

Population Survey and Projections

The City of Terrace and Regional District of Kitimat-Stikine Electoral Areas C and E

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Terms and Acronyms

2016 Census: 2016 Census of the Population

City of Terrace: Refers to the geographic area encompassed by the 2016 Census Subdivision boundaries for Terrace (City). It also refers to the Local Health Authority boundary 5171, Terrace City Centre, which is used by BC Stats for population estimates and projections

CMHC: Canadian Mortgage and House Corporation

Hard shadow: people in the **shadow population** who have worked 30 or more days in Terrace or RDKS

LNG: Liquefied natural gas

KMP: Kitimat Modernization Project

MPI: Major Projects Inventory

P.E.O.P.L.E: BC Stats' population projection model

Place of usual residence: the dwelling in which the person usually lives

Regional District of Kitimat-Stikine Electoral Areas C (Part 1) and E: Refers to the geographic area encompassed by the 2016 Census Subdivision boundaries for Kitimat-Stikine Area C (Part 1) and Kitimat-Stikine Area E

RIELP: Ridley Island Export Logistics Platform

RDKS: Regional District of Kitimat-Stikine

Shadow population: People who are living or staying in Terrace and the **RDKS**, Electoral Areas C and E, but have a usual residence elsewhere

Soft shadow: people in the **shadow population** who have not worked 30 or more days in Terrace or RDKS

Total Region: the population summation of the City of Terrace and the RDKS Areas C and E

Usual residents: people who have usual residence in Terrace or in the RDKS, Electoral Areas C and E, as of May 1, 2020 (e.g., it is where they usually live, where their mail goes to, where they stay most nights)

Executive Summary

This report presents the results of a population survey conducted in July 2020 by the City of Terrace and the Regional District of Kitimat-Stikine (RDKS). The objective of the survey is twofold: first, to produce population estimates for the two regions, thereby updating the City of Terrace's 2015 Population Survey and Projection report; and second, to inform a set of population projections based on three economic development scenarios.

A stratified sample of 730 households was produced, with 373 private dwellings in the City of Terrace, and 357 private dwellings in the RDKS Electoral Areas C and E. A total of 469 responses were received, for an aggregate response rate of 64%. The margin of error for the total population estimate is +/- 8%, 46 times out of 50. The total population estimate for the City of Terrace as of May 1, 2020 is 12,700. This total comprises 12,229 usual residents and a shadow population of 471. The total population estimate for the RDKS Electoral Areas C and E is 7,416. This total comprises 7,001 usual residents and a shadow population of 415. The combined population estimate for both areas is 20,116.

The 2020 baseline population estimates serve as a starting point for the three population projections. Three potential economic development scenarios are defined for the projections:

1. **Low** - the current level of regional economic activity is maintained, construction continues and is completed for LNG Canada and the Coastal GasLink Pipeline, the water system development for the Skeena Industrial Development Park continues and supports the construction of two industrial facilities, the expansion of the Mills Memorial Hospital begins, and planned Highway 16 construction continues.
2. **Medium** - all development that occurred in the low scenario is assumed to proceed, in addition to the continued development of the Skeena Industrial Development Park (two additional facilities constructed and additional infrastructure), Ridley Island Export Logistics Platform (RIELP), and the Fairview Container Terminal.
3. **High** - all development that occurred in the low and medium scenarios is assumed to proceed, in addition to expanded development of the Skeena Industrial Development Park (two facilities under construction), Rio Tinto Alcan Kemano Tunnel 2, LNG Canada Interconnection, and the Kitimat LNG and Pacific Trails Pipeline.

All three population projections scenarios show population growth from 2020 to 2024, concurrent with the peak construction period of the LNG Canada and Coastal GasLink projects, as well as the Mills Memorial Hospital construction. Subsequently, all three scenarios project a drop in population between 2024 and 2026, before projecting that the population will either stabilize (Scenario 1 and Scenario 2) or grow steadily (Scenario 3) through to 2030.

1.0 Background

The latest official population estimate for usual residents in the City of Terrace and the Regional District of Kitimat-Stikine (RDKS) comes from the 2016 Census of the Population (2016 Census) conducted by Statistics Canada. The 2016 Census estimates the total number of usual residents in the City of Terrace at 11,643, up 1.4% from the 2011 estimate at 11,486 (Statistics Canada, 2017a), and the total number of usual residents in the RDKS Electoral Areas C and E at 6,827, up 2.1% from 6,684 in 2011 (Statistics Canada, 2017b; Statistics Canada, 2017c). BC Stats produces intercensal annual population estimates for the municipality of Terrace, but none specific to the RDKS, Electoral Areas C and E. BC Stats' most recent population estimate for the City of Terrace shows an increase of 2.9% between 2015 and 2019 (from 12,195 to 12,549) (BC Stats, 2019). BC Stats similarly produces population projections (P.E.O.P.L.E), but the publicly available data sets do not offer projections specific to the City of Terrace or to the constituent regions of the RDKS. Instead, P.E.O.P.L.E produces projections for the 5171 Terrace Local Health Authority boundary and the entirety of the RDKS.

