ Project vessels will be operated in accordance with the <i>Canada Shipping Act</i> and the <i>Pilotage Act</i>, promoting marine safety and protection of the marine environment.
Condition and affordability of housing	<ul style="list-style-type: none"> ▪ Instances of core housing need may be exacerbated by the presence of the Project and Project labour force and there will be increased competition for housing. Gitxaala Nation expressed concern about changes in transportation infrastructure and changes in accommodation availability. ▪ Gitga’at First Nation expressed concerns that there is a housing crisis in Prince Rupert. ▪ Lax Kw’alaams Band expressed concern for potential impacts of the Project workforce with a focus on accommodations and access to site. 	<ul style="list-style-type: none"> ▪ Potential effects on housing are described in Section 7.12.9.2. ▪ As described in Section 1.9.1.1, construction worker access to the Site is anticipated to be via marine vessels originating from Gingolx or Prince Rupert/Port Edward. The construction workers are planned to be housed in a floatel within the proposed Water Lot in Portland Canal. During operations, on-Site workers will be housed in permanent housing on-Site. Similar to construction, workers are expected to travel to Site via water taxi from the mainland (e.g., from Gingolx or Prince Rupert/Port Edward).

Table 7.12–2 – Summary of Key Information, Indigenous Knowledge, and Concerns for the Project Related to Infrastructure and Services

Topic	Key Information and Concerns	Influence on the Assessment
Capacity of local emergency services	<ul style="list-style-type: none"> ▪ Nisga’a Nation, Gitga’at First Nation, Kitselas First Nation, and Kitsumkalum First Nation expressed concerns that the presence of the Project may increase the need for emergency services which are already viewed as being overburdened. ▪ Kitsumkalum First Nation expressed concern for the lack of cellphone coverage in the area. 	<ul style="list-style-type: none"> ▪ Potential effects on emergency services are described in Section 7.12.9.1 and Section 7.13.8.4. ▪ The Proponents have proposed a series of mitigation measures to reduce the potential adverse effects on emergency service capacity such as the development and implementation of a health and medical services plan which includes describing the medical and first aid services for personnel at the Project site (the Site) and having procedures in place for medical emergencies that require evacuation.
Disproportionate effects on women and other vulnerable groups	<ul style="list-style-type: none"> ▪ Kitselas First Nation expressed concerns that the Project may have adverse impacts to women and other marginalized communities due to the transient workforce residing in the Project accommodations and surrounding communities supporting the Project. ▪ Gitga’at First Nation expressed concerns about an influx of workers exacerbating the opioid crisis and increasing human trafficking in Prince Rupert. 	<ul style="list-style-type: none"> ▪ Disaggregated data have been used in the assessment of effects on infrastructure and services. ▪ The Proponents have proposed a series of mitigation measures to address substance use and mental health which includes the development and implementation of a health and medical services plan and the development of a drug and alcohol policy. Mitigation measures to address substance use and mental health are presented in Section 7.13.8.1.2 and in Section 7.13.8.2.2. ▪ Substance abuse is assessed under the potential effect ‘Community Health’ in Section 7.13.8.1.4. ▪ The assessment includes a section on Crime and Gender Based Violence, including human trafficking, under the potential effect of ‘Community Wellness’ in Section 7.13.8.2. ▪ The Assessment includes a GBA Plus analysis in applicable VCs. Data has been disaggregated where possible. Where data is unavailable the Proponents have endeavored to provide qualitative data from key informant interviews to supplement publicly available data.

1 **7.12.3.2 GBA Plus Considerations Identified During Engagement**

2 Sub-populations and sub-groups identified in Table 7.12–3 may experience disproportionate effects from
3 the Project, and therefore have been assessed using GBA Plus. Sub-populations were selected based on
4 feedback from engagement, a literature review on socio-community impacts from similar developments,
5 including liquefied natural gas (LNG) and pipeline projects, and on the professional experience and
6 knowledge of the SE technical team.

7 Social and economic effects management plan reporting for other resource development projects
8 (Coastal GasLink 2021) have shown that temporary workforces can have potential effects on local housing
9 supply and costs, and that can have disproportionate effects on low-income households, women with
10 children, and the elderly. In northern Canada, where women’s wages are well below the average for
11 women in Canada, Indigenous women and girls are most at risk for housing insecurity
12 (Amnesty International 2016).

13 Women have more complex transportation needs than men because they generally engage in work
14 outside of the home and are responsible for domestic chores and childcare. Therefore, women tend to
15 make multiple trips daily, creating a greater dependency on public transportation or a vehicle
16 (Versteegh 2020). In northern and rural communities, where public transportation is less available than in
17 urban centers and where communities are separated by large distances, women may experience greater
18 challenges accessing infrastructure and services in regional service centers. Therefore, Indigenous women
19 and women living in rural and northern communities may experience disproportionate effects related to
20 change in transportation infrastructure and services, as they are already at risk due to unreliable
21 transportation between communities (Amnesty International 2016; Jonasson et al. 2019;
22 Wet’suwet’en n.d.).

23 Resource development projects have been linked to instances of violence against women, particularly
24 Indigenous women (Amnesty International 2016). Accommodation camps, or “man camps”, associated
25 with such projects can pose a threat to the safety of women, making them vulnerable to sexual assault
26 and harassment (Pauktuutit, Inuit Women of Canada & School of Social Work, UBC 2014). It has been
27 reported that Nisga’a Nation has seen first-hand sexual exploitation of young girls and women by
28 non-resident men associated with nearby resource projects (Verreault 2022, pers. comm.). Increased
29 incidences of assault and violence can lead to increased demands on social infrastructure, including police
30 and health services.

31 Childcare is often a vital component to parents’ access to the labour market, including women’s access to
32 economic opportunities. A lack of childcare not only impacts parents, but other members of their family
33 and community. In addition to women, other vulnerable populations including Indigenous families,
34 low-income families, young parents under the age of 25, single-parent families, families from minority
35 cultures and language groups, immigrant and refugee children, and families having particular childcare
36 needs (BRA 2020b). Through consultation, members of Nisga’a Nation have indicated that the Head Start

1 programs in each of the Nisga’a Villages and other daycares are experiencing staff shortages
2 (Verreault 2022, pers. comm.).

Table 7.12–3 – Sub-Populations identified for GBA Plus Assessment

Subpopulation/subgroup	Rationale for Incorporating GBA Plus
Low-income households	Low-income households may experience disproportionate effects related to effects on housing availability and changes to cost of living, including housing costs, as well as childcare services.
Indigenous persons	Indigenous persons may experience disproportionate effects with respect to local services including childcare services, related to changes to local service capacity and access.
Women	Women may experience disproportionate effects related to childcare access, transportation infrastructure and services, and affordable housing.
Indigenous women	Indigenous women in the Regional Assessment Area (RAA) may experience disproportionate effects with respect to transportation infrastructure and services, as they are already at risk due to unreliable transportation between communities. Indigenous women may be vulnerable to safety issues related to transient work forces and require access to emergency services, such as police, in unsafe situations. Indigenous women already experience challenges accessing affordable housing.
Young Parents	Young parents in the LAA may experience disproportionate effects with respect to childcare infrastructure and services, as they already experience challenges related to access to this service.
Immigrants/visible minorities	Immigrants/visible minorities in the LAA may experience disproportionate effects with respect to childcare infrastructure and services, as they already experience challenges related to access to this service.
Elderly	Elderly people in the LAA who are on a fixed income may experience disproportionate effects related to effects on housing availability and changes to cost of living, including housing costs.

3

4 **7.12.4 Assessment Boundaries**

5 The spatial, temporal, administrative, and technical boundaries for the assessment of effects on
6 Infrastructure and Services are described below.

7 **7.12.4.1 Spatial Boundaries**

8 Spatial boundaries for the assessment of potential effects considered the geographic extent over which
9 Project activities may affect infrastructure and services; these are described below and are shown in
10 Figure 7.12–2 and Figure 7.12–3.

11 The Project footprint encompasses the physical footprint of on-Site and off-Site components (i.e., the
12 extent of planned clearing and development within the assessment area).

1 The LAA encompasses communities with the greatest potential to experience effects (positive or adverse)
2 of direct Project demand for infrastructure and services and effects of Project-related changes in
3 population, demographics, employment, and income.

4 The LAA is comprised of the following Statistics Canada census subdivisions and census agglomerations
5 (CAs):

- 6 • Nisga’a NL (Nisga’a Lands, includes Nisga’a villages)
- 7 • Prince Rupert CA (comprised of the City of Prince Rupert [CY], District Municipality of Port Edward
8 [DM], North Coast A Regional District Electoral Area [RDA], Lax Kw’alaams 1 IR, and S 1/2
9 Tsimpsean 2 IR)
- 10 • Terrace CA (comprised of Terrace CY; Kitimat-Stikine C (Part 1) RDA, Kitimat-Stikine E RDA,
11 Kitselas 1 IR, Kitsumkalum First Nation (Kitsumkaylum 1 IRI), Kitselas First Nation (Kshish 4 IRI, and
12 Kulspai 6 IR and Kitselas 1 IRI)

13 Included in the LAA are highway corridors between Terrace and Nisga’a Lands
14 (Highway 113/Nisga’a Highway), Prince Rupert and Terrace (Highway 16), and Northwest Regional Airport
15 and Terrace (Highway 37). The descriptions of the Terrace and Prince Rupert Cas above are different from
16 the 2016 configurations. Between 2016 and 2021, Statistics Canada reorganized the Prince Rupert and
17 Terrace CAs so that they now include more census subdivisions. In 2016, Prince Rupert CA included City of
18 Prince Rupert and Port Edward DM, and Terrace CA included the City of Terrace, Kitimat Stikine E, and
19 Kulspai 6.

20 The RAA includes the LAA, as well as Kitimat-Stikine A RDA and Stewart DM.

21 As described in Table 3 (Section 6.4) of the AIR, the open water assessment area and transmission line
22 assessment area (TLAA) are not applicable to the Infrastructure and Services VC.

23 The existing conditions sections focus on the infrastructure and services in the cities of Terrace and
24 Prince Rupert and Prince Rupert DM because they are the main service centres in the LAA and RAA and
25 operate the three municipal governments in the LAA. It is understood that some members of Indigenous
26 groups live away from their home communities and reside in urban centres, including Terrace, Prince
27 Rupert, and Port Edward DM. For this assessment, it is recognized that potential effects of the Project on
28 the infrastructure and services in Terrace, Prince Rupert, and Port Edward DM will be experienced by the
29 total populations of these communities, including the Indigenous group members who live there and rely
30 on their infrastructure and services. In addition, it is acknowledged that members of Indigenous nations
31 who reside in their home communities, including those communities included and not included in the LAA
32 and RAA, use infrastructure and services, particularly health infrastructure and services, in the larger
33 service centres. It is also understood, as described in Section 7.12.3.2, that members of Indigenous groups
34 may experience these effects disproportionately from non-Indigenous members of these communities.

1 **7.12.4.2 Temporal Boundaries**

2 Temporal boundaries identify when an effect is evaluated in relation to specific Project phases and
3 activities. Temporal boundaries are based on the timing and duration of Project activities and the nature
4 of the interactions with infrastructure and services.

5 Based on the current Project schedule, the temporal boundaries for the assessment are:

- 6 • **Construction:** approximately three to four years, commencing following receipt of necessary
7 regulatory approvals and a final investment decision by the Project.
- 8 • **Operation:** a minimum of 30 years following completion of construction.
- 9 • **Decommissioning:** approximately 12 months following the end of operation.

10 **7.12.4.3 Administrative Boundaries**

11 Infrastructure and services are typically the responsibility of federal government, provincial government,
12 Indigenous governments, and municipal agencies. For the purpose of this assessment, municipal
13 boundaries for the municipalities, reserves, and Regional Districts in the LAA and RAA have been
14 considered. Data have also been collected for the relevant provincial health region (Northwest Health
15 Service Delivery Area [NWHSDA]) and school districts (Coast Mountains School District [CMSD] 82 and
16 British Columbia First Nations Schools Association).

17 **7.12.4.4 Technical Boundaries**

18 Technical boundaries for the assessment of infrastructure and services include spatially-defined
19 boundaries established through Statistics Canada’s Standard Geographical Classification (SGC). The SGC
20 covers geographical regions of Canada, provinces and territories, census divisions, and census subdivisions
21 (Statistics Canada 2022e). The SGC boundaries define the LAA and RAA and are the statistical units for
22 which census of the population (census) data are published. The following limitations (among others) are
23 therefore imposed on the assessment of infrastructure and services:

- 24 • **Timeliness of data** – Published information taken from the 2021 census at the census division and
25 census subdivision level is the most up-to-date and comparable source of population and
26 demographic information for all LAA and RAA communities. Where possible the most up-to-date
27 data are used.
- 28 • **Geographic area** – Because SGC boundaries are used to define the LAA and RAA, in some
29 instances, particularly with respect to the RAA, large geographic areas may be included but no
30 residual effect is expected. For instance, effects on roadways would be concentrated in those
31 areas where the Project could result in increases in traffic volume. Inclusion of these areas in the
32 LAA or RAA is purely a limitation of the available datasets used to describe the LAA and RAA.

- 1 • Data suppression – Statistics Canada regularly suppresses (i.e., selectively does not disclose)
2 survey information to protect the identity of individuals and to address data quality issues. Both
3 the 2016 and 2021 census are subject, in part, to data suppression by Statistics Canada.
- 4 • Availability of Disaggregated Data – Most Census data are currently presented by sex and for
5 Indigenous Identity. Most Data are not disaggregated for other vulnerable groups, which poses a
6 limitation in the assessment of effects on these groups in the GBA Plus analysis. As described in
7 Section 7.10 (Employment and Economy) Table 7.10-2, data have been disaggregated where
8 possible. Where data are unavailable, the Proponents have endeavored to provide qualitative
9 data from key informant interviews (see Section 7.12.14) to supplement publicly available data.

10 The 2016 and 2021 census information (where available) for specific census subdivisions have not been
11 presented in Section 7.12.5.1.1; but, rather, LAA and RAA totals have been provided. This presentation of
12 information is appropriate because residual and cumulative effect assessments are completed at the LAA
13 and RAA levels, respectively. Both the 2016 and 2021 census information (where available) are presented
14 for the Province of British Columbia (BC), as applicable, for comparison.

15 **7.12.5 Existing Conditions**

16 This section summarizes the data sources and existing conditions for infrastructure and services in the
17 Project footprint, LAA, and RAA.

18 Gitga’at First Nation confirmed that it has members that reside within the LAA and RAA (Gitga’at First
19 Nation 2024) and members of Haida Nation and Métis Nation of British Columbia may also live in urban
20 and away from home communities in the LAA and RAA, including Terrace, Prince Rupert, and in other
21 Indigenous communities and reserve land. Census Profiles of LAA and RAA communities therefore include
22 members of Gitga’at First Nation, Haida Nation, and Métis Nation of British Columbia who live in these
23 communities and are included in existing condition descriptions provided in Sections 7.12.5.1 to
24 Section 7.12.5.10, as applicable.

25 **7.12.5.1 Methods**

26 7.12.5.1.1 Existing Data

27 The existing social and economic conditions of the LAA and RAA were established to provide an
28 understanding of the communities most likely to be affected by the Project and to support the assessment
29 of potential Project effects on infrastructure and services.

30 This VC examines infrastructure and services (municipal administration, municipal infrastructure and
31 services, permanent and temporary accommodations, education, recreation, transportation, utilities, and
32 policing and emergency services) with an emphasis on those infrastructure and services that could come
33 under pressure from the Project. Health services and infrastructure, including social services and
34 infrastructure, are described and assessed in Section 7.13 (Community Health and Wellness).

1 The existing data collection focused on information that facilitated the assessment of the beneficial and
2 adverse effects of the Project, and which made a meaningful contribution to the assessment. For example,
3 information on existing conditions included both descriptive information on infrastructure and services,
4 as well as capacity and ability to absorb additional demand. Baseline data collection focused on the
5 compilation of information required to describe current and anticipated social conditions within
6 communities near the Project, focusing on the Cities of Terrace and Prince Rupert.

7 Where possible, disaggregated data have been used in to describe baseline conditions for diverse or
8 distinct sub-groups to support the GBA Plus analysis of effects, as described in provincial guidance related
9 to the *British Columbia Environmental Assessment Act (BC EAA)*, and Impact Assessment Agency (IAA) of
10 Canada, 2019. Both qualitative and quantitative data have been used to describe baseline conditions
11 across diverse or distinct sub-groups BA Plus factors have the potential to be relevant to the
12 understanding of effects.

13 Baseline data came primarily from secondary sources. As required, telephone and in-person interviews
14 were conducted with key informants to confirm secondary data and collect primary data. This is described
15 further in Section 7.12.5.1.3. Information on socio-community conditions is comprised of the following
16 subject areas:

- 17 • Transportation infrastructure and services
- 18 • Municipal infrastructure and services, such as:
 - 19 • Solid waste, water, and sewer
 - 20 • Emergency response infrastructure (e.g., fire halls, police detachments, and hospitals) and
21 services provided (e.g., fire rescue, police, ambulance, and health care)
- 22 • Commercial and industrial infrastructure and services, such as power and telecommunications
- 23 • Housing and temporary accommodations
- 24 • Education services and childcare
- 25 • Community recreation infrastructure, facilities and services

26 The main sources considered for acquiring data and information for the social and economic assessment
27 are:

- 28 • Socio-economic and IK studies prepared for the Project (as available)
- 29 • Regulatory applications filed for other major development Projects in proximity to the Project,
30 including but not limited to: LNG Canada Export Terminal, Coastal GasLink, and Northern Gateway
31 and Cedar LNG
- 32 • Review of annual and quarterly reports for LNG Canada Community Level Infrastructure Social
33 Management Plan
- 34 • Statistical information from the census and Canada Mortgage and Housing Corporation (CMHC)
- 35 • Information obtained through discussions with key government agencies
- 36 • Local media

1 7.12.5.1.2 GBA Plus

2 To obtain information regarding the sub-populations and sub-groups that may be disproportionately
3 affected by the Project, Project engagement results and comments from stakeholders on Project
4 documents were reviewed. Concerns and issues brought forward by members of vulnerable groups were
5 documented and these sub-populations and sub-groups were carried through the assessment.

6 A review of literature describing effects of other similar Projects on vulnerable groups, including journal
7 articles, news releases, and community reports, was conducted, and concerns and effects were
8 summarized and documented. This helped to identify which sub-populations and sub-groups expressed
9 concern over these Projects and which groups were affected. These groups were carried forward in the
10 assessment.

11 In addition to the literature review, engagement methods were used that are inclusive and that
12 incorporate Gender-Based Analysis Plus (GBA Plus). During meetings with government agencies, the
13 assessors sought guidance and insights in further identifying regional vulnerable populations that may be
14 impacted by systemic barriers to participation. The Project has and will continue to identify and engage
15 with organizations that may work with and/or represent under-represented, potentially impacted
16 populations. Examples include organizations that provide supportive housing, shelter, and related
17 services; organizations that represent visible minority groups; and organizations that work with or
18 advocate for the homeless, low-income households, and other vulnerable populations. The Project has
19 and will continue to share Project information with these organizations and work to identify issues,
20 interests, and concerns with respect to the Project; seek feedback on potential means of limiting adverse
21 effects and enhancing beneficial effects on vulnerable sub-populations; and seek qualitative and
22 quantitative information on vulnerable sub-populations.

23 7.12.5.1.3 Primary Research

24 A description of the engagement process and results of engagement with the public and stakeholders is
25 presented in Section 3.0 (Public Engagement) of the Application. Results of engagement that are relevant
26 to the assessment of Infrastructure and Services are also found in the Detailed Project Description and in
27 Section 11.0 of the Application.

28 Baseline information was collected through key person interviews with government agencies,
29 stakeholders, and community organizations in the LAA. The purpose of the interviews was for the
30 Proponents to introduce the Project and gather quantitative and qualitative data, including information
31 regarding infrastructure capacity and specific concerns about Project demands. Additionally, participants
32 were asked about the availability of disaggregated data and concerns related to sub-populations to help
33 inform the GBA Plus assessment.

34 In addition, baseline information was shared through studies submitted by Indigenous Groups, and
35 information was collected through engagement, focus groups, and key person interviews with
36 Nisga'a Nation members, Nisga'a Lisims Government, and other stakeholders to obtain insight into local
37 and regional issues and local knowledge. Issues of importance to Indigenous Groups were identified

1 through consultation activities and through a review of IK, Indigenous land use studies, and secondary
2 data sources, where available. IK and Indigenous land use data have been integrated into the overview of
3 baseline information, where appropriate. Where possible, information pertaining to Indigenous Groups
4 was disaggregated. Tracking tables, engagement logs, and other records of engagement were reviewed
5 to identify issues and concerns raised with respect to infrastructure and services.

6 Interviews relevant to Infrastructure and Services were held with:

- 7 • The Berry Patch Day Care
- 8 • 'Ksan Society
- 9 • Terrace Fire Department

10 A variety of service providers in the Nisga'a Villages were also interviewed. These are listed in Section 11.0
11 (Nisga'a Nation).

12 **7.12.5.2 Overview**

13 This section provides an overview of the infrastructure and services in the LAA communities. Existing
14 conditions of the infrastructure and services available in the Nisga'a communities are described in this
15 section; however, more detail is available in Section 11.0 (Nisga'a Nation).

16 7.12.5.2.1 Regional Governance

17 Two regional districts are located in the RAA: the Regional District of Kitimat-Stikine (**RDKS**) and the
18 North Coast Regional District (**NCRD**). The RDKS and NCRD provide various local government services to
19 northwestern BC, including rural land use planning, community water systems, fire protection,
20 library services, transportation, and engineering.

21 Three municipal governments operate in the LAA: the City of Prince Rupert, Port Edward DM, and the
22 City of Terrace. A Mayor and council are elected as representatives for each community and are
23 accountable for filling the responsibilities outlined by the Community Charter (Part 5, Division 1, SBC 2003
24 [Queens Printer 2013]). The Cities of Prince Rupert and Terrace, and Port Edward DM, provide various
25 community services generally associated with administration, community development and planning,
26 economic development, public works and engineering, finance, emergency response, fire rescue, and
27 leisure services.

28 The Project is located within the Nass Area, which includes Nisga'a Lands and Nisga'a Fee Simple lands,
29 as defined in the Nisga'a Treaty. The LAA and RAA include Nisga'a Lands, including the Nisga'a villages of
30 Gingolx, Laxgalts'ap, Gitwinksihlkw, and Gitlaxt'aamiks. Other Indigenous nations that have communities
31 and reserve land in the LAA include Lax Kw'alaams Band (Lax Kw'alaams 1, IRI), Metlakatla First Nation
32 (S1/2 Tsimpsean 2, IRI), Gitxaala Nation (Dolphin Island 1, IRI), Kitsumkalum First Nation
33 (Kitsumkaylum 1, IRI), and Kitselas First Nation. Kitselas First Nation has three reserves in the LAA:
34 Kitselas 1, IRI, Kulspai 6, IRI, and Kshish 4, IRI (Kitselas First Nation n.d.a.)

1 Information on governance for the Nations is provided in Section 11.0 (Nisga’a Nation), Section 12.0
2 (Lax Kw’alaams Band), Section 13.0 (Metlakatla First Nation), Section 14.0 (Kitsumkalum First Nation),
3 Section 15.0 (Kitselas First Nation), Section 16.0 (Gitxaala First Nation), Section 17.0 (Gitga’at First Nation),
4 Section 18.0 (Haida Nation), and Section 19.0 (Metis Nation of British Columbia).

5 Every local government in BC must adopt an Official Community Plan (**OCP**) following the British Columbia
6 *Local Government Act* (Part 26) (City of Terrace 2018). OCPs provide a statement of objectives and policies
7 and are used to guide municipal government planning and manage land use for the future. The City of
8 Prince Rupert’s current OCP was developed in 2021 to reflect the city’s 2030 vision (City of Prince Rupert
9 2021b). The OCP is based on the following planning principles: sustainable cities, smart growth,
10 healthy communities, complete communities, and engagement and consultation. The growth and change
11 of the City of Prince Rupert is guided by enhancing community well-being and community sustainability
12 and resilience, adding or enhancing unique local character in tune with the natural setting, embracing
13 diversity, and facilitating communities’ mutual supports, commitments, and accords. The shared goals of
14 all planning principles are community-wide health, long-term livability, and vibrant and walkable
15 community greenscapes (City of Prince Rupert 2021b).

16 The City of Terrace’s OCP outlines policies and objectives to guide its growth, in this case to 2050 (City of
17 Terrace 2018). The City of Terrace’s OCP policy and objectives fall into the following categories: abundant
18 local food systems; compact and complete neighbourhoods; diversified and coordinated economy; a
19 vibrant downtown; natural environments, outdoor activities and access; visible and vibrant arts, culture,
20 and heritage; social well-being and accessible recreation; water, energy, infrastructure, and liquid waste
21 management; solid waste reduction and management; and an integrated and active transportation
22 network (City of Terrace 2018).

23 The District of Port Edward OCP was developed in 2020 and will guide the District through change and
24 economic growth as a result of industrial development and diversification, much of which is associated
25 with the Port of Prince Rupert (District of Port Edward 2020).

26 A breakdown of municipal finances, including descriptions of major revenue sources and cost items, is
27 provided in Section 7.10.3.2.12 (Employment and Economy, Government Revenues).

28 7.12.5.2.2 Population

29 Additional detailed demographic data are presented in Section 7.10 (Employment and Economy).

30 The census (2021) provides the most accurate measure of the permanent population within the region
31 (Statistics Canada 2022a). Within the LAA in 2021, the Terrace CA had a population of 19,606 and the
32 City of Prince Rupert and the City of Terrace had similar populations at 12,300 and 12,017, respectively
33 (Table 7.12–4). The median age of Terrace and Prince Rupert CAs are relatively young at 40. The LAA is
34 comprised of slightly more men than women (51.0% and 49.0%, respectively) (Statistics Canada 2022f).

1 Between 2016 and 2021, the populations of the City of Terrace and Prince Rupert increased by 3.2% and
2 0.7%, respectively. Between 2016 and 2021, within the LAA, the population of North Coast A RDA had the
3 highest positive population change of 9.8%, while Kulsapai 6 IR had the highest adverse change, at -16.1%
4 (Statistics Canada 2022f).

Table 7.12–4 – Population, Age and Gender Characteristics in the LAA and RAA, 2021

Geography	Total Population	Median Age	Male		Female	
			Total	Percent	Total	Percent
Nisga’a NL	1,794	39.2	960	53.5	835	46.5
Prince Rupert CA	13,442	40.0	6,940	51.6	6,495	48.3
Prince Rupert (city of)	12,300	39.6	6,335	51.5	5,965	48.5
Port Edward DM	470	45.2	255	54.3	215	45.7
Lax Kw’alaams 1	627	37.2	330	52.6	295	47.0
North Coast A RDA	45	65.0	25	55.6	20	44.4
S1/2 Tsimpsean 2	-	-	-	-	-	-
Terrace CA	19,606	39.6	9,870	50.3	9,735	49.7
Terrace (city of)	12,017	38	5,975	49.7	6,040	50.3
Kitimat-Stikine C RDA (Part 1)	2,978	44.8	1,535	51.5	1,440	48.4
Kitimat-Stikine E RDA	3,932	41.2	2,030	51.6	1,900	48.3
Kitselas 1	291	28.4	145	49.8	150	51.5
Kitsumkalum 1	315	36.8	150	47.6	165	52.4
Kshish 4 IR	-	-	-	-	-	-
Kulsapai 6 IR	73	45.2	35	47.9	35	47.9
LAA	34,842	39.2	17,770	51.0	17,065	49.0
Kitimat-Stikine A RDA	48	48.0	30	62.5	20	41.7
Stewart DM	517	49.2	280	54.2	240	46.4
RAA	35,407	43.3	18,080	51.1	17,325	48.9
BC	5,000,879	42.8	2,457,515	49.1	2,543,365	50.9

NOTES:

- Data not available

Values shown in “Total” columns are the sum of male and female census subdivision subsets taken from Statistics Canada’s 2021 Census. Due to Statistics Canada rounding (Statistics Canada 2019) totals may not exactly align with those shown on census subdivision Census Profiles and may not sum across tables.

Totals may not sum within and across tables due to Statistics Canada data suppression.

SOURCE: Statistics Canada 2022f.

1 Population metrics are derived from Census data, which reflect the permanent resident population of an
2 area. However, the overall populations of Terrace, Prince Rupert, and surrounding communities are
3 comprised of permanent residents, visitors, and individuals who are temporarily residing in the area for
4 employment. Because the capacity of infrastructure and service providers is typically sized and funded to
5 match the residential population, a sudden non-resident increase in the population in an area can result
6 in a strain on such providers (LNG Canada 2022a).

7 The estimated population in the Terrace area was relatively stable throughout 2021, with monthly
8 fluctuations resulting from change in visitor populations (LNG Canada 2022a). Due to the nature of
9 industry jobs in the region and its position as the major service provider, Terrace receives “spillover” of
10 jobs created in Kitimat, Prince Rupert, and in mines located close to Terrace (BRA 2015).

11 Compared with the median age of the population of BC (42.8 years), populations in the RAA are slightly
12 younger, with the median ages of residents of RDKS and NCRD being 40.8 and 41.2 years, respectively.
13 There are slightly more males than females in the LAA and RAA.

14 The percentage of the population of LAA communities and Regional Districts who reported
15 Indigenous Identity in 2021 are provided in Table 7.12–5 (see footnote in Table 7.12–5 for definition of
16 Indigenous Identity). Approximately a quarter of the population of Terrace CA and more than 40% of the
17 population of Prince Rupert CA reported to be members of Indigenous groups. Almost all of the
18 populations of the Indigenous communities within the LAA identified as Indigenous
19 (Statistics Canada 2022c).

Table 7.12–5 – Indigenous Identity, LAA, RAA, and Regional Districts, 2021

Community	Total Population	Indigenous Identity (%)	Indigenous Male (%)	Indigenous Female (%)
Nisga’a NL	1,794	93.0	53.3	47.0
Prince Rupert CA	13,442	40.1	51.5	48.5
Prince Rupert (city of)	12,300	37.0	51.4	48.7
Port Edward DM	470	46.8	54.5	47.7
Lax Kw’alaams 1	627	98.9	51.0	47.0
North Coast A RDA	45	22.2	-	-
Dolphin Island 1, IRI	295	100.0	54.2	45.8
S1/2 Tsimpsean 2	-	-	-	-
Terrace CA	19,606	25.2	46.9	53.1
Terrace (city of)	12,017	21.9	46.5	53.5
Kitimat-Stikine C RDA (Part 1)	2,978	17.1	46.1	53.9
Kitimat-Stikine E RDA	3,932	29.4	47.6	52.4
Kitselas 1	291	94.5	50.9	50.9
Kitsumkalum 1	315	93.7	45.8	54.2
Kshish 4 IRI	-	-	-	-

Table 7.12–5 – Indigenous Identity, LAA, RAA, and Regional Districts, 2021

Community	Total Population	Indigenous Identity (%)	Indigenous Male (%)	Indigenous Female (%)
Kulspai 6 IR	73	95.9	42.9	57.1
LAA Total	34,842	-	-	-
Kitimat-Stikine A RDA	48	-	-	-
Stewart DM	517	11.6	41.7	58.3
RAA Total	35,407	-	-	-
BC	5,000,879	5.8	48.7	51.3

NOTES:

- Data not available

Indigenous Identity refers to whether the person identified with the Indigenous peoples of Canada. This includes those who identify as First Nations (North American Indian), Métis and/or Inuk (Inuit), and/or those who report being Registered or Treaty Indians (that is, registered under the *Indian Act* of Canada), and/or those who have membership in a First Nation or Indian band. Aboriginal peoples of Canada (referred to here as Indigenous peoples) are defined in the *Constitution Act, 1982*, section 35 (2) as including the Indian, Inuit, and Métis peoples of Canada. (Statistics Canada 2022c).