Since 2016, key indicators in the City of Terrace suggest that substantial economic and demographic growth has taken place. According to the Canadian Mortgage and House Corporation (CMHC), the vacancy rate in Terrace was 2.2% in 2019, down 2.2 percentage points from the 4.4% vacancy rate reported in 2016 (Statistics Canada, n.d.). Simultaneously, the cost of a one-bedroom rental unit in Terrace increased from an average of \$707 to \$802 between 2016 and 2019 (Statistics Canada, 2017d). The average price of a single-family home in Terrace jumped from \$308,531 in 2017 to \$346,500 in 2018 and increased again to \$398,553 in 2019 (Terrace Standard, 2020). Additionally, the area's economic development has increased since 2012, albeit not always linearly, starting with the construction of the Northern Transmission line, followed by the proposal and approval of the Liquified Natural Gas (LNG) Canada plant and Coastal GasLink Pipeline. Spillover effects of developments in Kitimat, such as the Kitimat Modernization project, have also played a role in the economic development of Terrace and the RDKS.

By incentivizing migration, economic development is expected to impact demographic growth for both the usual residents and the shadow population. Prior to and since 2015, residents have seen increased economic activity in Terrace, including upward pressures on City services, infrastructure, and housing markets. In 2015, the City of Terrace produced a Population Survey and Projection report in response to official population counts that did not reflect residents' day-to-day experiences; this report estimated a larger population than those provided by the 2011 Census or by BC Stats (2014). In 2020, up-to-date and accurate population estimates are required to understand the evolving demand for services in the City of Terrace, and to include the RDKS, Electoral Areas C and E, in these assessments. Consequently, the City of Terrace and the RDKS are seeking to update their Housing Needs Assessments (2014), Official Community Plans (2018), and previously produced Population Survey and Projection report (2015).

2.0 Results

Section 2.0 presents the 2020 Population Survey results, including population estimates and population projections based on three economic development scenarios. Detailed methodological appendices are additionally available (see Appendices A and B).

2.1 Population Estimates

A stratified random sample of 730 households was produced to estimate the total population in Terrace and in the RDKS, Electoral Areas C and E, including usual residents and the shadow population (see Terms and Acronyms for definitions). A total of 469 responses were received, for an aggregate response rate of 64%. The margin of error for the total population estimate is +/- 8%, 46 times out of 50. The total population estimate for the City of Terrace as of May 1, 2020 is 12,700 people (Table 2.1.1). This total comprises 12,229 usual residents and a shadow population of 471. The total population estimate for the RDKS Electoral Areas C and E as of May 1, 2020 is 7,416 (Table 2.1.2). This total comprises 7,001 usual residents and a shadow population of 415.

Table 2.1.1: Total Population Estimate, City of Terrace, 2020

Estimate	Usual Residents	Soft Shadow	Hard Shadow	Total
Mean	12,229	353	118	12,700
Lower Confidence Limit	11,356	120	0	11,476
Upper Confidence Limit	13,102	586	516	14,204

Source: Big River Analytics Calculations

Notes: Lower confidence limit and upper confidence limit are based on a 95% confidence interval. Total estimates are adjusted to reflect the midpoint of the estimated 75 to 125 undocumented suites (100 undocumented suites). The density of apartments is utilized to estimate the number of people living in undocumented suites (1.81), for a total of 181 individuals living in undocumented suites.

Table 2.1.2: Total Population Estimate, RDKS Areas C & E, 2020

Estimate	Usual Residents	Soft Shadow	Hard Shadow	Total
Mean	7,001	302	113	7,416
Lower Confidence Limit	6,470	118	0	6,588
Upper Confidence Limit	7,531	486	401	8,418

Source: Big River Analytics Calculations

Notes: Lower confidence limit and upper confidence limit are based on a 95% confidence interval. Total estimates are adjusted to reflect the estimated 40 undocumented suites in the RDKS Areas C and E. The density of attached dwellings is utilized to estimate the number of people living in undocumented suites (2.48), for a total of 99 individuals living in undocumented suites.

Population estimates presented by the 2016 Census are representative of usual residents only. A comparison of usual residents shows that Terrace's current population is estimated to be a full 5.0% higher than the most recent estimate produced by the 2016 Census, while the population in the

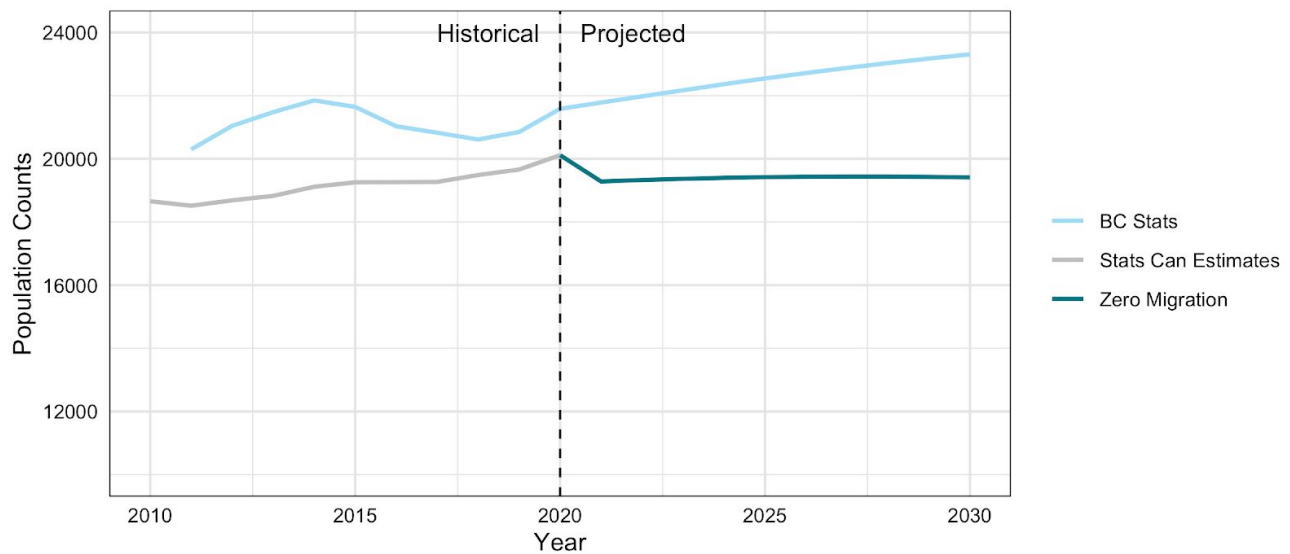
RDKS, Electoral Areas C and E, is estimated to be 2.5% higher. If shadow residents are included, Terrace's total population is 9.0% higher than the 2016 Census estimate, while the total population of the RDKS, Electoral Areas C and E, is 8.6% higher than estimated in the 2016 Census. In 2020, the shadow population accounted for 3.7% of the total population in the City of Terrace (down from 4.3% in 2015), and 5.5% of the total population of the RDKS, Electoral Areas C and E.

For the City of Terrace, survey results are also comparable to the most recent (2019) official estimate from BC Stats and the 2015 Population Survey and Projection report. When considering only usual residents, the population estimate based on current survey results are 2.6% lower than the 2019 BC Stats estimate. However, when the shadow population is included, the population estimate based on current survey results is 1.2% higher than BC Stats' estimate. Finally, Terrace's total population in 2020 is 1.6% higher than the estimate in 2015. These modest growth trends serve to highlight that economic development does not always translate into permanent residents, instead attracting significant numbers of shadow populations or workers based in camps, coming in waves and subsequently leaving when their projects are complete.

2.2 Population Projections: 2020-2030

Population projections are produced for the City of Terrace and the RDKS, Electoral Areas C and E, by drawing from two distinct components: natural change (the result of births and deaths) and migration. The natural change in the current population can be projected by omitting migration, and net-zero migration is set as a baseline for the 2020 population projections (Figure 2.2.1). Immigration and outmigration are assumed to be a function of economic activity; in other words, they are driven by increases or decreases in local and regional economic growth. We consequently allow migration to vary as a function of the three identified potential development scenarios (low, medium, and high development), thereby impacting population projections out to 2030. Detailed assumptions guiding these projections are provided in Appendix B1.

Figure 2.2.1: Zero Migration (Baseline) Population Projection, Total Region, 2010 to 2030



Source: Big River Analytics Calculations; BC Stats population estimates and projections; Statistics Canada. Table 17-10-0142-01 Population estimates, July 1, by census subdivision, 2016 boundaries.

Notes: The total baseline population projection excludes migration and only accounts for natural population changes (births, deaths). The BC Stats estimates and projections are for Community Health Service Area 5171, Terrace City Centre, and 5172, Terrace Rural, which encompasses a larger geographic region than the boundaries for the population survey and the Statistics Canada population estimates. Consequently, estimates using the LHA boundary 5172 are not directly comparable to Statistics Canada population estimates or the population projections.