Totals may not sum within and across tables due to Statistics Canada data suppression.

SOURCE: Statistics Canada 2022f

- 1
- 2 7.12.5.2.2.1 Indigenous Population
- 3 Indigenous nations that have communities and reserve land in the LAA include Nisga'a Nation,
- 4 Kitsumkalum First Nation, Gitxaala Nation and Kitselas First Nation. Indigenous nations that have
- 5 communities and reserve land in the RAA include Nisga'a Nation, Kitsumkalum First Nation,
- 6 Kitselas First Nation, Lax Kw'alaams Band, and Metlakatla First Nation. Gitga'at First Nation confirmed
- 7 that it has members that reside within the LAA and RAA (Gitga'at First Nation 2024; Gitga'at First Nation
- 8 Health Department 2024). Gitga'at First Nation reported that most (37%) Gitga'at households are located
- 9 in Prince Rupert; estimates indicate that there are approximately 100 households in Prince Rupert,
- 10 representing 250-300 members (Gitga'at First Nation Health Department 2024). Members of Haida Nation
- 11 and Métis Nation of British Columbia who reported Indigenous identity may also reside within the LAA
- 12 and RAA. Although these latter three nations do not have communities and reserve lands in the
- 13 Infrastructure and Services LAA or RAA, the Proponents understand that members of these nations live in
- 14 urban and away from home communities in the LAA and RAA, including Terrace, Prince Rupert, and in
- 15 other Indigenous communities and reserve land.
- 16 Under the authority of the Nisga'a Final Agreement (**Nisga'a Treaty**) and the Nisga'a *Landholding*
- 17 *Transition Act*, Nisga'a citizens are permitted unrestricted fee simple ownership of residentially-zoned
- 18 Nisga'a Land. The Nisga'a Treaty is a significant departure from how land transfers and housing are dealt
- 19 with under the *Indian Act*, under which Indian Reserve Land or Indian Band Land belongs to the Crown,
- 20 and Indigenous people are only able to obtain a Certificate of Possession (**COP**) (Nyce, Johansen &
- 21 Perry 2022, pers. comm.). Under the Nisga'a Treaty, COPs were replaced with two forms of land

1 entitlement: Village Entitlement and Nisga’a Nation Entitlement (Nyce, Johansen & Perry 2022,
2 pers. comm.). All Nisga’a citizens who were registered members of the villages prior to the signing of the
3 Treaty had their COPs transferred to Village Entitlements and those born after the Treaty can obtain a
4 Nisga’a Nation entitlement (Nyce, Johansen & Perry 2022, pers. comm.).

5 As of June 2022, the total registered population of all Indigenous nations with reserve land in the RAA was
6 10,859 (CIRNAC 2022). Among the Indigenous groups in the RAA, Nisga’a Nation had the largest registered
7 population with 4,242 members; it should be noted that there is a discrepancy between CIRNAC’s
8 statistics and the Nisga’a Nation’s own survey data, which reports a population of 7,705 Nisga’a citizens
9 as of 2020 living on and off Nisga’a Lands (See Section 11.0). Kitselas First Nation had the smallest
10 registered population with 733 members (Table 7.12–6) and had the largest proportion (43.8%) of its
11 registered population living on-reserve. Among Indigenous groups in the LAA, Kitsumkalum First Nation
12 had the smallest proportion (31.2%) of its registered population living on-reserve. When including the
13 RAA communities, Metlakatla First Nation had the smallest proportion (11.0%) of its registered population
14 living on-reserve (CIRNAC 2022).

15 **Table 7.12–6 – Registered Population of Indigenous Nations in the LAA and RAA**

Indigenous Group	Registered Population			On-Reserve		Off-Reserve	
	Total	Male	Female	Total	%	Total	%
Nisga’a	4,242	2,137	2,105	1,337 ¹	31.5	2,905	68.5
Kitselas	733	345	388	321	43.8	412	56.2
Kitsumkalum	817	398	419	255	31.2	562	68.8
Gitxaala	2,102	1,029	1,073	446	21.2	1,612	76.7
Metlakatla	1,031	502	529	113	11.0	918	89.0
Lax Kw’alaams	4,036	1,967	2,069	749	18.6	3,287	81.4

NOTE:

¹ Nisga’a Nation is not reserve land. In accordance with the Nisga’a Treaty, which came into effect on May 11, 2000, Nisga’a Nation (whose traditional territory lies in and around the Nass Valley) owns nearly 2,000 square kilometres of fee-simple land called Nisga’a Lands. Since the Treaty came into effect, NLG has developed comprehensive legislation around land management, stewardship, and the protection of Nisga’a rights (NLG n.d.c).

SOURCE: CIRNAC 2022

16

17 7.12.5.2.2.2 Temporary Population

18 Population projections are not available for all of the individual communities in the LAA; however,
19 BC Stats’ sub-provincial population projections provide forecasts for local health areas and RDAs from
20 2016 to 2041 (BC Stats 2021). The Prince Rupert, Nisga’a, and Terrace local health areas have been used
21 as a proxy for the LAA in the discussion of estimated population increase between 2022 and 2041. The
22 LAA is projected to experience a 13.4% increase between 2022 and 2041, from 38,752 to approximately
23 43,943 (BC Stats 2021).

1 The BC Stats’ sub-provincial population projections for the LAA and RAA rely on three factors: births,
2 deaths, and net migration. Although the forecasts are based on past trends and are modified to account
3 for possible future changes, they do not account for workers who temporarily move into the region for
4 employment on or related to projects (also referred to as a temporary or “shadow” population).

5 The temporary population has a complex relationship with local housing markets, particularly because
6 their demand for housing often does not overlay with traditional long-term tenancies (i.e., long-term
7 rentals or ownership). Temporary population totals and proportions typically fluctuate based on economic
8 development patterns, such as large energy projects that attract both local and out of community
9 workers.

10 A population survey conducted for the City of Terrace in 2020 estimated that the total population of the
11 City of Terrace was 12,700 (BRA 2020a). This total comprises 12,229 residents and a temporary population
12 of 471. As of 2021, the resident population of the City of Terrace was 12,017 (Statistics Canada 2022f).
13 Population projections for the City of Terrace for three different economic development scenarios show
14 growth between 2020 and 2024, which coincides with construction of such projects as LNG Canada,
15 Coastal GasLink Pipeline, and the Mills Memorial Hospital. The low development scenario projects a peak
16 total population of 13,912 in 2024, which includes a peak temporary population of 523. In the
17 high development scenario, the temporary population peaks in 2024 at 729 and the total population
18 peaks at 14,307 in 2025 (BRA 2020a).

19 7.12.5.2.3 Water and Sewer

20 7.12.5.2.3.1 Water

21 Water distribution and treatment (where available) is provided by Regional Districts, municipalities,
22 Indigenous nations, and by individual water licensees and wells.

23 The RDKS has three water systems that serve residents of Thornhill, the rural Terrace area, and
24 South Hazelton: Thornhill Water System, Rural Terrace Water System, and South Hazelton Water System
25 (Table 7.12–7) (RDKS 2021a).

1 **Table 7.12–7 – Water Infrastructure Capacity, Municipal and District Systems in the LAA**

Service Provider	Rated Capacity ²	Average Daily Demand ³	Peak Demand ⁴
Rural Terrace Water System	5.439 m ³	-	-
City of Terrace	5.4 mgd ¹	2.4 mgd ¹	4.8 mgd ¹
City of Prince Rupert	5.3 mgd ¹	0.26 mgd ¹	1.32 mgd ¹
District of Port Edward	0.63 mgd ¹	0.21 mgd ¹	0.39 mgd ¹

NOTES:

¹ **mgd** = million gallons/day **m³** = cubic metres² Rated Capacity = intended technical capacity of facility and volume of community reservoirs for Thornhill/Rural Terrace³ Average Daily Demand = typical daily demand⁴ Peak Demand = high demand point

- Data not available

SOURCES: RDKS 2021a, b, c; District of Port Edward 2021

2

3 *7.12.5.2.3.1.1 Terrace*

4 The City of Terrace owns and operates water distribution and treatment infrastructure, including the
5 primary ground water source and backup surface water sources. The system has three sources of water:
6 Frank Street Wells, Deep Creek, and the Skeena River. The Frank Street Wells provide over 99% of water
7 delivered to residents, with Deep Creek and Skeena River serving as emergency backup sources
8 (RDKS 2021b). Water is stored at two reservoir sites, which have a combined capacity of 5.4 million gallons
9 per day (RDKS 2021b) (Table 7.12–7). In 2018, the City of Terrace undertook several improvements to its
10 water system and work was completed towards an additional reservoir to increase capacity. Terrace saw
11 a 6% decrease in average daily flow and a 3% increase in peak day demand between 2019 and 2020
12 (LNG Canada 2021a).

13 *7.12.5.2.3.1.2 Prince Rupert and Port Edward DM*

14 Prince Rupert has two water sources in operation: Woodworth and Shawatlan Lakes.
15 The Woodworth Dam is the primary water source for the city. Water from the Dam gets pumped to a
16 chlorination station at the Shawatlan Lake Pump House (City of Prince Rupert 2021a). The Prince Rupert
17 water system feeds approximately 6 million cubic metres (**m³**) of potable water per year to local residents,
18 businesses, and industries, using over 50 kilometres (**km**) of distribution line and close to 6,000 individual
19 service connections. The water system supplies the Port of Prince Rupert and related industries, as well
20 as BC Ferries. The system is also capable of meeting the peak seasonal demand of a number of industrial
21 fish processors, an industry that has declined in recent years with the closure of local canneries but, when
22 active, can generate over twice the average daily consumption (City of Prince Rupert 2021a).

23 Prince Rupert has received a number of boil water advisories. In 2021, for instance, Prince Rupert
24 residents were told to boil their drinking water for at least a minute before using it because of concerns
25 about possible contamination (CBC News 2021). In addition, a water quality advisory was issued for Prince
26 Rupert in November 2023 (The City of Prince Rupert 2023). The Advisory was in effect due to the many

1 open construction sites in the area and was issued as a precautionary measure, particularly for those with
2 compromised immune systems. Since 2015, Prince Rupert’s water system has undergone many
3 improvements, including rebuilding the Shawatlan Lake Pump House station and replacing the dam at the
4 Woodworth Lake Reservoir, which was completed in spring 2022 (City of Prince Rupert 2021a). In 2019,
5 the City received a \$20 million grant to construct a new water treatment facility to replace chlorination
6 treatment and meet provincial surface water treatment objectives. This Project is currently in the
7 engineering stage. The City is performing ongoing water service infrastructure updates, including
8 replacing water mains throughout the community (City of Prince Rupert 2021a).

9 Water is supplied to the Port Edward DM from a protected watershed, Alwyn Lake (District of Port Edward
10 2021). In 2012, Port Edward DM replaced its aging water system with a new and larger water system
11 (NDIT 2012). The investment was made with the onset of the Prince Rupert port expansion and the
12 potential for attracting new residents (NDIT 2012). Port Edward’s water treatment plant was built in 2003
13 and includes a water storage reservoir with a capacity of 750,000 gallons. Water is treated by dissolved
14 air flotation and ultraviolet light filters, which were installed in 2004 (District of Port Edward 2020).
15 The water treatment system can provide treated water for a population of 1,000 people (District of
16 Port Edward 2020). The municipal water distribution system is also built to accommodate a larger
17 population than currently resides in the District. Table 7.12–7 summarizes Prince Rupert and
18 Port Edwards’s potable water rated capacity, average daily demand, and peak demand in million gallons
19 per day. The potable water supply systems of both communities have sufficient capacity to handle average
20 and peak demands.

21 *7.12.5.2.3.1.3 Indigenous Communities*

22 Gitlaxt’aamiks has gravity-fed surface water leading to a sand filtration water system. The Village has a
23 water tower that provides gravity feed with sufficient water pressure to meet the community’s needs
24 (Stantec 2022a). The water system mains, water storage, gravity treatment, water treatment building,
25 and two pressure-regulating stations are in poor to good condition (Stantec 2019a). The Village is
26 approaching the need to replace the sand filtration system (Stantec 2022a).

27 Laxgalts’ap’s potable water is from a deep alluvial well (22m) that was dug in 1984 and is in good condition
28 (Stantec 2022c). The water and gravity intake system were built in 1975. There are six water mains that
29 were built between 1975 and 2003 that are in fair condition (Stantec 2022c). There are no water
30 treatment or filtration processes, but regular water quality testing is conducted by First Nations Health
31 (Stantec 2022a).

32 Gitwinksihlkw has a relatively complex potable water system with a number of intakes and dams
33 (e.g., gravity intake, three water mains, water storage, and two pressure-regulating valve chambers
34 [Stantec 2022b]). It meets the community needs and is in relatively good condition (Stantec 2022b).

35 Gingolx has a gravity intake system, a community well, and water storage which are in fair to good
36 condition (Stantec 2019b). Gingolx has a water pumphouse but no water treatment facility
37 (Stantec 2022a). The water has a high iron and acid content that has led to a deterioration in household

1 copper pipes and water heater failure (Stantec 2022a). The Village is working with Indigenous Services
2 Canada to develop a water treatment plant.

3 In Kitsumkalum, water is supplied by a well and treated by the Kitsumkalum water treatment plant. This
4 facility was built in 2001 and is in good condition but requires some upgrades, because the tanks above
5 the village are known to be leaking and water pressure to houses at higher elevations is inadequate
6 (Kitsumkalum First Nation 2018). The community's backup water supply is Eneeksagilaguaw Creek,
7 a provincially designated Community Watershed located on Kitsumkalum Mountain, northwest of
8 Kitsumkalum Village. However, the Creek has been steadily drying up since the mid- to late 1970s to the
9 point that it is virtually dry between May and October, and the need to develop a new backup water
10 supply has been identified (Kitsumkalum First Nation 2018).

11 In 2015, Kitselas First Nation opened a new water system in its Gitaus subdivision 15 km from Terrace.
12 The new system will serve the community for the next 20 or 30 years depending on the aquifers and future
13 system requirements (Massey 2015). The water distribution system consists of two on-reserve and
14 three off-reserve communal wells (Kitselas First Nation 2019). Most homes have access to hydro, are on
15 cisterns, and have water delivered. Kulspai Reserve has community water provided by RDKS
16 (Kitselas First Nation 2019).

17 7.12.5.2.3.2 Sewage

18 Sewage collection and treatment facilities in the LAA is provided by regional districts, municipalities, and
19 Indigenous nations, as well as by single-owner septic systems.

20 7.12.5.2.3.2.1 Terrace

21 The RDKS operates the Queensway Sewer in Thornhill (RDKS 2022a). The sewage treatment system has a
22 two-cell aerated lagoon facility, including pre-screening, grit chamber, six pump stations, and an overflow
23 outfall to the Skeena River (RDKS 2022a). In 2016, the Thornhill Commercial Core sewer collection system
24 was added to provide increased capacity to the Queensway Sewer System (RDKS 2018). The City of Terrace
25 saw a 2% decrease in the average daily flow for wastewater treatment services between 2018 and 2021,
26 and a 2% increase in peak daily flow (LNG Canada 2022a).

27 7.12.5.2.3.2.2 Prince Rupert and Port Edward

28 The City of Prince Rupert's wastewater system is approximately 100 years old and has ten separate
29 sewage sub-catchments, each with separate outfalls discharging into the Prince Rupert Harbour
30 (City of Prince Rupert 2021a). One outfall is associated with the City's landfill. Outfalls are antiquated, and
31 of the 90 km sewer mainline, 40 km of piping is beyond the expected lifespan and needs replacing. Existing
32 lines are antiquated with many constructed as combined storm and sanitary systems
33 (City of Prince Rupert 2021a). Wastewater is currently discharged without treatment; however, the
34 BC Ministry of Environment and Climate Change Strategy has mandated that the City produce a
35 Liquid Waste Management Plan to manage wastewater (City of Prince Rupert 2021a).

36 The City has developed a plan for wastewater treatment, which involves treating sewage with a wetland
37 system. This system is currently being piloted to replace a lift station, which serves approximately
38 100 homes in the city (City of Prince Rupert 2022d). If the piloted project meets provincial and federal

1 regulatory standards, the wetland system will be applied throughout the community to reduce costs.
2 Prince Rupert is currently completing phase three of its plan and is estimating a 2040 buildout of
3 wastewater upgrades (City of Prince Rupert 2022d).

4 Port Edward DM’s sewage treatment plant was constructed in 1997. The plant includes screening,
5 oxidation, digesters, and clarification prior to discharge (District of Port Edward 2020). The facility is
6 designed to accommodate a population of up to 1,000 people and is therefore more than adequate to
7 support the demands of the community. The municipal infrastructure includes gravity sewer mains and is
8 equipped to accommodate a larger population (District of Port Edward 2020).

9 *7.12.5.2.3.2.3 Indigenous Communities*

10 Gitlaxt’aamiks, Laxgalts’ap, and Gitwinksihlkw have lagoon septic systems in poor to good condition.
11 Gitlaxt’aamiks is currently in the process of upgrading the system and seeking to install an aeration system
12 with a target date for replacement of 2024 (Gitlaxt’aamiks Village Government 2021; Stantec 2022a).
13 Gingolx has a wastewater treatment plant but has been experiencing problems with the system over the
14 past three years (Stantec 2022a).

15 The City of Terrace provides sewage services for Kitsumkalum First Nation (Kitsumkalum First Nation
16 2018). All homes on Kitselas First Nation reserve land are serviced by septic tanks (Kitselas First Nation
17 2019). Kulspai Reserve is served by a community water and sewer system operated by RDKS
18 (Kitselas First Nation 2019). There are plans for a feasibility study to be completed for a community sewer
19 system and wastewater treatment plant in Gitaus Reserve (Kitselas First Nation 2021).

20 *7.12.5.2.3.3 Solid and Hazardous Waste*

21 *7.12.5.2.3.3.1 Terrace*

22 The Forceman Ridge Waste Management facility (**WMF**), located 30 km south of Terrace on Highway 37,
23 opened in November 2016. It serves residents and business in the Greater Terrace area and is responsible
24 for the management of municipal solid and liquid waste generated from commercial and residential
25 sources. Most of the solid waste received is consolidated at the Thornhill Transfer Station for final
26 disposal. As of 2020, the lifespan of the Forceman Ridge WMF was estimated to be 95 years. In 2019,
27 a total of 11,128 tonnes of municipal and industrial solid waste, including garbage, construction, and
28 demolition waste, and various types of controlled waste, was disposed of at the Forceman Ridge WMF
29 (RDKS 2021a).

30 Between 2017 and 2019, the average annual disposal rate in the RDKS increased from 562 kg per capita
31 to 662 kg per capita due to the increased generation of industrial waste, mostly from outside of the
32 Terrace service area. With this trend of increased generation of industrial waste in the region, the annual
33 disposal rate was expected to reach over 800 kg per capita in 2020 (Morrison Hershfield Ltd. 2020).
34 Between Q3 2019 and Q4 2020, the Forceman Ridge WMF experienced 116% increase in total waste
35 disposal, which is attributed to the facility accepting waste from Coastal GasLink and LNG Canada
36 (LNG Canada 2021a).

1 The RDKS has expressed concern regarding the amount of waste entering the landfill from large projects
2 in the region (RDKS 2021b). It was also clarified that while year-over-year out-of-service area waste
3 volumes to the RDKS Forceman Ridge WMF have decreased, they are elevated from what was received in
4 2018. In 2018, 174 tonnes of out-of-service area waste were accepted at the RDKS Forceman Ridge WMF
5 whereas in 2021, 3,600 tonnes were accepted. In 2021, the Forceman Ridge WMF received waste from
6 1,701 out of service-area users and 1,217 in service-area users (RDKS 2021d).

7 Within the RAA, the City of Terrace as well as the Kitimat-Stikine Regional District offer recycling programs;
8 however, increased demand on these services has been identified (LNG Canada 2022a). There are
9 two recycling processors in Terrace. The Do Your Part Recycling Facility in Terrace processes paper
10 products and blue box type materials collected by the RDKS, and ABC Recycling Facility in Terrace
11 processes ferrous/non-ferrous metals (LNG Canada 2022a).

12 *7.12.5.2.3.3.2 Prince Rupert*

13 The Prince Rupert landfill is located on Ridley Island and is used by residents of Prince Rupert and
14 Port Edward. Port Edward DM pays a tipping fee per metric tonne to the City of Prince Rupert for the use
15 of their landfill (District of Port Edward 2020). The landfill was built in 1991 and at the time it was given a
16 lifespan of 100 years. The original landfill was built on rock with a muskeg liner and new cells have been
17 developed to applicable standards. However, the volume of waste at the landfill has already exceeded the
18 available capacity (City of Prince Rupert 2021b). Increased volumes of waste are attributed to regional
19 development, multiple residential home demolitions and renovations, more stringent wood burning
20 policies, and multiple commercial building fires. Between 2014 and 2017, there was also an increase in
21 renovation waste due to speculation around LNG development in the area (City of Prince Rupert 2022d).
22 To manage the exceedance of available capacity, the City of Prince Rupert, with funding from provincial
23 and federal grants, spent approximately \$10 million constructing an additional landfill cell, which was
24 completed in 2021 (City of Prince Rupert 2022d). The additional cell is expected to last the community
25 30 years, with a potential for longer due to the City's new recycling program.

26 The NCRD recycling depot, located in Prince Rupert, services much of the North Coast of BC, including the
27 City of Prince Rupert and Port Edward DM. The recycling program is coordinated by the Mainland Solid
28 Waste Advisory Committee (District of Port Edward 2020). In 2022, the City launched a curbside recycling
29 program in partnership with Recycle BC. This new recycling program is expected to reduce the amount of
30 waste entering the landfill (City of Prince Rupert 2022d).

31 *7.12.5.2.3.3.3 Indigenous Communities*

32 The Nisga'a landfill, located in Gitlaxt'aamiks, is owned by the Nisga'a Lisims Government and managed
33 by Gitlaxt'aamiks Village Government (Gitlaxt'aamiks Village Government 2021). The landfill has a modest
34 solid waste diversion program, and a source-separated recycling program is in place (Stantec 2022a).
35 Gitlaxt'aamiks runs an electronics collection program (once per year) and a battery collection program
36 (which is potentially underused) (Stantec 2022a).

37 The RDKS provides solid waste collection to Kitselas First Nation and Kitsumkalum First Nation, including
38 garbage, recycling, and organics (RDKS 2022a).

1 7.12.5.2.4 Education

2 Schools and student enrolment in the LAA are presented in Table 7.12–8.

Table 7.12–8 – Schools in the Local Assessment Area, 2022

Community	School Level	School Name	Number of Students
Prince Rupert	K-5	Conrad Elementary	218
	K-5	Lax Kxeen Elementary	193
	K-5	Pineridge Elementary	141
	K-5	Roosevelt Park Elementary	246
	K-12	Hartley Bay Elem-Jr Secondary	34
	6-8	Prince Rupert Middle	436
	9-12	Charles Hays Secondary	578
	9-12	Pacific Coast School	82
Port Edward	K-4	Port Edward Elementary	9
Terrace	K-3	Thornhill Primary	155
	3-6	Thornhill Elementary	124
	K-6	Cassie Hall Elementary	147
	K-6	Suwilaawks Community School	252
	K-6	Ecole Mountainview	197
	7-9	Skeena Middle	514
	8-12	Parkside Secondary	106
	10-12	Caledonia Secondary	490
	K-12	North Coast Distance Education	166
	K-7	Veritas Catholic	218
	K-9	Spring Creek Adventist Christian School	25
	K-12	Centennial Christian School	155
	K-12	Mountain View Christian Academy	35
Kitselas First Nation	NA	Wabsuwilaks'm Gitselasu Adult School	NA
Kitsumkalum First Nation	NA	Na aksa Gila Kyew Learning Centre	50
Nisga'a Nation	K-7	Alvin A. McKay Elementary School	150
	K-7	Gitwinksihkw Elementary School	80
	K-7	Nathan Barthon Elementary School	100
	K-12	Nisga'a Elementary – Secondary School	260

3

1 7.12.5.2.4.1 Terrace

2 The CMSD 82 is responsible for providing educational services in Terrace and serves the learning needs of
3 a significant urban Indigenous population in the community of Terrace. Numerous students of
4 Nisga’a heritage from the Nass Valley also attend school in Terrace. CMSD 82 manages 19 primary,
5 elementary, middle and high schools and has 375 teachers, 277 support staff, and 103 casual personnel
6 (BC Ministry of Education 2022a).

7 Total enrolment within the CMSD has been declining since 2010/2011. The total kindergarten to grade 12
8 enrolment in the CMSD during the 2020/2021 school year was 3,956, representing a 10% decrease from
9 2019/20 (BC Ministry of Education 2022a). In 2021/2022, the total enrolment remained at approximately
10 4,000, with a capacity for 7,000 students, and a projected decline of 130 students over the next 10 years
11 (BC Ministry of Education 2022a).

12 7.12.5.2.4.2 Prince Rupert

13 Prince Rupert School District (**PRSD**) 52 provides educational services (kindergarten – grade 12) to the
14 LAA, including the communities of Prince Rupert and Port Edward.

15 PRSD schools have faced declining enrolment (and associated underutilization of school infrastructure).
16 The school district has a capacity for 2,600 students but had a total enrolment in 2021/2022 of 1,830
17 (BC Ministry of Education 2022b).

18 7.12.5.2.4.3 Indigenous Communities

19 Primary and secondary students living on Nisga’a Lands are served by School District 92 (Nisga’a), which
20 is part of BC’s publicly funded school system. The school board consists of four Nisga’a members
21 (representing each Nisga’a Village) and one non-Nisga’a member (Nisga’a School District n.d.).

22 There are four schools in the Nisga’a Nation territory: three elementary schools and one elementary and
23 secondary school (Nisga’a School District n.d.). There are approximately 600 students enrolled in
24 School District 92 and all students identify as members of the Nisga’a Nation (Jenson pers. comm.). Each of
25 the Nisga’a villages hosts a community K-7 elementary school and there is a Kindergarten to grade 12
26 school in Gitlaxt’aamiks.

27 Kitselas First Nation offers educational services on-reserve to support their community members.
28 The Kitselas Wabsuwilaks’m Gitselasu Adult School supports community members who did not complete
29 high school courses attain a diploma through a range of courses, support, and tutor services
30 (Kitselas First Nation n.d.a). Graduates of the Wabsuwilaks’m Gitselasu Adult School have an increased
31 ability to secure meaningful employment, engage positively with the community, and contribute towards
32 a stronger Kitselas community (Kitselas First Nation n.d.a).

33 The Kitsumkalum Education Department offer educational services to support Nation members living
34 on- and off-reserve achieve their educational goals, including support with registration, academic
35 advising, securing funding for secondary and post-secondary (e.g., college and university) tuition and
36 expenses, and administration of the ‘Na Aksa Gilak’yoo School (Kitsumkalum First Nation n.d.).

1 7.12.5.2.4.4 Post-Secondary

2 There are two post-secondary institutions in the RAA: Coast Mountain College (**CMTN**) and University of
3 Northern British Columbia (**UNBC**).

4 The CMTN offers college access programs, online programs, university credit programs, trades
5 foundation, and apprenticeship programs. The CMTN has two campuses in the RAA: one in Prince Rupert
6 and one in Terrace. The Terrace campus provides courses in health and social services, business, trades
7 training, fine arts, upgrading, continuing education, contract training, nursing, environmental
8 management, business, social work, welding, and Indigenous culture, among others. The CMTN Terrace
9 campus reported a 7% decrease in student enrolment in 2019-2020 compared to 2018 2019 (Q4 report).
10 The CMTN contract services team works with businesses and organization to provide customized training
11 and educational programs. One example of this is the Gas Plant Operator Training Program, undertaken
12 in partnership with Pembina (Pembina 2021). It also addresses community needs by organizing additional
13 programs with government funding, which provide tuition-free or reduced tuition, group-based training
14 for individuals who need to upgrade their skills to gain employment. These programs focus on preparing
15 individuals for entry-level positions in industries that have been projected to experience labour shortages.
16 In January 2020, the CMTN began working with all 34 communities in the region to begin preparing to
17 support the Contact North initiative, which will allow students in rural, remote, and Indigenous
18 communities to receive post-secondary education without leaving their home communities. The CMTN
19 continues to work with the Ministry to move forward with new student housing at the Terrace campus
20 (CMTN 2020).

21 The UNBC provides undergraduate and graduate learning opportunities in the arts, commerce, and
22 sciences, including professional programs in areas such as accounting, teacher education, engineering,
23 nursing, planning, and social work. In 2020–2021, there were approximately 4,200 students enrolled in
24 academic programs. UNBC’s Northwest campus is in Terrace and it has a satellite campus in Prince Rupert.
25 The UNBC Northwest campus data show a 75% decrease and 38% decrease in student enrolment in the
26 summer and fall semesters, respectively, between 2019 and 2020. These decreases are related to program
27 changes at the campus and could also be related to the COVID-19 pandemic (LNG Canada 2021a).
28 However, fall program enrolment at UNBC was lower from 2013 to 2015, compared to the previous and
29 following years. This was a period correlating with major project activity in the region, suggesting that
30 there may be an inverse correlation between periods of greater employment opportunity and
31 post-secondary enrollment (LNG Canada 2021a). There was a 7% decrease in student enrolment at the
32 UNBC Northwest campus in the fall semester (September-December) of the 2021/22 academic year
33 compared to the year prior (2020/21) (LNG Canada 2021a).

34 There is one Nisga’a post-secondary and training institution, the Wilp Wilxo’oskwhl Nisga’a Institute
35 (**WWNI**) (Nisga’a House of Wisdom) located in Gitwinksihlkw. WWNI was built in 2000 and is in good
36 condition. The WWNI is affiliated with the UNBC, Northwest Community College, and Royal Roads
37 University for the delivery and accreditation of its courses and programs (WWNI n.d.). There is an
38 Adult Education Centre built and an Adult Education Teacherage in Gingolx (Stantec 2022d).