Scenarios

Three potential economic development scenarios are defined for the projections:

1. Low Economic Development
2. Medium Economic Development
3. High Economic Development

We consider each in more detail, looking at projections for the total region (the aggregate of Terrace and the RDKS, Electoral Areas C and E)¹ to 2030. Detailed regional projections for Terrace and the RDKS, Electoral Areas C and E are provided in Appendix B2 :

Scenario 1 - Low Economic Development

Scenario 1 (see Figure 2.2.2) assumes that the following local and regional economic development will take place:

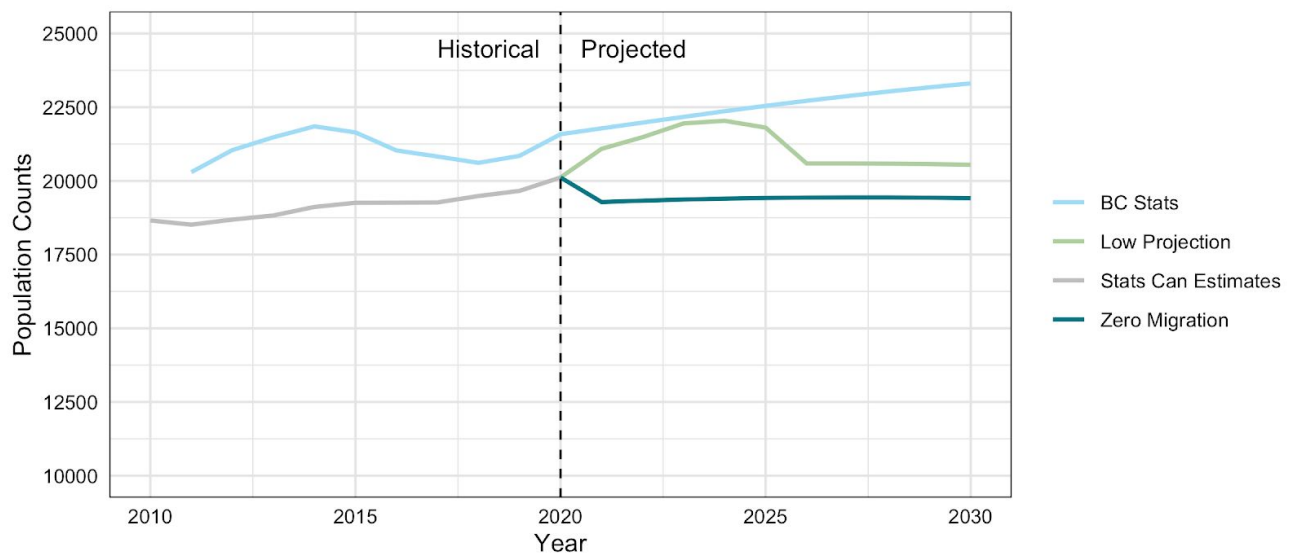
- Skeena Industrial Development Park (SIDP) development continues with two industrial facilities being constructed and completed in coordination with the on-site water system by 2022. Permanent employment continues at the two facilities from 2023 onward.
- Highway 16 construction continues into 2021.

¹ Note: Additional tables and figures presenting data for Terrace and the RDKS individually are available in Appendix B2.

- Mills Memorial Hospital construction begins in 2021 and is forecasted to be completed by 2025, requiring up to 350 workers during peak construction.
- Construction of the LNG Canada facility and the Coastal GasLink Pipeline continues, reaching its peak in 2024 and is forecast to be completed by 2026. Peak construction occurs from 2021 until 2024.

In this scenario, the aggregate population for both the City of Terrace and the RDKS, Electoral Areas E and C, grows steadily from 2020 to 2023 (20,116 to 21,951), before reaching its peak of 22,038 in 2024 (Table 2.2.1). In 2024, the shadow population is also estimated to peak at a total of 984. The estimated peak population is concurrent with peak construction from 2021 through 2024 on the LNG Canada and Coastal GasLink projects, the Mills Memorial hospital construction, and the SIDP industrial facility development. The total population is projected to grow by 2.1% from 2020 to 2030. Figure 2.2.3 shows that under the low development scenario the age and gender structure of the population remains stable over the projection horizon, with a slight decrease in the number of infants, and modest ageing of the population.

Figure 2.2.2: Low Development Scenario Population Projections, Total Region, 2010 to 2030



Source: Big River Analytics Calculations; BC Stats population estimates and projections; Statistics Canada. Table 17-10-0142-01 Population estimates, July 1, by census subdivision, 2016 boundaries.