1 7.12.5.2.5 Preschool and Childcare

2 Table 7.12–9 summarizes the number of licensed daycare facilities and spaces within the LAA communities
3 in 2020. The COVID-19 pandemic has added an additional challenge to childcare providers in the
4 communities. As a result of the COVID-19 pandemic, some childcare programs did not operate during
5 portions of 2020 and most operated with COVID-19 restrictions, including reduced capacities.

6 **Table 7.12–9 – Total Licensed Childcare Facilities and Spaces, LAA, 2020**

Community	Licensed Facilities	Total Spaces
Prince Rupert	32	395
Terrace	33	573
Nisga’a	6	136
Kitsumkalum	1	17
Kitselas	1	17
Total	73	1,138

SOURCE: BRA 2020b; City of Prince Rupert, Toye, K., Dragowska, L., and Cherie Enns Consulting Ltd. 2020;
LNG Canada 2021a; Northern Health Public Health Protection 2022

7

8 7.12.5.2.5.1 Terrace

9 The 2020 Community Childcare Needs Assessment and Space Creation Action Plan, prepared by Big River
10 Analytics (BRA) (2020b) for the City of Terrace, identified the number of licensed childcare spaces in
11 Terrace and surrounding areas and identified community childcare needs. The assessment estimated that
12 there is an immediate need for 720 childcare spaces, with the largest unmet demand for childcare being
13 group childcare under three years old. It was estimated a total of 300 licensed childcare spaces are needed
14 in this category to meet parents’ needs. The assessment also indicated that parents find childcare to be
15 unaffordable and that the shortage of qualified early childhood educators in the community is a significant
16 challenge for childcare service providers. While a facility may have a certain number of licensed childcare
17 spaces, the facility may not be able to offer services for the total licensed number due to other constraints,
18 such as the availability of staff. The Terrace Community Childcare Needs Assessment and Space Creation
19 Action Plan indicates that 75% of childcare providers surveyed said they required additional staff to
20 operate at full capacity (BRA 2020b).

21 Recruitment and retention of qualified early childhood educators continues to be a challenge for Terrace.
22 Staff shortages and COVID-19 are affecting childcare providers’ ability to run programs at capacity.
23 For example, C’imo’ca Daycare was operating its programs at half capacity due to COVID-19-related
24 restrictions but expects to increase its capacity as restrictions ease (LNG Canada 2022b). P.A.C.E.S.
25 Daycare in Terrace was unable to run one of its programs in the fall for the first time in 25 years of
26 operation, due to staff shortages (LNG Canada 2022b).

1 In Terrace, underserved populations (families with children who have extra support needs, Indigenous
2 [First Nations, Métis, or Inuit] children and families, low-income families, young parents under the age of
3 25, single-parent families, children and families from minority cultures and language groups, immigrant
4 and refugee children and families, and francophone families) identified as having particular childcare
5 needs. It has been observed that 63.2% of underserved populations have access to licensed childcare
6 services, compared to 73.4% of parents from populations that are not underserved, and 68% of parents
7 in the population overall (BRA 2020b).

8 7.12.5.2.5.2 Prince Rupert

9 The City of Prince Rupert Child Care Assessment and Action Plan (2020) indicates that Prince Rupert’s
10 licensed childcare sector has grown over the last 10 years; however, there remain childcare gaps that
11 need to be addressed if the community is to experience the population growth expected with planned
12 major projects. As of 2020, it was forecast that Prince Rupert will require 47 additional licensed childcare
13 spaces in 2025 and 29 additional spaces in 2030 to meet local demand for children 0 to 12 years old (City of
14 Prince Rupert, Toye, K., Dragowska, L., and Cherie Enns Consulting Ltd. 2020).

15 Workers in the childcare industry confirm that Prince Rupert has seen an influx of families related to
16 industrial projects in the area, including the Port of Prince Rupert, and cannot meet the current demand
17 for childcare. Many daycares in the area have waitlists (Riddell 2022, pers. comm.).

18 Of all licensed childcare programs, there are three Indigenous-led child care programs in Prince Rupert,
19 which includes an Aboriginal Head Start program (operated by Prince Rupert Aboriginal Community
20 Services Society) with 20 spaces.

21 7.12.5.2.5.3 Indigenous Communities

22 Band Councils, such as the Nisga’a Nation, Kitsumkalum First Nation, and Kitselas First Nation Councils,
23 administer early childcare education and childcare services under Federal Aboriginal Head Start Standards
24 and in accordance with provincial licensing standards. Services are offered on- and off-reserve depending
25 on the funding source and are based on six common objectives: education, health promotion, culture and
26 language, nutrition, social support, and parental/family involvement (Government of Canada 2021a).

27 Pre-school and daycare services are offered in the Nisga’a communities. Gitginsaa Childcare Centre and
28 Strong Start are preschools located within the Nisga’a Nation for children aged 1 month to 5 years old.
29 Gitlaxt’aamiks has a nursery school that was built in 1996 and is in good condition, and a Headstart centre
30 built in 2000 in fair condition (Stantec 2022a). Gitwinksihlkw has a nursery school built in 2000 that is in
31 good condition (Stantec 2022b). Laxgalts’ap has the Greenville Nursery School which was built in 1988
32 and is in fair condition, and Headstart that has operated since 1999 (Stantec 2022c). Gingolx Nursery
33 School has been open since 1999 and is in good condition (Stantec 2022d).

34 Kitsumkalum and Kitselas each have one childcare facility with space for 17 children (Table 7.12–9).

1 7.12.5.2.6 Emergency and Protective Services

2 7.12.5.2.6.1 Fire Protection and Emergency Response Services

3 7.12.5.2.6.1.1 Terrace

4 The Terrace Fire Department provides fire protection and emergency response services to Terrace.
5 Communities in the Greater Terrace Area (Thornhill, Kitsumkalum, and Kitselas) are provided fire and
6 emergency response services through the coordinated efforts of RDKS and the Thornhill Volunteer Fire
7 Department (**TVFD**).

8 The Terrace Fire Department currently has 12 full-time career members and 25 volunteer members and
9 responds to between 800 and 1,000 calls for service annually (Jephson 2022, pers. comm.). In 2021, the
10 Department responded to 275 fire-related calls, 213 first responder and medical calls, and 110 rescue and
11 motor vehicle calls (City of Terrace 2021). According to the LNG Canada Community Level Infrastructure
12 and Services Management Plan (CLISMP) reporting, the Terrace Fire Department saw a 48% increase in
13 fire-related calls in Q3/Q4 2021 when compared to Q3/Q4 2020. However, there was no year-over-year
14 change in fire-related calls in Q1/Q2 2022 (LNG Canada 2022b, c).

15 The Terrace Fire Department recently modified its response approach in coordination with BC Ambulance
16 so that it could respond to fewer health-related calls. However, staffing issues at BC Ambulance have
17 created additional demands on the Terrace Fire Department (Jephson 2022, pers. comm.). The Terrace
18 Fire Department received 77 medical-related calls in Q1/Q2 2021 and 251 medical-related calls in Q1/Q2
19 2022, an increase of 226% (LNG Canada 2022c). It has been reported that emergency response services
20 in Terrace and surrounding areas are understaffed, working beyond their capacity, and relying heavily on
21 volunteers to respond to emergency situations (Kitsumkalum First Nation 2022).

22 7.12.5.2.6.1.2 Prince Rupert

23 The Prince Rupert Fire Rescue Department (**PRFD**) consists of a fire chief, a deputy chief, four shift
24 captains, and sixteen career firefighters (City of Prince Rupert 2022b). The PRFD serves as the 911 dispatch
25 centre for both the City of Prince Rupert and Port Edward fire departments (City of Prince Rupert 2022b).
26 The PRFD responds to both emergency and non-emergency calls and responds to over 1,500 calls
27 annually. The PRFD's response time for 911 calls received within city limits is typically under five minutes
28 (City of Prince Rupert 2022b). The PRFD fire fighters are trained in first responder emergency medical
29 protocols, hazardous materials response, auto extrication, and high angle/confined space rescue. The
30 PRFD and the Terrace Fire Department have a mutual aid agreement to address large-scale incidents and
31 serious -highway-related incidents (e.g., along Highway 16) where required. The PRFD also offers
32 programs such as public building inspection, fire prevention, and public education programs.
33 Approximately 1,000 public building inspections are conducted annually (City of Prince Rupert 2022b).
34 The PRFD also has a small fleet of firefighting equipment, including two pumpers and one fire/rescue
35 truck.

36 It has recently been reported that a lack of ambulance staff in Prince Rupert is causing the fire department
37 to respond to more medical calls than is typical. In July 2022, the City of Prince Rupert announced that it
38 was limiting PRFD's support to BC Ambulance to critical calls moving forward (Husband 2022).

1 The Port Edward Volunteer Fire Department is supported by the PRFD through a mutual aid agreement
2 with the PRFD (City of Prince Rupert 2022a). In 2021, it was reported that the Port Edward Volunteer
3 Fire Department was attempting to recruit new members to increase the membership from
4 seven volunteer firefighters to 12 (Galimski 2021a). Since that time, the Department has filled all
5 12 regular positions (Galimski 2021b).

6 7.12.5.2.6.1.3 *Indigenous Communities*

7 All of the Nisga’a villages have fire departments with fire chiefs and firefighters. Laxgalt’ap Village is also
8 fully equipped with a First Responder and Rescue One truck and provides first responder, fire, and
9 roadside emergency response services to all Nisga’a communities (Laxgalt’ap Village Government 2022).
10 Most of the village firehalls were built in the 1980s and are in poor to good condition.

11 The TVFD provides fire protection to Kitselas and Kitsumkalum First Nation (RDKS 2022b). TVFD has
12 three stations: Thornhill, Lakelse Lake, and Gitau. TVFD responds to emergency and non-emergency
13 incidents, including medical emergencies. They also teach fire prevention and fire safety (RDKS 2022b).
14 The department has three fire engines, three water tenders, one mobile command support truck, three
15 duty vehicles, and one ladder truck, which is shared with the City of Terrace. The TVFD has a mutual aid
16 agreement with the City of Terrace and the District of Kitimat (RDKS 2022b).

17 7.12.5.2.6.2 *Ambulance*

18 The BC Ambulance Services, which operates under the authority of British Columbia Emergency Health
19 Services (**BCEHS**), provides pre-hospital treatment and transportation by ambulance to residents of BC.
20 BCEHS operates three dispatch operation centres, in Vancouver, Victoria, and Kamloops, which receive
21 911 calls and coordinate responses. The Kamloops dispatch operation centre provides service to
22 communities throughout northern BC (BCEHS 2022). In the first half of 2021, ambulance services to
23 Terrace received 1,631 calls for service, a 17% year-over-year increase from the 1,400 calls for service
24 experienced during the same period in 2020 (LNG Canada 2021b). There was a 13% increase in urgent calls
25 requiring “lights and sirens” response between 2020 and 2021 (LNG Canada 2021b).

26 As of October 2022, BCEHS had nine full-time and six part-time staff in Prince Rupert and 12 full-time and
27 seven part-time staff in Terrace. In the last three years, BCEHS has changed its staffing model and created
28 additional full-time positions, which are not yet fully staffed. In the LAA, 10 positions have been added in
29 both Prince Rupert and Terrace. BCEHS has concerns regarding responding to calls from project sites,
30 which are often in remote areas. The time required to travel to and from remote areas means
31 communities may be left without emergency staff for long periods of time (Soames 2022, pers. comm.).
32 There are also concerns that the increased traffic related to the presence of industrial projects can place
33 additional demands on ambulance services.

1 As in Terrace, Prince Rupert has seen a recent shortage in ambulatory care, resulting in the PRFD
2 responding to medical calls in addition to fire calls (City of Prince Rupert 2022c). The increased demand
3 on PRFD to respond to medical calls has increased overtime costs within the fire department and caused
4 ambulance delays. In July 2022, the Prince Rupert City Council supported limiting fire department support
5 to BC ambulance to critical calls only and are pursuing an agreement to enable the City to invoice
6 BC Ambulance for incidents where firefighters are needed to drive the ambulance (City of Prince Rupert
7 2022c).

8 7.12.5.2.6.2.1 Indigenous Communities

9 Kitsumkalum First Nation and Kitselas First Nation are serviced by the Kamloops Dispatch Operation
10 Centre run by BC Ambulance (BCEHS 2022).

11 7.12.5.2.6.3 Police Services

12 Police services are delivered in the LAA by two Royal Canadian Mounted Police (**RCMP**) integrated
13 detachments: the Prince Rupert Municipal/ Provincial Detachment and the Terrace Municipal/
14 Provincial Detachment (Table 7.12–9). An integrated detachment is comprised of two or more provincial
15 and/or municipal police units working out of the same detachment building. There is an
16 RCMP detachment located in Stewart. The detachment services Highway 37 from the 75 km marker to
17 the 309 km marker and Highway 37a from the Alaska border to the junction with Highway 37
18 (RCMP 2022).

19 Table 7.12–10 shows the number of officers and crime statistics for RCMP detachments in Prince Rupert
20 and Terrace.

Table 7.12–10 – Total Officers and Crime Statistics, LAA and Province

Area	Year	Total Number of Police Officers	Authorized Strength	Case Load	Crime Severity Index	Crime Rate	% Change in Crime Rate 2015 – 2020
Prince Rupert RCMP, municipal	2015	13	18	NA	153.10	80.6	145
	2020	33	36	72	188.06	198	
Prince Rupert RCMP, provincial	2015	2	2	-	188.3	78.5	46.5
	2020	8	8	26	171.6	115	
Terrace RCMP, municipal	2015	23	25	-	133.41	215.6	-6.3
	2020	24	28	93	145.43	202	
Terrace RCMP, provincial	2015	7	7	-	77.09	78.2	-19.4
	2020	8	8	63	62.63	63	
BC RCMP, Municipal	2020	-	4,018	63	-	83	NA

Table 7.12–10 – Total Officers and Crime Statistics, LAA and Province

Area	Year	Total Number of Police Officers	Authorized Strength	Case Load	Crime Severity Index	Crime Rate	% Change in Crime Rate 2015 – 2020
BC RCMP, Provincial	2020	-	801	33	-	63	NA

NOTES:

Authorized strength represents the maximum number of positions that the detachment or department has been authorized to fill as of December 31 of each calendar year.

Crime Severity Index monitors the severity level of police-reported crime.

Crime rate is the number of Criminal Code offences or crimes (excluding drugs and traffic) reported for every 1,000 persons.

- Data not available

SOURCE: Ministry of Public Safety and Solicitor General Police Services Division 2021; Statistics Canada 2022d

- 1
- 2 *7.12.5.2.6.3.1 Terrace*
- 3 The Terrace integrated RCMP detachment has 32 members, 10 municipal personnel, five services
4 personnel, and two victim assistance contractors (City of Terrace 2021a). In 2021, the Terrace RCMP
5 municipal detachment had 24 total officers and a rate of 187.3 police officers per 100,000 population
6 (Statistics Canada 2022d).
- 7 Between 2015 and 2020, the overall crime rate (the number of criminal code offences or crimes, excluding
8 drugs and traffic, reported for every 1,000 permanent residents) decreased in Terrace. The Terrace
9 municipal RCMP service saw the crime rate decrease 6.3% between 2015 and 2020 and the provincial
10 detachment service crime rate decreased by 19.4%. In 2020, the case load (the number of criminal code
11 offences per authorized police strength) for the Terrace municipal RCMP detachment had dropped to 202
12 (83 for the province) from 215.6 in 2015. The caseload for Terrace’s provincial RCMP detachment also
13 decreased from 78.2 in 2015 to 63 in 2020, which was the same as that for the entire province (Ministry of
14 Public Safety and Solicitor General Police Services Division 2021). According to LNG Canada CLISMP
15 reporting, total calls for service to Terrace RCMP decreased 6% from 5,984 calls in the first half of 2020 to
16 5,639 during the same period in 2021 (LNG Canada 2021b). Calls for service increased 14%, however,
17 between Q1/Q2 2021 and Q1/Q2 2022 (LNG Canada 2022c).
- 18 The Specialized Response Team program, a pilot program that started in Terrace in July 2021, is a
19 collaboration between Northern Health, RCMP, BCEHS, the First Nations Health Authority, and local
20 Indigenous communities and municipalities (Binny 2021). The Specialized Response Team program aims
21 to address the increasing mental health and substance use--related challenges. The Northwest Specialized
22 Response Team in Terrace consists of two registered nurses accompanying RCMP and other
23 first responders (Government of BC 2021a). The Ministry of Mental Health and Addictions plans to expand
24 the service to support other communities in northwest BC (Government of BC 2021a).

1 7.12.5.2.6.3.2 *Prince Rupert*

2 The Prince Rupert detachment includes the Integrated Road Safety Unit, West Coast Marine Section
3 (covering the north end of Vancouver Island to the Alaska border), Border Integrity Section, and
4 Prince Rupert’s Federal Drug Enforcement Unit. In 2021, the Prince Rupert RCMP municipal detachment
5 had 33 total officers and a rate of 253.1 police officers per 100,000 population (Statistics Canada 2022d;
6 City of Prince Rupert 2022b).

7 Between 2010 and 2014, Prince Rupert’s municipal and provincial detachment crime rates increased by
8 145% and 46.5%, respectively (Ministry of Public Safety and Solicitor General Police Services Division
9 2021). In 2020, Prince Rupert’s RCMP provincial detachment had an average of 26 cases per officer, which
10 was less than the total for BC at an average of 60 cases per officer. Prince Rupert’s municipal caseload of
11 72 in 2020 was higher than that for the province, which was 63 (Ministry of Justice 2021).

12 7.12.5.2.6.3.3 *Indigenous Communities*

13 The RCMP Lisims and Nass Valley detachment is in Gitlaxt’aamiks and serves the four Nisga’a Villages and
14 Nass Camp (RCMP 2022). The detachment has five officers and one vacancy (Gendron-Fafard 2022,
15 pers. comm.). The Nisga’a Treaty gives the Nisga’a Lisims Government the authority to establish a
16 Nisga’a Police Board and Nisga’a Police Service (NLG n.d.c).

17 First Nations policing is administered by Public Safety Canada through the First Nations Policing Program
18 (RCMP 2020). The First Nations Policing Program provides First Nations communities the opportunity to
19 participate with the federal and provincial or territorial governments in tripartite agreements to support
20 policing services in their communities.

21 One First Nations Community Police Officer provides services to Kitselas and Kitsumkalum (Ministry of
22 Justice 2021).

23 7.12.5.2.7 Municipal Recreation Centres

24 In the LAA, the residents of the City of Terrace, City of Prince Rupert, Port Edward DM, and each
25 Indigenous community have access to and use of community centres, which provide venues for various
26 recreational, community, and social activities.

27 7.12.5.2.7.1 Terrace

28 The City of Terrace operates the Sportsplex, which has two ice surfaces and several multi-purpose rooms
29 that are available to rent for events, and the Terrace and District Aquatic Centre. The City of Terrace lists
30 the construction of squash courts and a gymnasium to either the Aquatic Centre or Sportsplex among the
31 goals of its Parks and Recreation Master Plan (2019). Since Terrace does not have an accommodations
32 camp with recreation facilities for industrial workers, many transient workers have been relying on
33 Terrace’s amenities for recreation. The Sportsplex and the aquatic centre in Terrace are heavily used by
34 residents and require some upgrades. Community members have expressed the desire for a youth centre
35 and community hall in Terrace (City of Terrace 2016).

1 In Terrace, there was a 73% increase in pool drop-in customers in Q3/Q4 2021 when compared to
2 Q3/Q4 2020 (LNG Canada 2022b). There was a 37% increase in Terrace Sportsplex fitness class attendance
3 in Q3/Q4 2021 when compared to Q3/Q4 2020. The increased year-over-year usage of community
4 amenities and recreational facilities in both Kitimat and Terrace can be attributed to the direct and
5 indirect effects of the pandemic and the increases in utilization reflect a decrease in COVID-19--related
6 restrictions (LNG Canada 2022b).

7 The City of Terrace offers local residents and visitors a number of outdoor recreation sites and multi-use
8 trails.

9 7.12.5.2.7.2 Prince Rupert

10 The City of Prince Rupert operates the Central Recreational complex, which has an aquatic centre,
11 ice arena, gymnasium, and multi-purpose rooms (City of Prince Rupert 2021b). The City also owns a
12 golf course, racquet sports building, and the Lester Centre theatre. There is a privately owned and
13 operated curling rink in the city. Currently, the City's recreational facilities are adequately serving the
14 community. Outdated facilities, including the Central Recreational complex, receive life-extending
15 improvements and upgrades as needed (City of Prince Rupert 2021b).

16 The City of Prince Rupert currently has a total of 131.6 hectares of park space, including a golf course.
17 The City also has an active trail group, who construct, maintain, and propose trails throughout the city
18 (City of Prince Rupert 2021b). The City is planning to increase park space and expanding recreational
19 facilities as the population continues to grow (City of Prince Rupert 2021b). The Redesign Rupert Project
20 is proposing increased public access to the waterfront, including creating public parks, a kayak launch,
21 public gathering spaces, and a boardwalk (City of Prince Rupert n.d.).

22 The District of Port Edward's recreational facilities consist of the McKeown Sports Field, which has a
23 baseball and soccer field, King City Park, Fisher Point, and Lions Memorial Park. There are two provincial
24 parks in Port Edward: Prudhomme Lake Provincial Park and Diana Lake Provincial Park. Both parks offer
25 recreational facilities for camping, water sports, and hiking (District of Port Edward 2020). The District of
26 Port Edward published a Recreational Master Plan and Trail Plan in 2020, outlining areas where parks and
27 recreation can be improved in the district. Priority improvements for the district include: increasing park
28 area within the townsite to accommodate new residential development; working with BC Parks to
29 improve regional facilities (i.e., provincial parks); improving signage for key recreational, cultural, and
30 heritage areas; and establishing a community trail system (District of Port Edward 2020).

31 7.12.5.2.7.3 Indigenous Communities

32 There are several community and recreational facilities in the Nisga'a Villages. Gitlax'aamiks owns and
33 operates a recreation and culture centre, a community hall, the Gitmidiik Auditorium, and an Interpretive
34 Centre (Gitlax'aamiks Village Government 2021; Stantec 2019a, 2022c). The Gitlax'aamiks Village
35 Government was planning to build a few new parks in the community in 2021; however, progress was
36 difficult due to COVID-19 (Stantec 2022a). The anticipated new park space will include a water feature
37 (Stantec 2022a).

1 The Villages of Laxgalts’ap, Gitwinksihlkw, and Gingolx each operate a community hall with recreational
2 and youth programming, including team and individual sports (Laxgalt’ap Village Government 2022).
3 The Province of BC has recently funded a recreation facility at the Gitwinksihlkw Elementary school, which
4 is intended to be used by the school as well as the broader community. Construction is expected to be
5 complete in the fall of 2023. The facility will have the capacity to host events such as educational
6 conferences, community celebrations, and sporting events (Government of BC 2022).

7 Kitsumkalum First Nation currently operates a recreation centre, however the community has identified
8 the need for improved recreation facilities, such as greater access to sports facilities, walking trails, and
9 greenspaces (Kitsumkalum First Nation 2018).

10 The closest recreation facility to the Kitselas First Nation is over 22 km away. In the 2019 Land Use Plan,
11 Kitselas First Nation outlined the need for greater space and facilities dedicated to community and
12 recreational use (Kitselas First Nation 2019). Infrastructure Canada is currently considering the
13 construction of the proposed Kitselas Community Recreation Centre. The centre would serve as a
14 gathering space for the Kitselas First Nation. It would be a two-storey community recreation centre,
15 equipped with a community theatre, outdoor amphitheatre, gym facilities, conference and reception
16 areas, and other related facilities (Government of Canada 2022).

17 7.12.5.2.8 Housing and Accommodations

18 7.12.5.2.8.1 Housing Characteristics

19 In 2021, there were 27,568 occupied private dwellings in communities in the LAA, up from 25,059 in 2016
20 (Statistics Canada 2022f) (Table 7.12–11). Most residents in LAA communities owned their homes in 2021,
21 although most homes were owned by the Band in Kitselas 1 IR, Kitsumkalum 1IR, and Kulspai 6IR. In the
22 City of Prince Rupert, the majority (62.3%) of the population owned their home in 2021. However, Gitga’at
23 First Nation (2024) reported that the majority (63%) of Gitga’at members living in Prince Rupert rent their
24 homes. Gitga’at households in Prince Rupert reported that their current housing situation is not secure
25 (21%), that it is not easy to access safe and secure housing (67%), and that their household would be at
26 risk of homelessness if they missed a paycheque (Gitga’at First Nation Health Department 2024).

27 The communities with the highest percentage of homes in need of major repair in 2021 were
28 Nisga’a communities and Lax Kw’alaams 1 (Table 7.12-11; Statistics Canada 2022f). In Prince Rupert, 14%
29 of homes were in need of major repair in 2021. However, the majority (57%) of Gitga’at households in
30 Prince Rupert reported that their current household does not meet their needs because of cost (i.e., rent,
31 mortgage, maintenance, utilities, and taxes) and size (e.g., home is too large or too small) (Gitga’at First
32 Naiton Health Department 2024). Gitga’at First Nation Health Department (2024) reported that over 50%
33 of Gitga’at households in Prince Rupert are in need of repair, including some repairs needed (50%) and
34 major repairs needed (7%) related to structural, plumbing, and electrical issues.

35 Section 11.0 presents more detailed information on households and dwelling characteristics in
36 Nisga’a communities.

Table 7.12–11 – LAA Housing Characteristics, 2016 and 2021

Community	Census Year	Total Private Dwellings Occupied by Permanent Residents	Owned (%)^b	Rented (%)	Band Housing (%)^a	Homes in Need of Major Repair (%)
Nisga'a NL	2016	571	69.3	28.9	0	39.5
	2021	572	54.4	14.9	30.7	35.1
Prince Rupert CA	2016	5,102	60.3	39.8	0	14.3
	2021	5,498	63.5	35.6	0.1	0.2
Prince Rupert (city of)	2016	4,930	59.7	40.2	0	14.1
	2021	5,072	62.3	37.7	0	14.0
Port Edward DM	2016	172	73.0	27.9	0	25.0
	2021	181	85.3	14.7	0	14.7
Lax Kw'alaams 1	2016	220	79.5	15.9	4.5	34.1
	2021	216	74.4	7.0	18.6	34.9
North Coast A RDA (formerly Skeena-Queen Charlotte A RDA)	2016	24	80.0	0	0	50.0
	2021	29	83.3	0	0	33.3
Dolphin Island 1	2016	112	50.0	36.4	13.6	40.9
	2021	106	9.4	0	90.5	33.3
S1/2 Tsimpsean 2	2016	-	-	-	-	-
	2021	-	-	-	-	-
Terrace CA	2016	6,362	70.6	29.3	0	9.9
	2021	8,000	73.3	24.8	1.9	10.2
Terrace (city of)	2016	4,627	69.2	30.8	0	8.3
	2021	4,873	70.1	30.0	0	7.7
Kitimat-Stikine C RDA (Part 1)	2016	1,136	87.3	12.7	0	14.1
	2021	1,713	88.5	11.5	0	15.1
Kitimat-Stikine E RDA	2016	1,710	74.6	25.4	0	14.0
	2021	1,205	77.8	22.5	0	12.0
Kitselas 1 IR	2016	75	53.3	13.3	26.7	0
	2021	81	0	0	80.0	0
Kitsumkalum 1IR	2016	105	85.7	9.5	9.5	38.1
	2021	106	33.3	9.5	66.7	28.6
Kshish 4 IRI	2016	-	-	-	-	-
	2021	-	-	-	-	-
Kulpai 6 IR	2016	25	80.0	40.0	0	0
	2021	22	0	0	80.0	0

Table 7.12–11 – LAA Housing Characteristics, 2016 and 2021

Community	Census Year	Total Private Dwellings Occupied by Permanent Residents	Owned (%) ^b	Rented (%)	Band Housing (%) ^a	Homes in Need of Major Repair (%)
LAA	2016	25,059	-	-	-	-
	2021	27,568	-	-	-	-

NOTES:

- Data not available

^a Kitsumkalum and Kitselas reserves in the LAA and do not reflect the total Indigenous population of each Indigenous nation’s group.

^b Percentages of owned, rented, and band housing is divided by the total tenure of housing indicated for each census year

SOURCES: Statistics Canada 2017, 2022f

- 1
- 2 7.12.5.2.8.2 Housing Market
- 3 7.12.5.2.8.2.1 Terrace
- 4 The Greater Terrace Housing Needs Assessment (2020) forecasts population increases of between 2% and
- 5 15% between 2020 and 2030, depending on the level of economic development occurring in the region
- 6 (Mackay and Lovitt 2020). Based on these projections, the City of Terrace and RDKS anticipate that housing
- 7 demand will exceed supply, causing significant shortage in the short-term (2020–2025). The report
- 8 predicted a drop in population post-2025 that could stabilize the relationship between demand and
- 9 supply, although at differing magnitudes. Post-2025, the medium to high economic development
- 10 scenarios would continue with housing deficits, whereas the low economic development scenario would
- 11 result in in a unit surplus by 2030 (Mackay and Lovitt 2020). The Greater Terrace Housing Needs Report
- 12 showed that a significant portion of the area’s population growth from 2006 to 2016 was in the
- 13 senior -aged category (+43%), indicating a need for additional senior-oriented housing in the community
- 14 and small housing units to support those looking to downsize.
- 15 The Greater Terrace Housing Needs Report incorporated quantitative and qualitative data from primary
- 16 and secondary sources. Key themes from consultation conducted as part of the study included
- 17 (Mackay and Lovitt 2020):
- 18 • Industrial expansions are placing increased pressure on the supply and affordability of housing.
- 19 While development is welcomed, adverse effects on housing need to be addressed
- 20 • Employers are finding it difficult to attract and retain staff due to limited housing available and
- 21 housing affordability
- 22 • Traditional careers that provided stable middle-class incomes are not keeping pace with housing
- 23 prices
- 24 • There is need for more diverse and smaller housing options

- 1 • Much of the existing housing stock is in poor condition and are either not maintained by landlords
2 or repairs prove too difficult/expensive for homeowners to address
- 3 • Increases in rental costs impact the quality-of-life of renters. Low vacancy rates create instability
4 for renters. The private rental market is not meeting existing demand; measures of core housing
5 need may underestimate affordability
- 6 • The tight housing market has displaced renters and owners due to changes in affordability

7 The average residential house price in Terrace fluctuated greatly from 2011 to 2019, correlating with
8 actual or anticipated demand associated with industrial development. Average residential house prices
9 reached approximately \$300,000 in 2018 and reached a peak of \$420,000 by 2019. The average quarterly
10 residential house resale price increased by 1.8% from \$473,361 in Q2 2021 to high of \$482,071 in Q4 2021
11 (BRA and Stantec 2022). Year-over-year, the average resale price increased 16% from Q4 2020 and
12 continues to be higher than the regional average of \$437,552 (LNG Canada 2022a).

13 Between 2011 and 2020, housing starts and sales also fluctuated in Terrace. There were fewer than
14 20 starts in Terrace in 2011, but they reached a peak of 103 in 2018. This number fell to 51 in 2019 and
15 then increased to 34 in 2020. In 2021 the number of housing starts rose to 88 (CMHC 2022). The number
16 of units sold in Terrace rose from approximately 24 in Q1 2011 to a peak of 99 in Q3 2013. The number of
17 units sold in Terrace decreased and then rose to its next peak of 70 in Q2 2018 and then transactions
18 levelled off, averaging around 34 units sold per quarter in 2019 and 2020 (LNG Canada 2021a).

19 *7.12.5.2.8.2.2 Prince Rupert*

20 A Housing Needs Regional Summary for the North Coast Regional District (2022) indicates that NCRD
21 residents are concerned about increasing housing prices and costs for rental accommodation, as well as
22 housing availability in some regions. Short-term rentals are replacing longer-term rentals, and in some
23 areas, including Prince Rupert, home buyers from outside the NCRD are driving prices up beyond what is
24 affordable for the existing residents earning lower incomes. This is echoed by some Indigenous nations,
25 and Gitga'at First Nation in particular, with members living in Prince Rupert who have stated that the lack
26 of affordable housing and rapidly increasing rental prices is placing considerable strain on current
27 residents and potential newcomers (Gitga'at First Nation 2024). For Gitga'at households in Prince Rupert,
28 38% 'disagreed' that their current housing situation is affordable and 83% reported they had experienced
29 significant financial difficulty due to increases in housing costs in the past year (Gitga'at First Nation
30 Health Department 2024).

31 A labour market study prepared in 2019 indicates that, due in part to expansion plans for the Port of
32 Prince Rupert and spin-off job creation resulting from surrounding LNG development, the area should
33 experience an expected increase of job postings at an average of 3.3% per year through to 2028, with up
34 to 1,910 new full-time jobs in Prince Rupert (L&M Engineering Ltd. 2020). The stock of affordable housing
35 is already at a premium, and further increases to the already elevated housing and rental prices are poised
36 to critically impact low- and middle-income residents in Prince Rupert, especially seniors and vulnerable
37 populations (Community Development Institute at UNBC 2016).

1 Along with low levels of construction, some communities in the NCRD have increasing housing stock that
2 is left vacant for most of the year as they were purchased for seasonal or investment purposes.
3 Prince Rupert is seeing more activity with respect to new housing construction, including multi-family
4 units, some of which are purpose-built for rentals and some for seniors; however, supply still falls short
5 of anticipated demand (Calibrate Assessments Ltd. 2022).

6 The average housing price increased by more than \$100,000 in Prince Rupert between 2019 and 2021.
7 The average selling price for homes in the city rose from \$310,155, in September 2019, to \$418,985 in
8 September 2021. Between 2020 and 2021, the average selling price rose approximately 23%
9 (Galimski 2021c). As reported in the City of Prince Rupert Housing Needs Report (2022), the average sale
10 price of a detached house in Prince Rupert was \$468,167 in August 2022. This represents an increase of
11 3.6% from August 2021 (The City of Prince Rupert and City Spaces 2022).

12 Construction costs in communities throughout the NCRD are higher than in other mainland urban areas
13 and there is a shortage of skilled trades, which has created a barrier to the construction of new units and
14 could also result in a lack of maintenance, which ultimately makes a dwelling uninhabitable (Calibrate
15 Assessments Ltd. 2022).The number of housing starts in Prince Rupert CA were at a low of two in 2012
16 and 2013 but reached 71 in 2018. This number fell to eight in 2020 and increased to 17 in 2021 (CMHC
17 2022). Property sales in the first half of 2020 in many northwest BC municipalities declined between 2019
18 and 2020. However, house sales increased in 2021, exceeding 2019 numbers in the first half of 2021. In
19 Prince Rupert, 164 properties were sold in the first six months of 2021, compared to 48 in the same period
20 in 2020 and 71 in 2019. It has been reported that, despite a recent increase in housing starts, more supply
21 is needed to meet the demand for housing in Prince Rupert (Azizi 2021).

22 7.12.5.2.8.3 Vacancy and Rental Market

23 7.12.5.2.8.3.1 Terrace

24 Typically, the rental market experiences pressure when vacancy rates are less than 1% and oversupply
25 when vacancy rates are greater than 3% (L&M Engineering Ltd. 2020). Terrace has experienced an
26 increase in rental demand due to some construction workers relocating temporarily into the city, as well
27 as by induced population growth. The rental vacancy rate in Terrace reached 5.4% in 2017, before
28 dropping to approximately 2% in 2019, correlating with the recent industrial development activity
29 occurring in the region. The vacancy rate in Terrace increased to 4.4% in 2020 and then again 10.9%
30 in 2021 (Table 7.12–12) (CMHC 2022).

31

Table 7.12–12 – Vacancy Rates and Rental Prices, 2010 to 2020

Year	Terrace			Prince Rupert		
	Average Apartment Vacancy Rate (%)	Average Rental Price		Average Apartment Vacancy Rate (%)	Average Rental Price	
		One Bed	Two Bed		One Bed	Two Bed
2010	8.8	\$553	\$634	11.8	\$536	\$646
2011	3.4	\$554	\$639	14.0	\$546	\$671
2012	2.6	\$574	\$658	11.0	\$572	\$678
2013	0.4	\$595	\$685	9.8	\$586	\$735
2014	2.5	\$639	\$802	6.1	\$619	\$793
2015	3.1	\$695	\$862	3.5	\$660	\$801
2016	3.9	\$707	\$872	4.8	\$673	\$800
2017	5.4	\$688	\$816	3.9	\$809	\$919
2018	4.1	\$748	\$887	3.6	\$843	\$876
2019	2.1	\$802	\$952	3.4	\$870	\$886
2020	4.4	\$793	\$946	3.7	\$903	\$1,135
2021	10.9	\$911	\$992	5.5	\$945	\$974

SOURCES: CitySpaces Consulting 2020; CMHC 2022

1
2 *7.12.5.2.8.3.2 Prince Rupert*

3 The vacancy rate for one- and two-bedroom apartments in Prince Rupert CA in 2018 were 2% and 6%,
4 respectively. The vacancy rate for apartment structures of six units or more was 4.6% in 2021
5 (Statistics Canada 2022b). According to the 2020 Port Edward Housing Needs Assessment, CMHC rental
6 vacancy data for Prince Rupert CA show a healthy rental market; however, community stakeholders
7 indicate that there is limited availability of rental units (L&M Engineering Ltd. 2020). While rental units
8 may be available, they may not necessarily be affordable to all households, thus creating the sense of
9 limited vacancies for those households that require more affordable units (L&M Engineering Ltd. 2020).

10 Incentives are in place to encourage residential developments in and around downtown, including waiving
11 fees for building permits as well as rezoning or development application fees. Prince Rupert has also
12 recently introduced a bylaw which will protect renters from poor living conditions and renovations.
13 The bylaw, passed in May 2022, outlines basic maintenance standards for rental units and rules around
14 evictions, and failure to comply could result in a \$50,000 fine (CBC News 2022). As recently as
15 February 2023, more than 30 tenants of two apartment complexes in Prince Rupert were told they had to
16 move out so that renovations to the buildings could be made. No affordable alternatives for
17 accommodation were made available. Since December 2022, Prince Rupert Unemployment Action
18 Centre, a legal advocacy organization, said it's been working on more than 30 eviction cases (Wilson 2023).

1 As illustrated in Table 7.12–12, average rent for one- and two-bedroom rental units in Prince Rupert were
2 \$945 and \$974, respectively, in 2021. A more recent housing needs assessment for Prince Rupert (The City
3 of Prince Rupert and City Spaces 2022) indicates that average rental prices had increased in 2022 to \$1,420
4 for a one-bedroom unit and \$1,880 for a two-bedroom unit. This information is based on a scan of
5 Facebook and Kijiji listings between July 21 and August 8, 2022 (The City of Prince Rupert and City Spaces
6 2022).

7 7.12.5.2.8.4 Temporary Accommodations

8 As of August 2022, there were 79 hotels, motels, bed and breakfast, lodges, cabins, RV parks, and
9 campsites in and around Terrace and Prince Rupert Cas, totalling approximately 2,000 rooms and sites
10 (Table 7.12–13). Of these, 45 temporary accommodations with more than 1,200 rooms are in Terrace and
11 Prince Rupert had 35 temporary accommodations with more than 800 rooms (TripAdvisor 2022).
12 The majority of temporary accommodation in the LAA is offered by motels and hotels.

13 **Table 7.12–13 – Temporary Accommodations, LAA**

Community	Accommodation Type	Number of Units	Number of Rooms
Prince Rupert CA	Hotels and motels	14	584
	Lodges and cabins	3	29
	Bed and breakfasts	15	73
	RV and camp sites	3	133
	Total	35	819
Terrace CA	Hotels and motels	14	721
	Lodges and cabins	14	98
	Bed and breakfasts	5	22
	RV and camp sites	11	375
	Total	45	1,216
Total Combined		79	2,035

SOURCE: TripAdvisor 2022

14
15 There are currently two operating bed and breakfasts on Nisga’a Lands with a total of eight rooms.
16 There are also two lodges with 14 rooms and two RV and campsites with 56 spaces (NLG n.d.b;
17 Discover Nisga’a 2022). Section 11.0 presents more detailed information on temporary accommodation
18 in Nisga’a villages.

19 In addition to the temporary accommodations listed above, several accommodation camps have been
20 built to accommodate workforces associated with industrial projects in northern BC. There are two work
21 camps in the LAA: one in Port Edward with the capacity for 150 workers and another in Terrace with the
22 capacity for 350 workers. There are three other work camps, however, in nearby Kitimat with more than
23 6,000 rooms.

1 7.12.5.2.8.5 Core Housing Need

2 *7.12.5.2.8.5.1 Terrace and Prince Rupert*

3 The CMHC determines that a household is experiencing ‘core housing need’ if its housing falls below at
4 least one of the adequacy, affordability, or suitability standards and it would have to spend 30% or more
5 of its total before-tax income to pay the median rent of alternative local housing that is acceptable
6 (meets all three housing standards). It is an indicator that has been used in Canada since the 1980s to
7 determine who needs housing assistance. This indicator focuses on vulnerable populations and assesses
8 households living in private residences (CMHC 2019).

9 Table 7.12–14 shows core housing need characteristics available for the RAA and LAA in 2016.

Table 7.12–14 – Core Housing Need, 2016

	Households in Core Housing Need (%)	Households in Core Housing Need and Below Affordability Standard (%)	Households in Core Housing Need and Below Adequacy (repair) (%)	Households in Core Housing Need and Below Suitability (Crowding) (%)	Owners	Renters	Households Spending 30% or More of Income on Shelter (%)
Terrace CA	11.5	9.6	3.1	1.1	3.9	30.2	16.9
Prince Rupert CA	12.1	10.8	2.5	1.2	3.8	24.7	20.7
Kitselas	12.9	21	10.3	4	-	-	-
Kitsumkalum	-	-	42.9	9.5	-	-	-
Nisga’a	-	-	-	-	--	-	-
Kitimat Stikine E RDA	13.7	9.8	4.5	2.1	5.6	39.3	17.0
British Columbia	14.9	13.6	1.8	1.8	8.1	29.9	28.0

NOTE:

– Data not available

SOURCE: CMHC 2021

10

11 In BC, 14.9% of households were in core housing need. Of the households in Terrace CA, District of Kitimat,
12 and Kitimat-Stikine E RDA, respectively, 11.5%, 7.6%, and 13.7% were in core housing need. In all
13 jurisdictions, the great majority of these households were renters and not homeowners. In Terrace CA,
14 for instance, 30.2% of renters were in core housing need compared to only 3.9% of homeowners
15 (CMHC 2021).

16 In BC, Terrace CA, and Kitimat-Stikine E RDA, the main reason for core housing need is affordability,
17 followed by adequacy or condition of accommodations, and then by suitability or overcrowding
18 (CMHC 2021).

1 As shown in Table 7.12–14, core housing needs in the LAA are below the average for BC. Housing
2 affordability, nevertheless, is an issue in the LAA and is a factor in determining core housing need. In 2016,
3 28% of owner or tenant households spent 30% or more of their income on shelter costs. Throughout the
4 RAA and LAA, households spending 30% or more of income on shelter ranged from 12.2% in the District
5 of Kitimat to 20.7% in Prince Rupert CA (Statistics Canada 2017). In terms of affordability, renters generally
6 fare worse than owners. In the District of Kitimat in 2016, 34.3% of renter households were spending 30%
7 or more of income on shelter costs, compared to 6.5% of owner households (Statistics Canada 2017).

8 7.12.5.2.8.6 Housing in Indigenous Communities

9 Providing and managing housing on-reserve is the responsibility of Indigenous nations. The Government
10 of Canada provides funding to Indigenous nations for safe and affordable on-reserve housing
11 (Government of Canada 2021b).

12 Under the authority of the Nisga'a Treaty and the Nisga'a *Landholding Transition Act* (2014),
13 Nisga'a citizens are permitted unrestricted fee simple ownership of residentially zoned Nisga'a Land.
14 (Nisga'a Nation 2022). The treaty is a significant departure from how land transfers and housing are dealt
15 with under the *Indian Act*, under which Indian Reserve Land or Indian Band Land belongs to the Crown,
16 and Indigenous people are only able to obtain a COP (Nyce 2022, pers. comm.). Under the Nisga'a Treaty,
17 which came into force on May 11, 2000, COPs were replaced with two forms of land entitlement:
18 Nisga'a Village Entitlement and Nisga'a Nation Entitlement (Nyce 2022, pers. comm.). In both cases, the
19 entitlements are exclusive leases without an expiry date which gives people the possessory right for that
20 piece of land and they own the improvements on the land; however, the village maintains the fee simple
21 title underlying that land and owns the land (Cragg 2022, pers. comms.). Under current legislation,
22 village governments provide support to Nisga'a citizens who hold entitlements for home maintenance;
23 and those owning fee simple title are not eligible for support (E. Nyce 2022, pers. comm).

24 The number of persons in private households in Nisga'a Lands was 1,795 and the average household size
25 was 3.1 (Statistics Canada 2022f). In 2016, 29.0% of renters and 69% of owners experienced core housing
26 needs in the Nisga'a Nation. In 2016, 89.7% of households in the CSD Nisga'a were suitable dwellings vs
27 98.0% of non-Indigenous households in the North Coast Development Region.

28 In 2016, 38.1% of Kitsumkalum homes needed major repair (Statistics Canada 2017). Finding land suitable
29 for housing remains an ongoing challenge for Kitsumkalum. While 33 new homes have been developed
30 over the past 15 years, in 2016, there were 20 families on a waitlist for housing and projections indicate
31 that this will increase to between 40 and 65 families by 2031 (Kitsumkalum First Nation 2018). There are
32 several lot subdivision and infill opportunities that could be explored with potential for up to 90 new units
33 pending funding. One proposed subdivision, Benchlands (33 lots), was not developed given the high costs
34 of road building, development on steep slopes, and the required relocation and/or repair of the
35 community's existing water tanks to provide adequate water pressure.

1 As of 2019, there were 108 houses on Kitselas First Nation lands and 63 of these were built between 2005
2 and 2011 (Kitselas First Nation n.d.b). In 2016, the housing stock at Kitselas First Nation was in
3 comparatively good repair, with no homes in need of major repair. This likely reflects that Kitselas has a
4 higher proportion of people living in newer homes than other Indigenous communities in the LAA.
5 A survey of community members conducted in 2019 indicated that 44 respondents had homes requiring
6 minor repair, 20 members needed a larger home, and six respondents were homeless and in need of
7 housing (Kitselas Development Limited Partnership 2021). In 2020, Kitselas First Nation received a
8 commitment from the provincial government to build 40 new affordable homes in Gitau, with plans to
9 begin construction in 2021 (Bogstie 2020). According to the most recent data collected (2021), when asked
10 to describe the current condition of their accommodation 31% described the condition of their home as
11 'OK' and in need of 'some repairs' and 14% reported that their home as in 'poor' condition and 'required
12 major repairs'. Approximately 40% of households have experienced water damage (46% have not) and
13 nearly one-third have visible mold present (Kitselas First Nation 2022).

14 7.12.5.2.8.7 Social Housing

15 BC Housing develops, manages, and administers a range of subsidized housing options across the province
16 in partnership with public and private housing providers, other levels of government, and community
17 agencies (BC Housing 2022). Low-income families receiving rental assistance subsidies fall into several
18 categories: families with children and dependents, rent assistance seniors, rent assistance families, and
19 women and children fleeing violence. Within Terrace and Prince Rupert, demand for government-assisted
20 housing is addressed through different subsidized service programs, including Emergency Shelter and
21 Housing for the Homeless, Transitional Supported and Assisted Living, Independent Social Housing, and
22 Rent Assistance in the Private Market.

23 7.12.5.2.8.7.1 Terrace

24 As of August 2020, 76 BC Housing affiliated non-market housing applications in the Greater Terrace Area
25 remained on the waitlist, including 34 families, 17 residents with disabilities, and 17 seniors. In Terrace,
26 applicant households on the BC Housing Registry increased from 61 in Q2 2021 to 64 in Q4 2021.

27 In Terrace, there was a total of 550 BC Housing social housing units, a decrease of 7 since Q2 2021. There
28 are also several emergency shelter/transition houses in the LAA; in total, Terrace has 66 emergency beds
29 (Mackay and Lovitt 2020). In Terrace, 'Ksan Society operates 'Ksan House, a transition house for women
30 and their children fleeing abusive relationships. 'Ksan Society also operates the 'Ksan Residence and
31 Shelter, which offers short-term housing for men, women, and couples who find themselves with no place
32 to stay. 'Ksan House experienced a 14% increase in bed-stays in Q3/Q4 2021 when compared to Q3/Q4
33 2020 and the 'Ksan Residence and Shelter experienced a 29% increase in bed-stays in Q3/Q4 2021 when
34 compared to Q3/Q4 2020. The 'Ksan Society was able to accommodate the increase in usage while still
35 following COVID-19 protocols and restrictions by using available space in the facility. For example, the
36 'Ksan Residence and Shelter staff used overflow rooms to house clients as well as 'Ksan Society meeting
37 and conference rooms, when available (e.g., after-hours).

1 The 'Ksan Society is developing Ella's Place, which will have 22 rental housing units for women and children
2 (LNG Canada 2022b). It has also obtained funding to begin the design of a 39-unit apartment building with
3 mixed income, affordable rental housing for families and seniors (Owens 2022, pers. comm.).

4 There are other transitional and emergency shelters in Terrace: M'akola Housing Society provides
5 affordable housing for Indigenous people and families throughout BC and has more than 150 housing
6 units in Terrace and Prince Rupert. These units vary from one- to five-bedrooms and many are
7 single--detached homes (Mackay and Lovitt 2020; M'akola Housing Society n.d.b). Occupancy rates at the
8 M'akola Housing units were 1% lower in 2020 Q3 (July and August only) than in 2019 Q3, with at least 89%
9 of the units occupied during each month (LNG Canada 2021a). M'akola Housing Society has a 46-unit new
10 development planned for Terrace, with occupancy scheduled for 2023 (M'akola Housing Society n.d.a).

11 Demand for transitional housing increased during 2020 due to staff retention challenges and capacity
12 restrictions because of COVID-19 health measures. As of October 2020, 'Ksan Housing Society had a
13 waitlist for housing in the Greater Terrace Area with 675 active applications (Mackay and Lovitt 2020).

14 The 2021 City of Terrace Homeless Count, which was conducted by the 'Ksan Society, revealed an increase
15 in the number of people experiencing homelessness, from 71 people in 2019 to 85 people in 2021 (City of
16 Terrace 2021b). The 2021 City of Terrace Homeless Count does not include the hidden homeless
17 population (i.e., people who do not have a regular address or people couch-surfing) or the number of
18 people who are at risk of losing their homes.

19 In recent years, several initiatives have targeted the evolving housing needs to anticipate and address
20 potential adverse effects on housing in Terrace resulting from industrial developments. These include a
21 collaboration between BC Housing and the City of Terrace to create an Affordable Housing Fund that seeks
22 to build 52 supportive housing units and 45 low-income housing units in Terrace.

23 *7.12.5.2.8.7.2 Prince Rupert*

24 One of the primary issues regarding housing in Prince Rupert is a lack of non-market social housing. In a
25 2015 inventory of social housing, it was identified that there was a total of 392 units available in the city,
26 with 65 vacancies. However, at that time, the waitlist for independent affordable housing or supportive
27 social housing was 277, leaving 212 applicants (many of whom are families) without prospects for social
28 housing in the short term (Urban Systems 2015). Homelessness and lack of affordable housing have
29 become significant issues in Prince Rupert where a 66% increase in homelessness was seen between 2018
30 and 2021 (Azizi 2022).

31 The North Coast Transition Society operates several emergency housing options in Prince Rupert,
32 including the Crane's Crossing Shelter, which is a 35-unit homeless shelter, and the 36-unit
33 Crow's Nest Lodge, which provides supportive housing shelter for adult women and men living with
34 barriers to housing. Forty-six additional units of supportive housing are planned for Crane's Crossing.
35 The North Coast Transition Society also operates the 15-room Raven's Keep Transition House, which
36 provides emergency shelter for women and children. The Grey Owl Retreat offers eight units of seniors
37 housing, and the Eagles Landing provides transitional apartments. The North Coast Transition Society also
38 administers a Housing Outreach Program and Renters at Risk Program. It has been estimated that 90% of

1 the people using the North Coast Transition Society’s facilities identify as Indigenous (Gitga’at First Nation
2 2024).

3 BC Housing has proposed to build 192 affordable townhomes and apartments in Prince Rupert.
4 The proposed development also involves the redevelopment of 106 existing units to create additional
5 modern and more efficient housing. Construction is anticipated to begin in 2022 and is expected to take
6 between five and seven years to complete (Millar 2021). A 70-unit affordable housing project proposed
7 by the Lax Kw’aalams WAAP Housing Society has also been given approval to proceed.

8 In 2020, eight new affordable seniors housing units had recently been developed within Port Edward.
9 The housing units are managed by North Coast Transition Society and rent for \$475 a month. All the
10 housing units were full and there was a waitlist. Community stakeholders emphasized the need for this
11 type of housing so as to encourage seniors to remain in Port Edward instead of moving to other
12 communities where more affordable housing units are available.

13 Housing appears to be unaffordable for many vulnerable groups within the District of Port Edward.
14 With rising rental prices, low-income households are struggling to secure adequate, affordable, and
15 suitable rental accommodations. Cost barriers due to the high cost of construction in the Port Edward
16 area prevent developers or young families constructing new housing types within the district
17 (L&M Engineering Ltd. 2020).

18 There are currently no shelters or transitional housing units in Port Edward. Those who are experiencing
19 homelessness or living in unstable housing conditions gravitate to established facilities in Prince Rupert
20 where social services for this vulnerable population are also available. In view of Port Edward’s small
21 population and proximity of shelter and transitional facilities in Prince Rupert, it has been determined that
22 this type of housing is not required (L&M Engineering Ltd. 2020).

23 7.12.5.2.9 Transportation

24 7.12.5.2.9.1 Road Network

25 The primary road infrastructure in the LAA includes highway corridors between Terrace and Nisga’a Lands
26 (Hwy 113/Nisga’a Highway), and Prince Rupert and Terrace (Hwy 16). Hwy 16, Hwy 37, and Kalum Lake
27 Road (Hwy 113/Nisga’a Highway) are currently designated truck routes through Terrace. These routes
28 inherently serve through traffic heading to regional destinations outside the city limits.

29 Trans Canada Highway 16 is the highway into Prince Rupert. Highway 16 extends through all four western
30 provinces and connects Prince Rupert to both the Canadian highway network and the
31 American inter-state network. Provincially, Highway 16 provides connections to Terrace (145 km),
32 Prince George (720 km), and part of the route to Vancouver, as well as all communities in between.
33 Highway 16 is maintained by the BC Ministry of Transportation and Infrastructure (**BC MOTI**). Highway 16
34 runs through Terrace and forms the main east-west thoroughfare for both local and intercity
35 vehicle traffic.

1 Highway 113/Nisga’a Highway provides paved access to the settlements of the Nisga'a Nation, starting at
2 Highway 16 west of Terrace, running 168 km until ending at Gingolx.

3 Highway 37 is the primary access corridor into Kitimat, connecting to the City of Terrace and to Highway 16
4 beyond. This provincial highway has two-, three-, and four-lane sections, narrow shoulders, and a paved
5 surface. Rural roads connect to Highway 37 at un-signalized intersections.

6 The RAA includes roads connecting to the LAA in the broader scope of the RDKS and the NCRD.
7 This baseline overview focuses on Highways 113/Nisga’a Highway, 16, and 37 because they are not only
8 the main corridors in the RAA, but also those most likely to be affected by the Project with the increased
9 need for workers, equipment, materials, and other goods originating from outside the LAA.

10 7.12.5.2.9.2 Road Traffic Volumes

11 The BC MOTI conducts regular traffic counts at select locations in the LAA, particularly along provincial
12 highways. Table 7.12–15 provides traffic count data for some of the main roads and highways in the LAA.

Table 7.12–15 – Traffic Counts for select highways in the LAA

Road or Intersection Name	Annual Average Daily Traffic		
	2014	2017	2020
Route 16, Port Edwards Road, 2.0 km south of Route 16, Port Edward	1,917	1,519	1,744
Route 16, 280 m west of Mclymont Bridge, Prince Rupert	11,992	10,576	11,345
Nisga'a Highway, 2.3 km west of Greenville, The Nass Valley	111	119	108
Nisga'a Highway, 11.2 km west of Canyon City Access, The Nass Valley	225	247	192
Highway 16/Terrace West, W of 37	13,278	11,891	12,965

SOURCE: BC MOTI 2022

13
14 There is limited long-term traffic count monitoring in the LAA. Available monitoring data shows decreases
15 in traffic on most roads in the area between 2014 and 2017 of between 10% and 21%. Data illustrate
16 increases in traffic between 2017 and 2020 in both Prince Rupert and Terrace areas between 7% and 15%.
17 Along Highway 113/Nisga’a Highway traffic decreased between 2017 and 2020 by between 9% and 22%
18 (BC MOTI 2022).

19 The municipal, provincial, and federal governments support the development of road infrastructure
20 improvement projects in Terrace, Prince Rupert, and the surrounding areas to accommodate the current
21 and anticipated increase in road traffic volumes. For example, the BC MOTI has committed \$10.2 million
22 through 2024/25 in provincial and federal funding for the Highway 16 – Five Point Action Plan. In 2019,
23 the intersection between Highway 16 and Highway 37, which lies between the communities of Terrace
24 and Thornhill, was upgraded from a four-way stop to a roundabout to support the increasing traffic
25 volumes (Government of BC 2020).

1 The BC MOTI planned a variety of highway resurfacing projects in BC’s northern region, spanning more
2 than 350 km of highways and side roads. The highway resurfacing projects will support improvements to
3 the safety and efficiency of roadways for the public users and for the movement of goods and services.
4 One of the first Projects to be completed was the asphalt resurfacing of over 26 km of Highway 16 in the
5 Terrace and Thornhill areas (Government of BC 2021b).

6 In 2020, upgrades to Highway 113/Nisga’a Highway began with the repaving of two segments: a 13 km
7 stretch between Wesach Creek Bridge and Big Ksi Lisims Creek Bridge, and 16 km from the Lava Lake
8 Information Kiosk to the Nass Triangle. This project also included first-time paving of 700 m of
9 Hubert Street in Gingolx, previously a gravel road (BC MOTI 2020).

10 In the *Highway 113 and Supporting Roadways Risk Assessment* (2022), Kitsumkalum First Nation has
11 expressed concern regarding the effects of past, current, and proposed industrial development on
12 Highway 113/Nisga’a Highway and connecting roadways. Members of the Kitsumkalum First Nation have
13 indicated that road infrastructure in the region is poor and worry how continued development will further
14 degrade the condition of Highway 113/Nisga’a Highway and other critical routes. It has been suggested
15 that some roadways require upgrading, particularly to allow for access to Kitsumkalum First Nation
16 communities by emergency service vehicles (Kitselas First Nation 2022; Kitsumkalum First Nation 2022).

17 7.12.5.2.9.3 Accident Statistics

18 Car accident statistics for communities in the LAA show that total crashes were relatively consistent
19 between 2017–2019, with the City of Terrace (3,960) having the highest number of both property damage
20 and casualty crashes. Total crashes in the Cities of Terrace and Prince Rupert decreased in 2020, likely
21 associated with decreased traffic associated with COVID-19 and decreased industrial activity in the region.
22 Total crashes increased from 2020 to 2021 in Terrace and Prince Rupert. Total crashes in Port Edward DM
23 remained low between 2017 and 2021. On Highway 16 West, total car accidents decreased from 169 to
24 98 between 2018 and 2020. Total car crashes along Highway 113 were relatively low and increased from
25 24 in 2017 to 34 in 2020 (ICBC 2021). See Figure 7.12–1.

26 Data on fatalities due to vehicle crashes are provided in Table 7.12–16. Fatalities have remained low in
27 comparison to the number of casualty crashes. There have been no reported fatalities due to vehicle
28 crashes in Port Edward between 2016 and 2020 (ICBC 2022). Data on fatalities related to car crashes are
29 not available for Highways 16 and 113.

30 In the RAA, the most highly reported wildlife-vehicle collisions from 2006 to 2010 were collisions with
31 deer and moose (O’Keefe and Rea 2012).

Table 7.12–16 -Vehicle Crash Fatalities (ICBC)(2016 to 2020)

Municipality	Year	Fatal Victims by Year	Month	Fatal Victims by Month	Fatal Victims by Role	Fatal Victims by Age Range
Terrace (City)	2016	2	June	1	Passenger	22-25
			August	1	Driver	56-65
	2017	2	April	1	Driver	16-18
			October	1	Driver	56-65
	2018	3	February	1	Passenger	56-65
			November	2	Driver	66-75
						Pedestrian
	2020	2	April	1	Driver	26-35
August			1	Driver	36-45	
Prince Rupert (City)	2017	1	November	1	Pedestrian	Unknown
	2020	1	May	1	Driver	66-75

NOTES:

Fatal victims refers to a road user who died within 30 days after the date when an injury was sustained in a crash involving at least one motor vehicle. Excludes roads where the *Motor Vehicle Act* does not apply, such as forest-service roads, industrial roads, and private driveways. Also excludes off-road snowmobile crashes, homicides, and suicides.

SOURCE: ICBC 2022

1
2 Emergency personnel in the LAA anticipate that the increased traffic associated with current and
3 proposed industrial development will result in more collisions along Highway 113/Nisga’a Highway
4 (Kitselas First Nation 2022; Kitsumkalum First Nation 2022). The incidence and length of closures has been
5 raised as a major concern by Kitselas First Nation members, because traffic incidents and related
6 emergency response result in lengthy road closures that reduce access to service centers like Terrace by
7 community members (Kitselas First Nation 2022; Kitsumkalum First Nation 2022).