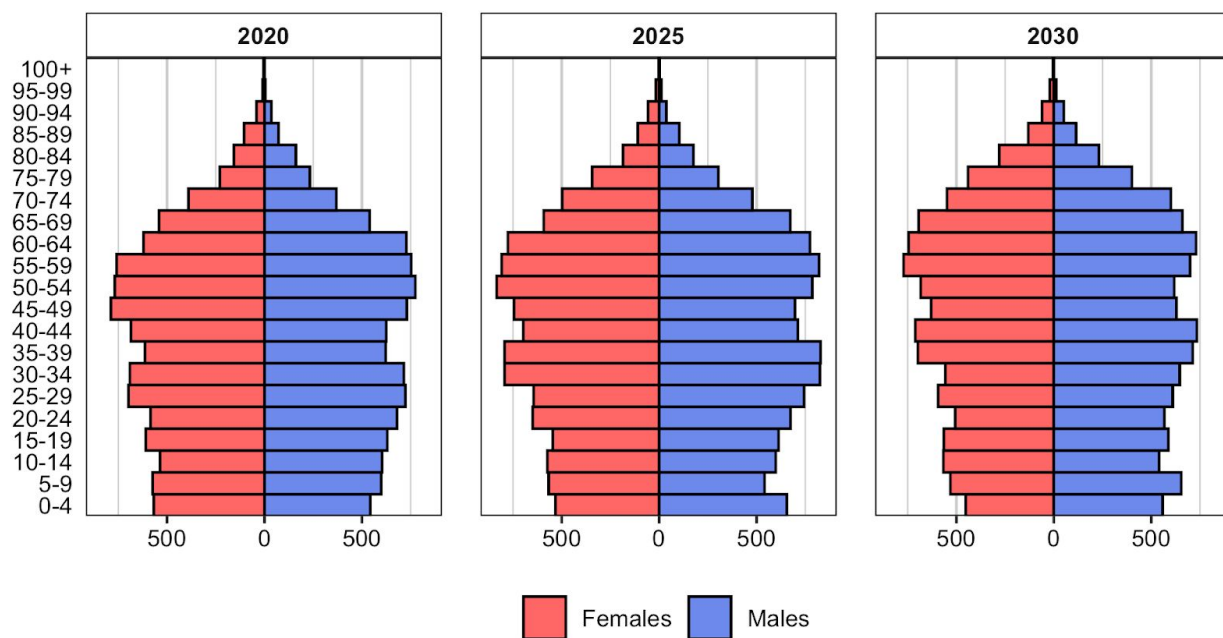
Notes: The population projection includes estimates for the usual residents and the shadow population. The BC Stats estimates and projections are for Community Health Service Area 5171, Terrace City Centre, and 5172, Terrace Rural, which encompasses a larger geographic region than the boundaries for the population survey and the Statistics Canada population estimates. Consequently, estimates using the LHA boundary 5172 are not directly comparable to Statistics Canada population estimates or the population projections.

Table 2.2.1: Low Development Scenario Projections, Total Region, 2020 to 2030

Year	Usual Residents	Shadow Population	Total Population	Shadow Population (% of Total)
2020	19,230	886	20,116	4.4%
2021	20,176	910	21,087	4.3%
2022	20,536	947	21,483	4.4%
2023	20,980	971	21,951	4.4%
2024	21,054	984	22,038	4.5%
2025	20,935	874	21,808	4.0%
2026	19,744	847	20,591	4.1%
2027	19,744	846	20,591	4.1%
2028	19,738	846	20,584	4.1%
2029	19,724	846	20,570	4.1%
2030	19,701	846	20,547	4.1%

Source: Big River Analytics Calculations

Figure 2.2.3: Population Pyramids, Low Development Scenario, Total Region, 2020, 2025, 2030



Source: Big River Analytics Calculations

Scenario 2 - Medium Economic Development

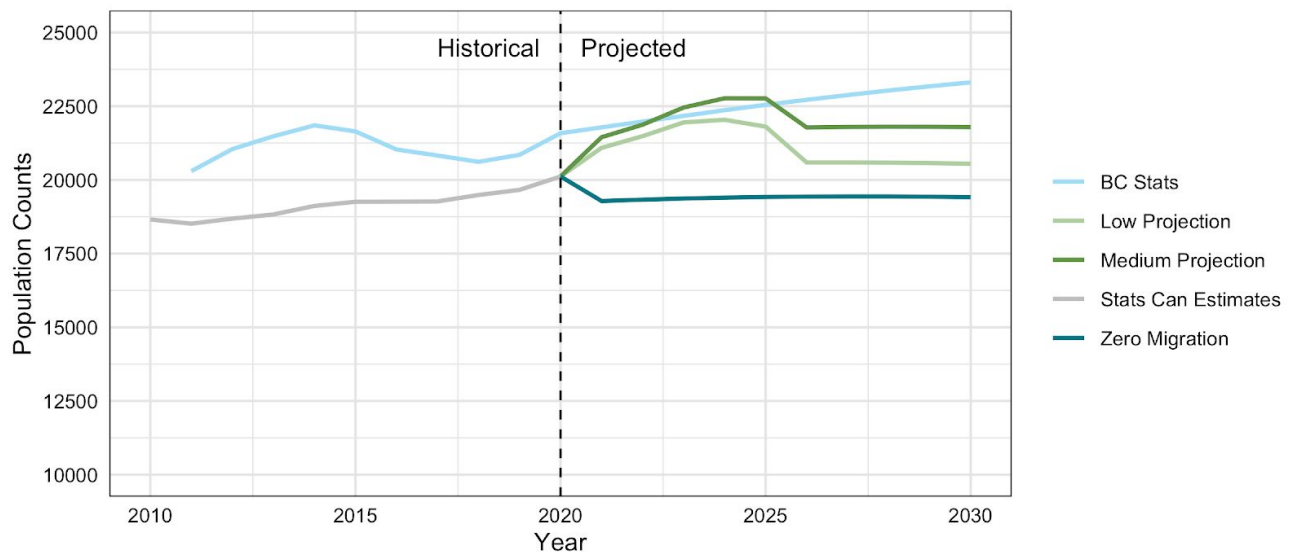
Scenario 2 (Figure 2.2.4) assumes that all development that occurred in the low scenario proceeds, in addition to the following local and regional economic development:

- Skeena Industrial Development Park development continues with ongoing infrastructure additions (roads, power) and two additional facilities being developed in 2024 and 2026 (150 permanent jobs per facility).

- RIELP begins construction in Q1 2022 in Prince Rupert and continues until 2022-2023. The construction workforce is estimated at 250, followed by 150 permanent workers after construction.
- Fairview Container Terminal Expansion concludes in 2022, creating approximately 300 additional full-time equivalent jobs at the terminal, located in Prince Rupert.

In this scenario, the aggregate population for both the City of Terrace and the RDKS, Electoral Areas E and C, grows 8.3% between 2020 and 2030 (20,116 to 21,790), reaching a peak of 22,769 in 2024 (Table 2.2.2). The shadow population peaks at a total of 1,009 in 2024, driven by the LNG Canada project as well as the additional development forecasted to occur in Scenario 2. The decrease in population seen after 2025 in Figure 2.2.4 reflects the completion of the construction components for all but the Skeena Industrial Development Park development. The shadow population stabilizes after 2026 as permanent work begins for all economic development projects. Figure 2.2.5 shows that under the medium development scenario, the population's age structure shifts over the projection horizon, with an overall increase in the working-age population during 2025, reflecting the period of peak development. This shift is most pronounced for the age cohorts of 30-34 to 55-59. An increase in infants between 2020 and 2025 represents natural population growth in the region.

Figure 2.2.4: Medium Development Scenario Population Projections, Total Region, 2010 to 2030



Source: Big River Analytics Calculations; BC Stats population estimates and projections; Statistics Canada. Table 17-10-0142-01 Population estimates, July 1, by census subdivision, 2016 boundaries.

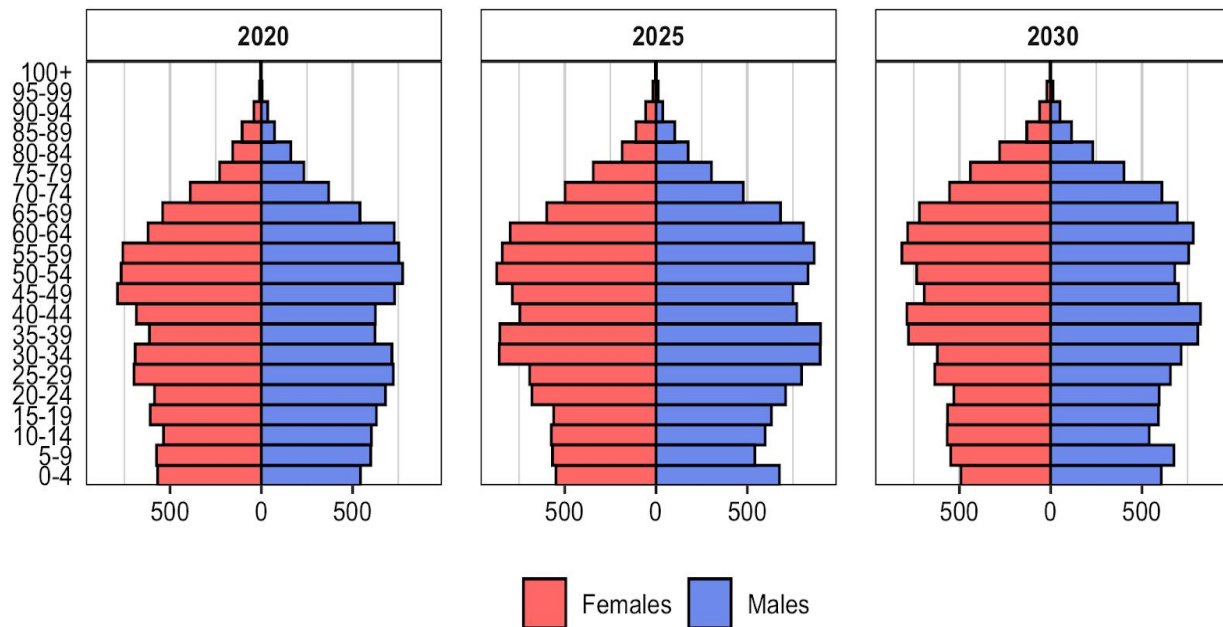
Notes: The population projection includes estimates for the usual residents and the shadow population. The BC Stats estimates and projections are for Community Health Service Area 5171, Terrace City Centre, and 5172, Terrace Rural, which encompasses a larger geographic region than the boundaries for the population survey and the Statistics Canada population estimates. Consequently, estimates using the LHA boundary 5172 are not directly comparable to Statistics Canada population estimates or the population projections.