8 **7.12.5.2.9.4 Airports**

9 The Northwest Regional Airport, Terrace-Kitimat, is located south of Terrace and is the main air hub in the
10 RDKS. It has two paved runways and can accommodate up to a Boeing 757 aircraft; larger aircraft require
11 special procedures.

12 In 2014, the airport released its 20-year plan, with a focus on accommodating long-term air passenger
13 traffic of about 250,000 passengers per year and even more in the short-term. Key changes outlined in
14 the plan to increase capacity include: conversion of a runway into a taxiway and development of two new
15 taxiways to improve efficiency as aircraft movements increase; development of the apron to
16 accommodate larger aircraft (a Boeing 737 or an Airbus A320); and expansion of the terminal building and
17 parking facilities (Northwest Regional Airport 2014). The terminal was expanded in 2018, increasing the
18 size of the airport by 40% and increasing the capacity of passenger holding area. Due to the increased and
19 anticipated demand for charter flights from industrial projects, the Northwest Regional Airport made the

1 decision to expand its apron at the end of 2020. The Northwest Regional Airport also increased its
2 Airport Improvement Fee to financially support the \$2 million apron expansion (LNG Canada 2021a).

3 Between 2013 and 2019, passenger movements at the Northwest Regional Airport increased from
4 177,600 to 293,895. There was a 22% increase in commercial air traffic through the Airport in 2019
5 compared to 2018, which is attributable to a high-volume of transiting project workers (LNG Canada
6 2021a). Like other airports, activity at the Northwest Regional Airport decreased throughout 2020
7 because of the COVID-19 pandemic. Air Canada made the decision in March 2020 to suspend flights to
8 Prince Rupert, Smithers, and Sandspit in an attempt to mitigate the spread of COVID-19, making the
9 Northwest Regional Airport the northwestern flight hub (Hewitt 2020).

10 Despite becoming the northwestern flight hub, the Northwest Regional Airport experienced historic lows
11 in passenger traffic in March 2020, related to the COVID-19 pandemic and associated travel restrictions.
12 Passenger traffic increased gradually to 14,676 in August 2020. Subsequently, the number of passengers
13 decreased each month to just over 9,000 in December 2020. The total number of passenger movements
14 at the Northwest Regional Airport in 2020 was 147,642, approximately 35% less than the previous year
15 (Bogstie 2020). During the first half of 2021, the total number of passenger movements at the
16 Northwest Regional Airport was 50,708, approximately 30% less than the same period in 2020, which had
17 72,179 passenger movements (LNG Canada 2021b). There was a 27% increase in commercial
18 air passengers at the Northwest Regional Airport in Q3/Q4 2021 when compared to Q3/Q4 2020, but a
19 39% decrease when compared to Q3/Q4 2019 (LNG Canada 2022b).

20 The Prince Rupert Airport is situated on a 687 ha of land located on the northwest side of Digby Island.
21 The airport terminal building houses airline passenger services, pilot services, and administrative offices.
22 The maintenance building is located to the south of the Airport Terminal Building and comprises one of
23 the two main buildings of the airport complex. It was built in 1970 and is used as the airport vehicle service
24 garage. The Prince Rupert Airport has one paved runway, which is in operation 24 hours per day
25 year-round. In 2014, the airport saw improvements to its terminal building and in 2016, the maintenance
26 building received upgrades.

27 7.12.5.2.9.5 Rail

28 Rail connections to Prince Rupert are another key component of the port's transportation network.
29 CN's North American mainline rail network connects Prince Rupert with destinations across Canada and
30 the Midwest of the United States of America. The northern BC mainline connection to Prince Rupert has
31 received upgrades over the last decade as CN has added additional double track sections, sidings, positive
32 train controls, and rail yards. In the District of Port Edward, current improvements underway include new
33 sidings and improved road-rail crossings that will improve the safe and efficient movement of goods.

1 7.12.5.2.9.6 Ports

2 The Port of Prince Rupert was built in the early 20th century. In 1972, it was declared a National Harbour.
3 Construction of Fairview Terminal was completed in 1975. The Port now has six main terminals in
4 operation, and it is a key facilitator of trade in and out of Western Canada and nationally, recording
5 approximately 32.4 million tonnes of cargo throughput in 2020. The Port experienced an increase in traffic
6 of 71% through between 2016 and 2020 (InterVISTAS Consulting Inc 2021).

7 In February 2022, Prince Rupert announced the completion of Stage 1 of Fairview’s Phase 2B expansion.
8 The expansion will increase Fairview’s annual container-handling capacity to 1.6 million
9 20-foot-equivalent units by July and to 1.8 million by the time the expansion is completed in 2024
10 (Chiang 2022).

11 7.12.5.2.10 Summary of Baseline Information on Sub-Populations for Gender Based Analysis Plus

12 During collection of baseline data presented in the previous sections, particular attention was paid to
13 information pertaining to challenges experienced by sub-groups with respect to access to infrastructure
14 and services. Based on publicly-available information, the following topics are most relevant in the
15 GBA Plus analysis of identified sub-populations/sub-groups

- 16 • Vulnerable populations in the LAA include families with children who have extra support needs,
17 Indigenous (First Nations, Métis, or Inuit) children and families, low-income families,
18 young parents under the age of 25, single-parent families, children and families from minority
19 cultures and language groups, immigrant and refugee children and families, and francophone
20 families. These populations have particular challenges accessing childcare. For example, in
21 Terrace, 63.2% of vulnerable populations have access to licensed childcare services, compared to
22 73.4% of parents from populations that are not vulnerable
- 23 • An increase in the population of senior persons indicates growing demand for additional
24 senior-oriented housing in the community and small housing units that allow for downsizing
- 25 • Short-term rentals are replacing longer-term rentals in parts of the LAA, making renting less
26 affordable for low-income families
- 27 • Many families in Kitsumkalum are on a waitlist for housing due to unsuitability of the land for
28 building new homes and the cost of infrastructure required for new housing developments
- 29 • Homelessness and lack of affordable housing are becoming significant issues in Prince Rupert,
30 where a 66% increase in homelessness was seen between 2018 and 2021 (Azizi 2022)
- 31 • Transitional, emergency, and social housing occupancy is increasing in the LAA, making these
32 options for housing less available to low-income families, seniors, and women and children fleeing
33 violence. There are currently no shelters or transitional housing units in Port Edward

1 **7.12.6 Selection of Potential Effects and Indicators/Measurable Parameters**

2 The potential effects of the Project on Infrastructure and Services are identified in Table 7.12–17. For each
3 effect in Table 7.12–17, effect pathways and indicators/measurable parameters have been identified to
4 facilitate the quantitative or qualitative measurement of change in Project-specific and cumulative effects
5 potentially caused by the Project.

6 Where possible, the assessment of potential effects on Infrastructure and Services used measurable
7 parameters that are quantifiable (e.g., capacity of daycares and waitlists for social housing). However,
8 not all effects pathways can be quantified (e.g., extent to which vulnerable populations experience
9 disproportionate effects). Therefore, some effects are predicted qualitatively through use of literature
10 and professional judgment.

Table 7.12–17 – Potential Effects, Effects Pathways and Indicators/Measurable Parameters for Infrastructure and Services

Potential Effect	Effect Pathway	Indicator and/or Measurable Parameter(s) and Units of Measurement
Change in infrastructure and services	Demand for infrastructure and services may be affected by Project activities and Project-related population growth (temporary and/or permanent).	<ul style="list-style-type: none"> ▪ Resident and transient population (number of persons). ▪ Identification and information on sub-populations that may experience disproportionate effects. ▪ Number of workers for each phase. ▪ Capacity, demand, and supply of infrastructure and services (e.g., solid waste management/landfill capacity, health care and social services, emergency response services, recreational facilities).
Change in accommodation availability	The Project workforce may increase demand for accommodations in the local area, affecting inventory levels and increasing rental rates for residents.	<ul style="list-style-type: none"> ▪ Availability of accommodations (vacancy rates, inventory levels). ▪ Cost of accommodation. ▪ Measures of core housing needs (e.g., adequacy, affordability, and suitability). ▪ Identification and information on sub populations that may experience disproportionate effects.
Change in transportation infrastructure	Construction and operation of the Project may increase demand on traffic infrastructure in the region, including road and air, potentially increasing travel times and affecting safety.	<ul style="list-style-type: none"> ▪ Daily road traffic volume, traffic incidents, air traffic volumes. ▪ Identification and information on sub populations that may experience disproportionate effects.

11 Section 7.13 (Community Health and Wellness) presents existing information and an assessment of
12 potential Project effects on health care and social services; therefore, that information is not presented
13 in this section.

1 **7.12.7 Project Infrastructure and Services Interactions**

2 Table 7.12–18 identifies the potential interactions between the Project’s components and physical
3 activities with Infrastructure and Services; these interactions are consistent with the AIR as indicated in
4 Table 6.3 of Section 6.0 (Valued Component Assessment Methods). Table 7.12–17 lists the potential
5 effects on Infrastructure and Services. Interactions that have been identified (ranked as 1 or 2) are carried
6 forward and assessed within this section. Each of the effects identified are discussed in detail, in the
7 context of effects pathways, mitigation/enhancement, and residual effects. Rationale for interactions
8 ranked as 0 is provided following Table 7.12–18.

Table 7.12–18 – Potential Project Interactions and Effects on Infrastructure and Services

Project Activities and Physical Works	Potential Project Effects		
	Change in infrastructure and services	Change in Accommodation Availability	Change in Transportation Infrastructure
Construction			
Procurement of labour, goods, and services	1	1	1
Site preparation and clearing	0	0	0
Construction of temporary and permanent land-based infrastructure (includes transmission line within the TLAA*)	0	0	0
Construction of temporary and permanent marine-based infrastructure (includes transmission line within the TLAA*)	0	0	0
Marine transport of workforce and construction materials to the Site	0	0	0
Land transportation of workforce and construction materials from Terrace to Gingolx or Prince Rupert (for marine transport to Site)	0	0	2
Waste management	2	0	0
Operation			
Procurement of labour, goods, and services	1	1	1
Natural gas pre-treatment, liquefaction, storage, and offloading of liquefied natural gas (LNG) and natural gas liquids (NGL) products (condensate) at the floating liquefied natural gas production, storage and offloading facility (FLNG) (includes storage of NGLs)	0	0	0
LNG carrier and NGL product vessel loading	0	0	0
Marine shipping and transportation (includes tugs) from Prince Rupert and/or Gingolx to Site	0	0	0

Table 7.12–18 – Potential Project Interactions and Effects on Infrastructure and Services

Project Activities and Physical Works	Potential Project Effects		
	Change in infrastructure and services	Change in Accommodation Availability	Change in Transportation Infrastructure
Land transportation of workforce to Gingolx or Prince Rupert (for marine transport to Site)	0	0	1
Facility and infrastructure maintenance (includes transmission line within the TLAA*)	0	0	0
Waste management	1	0	0
Temporary on-Site power generation on barges	0	0	0
Decommissioning			
Procurement of labour, goods, and services	0	0	1
Decommissioning or re-purposing of land-based infrastructure (includes transmission line within the TLAA*)	0	0	0
Decommissioning of marine-based infrastructure (includes transmission line within the TLAA*)	0	0	0
Land transportation of workforce to Gingolx or Prince Rupert (for marine transport to Site)	0	0	1
Marine transport of decommissioned infrastructure	0	0	0
Waste management	1	0	0

Key:

0 = Negligible or no effect expected; no further consideration warranted.

1 = Potential adverse effect that warrants consideration, and requires mitigation through current legal or policy management, best management practice(s) and/or Project-specific mitigation.

2 = Potential adverse effect of particular importance or concern that warrants further detailed assessment

+ = Potential positive effect that can be enhanced; warrants further consideration

* = As per Table 3 (Section 6.4) of the AIR, the Transmission Line Assessment Area is not applicable for this VC

- 1
- 2 Potential changes to infrastructure and services will result from an in-migration of Project workers to the
- 3 LAA, potentially increasing demand on infrastructure and services, housing and temporary
- 4 accommodations, and transportation infrastructure. Individuals may also migrate to the region to take
- 5 advantage of employment opportunities associated with induced economic activity. It is assumed that
- 6 workers’ families will not relocate to the LAA during construction because it is short-term work.
- 7 During construction and operation, non-resident workers will be accommodated at the Project floatel
- 8 (fully -self-contained modular floating camp).

1 While activities for each Project phase will have labour requirements causing an increase in the local
2 population, which could affect community services and infrastructure, it is not possible to isolate the
3 effects of individual activities, such as recreational activities and local spend. Therefore, these effects are
4 addressed collectively as part of the “procurement of labour, goods, and services” activity for each phase.

5 The presence of transient workers in the LAA may place additional demands on infrastructure and
6 services, housing availability, and transportation infrastructure. The presence of industrial projects and
7 project workers may also have positive effects through the production of revenue for some municipal
8 services, such as recreation, which can increase the capacity for investment in local infrastructure and
9 services, which will benefit LAA residents.

10 Since the potential effects of the Project labour force are addressed under “procurement of labour, goods,
11 and services,” most of the physical Project activities will not result in additional demands on local
12 infrastructure and services and, therefore, have been ranked as 0. Land transportation of the workforce
13 and construction materials, and management of Project waste, however, are expected to interact with
14 infrastructure and services. Production of Project waste will place additional demands on the local landfill.
15 Movement of trucks, equipment, supplies, and personnel within the LAA will place additional demands
16 on local roads and airports. Therefore, vehicle traffic and waste management require additional mitigation
17 and further consideration for change in infrastructure and services and change in transportation
18 infrastructure, respectively.

19 During decommissioning, there will be a reduction in effects on infrastructure and services because of a
20 reduction in demand as workers move away from the LAA due to diminishing employment. Additional
21 demands that have been placed on infrastructure and services during operation will have been addressed
22 prior to decommissioning. Therefore, the effects of the Project on infrastructure and services during
23 decommissioning are not assessed further.

24 **7.12.8 Project Interactions on Sub-populations for Gender Based Analysis Plus**

25 The Project-related workforce may contribute to a temporary population increase of LAA communities.
26 This could place additional demands on local infrastructure and services and create additional challenges
27 for vulnerable communities who already experience reduced access to certain infrastructure and services
28 (see Table 7.12–3).

29 For instance, Indigenous persons in the LAA, women, low-income households, visible minorities, and
30 young parents may experience disproportionate effects with respect to access to childcare services should
31 the Project workforce require childcare.

32 Low-income households, elderly persons, members of Indigenous groups, and young people may also
33 experience reduced access to affordable housing should the Project workforce affect the supply of such
34 housing options.

35 Indigenous women in the LAA may experience disproportionate effects with respect to transportation
36 infrastructure and services, as they are already at risk due to unreliable transportation between
37 communities. Indigenous women could be vulnerable to safety issues related the Project and the

1 increased population density near Nisga’a Villages and, as a result, may require access to emergency
2 services, such as ambulance or police.

3 **7.12.9 Assessment Methods**

4 The assessment of Infrastructure and Services examines effects of the Project on:

- 5 • Change in Infrastructure and Services
- 6 • Change in Housing Availability
- 7 • Change in Transportation Infrastructure

8 This section describes the analytical methods and assumptions used in the assessment, effect
9 mechanisms, applicable mitigation measures, and characterization and likelihood of residual effects for
10 each Project effect.

11 **7.12.9.1 Analytical Assessment Techniques**

12 The assessment of infrastructure and services involves both quantitative and qualitative methods.
13 Potential effects are estimated by calculating additional demand associated with population change
14 and/or direct Project requirements (e.g., Project demand for landfills as a result of waste generated
15 on-Site) based on appropriate ratios for each measurable parameter (e.g., students per educator, police
16 officers per 1,000 residents, sewer and wastewater capacity). This additional demand is then compared
17 to available capacity, in consideration of local or provincial standards.

18 Potential change in housing availability is based on a comparison of the total available housing in the LAA
19 with the forecast demand resulting from the in-migration of temporary and permanent workforce
20 (plus dependents) employed on the Project, and other Project-related population increase. The
21 assessment of housing availability is based on current rental and real estate market indicator trends and
22 qualitative data.

23 Potential effects on daily road traffic volume are assessed by estimating the change in volume associated
24 with the Project (i.e., traffic related to Project activity and that resulting from Project-related population
25 increase) at peak periods during Project construction and operation, then comparing this change with the
26 existing conditions information on traffic volume and the capability of the existing road network to absorb
27 the additional demand.

28 Disproportionate residual effects for diverse sub-groups have been considered as they relate to identity
29 factors (including sex, age, and culture) for those sub-groups determined through a GBA Plus assessment
30 prepared in consideration of federal GBA Plus guidance.

1 **7.12.9.2 Residual Effects Characterization**

2 Table 7.12–19 presents definitions and criteria that are used to characterize the adverse residual effects
3 on Infrastructure and Services.

Table 7.12–19 – Characterization of Residual Effects

Characterization	Description	Quantitative Measure or Definition of Qualitative Categories
Magnitude	The amount of change in measurable parameters or the VC relative to existing conditions.	<p>No Measurable Change – no measurable change in the effect can be noted.</p> <p>Low – capacity of infrastructure and services will be at or near to baseline conditions.</p> <p>Moderate – demand for infrastructure and services approaches current capacity, standard or threshold but will not result in a reduction in standards of service.</p> <p>High – demand for infrastructure and services exceeds current capacity, standard or thresholds that result in a reduction in standards of service.</p>
Geographic Extent	The geographic area in which a residual effect occurs.	<p>Project footprint – residual effects are restricted to the Project footprint.</p> <p>LAA – residual effects extend into the LAA.</p> <p>RAA – residual effects extend into the RAA.</p>
Timing <i>Always valued component specific</i>	Considers when the residual environmental effect is expected to occur. Timing considerations are noted in the evaluation of the residual environmental effect, where applicable or relevant.	<p>Not Applicable – seasonal aspects are unlikely to affect residual effects on Infrastructure and Services.</p> <p>Applicable – seasonal aspects may affect residual effects on Infrastructure and Services.</p>
Duration	The time required until the measurable parameter or the VC returns to its existing condition, or the residual effect can no longer be measured or otherwise perceived.	<p>Short-term – the residual effect is restricted to no more than the duration of the construction phase (three years) or the duration of the decommissioning phase.</p> <p>Medium-term – the residual effect extends through the operation phase (30 years).</p> <p>Long-term – the residual effect extends beyond the life of the Project.</p>
Reversibility	Pertains to whether a measurable parameter or the VC can return to its existing condition after the Project activity ceases.	<p>Reversible – the residual effect is likely to be reversed after activity completion and reclamation.</p> <p>Partially reversible – the residual effect can be partially reversed.</p> <p>Irreversible – the residual effect is unlikely to be reversed.</p>
Frequency	How often the residual effect occurs and how often during the Project or in a specific phase.	<p>Single event - effect occurs once.</p> <p>Multiple irregular event – occurs at no set schedule.</p> <p>Multiple regular event – occurs at regular intervals.</p> <p>Continuous – occurs continuously.</p>

Table 7.12–19 – Characterization of Residual Effects

Characterization	Description	Quantitative Measure or Definition of Qualitative Categories																																								
Affected Sub-populations-	The distribution of the effect among the population of affected people.	<p>Evenly distributed – the effect will be experienced by any or all sub-populations.</p> <p>Disproportionally distributed – the effect will be experienced only by certain sub-populations or experienced more acutely by certain sub-populations</p>																																								
Risk (likelihood and consequences)	<p>Assesses the likelihood and consequences of the potential residual effect. Likelihood is the probability of the residual effect occurring and should consider many factors. Consequence is the potential outcome of the residual effect. Risk is the interaction between likelihood and consequence (see risk rating table).</p>	<p>Consequences: are assessed as minor, moderate or major based primarily on a combination of Magnitude and Geographic Extent as:</p> <table border="1" data-bbox="773 621 1409 1115"> <thead> <tr> <th colspan="2" rowspan="2"></th> <th colspan="2">Geographic Extent*</th> </tr> <tr> <th>Project Footprint or LAA</th> <th>RAA and/or OWAA</th> </tr> </thead> <tbody> <tr> <td rowspan="4" style="writing-mode: vertical-rl; transform: rotate(180deg);">Magnitude</td> <td>No Measurable Change</td> <td>Minor</td> <td>Minor</td> </tr> <tr> <td>Low</td> <td>Minor</td> <td>Minor or Moderate</td> </tr> <tr> <td>Moderate</td> <td>Minor or Moderate</td> <td>Moderate</td> </tr> <tr> <td>High</td> <td>Moderate or Major</td> <td>Major</td> </tr> </tbody> </table> <p>*Where relevant, Duration is also taken into consideration (e.g., a high Magnitude event within the LAA may be Moderate or Major in Consequence and Duration could be considered)</p> <p>Likelihood: as defined in the Risk table below</p> <p>Risk: Low: Low risk/uncertainty of effect prediction Moderate: Moderate risk/uncertainty of impact prediction High: High risk/uncertainty of impact prediction</p> <table border="1" data-bbox="773 1524 1409 1833"> <thead> <tr> <th colspan="2" rowspan="2"></th> <th colspan="3">Consequence</th> </tr> <tr> <th>Major</th> <th>Moderate</th> <th>Minor</th> </tr> </thead> <tbody> <tr> <td rowspan="3" style="writing-mode: vertical-rl; transform: rotate(180deg);">Likelihood</td> <td>High (>80% chance)</td> <td>High</td> <td>Moderate</td> <td>Low</td> </tr> <tr> <td>Medium (40-80% chance)</td> <td>High</td> <td>Moderate</td> <td>Low</td> </tr> <tr> <td>Low (<40% chance)</td> <td>Moderate</td> <td>Low</td> <td>Low</td> </tr> </tbody> </table>			Geographic Extent*		Project Footprint or LAA	RAA and/or OWAA	Magnitude	No Measurable Change	Minor	Minor	Low	Minor	Minor or Moderate	Moderate	Minor or Moderate	Moderate	High	Moderate or Major	Major			Consequence			Major	Moderate	Minor	Likelihood	High (>80% chance)	High	Moderate	Low	Medium (40-80% chance)	High	Moderate	Low	Low (<40% chance)	Moderate	Low	Low
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Table 7.12–19 – Characterization of Residual Effects

Characterization	Description	Quantitative Measure or Definition of Qualitative Categories
Uncertainty	The degree of uncertainty as assessed for the data and methods including potential effectiveness of mitigation that have been used in the assessment of effects.	<p>Low – good understanding of the pathway to effect(s) on the VC due to the Project activities and/or physical works and sufficient data is available to support the assessment. Uncertainty associated with data and/or modelling is low. The effectiveness of the selected mitigation is expected to be moderate to high. Overall, uncertainty in the predicted residual effect is low.</p> <p>Moderate – potential uncertainty associated with the pathway to effect(s) on the VC due to the Project activities and/or physical works, e.g., due to unknown external variables or incomplete data. Potential for uncertainty associated with data and/or modelling. The effectiveness of mitigation is expected to be moderate to low. Uncertainty in the predicted residual effect is considered moderate.</p> <p>High – poor understanding of the pathway to effect(s) on the VC due to the Project activities and/or physical works. May be unknown external variables and/or data for the Project is incomplete. Modelling results may vary considerably with inputs. The effectiveness of the mitigation may be expected to be low or is unproven. Overall there is a high degree of uncertainty associated with the predicted residual effect.</p>

1

2 **7.12.10 Assessment of Residual Effects**

3 **7.12.10.1 Assessment of Change in Infrastructure and Services**

4 7.12.10.1.1 Project Pathways

5 Effects on infrastructure and services can result from a Project-related population increase placing
 6 additional demands on existing infrastructure and services, including emergency and safety, education,
 7 recreation, and utilities. For instance, emergency services may be required by Project workers and/or
 8 because of Project-related malfunctions or accidents, increasing the potential need for fire department
 9 services. The Project workforce and Project activities may draw on the existing water and wastewater
 10 systems and waste management infrastructure in the LAA communities.

11 Demands on local policing and other social service providers may increase if Project-related income is
 12 spent on illicit activities, or if it increases income differentials and hence tensions among community
 13 residents. Therefore, policing services can be affected by interactions between Project workers and
 14 residents and by increased disposable income.

1 Since the Project will not result in additional school-aged children in the LAA, it is not expected to place
2 additional demands on local schools or daycare facilities. However, individuals may move into the region
3 seeking employment related to induced economic opportunities, which may have an effect on school
4 capacity, and Project workers who already live in the LAA communities may also require childcare.

5 The presence of the Project workforce during construction and operation may result in positive effects on
6 infrastructure and services because the workforce will contribute economically to the LAA (through
7 property and income taxes), representing a potential expansion of municipal tax bases. This in turn will
8 help pay for service providers to resize appropriately for the increased population.

9 Details and assumptions regarding the Project workforce and Project activities are summarized as follows:

- 10 • Construction is expected to take approximately three to four years, from 2025 to 2028
- 11 • The number of Project construction workers is expected to average 450 and reach a peak of
12 approximately 800 for approximately one year
- 13 • The first of two FLNGs is expected to begin commissioning in 2028 and the Project will be in
14 operation for a minimum of 30 years
- 15 • Early estimates of the number of permanent operation workers are between 150 and 250 at Site
16 and 50 to 100 at other offices within BC
- 17 • In addition to the regular operation workforce, a turnaround workforce of 75 to 150 persons is
18 also anticipated to be required every three to five years to perform scheduled shutdown and
19 maintenance work on the FLNG and supporting infrastructure. The turnaround workforce will be
20 housed on-Site with the operation workforce.
- 21 • The construction workforce will be housed on a fully self-contained modular floating camp
22 (floatel) at the Site and not in any nearby communities. Personnel working at the Site during
23 operation will be housed in permanent on-Site accommodations. Accommodations for operation
24 will be sized to adequately house the permanent non-resident workforce as well as sufficient
25 space for temporary guests
- 26 • The origin of the construction and operation workforce is not yet known, but efforts will be made
27 for the Project to secure construction contractors which recruit locally from available talent in
28 nearby communities, then recruit regionally, provincially, nationally, and internationally, in that
29 order of preference, to the extent possible. It is anticipated that certain specialized trades and
30 expertise may need to be sourced from elsewhere in BC, Canada, or internationally
- 31 • Based on assumptions described in Section 7.10.6.1 in Employment and Economy, an estimated
32 labour force of approximately 630 persons may be available in the LAA to respond to the Project's
33 demand for direct labour
- 34 • Project construction work is currently proposed to occur approximately ten hours per day, six or
35 seven days per week

- 1 • Project workers will be transported to the Site via Prince Rupert or Gingolx by marine vessel.
2 Workers will be transported to Gingolx or Prince Rupert by bus from park and ride locations in
3 LAA communities
- 4 • The floatel will provide self-contained electrical power, communications, potable water supply,
5 and waste containment systems. Sewage and grey water would be stored in tanks and then
6 barged away for disposal at a suitable sewage treatment facility. The floatel will be connected to
7 shore for personnel transfers
- 8 • Permanent workforce accommodation during operation will be supported by a water treatment
9 plant to provide potable water. On-Site treatment of wastewater will reduce the need to
10 transport wastewater from Site, a concern expressed during engagement.
- 11 • The Project will connect to the BC Power and Hydro Authority electrical transmission system
12 (**BC Hydro** grid) for renewable power supply during operations. In the event the interconnection
13 to the BC Hydro grid is delayed, the Project proposes to use temporary floating power barges that
14 use natural gas from the feed gas supplied to the Project. Temporary power generation will allow
15 the Project to produce LNG and meet contractual LNG delivery obligations until the BC Hydro grid
16 connection is complete and in operation. The Project's temporary power barges will incorporate
17 a high efficiency combined cycle power plant design that uses both gas and steam turbine
18 equipment. Upon connection to the BC Hydro grid, the temporary power barges will no longer be
19 required, and they will be decommissioned and removed from site.

20 7.12.10.1.2 Mitigation and Enhancement Measures

21 Mitigation and enhancement measures were selected based on provincial and federal regulations and
22 policies, on management practices and guidelines, and on relevant peer-reviewed literature. Mitigation
23 and enhancement was selected to address Project interactions that affect infrastructure and services
24 during all Project phases. Table 7.12–20 provides a summary of the mitigation and enhancement
25 measures to avoid or reduce change in infrastructure and services and enhance benefits.

Table 7.12–20 – Mitigation and Enhancement Measures for Infrastructure and Services

Mitigation/Mitigation Mechanism	Rationale for Selection	Expected Success/Risks and Uncertainty	Timing	Management and/or Compensation Plans
<p>Mitigation 7.12-1: Develop and implement a worker code of conduct including ethics and respectful workplace training.</p> <p>Mitigation Mechanism: Implementing a code of ethics and respectful workplace training will assist in reducing adverse behaviours of workers in local communities and limit demand on local police and emergency services.</p>	<p>This will establish a high standard of integrity and ethical behaviour to support the Proponents’ reputation and relationships with internal and external stakeholders.</p>	<p>Expected Success: Mitigation will be moderately to highly successful.</p> <p>Risk and Uncertainty: Risk and uncertainty are low with monitoring and reporting.</p>	<p>Project Phase: Construction Operation</p> <p>Effectiveness: Effective over the Short- to long-term</p>	<p>Social and economic effects management plan (SEEMP)</p>
<p>Mitigation 7.12-2: Provide cultural awareness training to all personnel and contractors.</p> <p>Mitigation Mechanism: The delivery of cultural awareness training will assist in reducing adverse behaviours of workers in local communities and limit demand on local police and emergency services.</p>	<p>Evidence suggests that cultural awareness training improves worker understanding of local communities, and reduces the likelihood of conflict between non-local workers and local community members.</p>	<p>Expected Success: Mitigation will be moderately to highly successful because training is mandatory for all new personnel. As some of the construction workforce will not be local, and from various backgrounds, it may be difficult to impart appropriate awareness of all relevant community cultural aspects within the orientation period. However, this mitigation can be refined and developed over time, as part of an adaptive management process.</p> <p>Risk and Uncertainty: Risk and uncertainty are low with monitoring and reporting.</p>	<p>Project Phase: Construction Operation</p> <p>Effectiveness: Effective over the Short- to long-term</p>	<p>SEEMP</p>

Table 7.12–20 – Mitigation and Enhancement Measures for Infrastructure and Services

Mitigation/Mitigation Mechanism	Rationale for Selection	Expected Success/Risks and Uncertainty	Timing	Management and/or Compensation Plans
<p>Mitigation 7.12-3: Security personnel and access control will be provided at Site.</p> <p>Mitigation Mechanism: On-Site security services will increase safety (reduce unauthorized access and crime) at the Site, reducing the demand on local police services or the RCMP.</p>	<p>Reduces the likelihood of violence, crime, and unauthorized access within the Project footprint. Section 8(1)(e) of the Liquefied Natural Gas Facility Regulation requires that a Security Management Plan be prepared prior operation.</p>	<p>Expected Success There is a high likelihood of success as security personal will be present on-Site for the duration of construction and operation.</p> <p>Risk and Uncertainty Risk and uncertainty are low as the provision of on-Site security services is well established.</p>	<p>Project Phase: Construction Operation</p> <p>Effectiveness: Effective over the Short- to long-term</p>	<p>SEEMP</p>
<p>Mitigation 7.12-4: Develop and implement emergency management and response including fire prevention and protection measures. Appropriate fire response equipment and personnel trained to use it will be maintained at Site.</p> <p>Mitigation Mechanism: The mitigation is expected to assist in the avoidance of and management of emergencies at the Site, limiting the demand on emergency services in the LAA.</p>	<p>This mitigation was selected because it is an established strategy for managing demand on infrastructure and services and keeping personnel safe.</p>	<p>Expected Success: Emergency management is standard best practice for the LNG industry and the mitigation has a high likelihood for successfully mitigating effects posed to the health and safety of the construction and operation workforce.</p> <p>Risk and Uncertainty: Risk and uncertainty are low due to the availability of well-established safety procedures.</p>	<p>Project Phase: All phases</p> <p>Effectiveness: Effective over the short- to long-term</p>	<p>CEMP</p>

Table 7.12–20 – Mitigation and Enhancement Measures for Infrastructure and Services

Mitigation/Mitigation Mechanism	Rationale for Selection	Expected Success/Risks and Uncertainty	Timing	Management and/or Compensation Plans
<p>Mitigation 7.07-13: Develop and implement waste management measures to manage waste including hazardous and construction waste, recyclables and wildlife attractants.</p> <p>Mitigation Mechanism: Waste management measures will assist in reducing waste to be sent to local landfills, limiting demand on waste management facilities in the LAA.</p>	<p>Reduces the Project demand on local waste management infrastructure and services.</p>	<p>Expected Success: Waste management measures are standard best practice for the LNG industry and the mitigation has a high likelihood for successfully mitigating effects on infrastructure and services.</p> <p>Risk and Uncertainty: Risk and uncertainty are low due to the availability of well-established procedures.</p>	<p>Project Phase: All phases</p> <p>Effectiveness: Effective over the short- to long-term</p>	<p>SEEMP</p>
<p>Mitigation 7.12-5: Develop and implement a community feedback tool or process to receive and address community suggestions, concerns and complaints.</p> <p>Mitigation Mechanism: A community feedback tool will enable the Proponents to respond to community concerns and, if applicable, adapt mitigation measures to limit demand on local infrastructure and services.</p>	<p>This mitigation is an established strategy for managing demand on infrastructure and services. Use of community feedback tool follows the International Finance Corporation’s Good Practice note: <i>Addressing Grievances from Project Affected Communities</i> (2009).</p>	<p>Expected Success: This is a standard mitigation that has a moderate to high likelihood of success. Communication and engagement are known to be valuable in managing the relationship between the Proponents, communities, and stakeholders.</p> <p>Risk and Uncertainty: Risk and uncertainty are moderate. Risk and uncertainty relate to the willingness of residents and stakeholders to participate in engagement activities.</p>	<p>Project Phase: All phases</p> <p>Effectiveness: Effective over the short- to long-term</p>	<p>SEEMP</p>

Table 7.12–20 – Mitigation and Enhancement Measures for Infrastructure and Services

Mitigation/Mitigation Mechanism	Rationale for Selection	Expected Success/Risks and Uncertainty	Timing	Management and/or Compensation Plans
<p>Mitigation 7.10-1: Develop and implement workforce strategies that support the hiring of a British Columbian or Canadian resident construction workforce in the building of those components of the Project constructed/assembled in Canada.</p> <p>Mitigation Mechanism: By hiring local personnel and businesses, the Project will limit an increase in demand on local infrastructure and services from non-locally resident workers.</p>	<p>The use and effectiveness of local content strategies targeted at increasing local participation is well understood and practical.</p>	<p>Expected Success: There is a moderate degree of likelihood that the mitigation will be effective at increasing local participation since the Proponents will inform local residents/businesses of job and procurement opportunities through a number of methods. However, residents may already be employed with other projects in the area.</p> <p>Risk and Uncertainty: There is moderate uncertainty over the success of this mitigation, because it does not guarantee that local and regional workers/firms will be willing to compete for or be successful in obtaining Project-related employment/contracts.</p>	<p>Project Phase: All phases</p> <p>Effectiveness: Effective over the short- to long-term</p>	<p>SEEMP</p>

Table 7.12–20 – Mitigation and Enhancement Measures for Infrastructure and Services

Mitigation/Mitigation Mechanism	Rationale for Selection	Expected Success/Risks and Uncertainty	Timing	Management and/or Compensation Plans
<p>Mitigation 7.10-2: Develop and maintain a database of Nisga'a businesses and contractors as well as other Indigenous, local and regional businesses and contractors. Use the database to inform businesses and contractors of procurement opportunities.</p> <p>Mitigation Mechanism: By hiring local personnel and businesses, the Project will limit an increase in demand on local infrastructure and services from non-locally resident workers.</p>	<p>The use and effectiveness of local content strategies targeted at increasing local participation is well understood and practical.</p>	<p>Expected Success: There is a moderate degree of likelihood that the mitigation will be effective at increasing local participation, as local residents/businesses will be informed of job and procurement opportunities through a number of methods. However, residents may already be employed with other projects in the area.</p> <p>Risk and Uncertainty: There is moderate uncertainty over the success of this mitigation, because it does not guarantee that local and regional workers/firms will be willing to compete for or be successful in obtaining Project-related employment/contracts.</p>	<p>Project Phase: All phases</p> <p>Effectiveness: Effective over the short- to long-term</p>	<p>SEEMP</p>
<p>Mitigation 7.10-6: Develop and implement gender equity and diversity policies that focus on hiring Nisga'a Nation members, local and Indigenous persons, and women to increase Project employment among underrepresented populations.</p>	<p>The use and effectiveness of local content strategies targeted at increasing local participation is well understood and practical.</p>	<p>Expected Success: There is a moderate degree of likelihood that the mitigation will be effective at increasing local participation, as local residents/businesses will be informed of job and procurement opportunities through a number of methods. However, residents may already be employed with other projects in the area.</p>	<p>Project Phase: All phases</p> <p>Effectiveness: Effective over the short- to long-term</p>	<p>SEEMP</p>

Table 7.12–20 – Mitigation and Enhancement Measures for Infrastructure and Services

Mitigation/Mitigation Mechanism	Rationale for Selection	Expected Success/Risks and Uncertainty	Timing	Management and/or Compensation Plans
<p>Mitigation Mechanism: By hiring local personnel and businesses, the Project will limit an increase in demand on local infrastructure and services from non-locally resident workers.</p>		<p>Risk and Uncertainty: There is moderate uncertainty over the success of this mitigation, because it does not guarantee that local and regional workers/firms will be willing to compete for or be successful in obtaining Project-related employment/contracts.</p>		
<p>Mitigation 7.10-7: Develop and implement procurement and contracting strategies to facilitate economic participation by local, regional, BC, and Canadian suppliers, contractors, and service providers. Mitigation Mechanism: By using local businesses, the Project will limit an increase in demand on local infrastructure and services from non-locally resident workers.</p>	<p>The use and effectiveness of local content strategies targeted at increasing local participation is well understood and practical.</p>	<p>Expected Success: There is a moderate degree of likelihood that the mitigation will be effective at increasing local participation, as local residents/businesses will be informed of job and procurement opportunities through a number of methods. However, residents may already be employed with other projects in the area. Risk and Uncertainty: There is moderate uncertainty over the success of this mitigation, because it does not guarantee that local and regional workers/firms will be willing to compete for or be successful in obtaining Project-related employment/contracts.</p>	<p>Project Phase: All phases Effectiveness: Effective over the short- to long-term</p>	<p>SEEMP</p>

Table 7.12–20 – Mitigation and Enhancement Measures for Infrastructure and Services

Mitigation/Mitigation Mechanism	Rationale for Selection	Expected Success/Risks and Uncertainty	Timing	Management and/or Compensation Plans
<p>Mitigation 7.12-6: Develop and implement traffic safety measures for Project-related travel between Prince Rupert, Terrace, and Gingolx.</p> <p>Mitigation Mechanism: Implementation of traffic management mitigation measures will assist in improving safety and managing the increase in vehicle traffic volume during construction, limiting the demand on local emergency services.</p>	<p>This mitigation is an established strategy for managing construction effects on public roadways, as per BC MOTI’s Traffic Management Manual for Work on Roadways, 2020.</p>	<p>Expected Success: There is a high likelihood that this mitigation will be effective because it is based on well-established best management practices, in accordance with BC MOTI’s <i>Traffic Management Manual for Work on Roadways, 2020</i>.</p> <p>Risk and Uncertainty: The risks are low because traffic safety measures are well understood, and can be effectively implemented and communicated to road users</p>	<p>Project Phase: All phases</p> <p>Effectiveness: This mitigation measure is effective in the short- to long-term.</p>	<p>SEEMP</p>

1 7.12.10.1.3 Gender Based Analysis Plus Considerations for Impact Management

2 By putting a priority on hiring construction and operation workers from the local community and within
3 vulnerable groups, Project-related demands on local infrastructure and services will be reduced, which
4 will reduce the likelihood of adverse effects on the total population, including members of vulnerable or
5 underserved groups. The use of a floatel during construction and permanent on-Site accommodations
6 during operation to house the Project workforce will reduce demands on housing in the LAA communities
7 and mitigate disproportionate effects on the vulnerable communities described above.

8 A code of ethics and respectful workplace policies will be developed and implemented (Mitigation 7.12-1)
9 and cultural awareness training will be provided for all workers that includes local and cross-cultural
10 awareness (Mitigation 7.12-2). This will assist in reducing behaviours of workers which may adversely
11 affect members of vulnerable communities both at the Site and in the LAA communities.

12 The remote location of the Site, and the provision of services, including catering and recreation, at the
13 floatel will limit the ability and desire for non-local workers to spend time in LAA communities, and this
14 will limit interactions between non-local workers and community members, including women, visible
15 minorities, and members of Indigenous nations.

16 Options to support personnel requiring childcare will be explored to reduce adverse effects on members
17 of vulnerable groups, including women, Indigenous parents, and young parents, who already experience
18 greater challenges accessing childcare than the total population.

19 7.12.10.1.4 Project Residual Effect

20 In this section, residual effects are presented for utilities and waste management, emergency, education,
21 and recreation infrastructure and services.

22 The assessment of Project effects on health and medical infrastructure and services is provided in
23 Section 7.13.8.4.5 of the Community Health and Wellness section. In summary, the section characterizes
24 the adverse effects as low magnitude during all Project phases due to the size of the Project workforce
25 and limited anticipated increases to the population of the LAA. Adverse residual effects are expected to
26 occur in the LAA, be short-term during construction and medium-term during operation, occur as multiple
27 irregular events, reversible or partially reversible, and disproportionately distributed across the LAA
28 population.

29 7.12.10.1.4.1 Utilities and Waste Management

30 Use of the temporary, Site-based floatel will reduce demands on utilities in LAA communities during
31 construction because the floatel will provide self-contained- electrical power and potable water supply
32 systems. Potable water will be barged to the Site during the early months of the construction phase, and
33 the Project will use options (surface water, rainwater, or desalinated sea water) for non-potable water to
34 be used to accommodate construction needs. No on-Site effluent discharge into the marine environment
35 will occur during construction unless the floatel contains a water treatment facility that would enable
36 discharge of treated effluent.

1 A water treatment plant will be provided on-Site to provide potable water for the operation workforce.
2 The source for this water remains under consideration but may include rain (likely), from local streams
3 (unlikely), and from desalination (very likely). During operation, terrestrial facilities will have a wastewater
4 treatment facility and an effluent pipeline, outfall, and diffuser into Portland Canal. In the unlikely event
5 that the Project places demands on the water and sewer infrastructure of the LAA communities, there is
6 available spare capacity in the communities.

7 Electrical power from the BC Hydro grid will be supplied to the Project under a commercial arrangement
8 with a third party. A third-party will design, construct and operate a transmission line that would connect
9 to BC Hydro infrastructure. If there is a delay in connecting the BC Hydro grid, temporary gas fired floating
10 power generation barges will be located at the Site to serve as a power source until the BC Hydro grid
11 connection is in place. After connection to the BC Hydro grid, the Project plans to remove the temporary
12 power barges from the Site. As a result, the power requirements for the Project are not expected to
13 compromise the capacity of the local power supply.

14 Project construction and operation, as well as Project workers, will produce waste (e.g., domestic waste,
15 hazardous waste, recyclables). There are eight solid waste management facilities in RDKS, including the
16 Forceman Ridge WMF, which has an expected lifespan of approximately 95 years. The RDKS has expressed
17 concern over the increasing amount of industrial waste that is being sent to the landfill because of large
18 resource projects in the region. Between 2019 and 2020, Forceman Ridge WMF received an increase in
19 total waste disposal of 116% due to generation of industrial waste. To reduce the amount of waste
20 produced by the Project, waste management measures will be implemented which will require
21 non-hazardous solid wastes to be recycled, reused, or collected in a central secure area on-Site and then
22 disposed in a licensed waste receiver facility. To the extent that use of local landfills is part of waste
23 management planning, the Proponents will engage with RDKS during planning to discuss measures to
24 reduce their demand on the Forceman Ridge WMF. Hazardous liquid and solid waste will be collected in
25 a secure, enclosed location and transported off-Site to a licensed hazardous waste facility.

26 7.12.10.1.4.2 Emergency Services

27 The presence of the Project workforce and Project activities could result in higher demand for services
28 such as police, fire protection, and ambulance. To manage Project-related demands on police services,
29 security will be provided at the Site and implement several workplace programs and/or policies which will
30 limit adverse behaviours in the community. A worker code of conduct will be developed and implemented,
31 including ethics and respectful workplace training. The purpose of these programs and/or policies is to
32 establish a high standard of integrity and ethical behaviour to support the Proponents' reputation and
33 relationships with internal and external stakeholders. Further, these programs and/or policies will aim to
34 establish clear expectations for all personnel related to drug and alcohol use, the prevention of
35 discrimination, bullying and harassment as well as develop and implement a health and medical services
36 plan that will incorporate injury prevention measures, medical and first aid services available at Site and
37 workplace health promotion.

1 The Project’s demand on local emergency services will be limited through Project planning and
2 management strategies, including incorporating design mitigation measures and preparing safety and
3 environmental management measures in accordance with applicable requirements and industry best
4 practices. An Emergency Response Program will be developed and implemented, which will adhere to
5 BC Energy Regulator requirements for fire safety and prevention.

6 This will reduce the likelihood and seriousness of accidents, spills, and potential events to as low a level
7 as is reasonably practical.

8 Concern has been expressed by BCEHS with respect to responding to calls from the Project for ambulance
9 services because the Site is in a remote location. The Proponents will develop and implement a health and
10 medical services plan with the intent to describe medical and first aid services that will be available at Site
11 and procedures for medical emergencies with the intent to support the reduction in emergency service
12 requirements. See Section 7.13 for additional details.

13 BCEHS also has indicated that Project traffic may lead to increased demands on ambulance services.
14 Opportunities will be explored for providing collection points for workers from local communities,
15 in Prince Rupert and Terrace, for instance, so that workers may be bussed to marine ferry locations, which
16 will reduce the number of single vehicles using the local roads and highways.

17 7.12.10.1.4.3 Education

18 As the non-resident construction workforce will reside on the floatel, they are unlikely to relocate families
19 for short-term work; therefore, increased demand for education services is only likely to occur during the
20 operation phase to the extent that workers relocate to LAA communities with their families. The operation
21 phase workforce is expected to be between 150 and 250 workers, and all workers are expected to reside
22 in permanent accommodations on-Site during their rotation. Operation workers will be recruited from
23 LAA communities to the extent possible.

24 In the first years of operation, some non-local workers may relocate to the LAA. However, considering the
25 small size of the operation workforce and that not all these workers will bring school-aged children to the
26 LAA, the Project-related demand on the education system will likely be small. Total enrolment within the
27 CMSD and PRSD have been declining for years. In 2021/2022, the total enrolment of PRSD was
28 approximately 1,800 students with a capacity of 2,600 students, and this number is expected to drop by
29 288 students over the next 10 years. Likewise, CMSD is operating below capacity and has projected a
30 decline in enrolment of 130 students over the next ten years. Therefore, there will be adequate capacity
31 to accommodate any new Project-related students in the LAA, should it be required.

32 There are concerns regarding adequate education infrastructure among residents of Indigenous
33 communities in the LAA; however, the small number of students who may relocate to the LAA will likely
34 not place additional demands on schools in those communities.

35 The development of training programs specific to the requirements of the Project and others in the region,
36 such as those customized by CMTN, result in benefits to the community through increased capacity for
37 post-secondary education services.

1 With respect to preschool and daycare infrastructure and services, there are approximately
2 1,138 childcare spaces in the LAA. However, there remain concerns about staffing shortages and
3 increasing waitlist numbers (although this may have been a direct result of reduced capacity due to the
4 COVID-19 pandemic). Childcare needs assessments for Terrace and Prince Rupert indicate that additional
5 spaces are required to serve the immediate and growing population. They also acknowledge that
6 underserved populations, including Indigenous, low-income families, and young parents have specific
7 childcare needs that are not necessarily being met, as few of these families have access to childcare
8 services compared with the total population.

9 While childcare is an issue in LAA communities, the number of non-local Project operation personnel who
10 may require childcare will likely be small and the additional demands they create on daycare and
11 preschool infrastructure and services will be small. The Proponents will continue to engage with
12 Indigenous groups and other vulnerable populations to reduce potential differential effects on members.

13 7.12.10.1.4.4 Recreation

14 The cities of Terrace and Prince Rupert have several recreation facilities that are well used by local
15 residents and transient workers. While industrial projects have created some competition for access to
16 recreation between residents and transient workers, they have also led to increased revenue for
17 recreation facilities and support for sport organizations.

18 Project construction workers will live on the Project floatel, which will be equipped with a gym and other
19 opportunities for recreation. The permanent Site accommodations facility will also be equipped with
20 recreational facilities to service the operation workforce. This will limit the use of local recreation facilities
21 by workers. The presence of the Project in these communities may lead to positive effects if it leads to
22 financial support for recognized needed improvements to the sports and recreation facilities in Terrace
23 and Prince Rupert. Amenities such as groomed cross-country skiing and snowmobiling trails, which are
24 maintained by local clubs, may benefit from an increase in the number of users from the Project. Also,
25 tax revenue from operation and increased local spend within the LAA will contribute economically to the
26 LAA. This may lead to an expansion of municipal tax bases and investment in local infrastructure and
27 services.

28 7.12.10.1.5 Effects on Sub-populations identified through Gender Based Analysis Plus

29 As described in Section 7.12.8, those sub-populations and sub-groups who may experience
30 disproportionate effects related to the capacity of local infrastructure and services, including childcare
31 and safety and emergency services, are Indigenous persons, women, Indigenous women, young parents,
32 and immigrants/visible minorities. Section 7.12.5.2.10 describes the issues that have been documented
33 as being especially challenging to vulnerable populations in the LAA; these are access to childcare and the
34 safety of women living near and in Project accommodation centres.

1 The Proponents acknowledge that access to childcare is a challenge for the general population of the LAA
2 and more so for the sub-populations and sub-groups described above. The location of the Project in a
3 remote setting means that non-resident Project workers will travel in and out of the Site during
4 construction. This means that non-resident workers are unlikely to bring families, including small children
5 requiring childcare, to the LAA. Residents of the LAA and RAA may already rely on childcare services prior
6 to securing Project employment childcare and would not likely place additional demands on existing
7 childcare services. Unemployed residents who secure Project employment may place additional demands
8 on childcare services, but options will be explored to support personnel requiring childcare, to reduce the
9 demands on childcare services from non-resident Project workers.

10 The presence of the Project workforce and Project activities could result in higher demand for services
11 such as police, fire protection, and ambulance. To manage Project-related demands on police services and
12 to enhance the safety of women in the community and at the Site, security will be provided at the Site
13 and implement several workplace policies which will limit adverse behaviours in the community. A worker
14 code of conduct will be developed and implemented, including ethics and respectful workplace training.

15 The Project's demand on local emergency services will be limited through project planning and
16 management strategies, including incorporating design mitigation measures and planning for safety and
17 environmental management in accordance with applicable requirements and industry best practices.

18 Despite mitigation and enhancement measures, members of vulnerable groups may still experience
19 differential effects on infrastructure and services. Differential effects will be reduced to the extent
20 possible. A community feedback tool or process will be implemented to receive and address community
21 concerns and complaints, with the aim of reducing adverse effects of the Project on sub-populations and
22 sub-groups.

23 It should be noted that the Project may support improved access to local infrastructure and services
24 through development of new regional infrastructure incidental to the Project (e.g., new third-party
25 natural gas transmission pipeline, new third-party electrical transmission line connected to renewable
26 electricity, etc.) and is expected to bring economic opportunities to both Indigenous and non-Indigenous
27 communities and businesses during construction and through operation. The presence of industrial
28 projects and their workers may also have positive effects through the production of revenue, which can
29 increase the capacity for investment in local infrastructure and services, such as recreation, which will
30 benefit LAA residents.

31 7.12.10.1.6 Likelihood of Residual Effect

32 Based on existing conditions and level of use of infrastructure and services within the LAA, and/or the
33 available mitigation and management options, adverse interactions between the Project and
34 infrastructure and services can largely be avoided, and there is a moderate likelihood of residual adverse
35 effects and moderate likelihood of residual positive effects.

1 7.12.10.1.7 Likelihood of Residual Effect on Sub-Populations/Sub-Groups

2 Members of sub-populations and sub-groups may experience differential effects on access to local
3 infrastructure and services within the LAA. There is a moderate likelihood of residual adverse effects on
4 sub-populations/sub-groups and moderate likelihood of residual positive effects. Mitigation and
5 enhancement measures are focused on the development and implementation of a worker code of
6 conduct, including ethics and respectful workplace training, as well as exploring options to support
7 personnel requiring childcare.

8 **7.12.10.2 Assessment of Change in Accommodation Availability**

9 7.12.10.2.1 Project Pathways

10 A temporary increase in population in the LAA is expected as a result of the Project, which can place
11 additional demands on local availability of housing and temporary accommodations. Details and
12 assumptions regarding the Project workforce and Project accommodations strategy are summarized as
13 follows:

- 14 • Construction is expected to take approximately three to four years, from 2025 to 2028
- 15 • The number of Project construction workers is expected to average 450 and reach a peak of
16 approximately 800 for approximately one year
- 17 • The first of two FLNGs is expected to begin commissioning in 2028 and the Project will be in
18 operation for a minimum of 30 years
- 19 • Early estimates of the number of permanent operation workers are between 150 and 250 at Site
20 and 50 to 100 at other offices within BC
- 21 • In addition to the regular operation workforce, a turnaround workforce of 75 to 150 persons is
22 also anticipated to be required every three to five years to perform scheduled shutdown and
23 maintenance work on the FLNG and supporting infrastructure. The turnaround workforce will be
24 housed on-Site with the operation workforce.
- 25 • The construction workforce will be housed on a fully self-contained modular floating camp
26 (floatel) at the Site and not in any nearby communities. Personnel working at the Site during
27 operation will be housed in permanent on-Site accommodations
- 28 • The origin of the construction and operation workforce is not yet known, but efforts will be made
29 for the Project to secure construction contractors who are required to recruit locally from
30 available talent in nearby communities, then recruit regionally, provincially, nationally, and
31 internationally, in that order of preference, to the extent possible. It is anticipated that certain
32 specialized trades and expertise may need to be sourced from elsewhere in BC, Canada, or
33 internationally

- 1 • While the availability of the existing labour force to respond to Project labour demands is
2 unknown, based on assumptions (described in Section 7.10.6.1 in Employment and Economy), an
3 estimated labour force of approximately 630 persons may be available in the LAA to respond to
4 the Project’s demand for direct labour
- 5 • A reduction in the availability of housing may affect distinct sub-populations differently.
6 A decrease in the number of available housing units in an area often results in higher rents and
7 housing prices. Groups that would be disproportionately adversely affected by higher costs of
8 housing include renters, low-income families, and people on fixed incomes

9 7.12.10.2.2 Mitigation and Enhancement Measures

10 Mitigation and enhancement measures were selected based on provincial and federal regulations and
11 policies, on management practices and guidelines, and on relevant peer-reviewed literature. Mitigation
12 was selected to address Project interactions that affect change in accommodation availability during all
13 Project phases.

14 Table 7.12–21 provides a summary of the mitigation and enhancement measures to avoid or reduce
15 change in accommodation availability. A discussion of each measure is provided below.

Table 7.12–21 – Mitigation and Enhancement Measures for Change in Accommodation Availability

Mitigation/Mitigation Mechanism	Rationale for Selection	Expected Success/Risks and Uncertainty	Timing	Management and/or Compensation Plans
<p>Mitigation 7.10-1: Develop and implement workforce strategies to use BC or Canadian resident construction workforce, where possible, in the building of those components of the Project constructed/assembled in Canada.</p> <p>Mitigation Mechanism: By hiring local personnel and businesses, the Project will limit an increase in demand on local infrastructure and services from non-locally resident workers.</p>	<p>This mitigation was selected because it is an established strategy for reducing demand on housing.</p>	<p>Expected Success: This is a standard mitigation that has a moderate to high likelihood of success. Communication and engagement are known to be valuable in managing the relationship between the Proponents, communities, and stakeholders.</p> <p>Risk and Uncertainty: Risk and uncertainty are moderate. Risk and uncertainty relate to the willingness of residents and stakeholders to participate in engagement activities and employment opportunities.</p>	<p>Project Phase: Construction Operation</p> <p>Effectiveness: This mitigation measure is effective over the short- to long-term.</p>	<p>SEEMP</p>
<p>Mitigation 7.12-5: Develop and implement a community feedback tool or process to receive and address community suggestions, concerns and complaints.</p> <p>Mitigation Mechanism: A community feedback tool will enable the Proponents to respond to community concerns and, if applicable, adapt mitigation measures to limit demand on local infrastructure and services.</p>	<p>This mitigation is an established strategy for managing demand on infrastructure and services. Use of community feedback tool follows the International Finance Corporation’s Good Practice note: Addressing Grievances from Project Affected Communities (2009).</p>	<p>Expected Success: This is a standard mitigation that has a moderate to high likelihood of success. Communication and engagement are known to be valuable in managing the relationship between the Proponents, communities, and stakeholders.</p> <p>Risk and Uncertainty: Risk and uncertainty are moderate. Risk and uncertainty relate to the willingness of residents and stakeholders to participate in engagement activities.</p>	<p>Project Phase: All phases</p> <p>Effectiveness: Effective over the short- to long-term</p>	<p>SEEMP</p>

Table 7.12–21 – Mitigation and Enhancement Measures for Change in Accommodation Availability

Mitigation/Mitigation Mechanism	Rationale for Selection	Expected Success/Risks and Uncertainty	Timing	Management and/or Compensation Plans
<p>Mitigation 7.10-7: Develop and implement procurement and contracting strategies to facilitate economic participation by local, regional, BC, and Canadian suppliers, contractors, and service providers.</p> <p>Mitigation Mechanism: By using local businesses, the Project will limit an increase in demand on local infrastructure and services from non-locally resident workers.</p>	<p>The use and effectiveness of local content strategies targeted at increasing local participation is well understood and practical.</p>	<p>Expected Success: There is a moderate degree of likelihood that the mitigation will be effective at increasing local participation, since the Proponents will inform local residents/businesses of job and procurement opportunities through a number of methods. However, residents may already be employed with other projects in the area.</p> <p>The use and effectiveness of local content strategies targeted at increasing local participation is well understood and practical.</p> <p>Risk and Uncertainty: There is moderate uncertainty over the success of this mitigation, because it does not guarantee that local and regional workers/firms will be willing to compete for or be successful in obtaining Project-related employment/contracts.</p>	<p>Project Phase: All phases</p> <p>Effectiveness: Effective over the short- to long-term</p>	<p>SEEMP</p>

1 7.12.10.2.3 Gender Based Analysis Plus Considerations for Impact Management

2 The use of an on-Site floatel for accommodation of the workforce during construction and on-Site
3 permanent accommodations during operation will reduce effects of the Project and its workforce on the
4 availability of housing, rental accommodations, and commercial accommodations in LAA communities by
5 the Project workforce. By putting a priority on hiring construction and operation workers from the local
6 community and within vulnerable groups, Project-related demands on local housing will be reduced,
7 which will reduce adverse effects on the total population, including members of vulnerable or
8 underserved groups such as low-income families, youth, and seniors.

9 7.12.10.2.4 Project Residual Effect

10 Because the FLNGs will be constructed overseas, Project construction will involve a modest workforce
11 that peaks at approximately 800 persons, all of whom will be housed on a self-contained floating camp
12 (floatel) at the Site. Use of the temporary, Site-based floatel responds to concerns by reducing demands
13 for local services at nearby communities during construction.

14 The Project is designed to operate 24 hours per day, 365 days per year. The number of permanent
15 operation workers is expected to be between 150 and 250 at the Site and 50 to 100 at other offices within
16 BC. Personnel working at the Site during operation will be housed in permanent on-Site accommodations.
17 Any rental or commercial accommodation by transiting staff will be avoided where possible and when
18 required will be temporary and ancillary (e.g., overnight accommodation in Terrace or Prince Rupert
19 before transfer to the Site).

20 A number of mitigation and enhancement measures will be implemented to encourage participation in
21 Project employment during all phases by local residents, such as informing members of Indigenous groups
22 and the local community of job and procurement opportunities and developing work packages that
23 consider the capacity and capabilities of local and regional businesses. Some Project construction and
24 operation positions will require some specialized trades and personnel with relevant qualifications and
25 experience, including positions with LNG experience (particularly in the startup phase), and they will likely
26 be sourced from elsewhere in BC, Canada, or internationally.

27 While it is expected that all workers during the construction phase will be housed at the floatel, there are
28 approximately 80 hotels, motels, bed-and-breakfasts, lodges, and RV and camp sites in the Terrace and
29 Prince Rupert area, with more than 2,000 beds/sites. There is available capacity to house workers in the
30 event that such temporary accommodations are required.

31 While efforts will be made to hire operation workers from local communities, as with construction, some
32 positions will require specialized trades and personnel with relevant qualifications and experience that
33 may be sourced from elsewhere in BC, Canada or internationally. Because the positions to be filled in the
34 operation phase of the Project are of a longer-term nature than those available during site preparation
35 and construction, it is possible that such non-local operation workers will choose to relocate (in some
36 cases, with families) to communities within the LAA.

1 For the Greater Terrace Area, in consideration of influxes of population, projections anticipate that unit
2 demand will heavily outpace supply, causing significant shortage, in the next five years (Mackay and
3 Lovitt 2020). Should the population of the Greater Terrace Area decrease post-2025, as is forecasted in
4 the Greater Terrace Housing Needs Report (2020), then the relationship between demand and supply will
5 likely stabilize. While the number of operation workers that will relocate permanently into the area is
6 uncertain, such relocation will occur gradually over a period of years, giving the real estate market time
7 to adjust to the increased demand.