Table 2.2.2: Medium Development Scenario Population Projections, Total Region, 2020 to 2030

Year	Usual Residents	Shadow Population	Total Population	Shadow Population (% of Total)
2020	19,230	886	20,116	4.4%
2021	20,537	910	21,447	4.2%
2022	20,916	956	21,872	4.4%
2023	21,460	995	22,455	4.4%
2024	21,760	1,009	22,769	4.4%
2025	21,868	899	22,767	3.9%
2026	20,907	872	21,779	4.0%
2027	20,923	871	21,795	4.0%
2028	20,932	871	21,803	4.0%
2029	20,930	871	21,802	4.0%
2030	20,919	871	21,790	4.0%

Source: Big River Analytics Calculations

Figure 2.2.5: Population Pyramids, Medium Development Scenario, Total Region, 2020, 2025, 2030



Source: Big River Analytics Calculations

Scenario 3 - High Economic Development

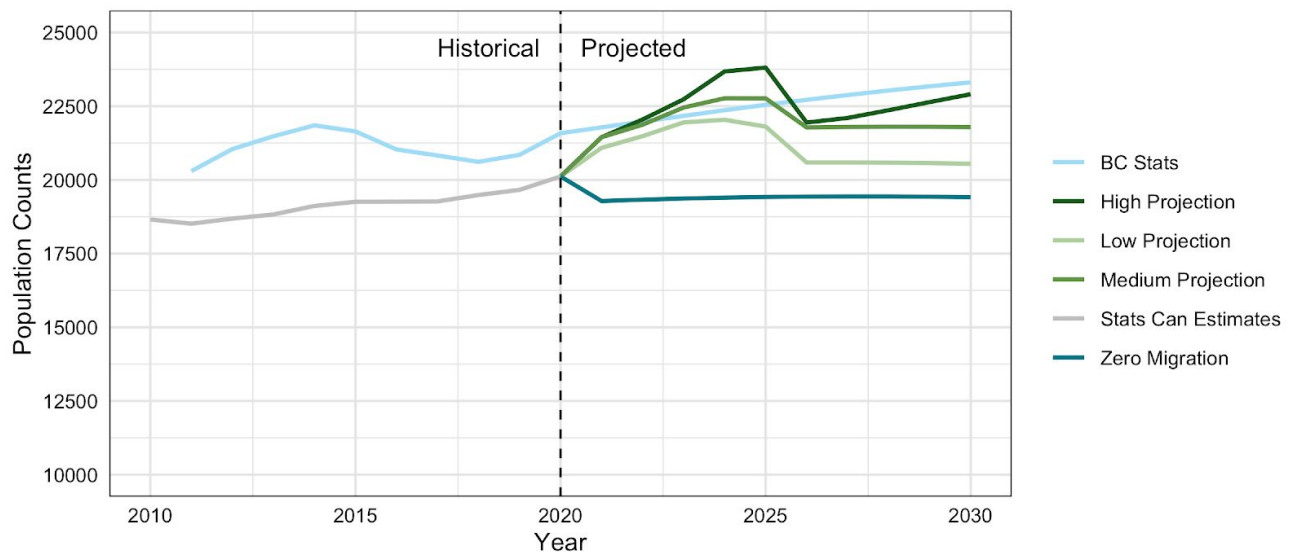
Scenario 3 assumes that all development that occurred in the low and medium scenarios proceeds, in addition to the following local and regional economic development:

- Skeena Industrial Development Park continues with an additional two facilities being added in 2028 and 2030 (150 permanent jobs per facility).

- Rio Tinto Alcan, Kemano Tunnel 2 sees a re-start of tunnel excavation works in the third quarter of 2020, finishing by 2021.
- LNG Canada Interconnection continues and concludes in 2023.
- Kitimat LNG and Pacific Trails Pipeline construction starts in 2022 and concludes in 2027, creating an estimated 4,500 jobs at its peak between 2023 and 2025, and 150 permanent jobs after completion.