8 While projections of housing supply are not available for the Prince Rupert CA, it is known that the stock
9 of affordable housing is already at a premium, and the stock may be further reduced considering that
10 development in the region is expected to draw new people to the Prince Rupert CA, making access to
11 affordable housing more challenging for vulnerable populations. However, since the operation workforce
12 is expected to be small, and some of those workers will already reside in the LAA communities, in addition
13 to the provision of on-Site accommodations, the effect of the Project on housing is expected to be small.

14 With respect to housing costs, as described in Section 7.10.6.3 (Employment and Economy), given the use
15 of the floatel and permanent on-Site accommodations, as well as the Projects intent to hire local workers
16 first, increased demand for housing and other forms of accommodation from in-migrating construction
17 and operation phase workers is not expected to measurably increase demand such that upward pressure
18 on costs occur.

19 7.12.10.2.5 Effects on Sub-populations identified through Gender Based Analysis Plus

20 As described in Section 7.12.8, those sub-populations and sub-groups who may experience
21 disproportionate effects related to the availability of housing and accommodations are Indigenous
22 persons, women, Indigenous women, young parents, elderly, and immigrants/visible minorities.
23 Section 7.12.5.2.10 describes the issues that have been documented as being especially challenging to
24 vulnerable populations in the LAA. These are an increase in homelessness and long waitlists for
25 transitional, emergency, and social housing, as well as a dwindling stock of affordable long-term rental
26 accommodations and poor access to senior-oriented housing in the LAA.

27 The challenges with respect to housing and accommodations, particularly for the vulnerable groups
28 described above, have been well documented in the LAA. Project personnel will be hired from the LAA
29 and RAA, where possible and available, to reduce the Project-related demands on housing. The Project
30 floatel will house the entire workforce during construction and permanent on-Site accommodations will
31 house the workforce that are on rotation at Site during operation. Therefore, effects on housing and
32 temporary accommodations in the LAA are not anticipated.

33 Despite mitigation and enhancement measures, members of vulnerable groups may still experience
34 differential effects related to the availability of housing. The Project is committed to reducing these
35 differential effects to the extent possible. A community feedback tool or process will be implemented to
36 receive and address community concerns and complaints with the aim of reducing adverse effects of the
37 Project on sub-populations and sub-groups.

1 The presence of the Project and Project workers may also have positive effects through the production of
2 revenue for some municipal services. An increase in the population of the LAA can also lead to an increase
3 in housing developments, which will be beneficial to members of vulnerable groups.

4 7.12.10.2.6 Likelihood of Residual Effect

5 During Project construction and operation, adverse interactions between the direct Project workforce and
6 accommodations can largely be avoided due to the relatively small non-resident workforce and the use
7 of permanent worker accommodation (the floatel during construction and on-Site accommodations
8 during operation). Due to uncertainties associated with estimates of direct, indirect, and induced
9 in-migration to the LAA, the Project could result in population-related changes in the LAA. However, in
10 consideration of the application of mitigation and enhancement measures, there is a low likelihood of
11 adverse interactions between the Project and housing availability and a low likelihood of positive effects.

12 7.12.10.2.7 Likelihood of Residual Effect on Sub-Populations/Sub-Groups

13 While members of sub-populations and sub-groups may experience differential effects on housing
14 availability related to the Project, there is still a low likelihood of adverse interactions between the Project
15 and housing availability and a low likelihood of positive effects. Mitigation and enhancement measures
16 are focused on the provision of accommodations for the Project workforce.

17 **7.12.10.3 Assessment of Change in Transportation Infrastructure**

18 7.12.10.3.1 Project Pathways

19 Some Project-related activities during construction and operation, including the transportation of Project
20 goods, services, and workers, will place increased demands on local transportation infrastructure. Details
21 and assumptions regarding the Project workforce and Project-related transportation are summarized as
22 follows:

- 23 • Construction materials, supplies, and equipment are anticipated to be transported to the Site
24 from local regional centers (e.g., Terrace or Prince Rupert) either by truck through Gingolx or by
25 barge along marine transportation routes from the Port of Prince Rupert or potentially from other
26 coastal ports (e.g., Vancouver)
- 27 • The number of Project construction workers is expected to average 450 and reach a peak of
28 approximately 800 for approximately one year
- 29 • Early estimates of the number of permanent operation workers are between 150 and 250 at the
30 Site and 50 to 100 at other offices within BC
- 31 • In addition to the regular operation workforce, a turnaround workforce of 75 to 150 persons is
32 also anticipated to be required every three to five years to perform scheduled shutdown and
33 maintenance work on the FLNG and supporting infrastructure. The turnaround workforce will be
34 housed on-Site with the operation workforce.

- 1 • The construction workforce will be housed on a fully self-contained modular floating camp
2 (floatel) at the Site and not in any nearby communities. Personnel working at the Site during
3 operation will be housed in permanent on-Site accommodations
- 4 • The origin of the construction and operation workforce is not yet known, but efforts will be made
5 for the Project to secure construction contractors who are required to recruit locally from
6 available talent in nearby communities, then recruit regionally, provincially, nationally, and
7 internationally, in that order of preference, to the extent possible. It is anticipated that certain
8 specialized trades and expertise may need to be sourced from elsewhere in BC, Canada, or
9 internationally
- 10 • While the availability of the existing labour force to respond to Project labour demands is
11 unknown, based on assumptions (described in Section 7.10.6.1 in Employment and Economy), an
12 estimated labour force of approximately 630 persons may be available to respond to the Project's
13 demand for direct labour
- 14 • Workers will likely be bussed from Terrace to Prince Rupert and then transported by water taxi or
15 ferry to the Site.

16 7.12.10.3.2 Mitigation and Enhancement Measures

17 Mitigation and enhancement measures were selected based on provincial and federal regulations and
18 policies, on management practices and guidelines, and relevant peer-reviewed literature. Mitigation was
19 selected to address Project interactions that affect transportation infrastructure and services during all
20 Project phases.

21 Table 7.12–22 provides a summary of the mitigation and enhancement measures to avoid or reduce
22 change in transportation infrastructure and services. A discussion of each measure is provided below.

Table 7.12–22 – Mitigation and Enhancement Measures Proposed to Avoid or Reduce Change in Transportation Infrastructure

Mitigation/Mitigation Mechanism	Rationale for Selection	Expected Success/Risks and Uncertainty	Timing	Management and/or Compensation Plans
<p>Mitigation 7.12-6: Develop and implement traffic safety measures for Project-related travel between Prince Rupert, Terrace and Gingolx.</p> <p>Mitigation Mechanism: Implementation of traffic management mitigation measures will assist in improving safety and managing the increase in vehicle traffic volume during construction, limiting the demand on local traffic infrastructure.</p>	<p>This mitigation is an established strategy for managing construction effects on public roadways, as per BC MOTI’s <i>Traffic Management Manual for Work on Roadways, 2020</i>.</p>	<p>Expected Success: There is a high likelihood that this mitigation will be effective, because it is based on well-established best management practices, in accordance with BC MOTI’s <i>Traffic Management Manual for Work on Roadways, 2020</i>.</p> <p>Risk and Uncertainty: The risks are low because traffic safety measures are well understood and can be effectively implemented and communicated to road users.</p>	<p>Project Phase: All phases</p> <p>Effectiveness: This mitigation measure is effective in the short- to long-term.</p>	<p>SEEMP</p>
<p>Mitigation 7.10-1: Develop and implement workforce strategies to use a British Columbian or Canadian resident construction workforce in the building of those components of the Project constructed/assembled in Canada.</p> <p>Mitigation Mechanism: By hiring local personnel and businesses, the Project will limit an increase in demand on local transportation infrastructure from non-locally resident workers.</p>	<p>Hiring locally will reduce the demand of an increased population on transportation infrastructure.</p>	<p>Expected Success: This is a standard mitigation that has a moderate to high likelihood of success. Hiring locally will reduce the number of transient workers who will place additional demands on transportation infrastructure.</p> <p>Risk and Uncertainty: Risk and uncertainty are moderate. Risk and uncertainty relate to the willingness of residents and stakeholders to participate employment opportunities.</p>	<p>Project Phase: All phases</p> <p>Effectiveness: This mitigation measure is effective in the short- to long-term.</p>	<p>SEEMP</p>

Table 7.12–22 – Mitigation and Enhancement Measures Proposed to Avoid or Reduce Change in Transportation Infrastructure

Mitigation/Mitigation Mechanism	Rationale for Selection	Expected Success/Risks and Uncertainty	Timing	Management and/or Compensation Plans
<p>Mitigation 7.10-2: Develop and maintain a database of Nisga'a businesses and contractors as well as other Indigenous, local and regional businesses and contractors. Use the database to inform businesses and contractors of procurement opportunities. Mitigation Mechanism: By hiring local businesses, the Project will limit an increase in demand on transportation infrastructure from non-locally resident workers.</p>	<p>Hiring locally will reduce the demand of an increased population on transportation infrastructure.</p>	<p>Expected Success: This is a standard mitigation that has a moderate to high likelihood of success. Hiring locally will reduce the number of transient workers who will place additional demands on transportation infrastructure. Risk and Uncertainty: Risk and uncertainty are moderate. Risk and uncertainty relate to the willingness of residents and stakeholders to participate employment opportunities.</p>	<p>Project Phase: All phases Effectiveness: This mitigation measure is effective in the short- to long-term.</p>	<p>SEEMP</p>
<p>Mitigation 7.12-5: Develop and implement a community feedback tool or process to receive and address community suggestions, concerns and complaints. Mitigation Mechanism: A community feedback tool will enable the Proponents to respond to community concerns and, if applicable, adapt mitigation measures to limit demand on transportation infrastructure.</p>	<p>This mitigation is an established strategy for managing demand on transportation infrastructure. Use of community feedback tool follows the International Finance Corporation’s Good Practice note: <i>Addressing Grievances from Project Affected Communities</i> (2009).</p>	<p>Expected Success: This is a standard mitigation that has a moderate to high likelihood of success. Communication and engagement are known to be valuable in managing the relationship between the Proponents, communities, and stakeholders. Risk and Uncertainty: Risk and uncertainty are moderate. Risk and uncertainty relate to the willingness of residents and stakeholders to participate in engagement activities.</p>	<p>Project Phase: All phases Effectiveness: Effective over the short- to long-term</p>	<p>SEEMP</p>

7.12.10.3.3 Gender Based Analysis Plus Considerations for Impact Management

The number of vehicles moving along Highway 113/Nisga'a Highway near Nisga'a Villages will be reduced by providing bussing for Project workers from LAA communities to Gingolx. The SEEMP standard traffic procedures and safety measures, including traffic management and control, will be implemented to reduce traffic delays during construction. These measures will reduce demands on transportation infrastructure between Terrace, Prince Rupert, and Gingolx.

Ongoing collaboration with Indigenous nations to identify and address local concerns to limit the risks and impacts related to external sources of traffic. A traffic management strategy also requires the Proponents to review all subcontractor traffic control measures to confirm that they align with measures developed for the Project.

7.12.10.3.4 Project Residual Effect

Transportation of workers and construction materials will lead to increased use of regional transportation infrastructure (e.g., Highways 16 and 113/Nisga'a Highway and regional airports). However, because the FLNGs will be constructed overseas, Project construction will involve a modest workforce, averaging 450 and peaking at approximately 800 workers. Construction workers will be housed on a fully self-contained modular floating camp (floatel) at the Site.

The operation workforce will be between 150 and 200 and will also be housed on-Site. Efforts will be made to hire local residents, including those residing in Nisga'a territory, Prince Rupert, Port Edward, Terrace, and nearby Indigenous communities. This will reduce the non-local workforce and the requirement for travel from outside the LAA placing additional demand on local highways and airports. Opportunities will be explored for providing collection points for workers from local communities, in Terrace, for instance, so that workers may be bussed to marine ferry facilities, which will reduce the number of single vehicles using the local roads and highways.

Most construction materials will likely be sourced from nearby Prince Rupert or shipped from elsewhere via truck or barge to Prince Rupert and then to the Site. Some materials and supplies could be transported by road to the Nisga'a Village of Gingolx from Terrace via Highway 113/Nisga'a Highway and then transported to the Site by marine vessel originating in Gingolx small craft harbour. The mitigation measures described in Table 7.12–22 and safety measures that are outlined in the SEEMP will be implemented to manage a potential increase in traffic and demand on transportation infrastructure.

Traffic counts along Highway 113/Nisga'a Highway indicate that traffic volumes are low and have been decreasing in recent years, indicating capacity for additional traffic. There have also been upgrades to sections of this highway in recent years, which will help to alleviate Project-related increases in road traffic volumes. All four Nisga'a Villages rely on Highway 113/Nisga'a Highway. The Project will implement measures to manage Project-related traffic between Terrace and Gingolx and near Nisga'a communities. As part of the traffic management, standard procedures, including traffic management and control, will

be implemented to reduce traffic delays. The traffic management procedures will be developed during ongoing planning and engineering design and will address traffic staging to reduce delays.

Because of its remote location and not being directly connected to a highway system, the Project will have limited potential to interact with infrastructure and service providers of adjacent communities. This will significantly limit the use of transportation routes by Project workers for leisure purposes. Bussing of local and non-local workers to the water taxi or ferry will reduce the number of individual vehicles on local roads.

As with other infrastructure and services, communication with local communities and service providers will be continued with respect to scheduling so they may prepare for potential increased demands related to transportation.

7.12.10.3.5 Effects on Sub-populations identified through Gender Based Assessment Plus

As described in Section 7.12.1.2.2, Indigenous women are most likely to have challenges with respect to transportation infrastructure. The Project will increase traffic along Highway 113 /Nisga'a Highway, which is used by members of the Nisga'a Villages and Kitsumkalum, and effects on that infrastructure will impact members of those communities, through traffic congestion and wear and tear of road surfaces.

The Project will implement measures to manage Project-related traffic that will include detailed traffic control procedures, including providing shuttle service between pick up points and Gingolx and Prince Rupert. This will reduce the number of Project-related vehicles on Highways 16 and 113/ Nisga'a Highway. Efforts to recruit the Project workforce from local communities will also reduce the number of additional cars owned by non-resident workers on local roadways.

Despite mitigation and enhancement measures, members of vulnerable groups may still experience differential effects on transportation infrastructure. The Project is committed to reducing these differential effects to the extent possible. A community feedback tool or process will be implemented to receive and address community concerns and complaints with the aim of reducing adverse effects of the Project on sub-populations and sub-groups.

The Project may support improved access to local infrastructure and services through development of new regional infrastructure incidental to the Project, such as a new third-party natural gas transmission pipeline, and new third-party electrical transmission line connected to renewable electricity. This infrastructure is expected to bring economic opportunities to both Indigenous and non-Indigenous communities and businesses during construction and through operation. The presence of industrial projects and their workers may also have positive effects through the production of revenue for some municipal services, such as transportation, which can increase the capacity for investment in local infrastructure and services, which will benefit LAA residents.

7.12.10.3.6 Likelihood of Residual Effect

Based on existing conditions and level of use of transportation infrastructure within the LAA, and the implementation of available mitigation and enhancement options, adverse interactions between the Project and transportation infrastructure can largely be avoided, and there is a low likelihood of residual adverse and positive effects.

7.12.10.3.7 Likelihood of Residual Effect on Sub-Populations/Sub-Groups

While members of sub-populations and sub-groups may experience differential effects on transportation infrastructure related to the Project, there is still a low likelihood of adverse interactions between the Project and transportation infrastructure and a low likelihood of positive effects. Members of sub-populations and sub-groups may experience differential effects on access to local infrastructure and services within the LAA., There is a moderate likelihood of residual adverse effects on sub-populations/sub-groups and moderate likelihood of residual positive effects. Mitigation and enhancement measures are focused on the development and implementation of traffic safety measures for Project-related travel, particularly between Prince Rupert, Terrace and Gingolx.

7.12.10.4 Summary of Mitigation and Enhancement Measures

Table 7.12–23 provides a summary of mitigation measures for the assessment of Infrastructure and Services. In conjunction with these measures, the Proponents will develop and implement a Project-specific construction environmental management plan and SEEMP that collects the mitigation and enhancement measures tied to Project-related activities and physical works associated with construction. The construction environmental management plan and SEEMP will be incorporated into appropriate construction-related contracts.

While the mitigation measures are intended for the Proponents, Project contractors will be required to implement these measures as applicable to their scope of work.

Table 7.12–23 – Summary of Mitigation and Enhancement Measures for the Assessment of Infrastructure and Services

Mitigation Measure	Potential Effects			Sub-population					
	Change in infrastructure and services	Change in Accommodation Availability	Change in Transportation Infrastructure	Indigenous people	Indigenous Women	Women	Visible Minorities	Low-income Families	Elderly
Mitigation 7.12-1: Develop and implement a worker code of conduct including ethics and respectful workplace training	✓	✓	✓	✓	✓	✓	✓		
Mitigation 7.12-2: Provide cultural awareness training will to all personnel and contractors	✓	✓	✓	✓	✓	✓	✓		
Mitigation 7.12-3: Security personnel and access control will be provided at Site	✓			✓	✓	✓	✓		
Mitigation 7.12-4: Develop and implement emergency management and response including fire prevention and protection measures. Appropriate fire response equipment and personnel trained to use it will be maintained at Site.	✓								
Mitigation 7.07-13: Develop and implement waste management measures to manage waste including hazardous and construction waste, recyclables and wildlife attractants.	✓								
Mitigation 7.12-5: Develop and implement a community feedback tool or process to receive and address community suggestions, concerns and complaints.	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mitigation 7.10-1: Develop and implement workforce strategies that support the hiring of a British Columbian or Canadian resident construction workforce in the building of those components of the Project constructed/assembled in Canada	✓	✓	✓	✓	✓	✓	✓	✓	✓

Table 7.12–23 – Summary of Mitigation and Enhancement Measures for the Assessment of Infrastructure and Services

Mitigation Measure	Potential Effects			Sub-population					
	Change in infrastructure and services	Change in Accommodation Availability	Change in Transportation Infrastructure	Indigenous people	Indigenous Women	Women	Visible Minorities	Low-income Families	Elderly
Mitigation 7.10-2: Develop and maintain a database of Nisga'a businesses and contractors as well as other Indigenous, local and regional businesses and contractors. Use the database to inform businesses and contractors of procurement opportunities.	✓	✓	✓	✓	✓				
Mitigation 7.10-6: Develop and implement gender equity and diversity policies that focus on hiring Nisga'a Nation members, local and Indigenous persons, and women to increase Project employment among underrepresented populations	✓	✓	✓	✓	✓	✓			
Mitigation 7.10-7: Develop and implement procurement and contracting strategies to facilitate economic participation by local, regional, BC, and Canadian suppliers, contractors, and service providers.	✓	✓		✓	✓	✓			
Mitigation 7.12-6: Develop and implement traffic safety measures for Project-related travel between Prince Rupert, Terrace, and Gingolx.			✓	✓	✓				

✓ = Mitigation or enhancement measure applies

– = Mitigation or enhancement does apply

⊖ = Mitigation or enhancement addresses disproportionate effects to sub-populations

7.12.10.5 Summary of Project Residual Effects

Table 7.12–24 summarizes Project residual effects on Infrastructure and Services.

Table 7.12–24 – Project Residual Effects on Infrastructure and Services

Project Phase	Proposed Mitigation and Enhancement Measures	Residual Effects Characterization Criteria								
		Magnitude	Geographic Extent	Timing	Duration	Reversibility	Frequency	Affected Sub-Populations	Risk (Likelihood and Consequences)	Uncertainty
Change in Infrastructure and Services										
Construction	Mitigation	M	LAA	NA	ST	R	C	DD	M	M
Operation	7.12-1, 7.12-2, 7.12-3, 7.12-4,	M	LAA	NA	MT	R	C	DD	L	M
Residual Project effect for all phases	7.07-13, 7.12-5, 7.10-1, 7.10-2, 7.10-6, 7.10-7	M	LAA	NA	MT	R	C	DD	M	M
Change in Accommodation Availability										
Construction	Mitigation	L	LAA	NA	ST	R	C	DD	L	L
Operation	7.12-1, 7.12-2, 7.12-3, 7.12-5,	L	LAA	NA	MT	R	C	DD	L	L
Residual Project effect for all phases	7.10-1, 7.10-2, 7.10-6, 7.10-7	L	LAA	NA	MT	R	C	DD	L	L
Change in Transportation Infrastructure										
Construction	Mitigation	M	LAA	NA	ST	R	C	DD	L	M
Operation	7.12-1, 7.12-2, 7.12-5, 7.10-1,	L	LAA	NA	MT	R	C	DD	L	M
Residual Project effect for all phases	7.10-2, 7.10-6, 7.12-6	M	LAA	NA	MT	R	C	DD	L	M

KEY

See Table 7.12–19 for detailed definitions

Project Phase

C: Construction

O: Operation

D: Decommissioning

Magnitude:

NMC: No Measurable Change

L: Low

M: Moderate

H: High

Geographic Extent:

PF: Project footprint

LAA: Local Assessment Area

RAA: Regional Assessment Area

Timing:

N/A: Not Applicable

A: Applicable

Duration:

ST: Short-term

MT: Medium-term

LT: Long-term

Reversibility:

R: Reversible

PR: Partially reversible

I: Irreversible

Frequency:

S: Single event

MIR: Multiple irregular event

MR: Multiple regular event

C: Continuous

Affected Sub-Populations:

ED: Evenly distributed

DD: Disproportionately distributed

Risk (Likelihood and Consequences)

L: Low

M: Moderate

H: High

Uncertainty:

L: Low

M: Moderate

H: High

1 7.12.10.5.1 Summary of Adverse Residual Effects

2 Through the application of mitigation and enhancement measures, including the use of the self-contained
3 floatel during construction and the permanent on-Site accommodations during operation,
4 implementation of Project-specific mitigation measures, Project-related demands on most infrastructure
5 and services in the LAA will be reduced. There remain some concerns regarding the effects of the Project
6 on childcare availability, which is in short supply throughout the LAA, and ambulance services, due to the
7 remote location of the Project. Therefore, the adverse residual effects on change in infrastructure and
8 services are predicted to be moderate in magnitude, occur in the LAA over the short-term to medium-
9 term, and continuous. Effects are likely to be reversed following operation and decommissioning. The risk
10 and uncertainty associated with this prediction have been overestimated through a conservative
11 approach to the assessment of adverse effects and are expected to be moderate.

12 Adverse residual effects on change in accommodation availability are predicted to occur in the LAA, be
13 low in magnitude, short-term to medium-term, and continuous. Effects are likely to be reversed following
14 operation and decommissioning. Measures implemented to hire locally during construction and operation
15 and to house all Project workers at the floatel during construction and at the on-Site permanent
16 accommodations during operation will reduce the adverse effects of the Project on the availability of
17 housing, and housing need in LAA communities. The risk and uncertainty associated with this prediction
18 have been overestimated through a conservative approach to the assessment of adverse effects and are
19 expected to be low.

20 A SEEMP will be implemented that includes means to manage Project-related traffic and use of
21 transportation infrastructure and will work with members of Indigenous communities to address
22 increased traffic on Highway 113/Nisga'a Highway. Due to the proximity of the Project to Nisga'a Villages,
23 the adverse residual effects on change in transportation infrastructure are predicted to be moderate in
24 magnitude during construction and low during operation, occur in the LAA over the short- to
25 medium-term, be continuous, and reversible. The risk and uncertainty associated with this prediction have
26 been overestimated through a conservative approach to the assessment of adverse effects and are
27 expected to be low and moderate, respectively.

28 Project activities and Project workers are likely to rely on infrastructure and services in the main service
29 centres in the LAA (Terrace and Prince Rupert). Groups that already experience challenges in accessing
30 infrastructure and services and housing in these larger centres (e.g., women requiring childcare,
31 Indigenous women requiring reliable transportation, low-income families and elderly people requiring
32 housing), may be more adversely affected than the general population by the increased competition for
33 such services resulting from a Project-related temporary increase in the population. Childcare, which is in
34 short supply throughout the LAA, will remain a challenge for members of vulnerable groups; however, the
35 Project is not expected to reduce the available capacity of childcare services. This is due to the provision
36 of on-Site Project accommodations, the remoteness of the Site, and rotational nature of the Project work,
37 which will discourage Project workers from bringing families, including children to LAA communities.
38 The operation workforce will be relatively small and the number of those personnel bringing children

1 requiring care will not likely reduce the available capacity. With the use of mitigation and enhancement
2 measures described throughout this assessment, including the development and implementation of a
3 feedback process to hear concerns from LAA residents and in particular, members of vulnerable groups,
4 the Proponents aim to reduce the differential effects on sub-populations and sub-groups.

5 Adverse residual effects on infrastructure and services are not predicted to result in an exceedance of
6 available capacity, or a decrease in the quality of a service provided, on a persistent and ongoing basis,
7 which cannot be mitigated with current or anticipated programs, policies, or mitigation measures.

8 7.12.10.5.2 Summary of Positive Residual Effects

9 The Project may support improved access to local infrastructure and services through development of
10 new regional infrastructure incidental to the Project (e.g., new third-party natural gas transmission
11 pipeline, new third--party electrical transmission line connected to renewable electricity) and is expected
12 to bring economic opportunities to both Indigenous and non-Indigenous communities and businesses
13 during construction and through operation. The presence of industrial projects and their workers may
14 also have positive effects through the generation of revenue, which can increase the capacity for
15 investment in local infrastructure and services, such as recreation, which will benefit LAA residents.

16 **7.12.11 Assessment of Cumulative Effects on Infrastructure and Services**

17 The assessment of cumulative effects is initiated with a determination of whether two conditions exist:

- 18 • The Project has residual adverse effects on infrastructure and services
- 19 • The residual effects could act cumulatively with residual effects of other past, present, or
20 reasonably foreseeable future physical activities

21 Project residual effects described in Section 7.12.10.5 that are likely to interact cumulatively with residual
22 effects from past, present, or reasonably foreseeable projects are identified in this section and the
23 resulting cumulative effects are assessed. This is followed by an analysis of the Project contribution to
24 residual cumulative effects.

25 7.12.11.1 **Project Residual Effects Likely to Interact Cumulatively**

26 The Project residual effects identified in Section 7.12.10.5 with potential to act cumulatively with those
27 past, present and reasonably foreseeable future projects and activities (see Table 6.7-1 in Section 6.7.1
28 for more information regarding the projects and activities included in the Project and Physical Activities
29 Inclusion List) are listed in Table 7.12–25. Where residual effects from the Project act cumulatively with
30 residual effects from other projects and physical activities, a cumulative effects assessment is carried out.
31 Effects identified as not likely to interact cumulatively with residual effects of other projects and physical
32 activities (no check mark) are not discussed further. The assessment of the cumulative effects that are
33 likely to result from the Project in combination with other projects and physical activities are discussed in
34 subsequent sections.

- 1 Since not all reasonably foreseeable projects and physical activities may proceed, the cumulative effects
- 2 assessment should be considered conservative.

Table 7.12–25 – Interactions with the Potential to Contribute to Cumulative Effects

Other Projects and Physical Activities with Potential for Cumulative Effects	Potential Cumulative Effects		
	Change in Infrastructure and Services	Change in Accommodation Availability	Change in Transportation Infrastructure
Past and Present Physical Activities and Resource Use			
Port of Prince Rupert (PRPA)	✓	–	–
LNG Canada Export Terminal	✓	✓	✓
Prince Rupert Airport	-	-	✓
Northwest Regional Airport Terrace-Kitimat (YXT)			
Swamp Point – Sand and Gravel	-	-	-
Stewart Bulk Terminal	-	-	-
Stewart World Port	-	-	-
Port of Hyder, Alaska	-	-	-
Kitsault Mine	-	-	-
Tru Grit Abrasives	-	-	-
All West Trading	-	-	-
Various Forestry Activities	-	-	-
Various Fishing and Aquaculture Activities	-	-	-
Marine Shipping Activities	-	-	-
Coastal GasLink	✓	✓	✓
Future Physical Activities			
Third-party powerline	–	✓	–
PRPA	✓	-	✓
Port Edward Small Scale LNG (Port Edward LNG)	✓	✓	✓
Prince Rupert Gas Transmission Project (TransCanada Corp.)	✓	✓	✓
Westcoast Connector Gas Transmission Project (Enbridge Inc.)	✓	✓	✓
Kinskuch Lake Hydro (Wind River Power Corporation)	✓	✓	✓
Cedar LNG	✓	-	✓
Skeena LNG	✓	-	✓
Totem LNG	✓	-	✓
BC Hydro transmission line upgrades	✓	✓	✓

NOTES:

✓ = Those “other Projects and physical activities” whose effects are likely to interact cumulatively with the Project’s residual effects.

– = Interactions between the residual effects of other Projects and residual effects of the Project are not expected.

1 **7.12.11.2 Change in Infrastructure and Services**

2 This section describes the pathways, mitigation measures, predicted residual cumulative effects, and
3 likelihood of predicted residual cumulative effects as they pertain to change in infrastructure and services.

4 7.12.11.2.1 Cumulative Effect Pathways

5 Projects that are most likely to act cumulatively with infrastructure and services are projects for which the
6 labour forces will be in the RAA at the same time as the Project labour force. These projects will increase
7 the population of the area and may result in additional demands on infrastructure and services in the RAA.

8 Future LNG development (e.g., Cedar LNG) will likely have workforces that will place additional demands
9 on local infrastructure and services; however, it will only act cumulatively with the Project if they overlap
10 temporally. Some of the future physical activities listed in Table 7.12–25 may not proceed.

11 Construction on several current and future projects is likely to be completed by the time construction on
12 the Project begins, reducing potential effects on infrastructure and services in the RAA. Port Edward LNG
13 (Port Edward LNG Ltd. 2023) is expected to be in service in 2024; based on this stated in-service date,
14 construction will not overlap with construction of the Project. Based on the construction update from
15 Coastal Gas Link (June 2021), section 8 of the pipeline is anticipated to be complete prior to commencing
16 construction of the Project. Cedar LNG, if approved, will not begin construction until 2027 and the Project
17 construction is planned to be complete by the end of that year. Construction of the third-party powerline,
18 which will supply power to the Project, may overlap with Project construction. It is expected to be under
19 construction for two years, although no start date has been confirmed.

20 Operation of the Project is likely to overlap with operation of Cedar LNG and Port Edward LNG.
21 The operation workforces of these projects are each likely to be no more than 100 people. Based on
22 available information, Project construction and operation will overlap temporally with operation of the
23 LNG Canada Export Terminal, which is expected to begin in 2025 and will require a peak operation
24 workforce of 700.

25 BC Hydro is planning transmission line upgrades, as well as upgrades to the Terrace substation and
26 twinning of the 287kV transmission line between Terrace and New Aiyansh. Construction of transmission
27 lines is scheduled to occur between 2026 and 2032, which may overlap with Project construction and
28 likely will overlap with Project operation. The labour force associated with transmission line upgrades is
29 unknown but could add to the population of the RAA and act cumulatively with the Project to create
30 additional demands on local infrastructure and services.

31 The schedules of the proposed Totem and Skeena LNG projects are unknown, so it is difficult to predict
32 cumulative effects of the Project with those projects. The labour forces associated with those projects are
33 expected to be smaller than that for Cedar LNG, and if Totem and Skeena LNG construction coincides with
34 Project construction, effects are anticipated to be on a smaller scale than Cedar LNG effects.

1 Positive residual cumulative effects may result where service and infrastructure improvements are made,
2 as a result of improvements at the Port of Prince Rupert and at the regional airports and increased
3 electrical capacity as a result of BC Hydro transmission line upgrades. For example, projects and users
4 generally benefit as these projects will increase capacity of local services and infrastructure.

5 7.12.11.2.2 Mitigation and Enhancement Measures for Cumulative Effects

6 Implementation of proposed mitigation and enhancement measures identified in Table 7.12–22 will
7 reduce the Project’s contribution to adverse cumulative effects, and increase its contribution to positive
8 cumulative effects, on change in infrastructure and services.

9 It is also expected that current and reasonably foreseeable future projects and physical activities will be
10 required to apply standard mitigation and other management measures to avoid or reduce their effect on
11 infrastructure and services (e.g., emergency response measures) and comply with applicable regulatory
12 requirements. For instance, during construction of the LNG Canada Export Terminal Project, LNG Canada
13 employed several mitigation and management measures which have proven to reduce its effect on
14 infrastructure and services in the RAA (LNG Canada 2021a, 2022a). These include prioritizing hiring of
15 local residents and providing accommodations for non-local construction workers, implementing
16 waste management measures, and offering opportunities for recreation at lodges to reduce
17 Project-related demand on such services and infrastructure in the RAA. LNG Canada also implemented a
18 Workers Code of Conduct and cultural awareness training to limit direct demand for local emergency
19 services.

20 7.12.11.2.3 Residual Cumulative Effects

21 Project construction workers will be lodged at the floatel, which will provide catering and opportunities
22 for recreation. This will reduce the need for Project workers to go into RAA communities.

23 Site security will be provided, and an emergency response program will be implemented to respond to
24 emergency situations at the Site. Corporate policies will be implemented to prevent workplace incidents
25 and limit adverse behaviours of the non-local workforce in the community. These measures will reduce
26 the likelihood of cumulative effects on local safety and emergency services and infrastructure.
27 The implementation of a SEEMP will reduce Project-related traffic on local roads and the potential for
28 traffic accidents, and this will curtail the demand for ambulance services to the Site.

29 There is a commitment to continue to communicate with local communities and service providers with
30 respect to scheduling so they may prepare for potential increased demands on local services and
31 infrastructure, such as the local landfill due to the addition of Project-related domestic and construction
32 waste. With application of mitigation and enhancement measures, cumulative effects on infrastructure
33 and services are expected to occur in the RAA be adverse, moderate in magnitude, medium-term,
34 continuous, and reversible.

1 Because the Project and Project workers are likely to rely on infrastructure and services in the main service
2 centres in the RAA (Terrace and Prince Rupert), Indigenous communities are not likely to experience
3 adverse effects of the Project on these infrastructure and services. However, those groups that already
4 experience challenges in accessing infrastructure and services in these larger centres (e.g., women
5 requiring childcare services), may be more adversely affected than other groups by the increased
6 competition for such services resulting from a Project-related increase in the population.

7 The Project will act cumulatively with other projects to create positive effects on infrastructure and
8 services because all project workforces will contribute economically to the RAA (through property and
9 income taxes) representing a potential expansion of municipal tax bases. This in turn will help pay for
10 improvements in infrastructure and services which will better absorb the demands of an increased
11 population.

12 Adverse residual cumulative effects on infrastructure and services are not expected to result in an
13 exceedance of available capacity, or a decrease in the quality of a service provided, on a persistent and
14 ongoing basis, which cannot be mitigated with current or anticipated programs, policies, or mitigation
15 measures.

16 7.12.11.2.4 Likelihood of Cumulative Residual Effect

17 The likelihood of effects occurring as assessed is moderate. The assessment is based on the capacity of
18 infrastructure and services, the Proponents' mitigation and enhancement measures, efforts to hire locally,
19 the likelihood that future projects and physical activities will be required to apply standard mitigation and
20 other management measures, and cumulative demand for infrastructure and services during construction
21 and operation. A conservative approach that overestimates the magnitude of adverse effects has been
22 applied to the assessment.

23 **7.12.11.3 Change in Accommodation Availability**

24 This section describes the pathways, mitigation measures, predicted residual cumulative effects, and
25 likelihood of predicted residual cumulative effects as they pertain to change in accommodation
26 availability.

27 7.12.11.3.1 Cumulative Effect Pathways

28 Other projects and physical activities will act cumulatively with the Project to affect availability of housing
29 and temporary accommodations if they occur at the same time as the Project and require the temporary
30 presence of a workforce in the RAA communities. Workers from other projects may place additional
31 demands on housing and temporary accommodations. This may result in displacement of residents and
32 visitors and may prevent them from using temporary accommodations. It may also lead to an increase in
33 the cost of housing and rental accommodations and create barriers to accessing rental opportunities or
34 homeownership, particularly for members of those groups already facing such challenges.

1 Future LNG projects in the RAA will have large workforces requiring temporary accommodations;
2 however, they will only act cumulatively with the Project if they overlap temporally. It is likely that the
3 Project construction and operation will overlap with LNG Canada operation, which is expected to have an
4 operation workforce of up to 700. It will also overlap temporally with the operation of Cedar LNG and
5 Port Edward LNG projects; however, the workforces for those projects are expected to be relatively small.

6 7.12.11.3.2 Mitigation and Enhancement Measures for Cumulative Effects

7 The main mitigation measure for change in accommodation availability is the use of the Project floatel to
8 accommodate workers during construction and onshore accommodation during operation. LNG Canada
9 and Cedar LNG will use existing worker accommodation centers in the RAA to house Project construction
10 and operation workers. The existing facilities can accommodate the entire workforces of these projects
11 with spare capacity, so the Project will not compete with other projects for housing and temporary
12 accommodations. The Proponents will continue to engage with the District of Kitimat and City of Terrace
13 to discuss Project effects on housing availability.

14 Other proposed mitigation and enhancement measures that will reduce the Project's contribution to
15 adverse cumulative effects on change in housing availability are identified in Table 7.12–21.

16 It is also expected that current and reasonably foreseeable future projects and physical activities will be
17 required to apply standard mitigation and other management measures to avoid or reduce their effect on
18 housing and temporary accommodations and comply with applicable regulatory requirements. In
19 addition, the inventory of houses in the RAA may be increased by the addition of housing developments
20 over time.

21 Mitigation and management measures that have been implemented by LNG Canada and have proven
22 effective at reducing demands of LNG Canada construction on housing availability include prioritizing
23 hiring from the local area, providing housing for non-local workers in open lodges and local area hotels,
24 and not paying living out allowances to the workforce.

25 7.12.11.3.3 Residual Cumulative Effects

26 Establishing hiring policies that prioritize hiring of Project construction and operation workers from RAA
27 communities as well as arranging for project construction workers to be lodged at the floatel and
28 operation workers to be lodged at the in on-Site accommodation, will reduce the adverse residual
29 cumulative effects of the Project on housing availability. Similar mitigation measures have been
30 implemented in the RAA, including for LNG Canada, and have resulted in limited additional demand on
31 market housing (LNG Canada 2022a).

32 Communication will be continued with local communities, as well as temporary and worker
33 accommodation center operators in the LAA, with respect to scheduling so they may prepare for potential
34 increased demands on housing and accommodations.

1 With application of mitigation and enhancement measures, cumulative effects on change in
2 accommodation availability are expected to be adverse and low to moderate in magnitude. As reported
3 in the Terrace Housing Needs Assessment, in a medium to high economic scenario, demand will exceed
4 supply for housing between 2020 and 2030 (MacKay and Lovitt 2020). This has been determined using a
5 conservative approach and considering that the Project could potentially overlap temporally with other
6 large projects in the RAA, which could lead to an increase in the RAA population. The Project's contribution
7 to this effect would be low, in consideration of the relatively small construction workforce (average 450,
8 maximum 800). Also, while Terrace has experienced an increase in housing prices and an increase in rental
9 rates (peak in 2019), increased demand for housing and other forms of accommodation from in-migrating
10 construction and operation phase workers is not expected to measurably increase demand such that
11 upward pressure on costs occur. This is further explained in Section 7.10.6.3 (Employment and Economy).

12 Adverse residual cumulative effects will occur in the RAA, and are predicted to be moderate in magnitude
13 overall, medium-term, continuous, and reversible. Because the Project and Project workers will be
14 accommodated at the floatel during construction, RAA communities, including Indigenous communities,
15 are less likely to experience adverse effects of the Project on housing. Induced employment related to the
16 Project may attract workers to the RAA, which may affect the availability of housing. These people are
17 most likely to settle in the larger service areas (Terrace and Prince Rupert). In this case, those groups that
18 already experience challenges in accessing housing in these larger centres may be more adversely affected
19 than other groups by the increased competition for housing resulting from a Project-related temporary
20 increase in the population.

21 As a result of the potential increase in the RAA population associated with planned projects, adverse
22 residual cumulative effects on housing availability may result in an exceedance of available capacity, or a
23 decrease in the quality of a service provided, on a persistent and ongoing basis, which cannot be mitigated
24 with current or anticipated programs, policies, or mitigation measures.

25 7.12.11.3.4 Likelihood of Cumulative Residual Effect

26 The likelihood of effects occurring as assessed is low due to the use of the Project floatel during
27 construction, on-Site accommodation during operation and the Proponents' intent to hire locally. A
28 conservative approach that considers the uncertainty associated with the proportion of the Project
29 workforce and workers obtaining induced employment that may come from outside the RAA and the
30 schedule of other planned projects overestimates the magnitude of adverse effects.

31 **7.12.11.4 Change in Transportation Infrastructure**

32 This section describes the pathways, mitigation measures, predicted residual cumulative effects, and
33 likelihood of predicted residual cumulative effects as they pertain to change in transportation
34 infrastructure.

1 7.12.11.4.1 Cumulative Effect Pathways

2 Activities associated with future development may act cumulatively with the Project to affect
3 transportation infrastructure if they overlap temporally. However, projects which result in upgrades to
4 transportation infrastructure in the RAA, such as improvements to airports and roadways, will most likely
5 have positive effects on transportation services and infrastructure because they would increase their
6 capacity. In addition, local spending as a result of the presence of the Project workforce may lead to an
7 expansion of municipal tax bases and potential improvements to local roads and other transportation
8 infrastructure.

9 Construction of a third-party powerline through the Nass Valley could disrupt traffic and place additional
10 demands on local transportation infrastructure. Other project labour forces may travel on local roads
11 periodically during their time off. However, these workers will likely be housed at existing work camps
12 which provide services, including catering and opportunities for recreation, thus reducing the likelihood
13 of travel to communities within the RAA.

14 Project workers could be transported to the Nisga'a Village of Gingolx from Terrace via
15 Highway 113/Nisga'a Highway and then transported to the Site by marine vessel originating in Gingolx
16 small craft harbour. To reduce the number of single vehicles using the local roads and highways,
17 opportunities will be explored for providing collection points for workers from local communities,
18 including Prince Rupert and Terrace, so that workers may be bussed to marine ferry locations. These
19 measures will reduce Project contributions to cumulative effects on transportation infrastructure
20 (e.g., traffic congestion). Efforts to hire locally will reduce the number of workers travelling through the
21 Northwest Regional Airport and will reduce the Project contributions to cumulative effects on air
22 transportation infrastructure.

23 Activities associated with other projects in the RAA will likely involve the movement of vehicles and
24 equipment on local roadways and this will act cumulatively with the Project to affect traffic and road
25 conditions. Traffic management measures will be implemented to reduce the adverse effects of the
26 Project on transportation infrastructure. It is also expected that current and reasonably foreseeable future
27 projects and physical activities will be required to apply standard mitigation and other management
28 measures to avoid or reduce their effect on infrastructure and services (e.g., traffic management
29 measures) and comply with applicable regulatory requirements. Road improvements that may occur as
30 part of other project descriptions or as a result of increased demand will benefit all users within the RAA.

31 7.12.11.4.2 Mitigation and Enhancement Measures for Cumulative Effects

32 Effects on transportation infrastructure will be managed with the implementation of traffic mitigation
33 measures. Other proposed mitigation and enhancement measures that will reduce the Project's
34 contribution to adverse cumulative effects on change in transportation infrastructure are identified in
35 Table 7.12–24.

1 Mitigation and enhancement measures that have been implemented by other projects have proven to
2 reduce adverse effects on transportation infrastructure and include using chartered flights for a
3 proportion of the workforce to limit demand on the airport and using shuttle transit for local workers to
4 limit the use of personal vehicles on local roads.

5 7.12.11.4.3 Residual Cumulative Effects

6 It is expected that other projects will implement similar mitigation and enhancement measures to reduce
7 the adverse residual cumulative effects on transportation infrastructure. Measures implemented by LNG
8 Canada, including chartered flights and shuttle transit for project workers, have limited direct effects of
9 LNG Canada on transportation infrastructure (LNG Canada 2022a).

10 Similar to LNG Canada, the Project will shuttle workers from Terrace to marine ferry services to reduce
11 the number of vehicles on the road. Furthermore, there will be communication with local communities
12 and transportation service providers with respect to scheduling so they may prepare for potential
13 increased demands on transportation infrastructure. With the application of mitigation measures,
14 cumulative effects on transportation infrastructure are expected to occur in the RAA, be adverse,
15 moderate in magnitude overall, medium-term, continuous, and reversible. Due to the proximity of the
16 Project near Nisga'a Villages, change in transportation infrastructure is likely to affect members of
17 Indigenous groups disproportionately.

18 Adverse residual cumulative effects on transportation infrastructure are not expected to result in an
19 exceedance of available capacity, or a decrease in the quality of a service provided, on a persistent and
20 ongoing basis, which cannot be mitigated with current or anticipated programs, policies, or mitigation
21 measures.

22 7.12.11.4.4 Likelihood of Cumulative Residual Effect

23 The likelihood of effects occurring is assessed as low to moderate. The assessment is based on the capacity
24 of transportation infrastructure in the RAA, the Proponents' mitigation and enhancement measures, and
25 cumulative demand for transportation infrastructure during construction and operation. A conservative
26 approach that overestimates the magnitude of adverse effects and underestimates the magnitude of
27 positive effects has been applied to the assessment.

28

- 1 **7.12.11.5 Summary of Cumulative Effects**
- 2 Table 7.12–26 summarizes cumulative effects on Infrastructure and Services.

Table 7.12–26 – Summary of Residual Cumulative Effects on Infrastructure and Services

Residual Cumulative Effects	Proposed Mitigation and Enhancement Measures	Cumulative Effects Characterization Criteria								
		Magnitude	Geographic Extent	Timing	Duration	Reversibility	Frequency	Affected Sub-Populations	Risk (Likelihood and Consequences)	Uncertainty
Residual Cumulative Effect on Change in Infrastructure and Services										
Residual cumulative effect with the Project	Mitigation 7.12-1, 7.12-2, 7.12-3, 7.12-4, 7.07-13, 7.12-5, 7.10-1, 7.10-2, 7.10-6, 7.10-7	M	RAA	NA	MT	R	C	DD	L	M
Project contribution to residual cumulative effects		M	RAA	NA	MT	R	C	DD	L	M
Residual Cumulative Effect on Change in Accommodation Availability										
Residual cumulative effect with the Project	Mitigation 7.12-1, 7.12-2, 7.12-3, 7.12-5, 7.10-1, 7.10-2, 7.10-6, 7.10-7	M	RAA	N/A	MT	R	C	DD	M	M
Project contribution to residual cumulative effects		M	RAA	N/A	MT	R	C	DD	M	M
Residual Cumulative Effect on Change in Transportation Infrastructure										
Residual cumulative effect with the Project	Mitigation 7.12-1, 7.12-2, 7.12-5, 7.10-1, 7.10-2, 7.10-6, 7.12-6	M	RAA	NA	MT	R	C	DD	M	M
Project contribution to residual cumulative effects		M	RAA	NA	MT	R	C	DD	M	M

Table 7.12–26 – Summary of Residual Cumulative Effects on Infrastructure and Services

<p>KEY See Table 7.12–19 for detailed definitions</p> <p>Project Phase C: Construction O: Operation D: Decommissioning</p> <p>Magnitude: NMC: No Measurable Change L: Low M: Moderate H: High</p> <p>Geographic Extent: PF: Project footprint LAA: Local Assessment Area RAA: Regional Assessment Area OWAA: Open Water Assessment Area</p>	<p>Timing: N/A: Not Applicable A: Applicable</p> <p>Duration: ST: Short-term MT: Medium-term LT: Long-term</p> <p>Reversibility: R: Reversible PR: Partially reversible I: Irreversible</p>	<p>Frequency: S: Single event MIR: Multiple irregular event MR: Multiple regular event C: Continuous</p> <p>Affected Sub-Populations: ED: Evenly distributed DD: Disproportionately distributed</p> <p>Risk (Likelihood and Consequences) L: Low M: Moderate H: High</p> <p>Uncertainty: L: Low M: Moderate H: High</p>
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1 **7.12.11.6 Prediction Confidence**

2 With the proposed management and enhancement measures, including implementation of normal
3 planning procedures by the relevant authorities, and liaison between the Proponents and local
4 authorities, the residual environmental effect on infrastructure and services has been determined with a
5 moderate level of confidence.

6 The predication confidence in the conclusions for Project residual effects and residual cumulative effects
7 for infrastructure and services is based on uncertainty regarding the extent to which Project employment
8 will be realized by local residents. There is also uncertainty with respect to the extent to which reasonably
9 foreseeable projects proceed (and if so, the timing of construction and operation activities, the size of
10 workforces, and mitigation and enhancement measures proposed and implemented).

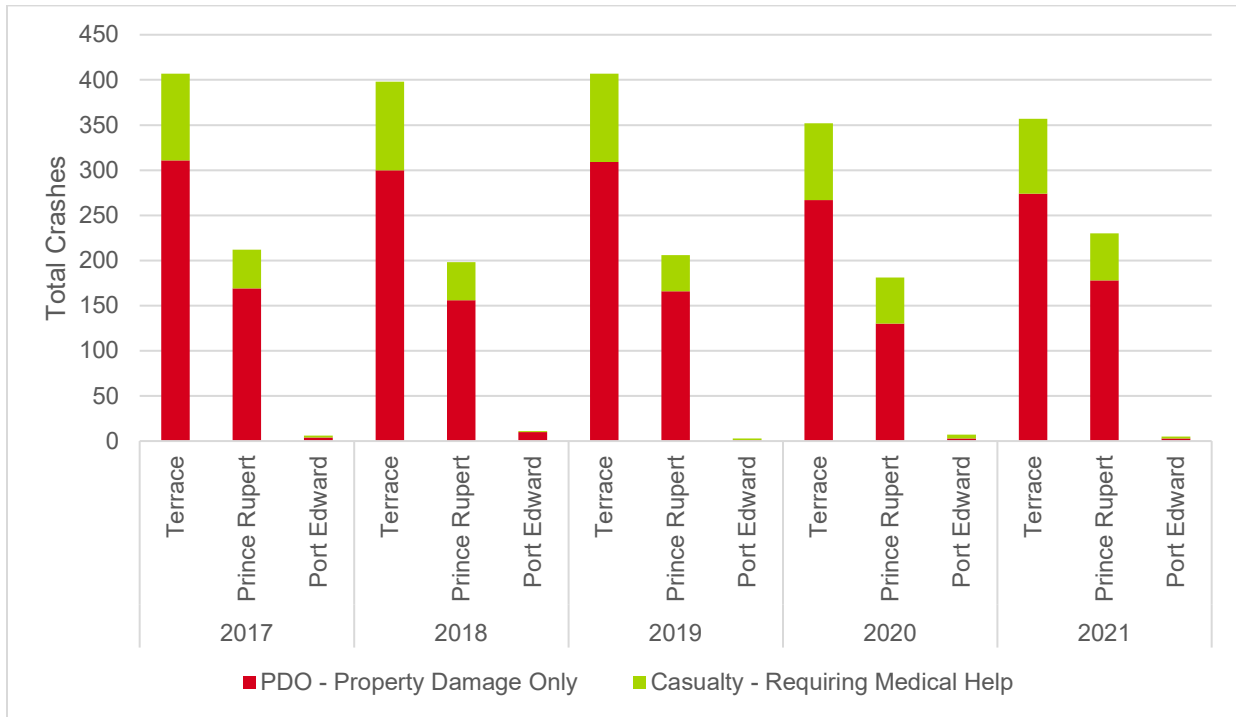
11 **7.12.12 Follow-up Strategy**

12 Government departments, public agencies, and private-sector companies that deliver infrastructure and
13 services will monitor the ongoing demand for such services as part of their normal planning practices.
14 Project information and predicted demands on infrastructure and services will be communicated to
15 responsible authorities to assist with their planning. A community feedback tool will also be developed
16 and implemented to receive and address community suggestions, concerns and complaints. In addition,
17 the Proponents will develop and implement a Project-specific construction environmental management
18 plan and a Social and Economic Effects Management Plan (SEEMP) that collects the mitigation and
19 enhancement measures tied to Project-related activities and physical works associated with construction.
20 The construction environmental management plan and SEEMP will be incorporated into appropriate
21 construction-related contracts.

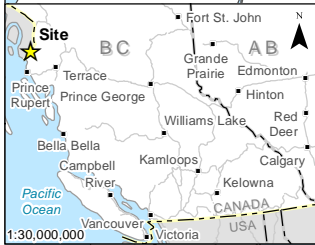
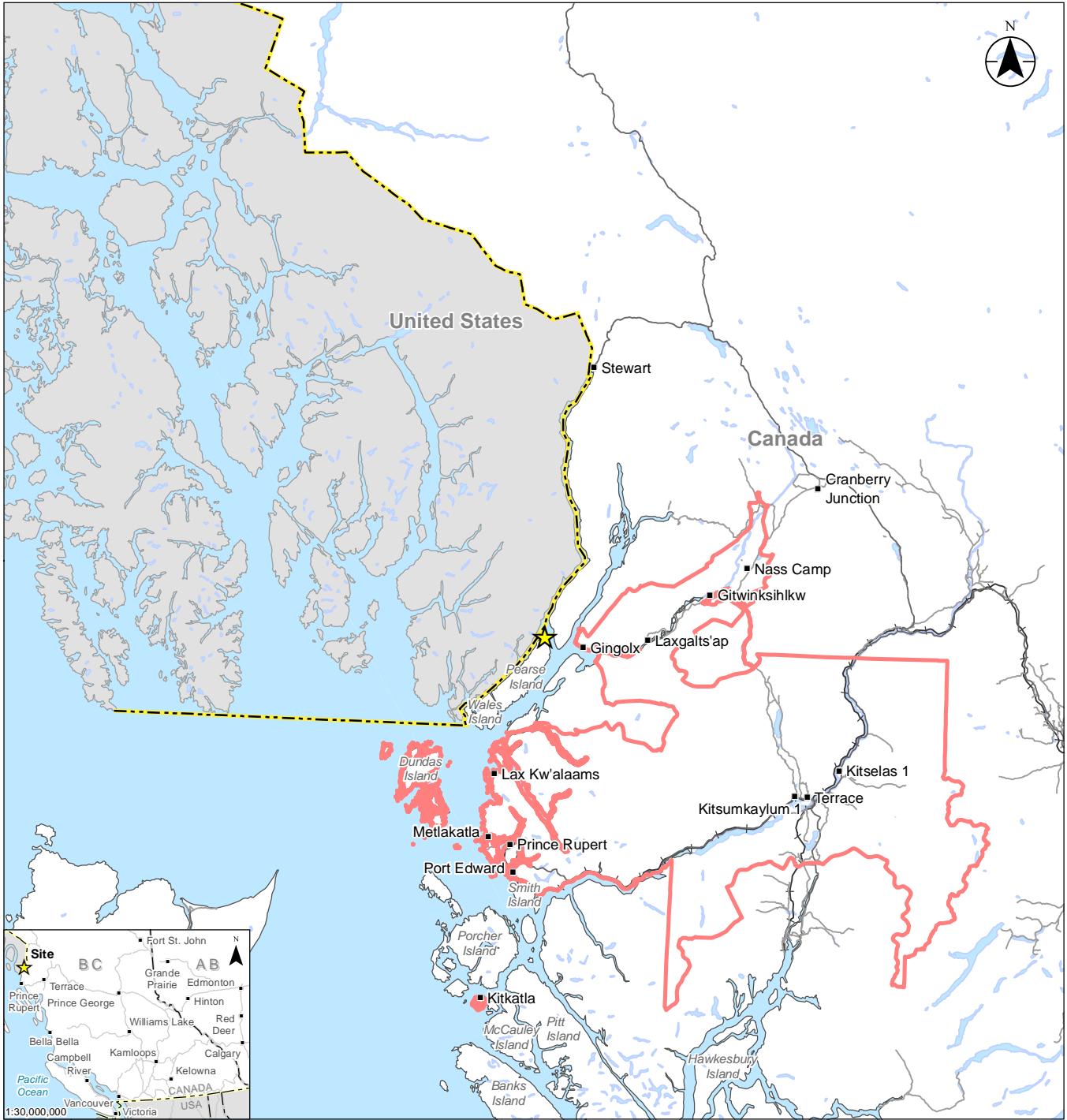
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1 **7.12.13 Figures**

2 **Figure 7.12–1 – North Central Crashes by Insurance Corporation of British Columbia (ICBC)**
 3 **(2017 to 2021)**



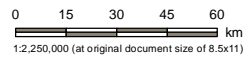
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- Populated Place
- ★ Site
- ▭ Infrastructure and Services Local Assessment Area
- - - International Boundary
- Highway
- Road
- +— Railway
- Waterbody



Project Location: Pearce Island, BC Project Number: 123211820
Prepared by TQUILICHINI on 20221125
Requested by EWATERFIELD on 20221125

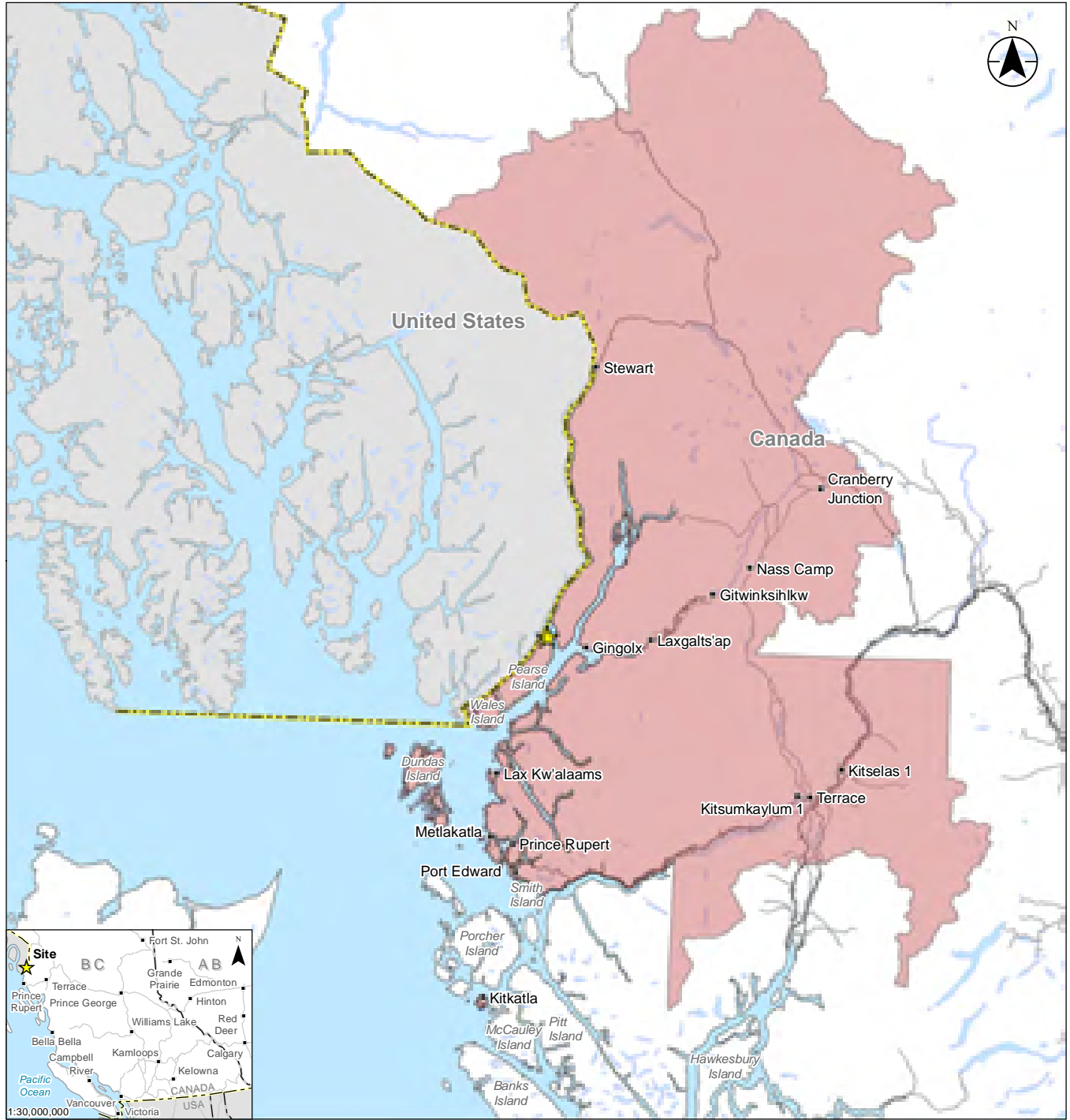
Notes
1. Coordinate System: NAD 1983 BC Environment
Albers
2. Data Sources: DataBC, Government of British
Columbia; Natural Resources Canada, Maxar,
Rockies LNG


Client/Project/Report
Ksi Lisims LNG
Natural Gas Liquefaction and Marine Terminal
Environmental Assessment - Infrastructure & Services

Figure No.
7.12-2

Title
Local Assessment Area

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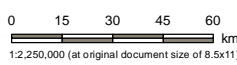





Notes

- Coordinate System: NAD 1983 BC Environment Albers
- Data Sources: DataBC, Government of British Columbia; Natural Resources Canada, Maxar, Rockies LNG

- Populated Place
- ★ Site
- Infrastructure and Services Regional Assessment Area
- International Boundary
- Highway
- Road
- Railway
- Waterbody



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Project Location:
Pearse Island, BC

Project Number: 123221820
Prepared by TQUILICHINI on 20221125
Requested by EWATERFIELD on 20221125

Client/Project/Report
Ksi Lisims LNG
Natural Gas Liquefaction and Marine Terminal
Environmental Assessment - Infrastructure & Services

Figure No.
7.12-3

Title
Regional Assessment Area

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