In this scenario, the aggregate population for both the City of Terrace and the RDKS, Electoral Areas E and C, grows 13.9% from 2020 to 2030 (20,116 to 22,907). The population increases rapidly to a peak in 2025 before dropping the following year and resuming a slow increase throughout the remainder of the time period (Table 2.2.3). The shadow population mirrors this trajectory, but with an earlier peak of 1,371 in 2024. The temporary decline in population after 2025 represents the end of peak construction for the LNG Canada project as well as the Kitimat LNG project. Figure 2.2.7 shows that under the high development scenario, the population's age structure shifts over the projection horizon, with a strong increase in the working-age population from 2020 to 2030, most particularly for ages 25-29 to 60-64. We observe a marked increase in the number of infants between 2020 and 2025, suggesting that natural growth, in addition to increased migration, is driving population growth.

Figure 2.2.6: High Development Scenario Population Projections, Total Region, 2010 to 2030



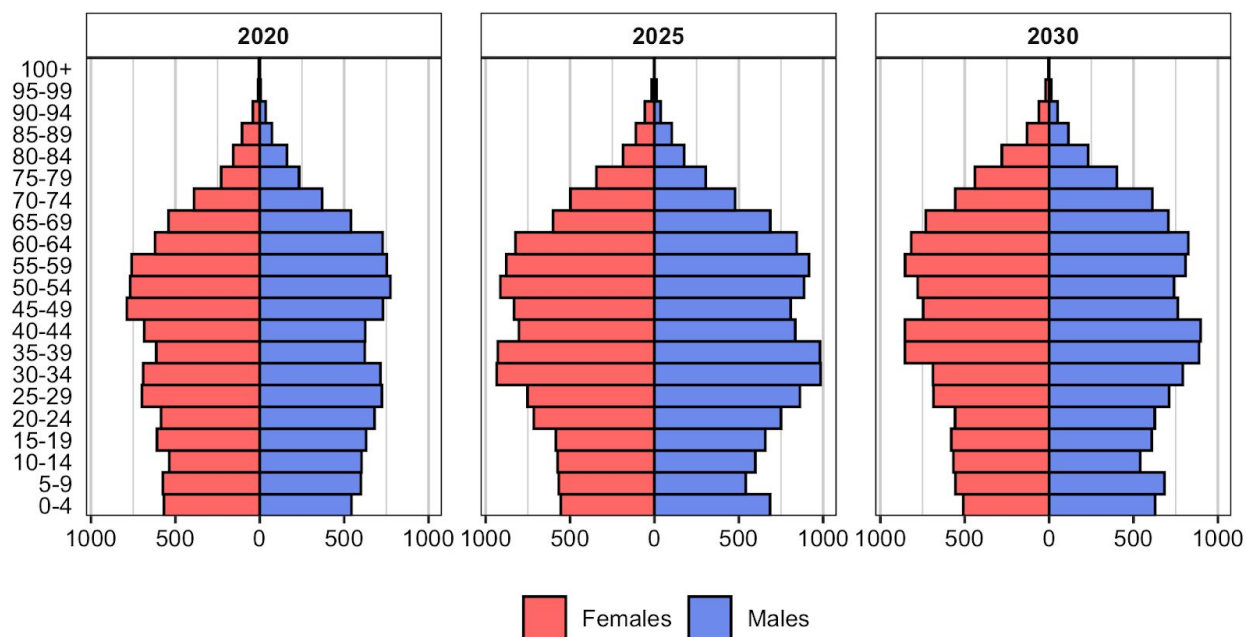
Source: Big River Analytics Calculations; BC Stats population estimates and projections; Statistics Canada. Table 17-10-0142-01 Population estimates, July 1, by census subdivision, 2016 boundaries.

Notes: The population projection includes estimates for the usual residents and the shadow population. The BC Stats estimates and projections are for Community Health Service Area 5171, Terrace City Centre, and 5172, Terrace Rural, which encompasses a larger geographic region than the population survey and the Statistics Canada population estimates. Consequently, estimates using the LHA boundary 5172 are not directly comparable to Statistics Canada population estimates or the population projections.

Table 2.2.3: High Development Scenario Population Projections, Total Region, 2020 to 2030

Year	Usual Residents	Shadow Population	Total Population	Shadow Population (% of Total)
2020	19,230	886	20,116	4.4%
2021	20,537	910	21,447	4.2%
2022	21,022	1,027	22,049	4.7%
2023	21,627	1,105	22,733	4.9%
2024	22,308	1,371	23,679	5.8%
2025	22,497	1,312	23,809	5.5%
2026	21,012	932	21,944	4.2%
2027	21,221	881	22,102	4.0%
2028	21,490	874	22,364	3.9%
2029	21,765	874	22,639	3.9%
2030	22,033	874	22,907	3.8%

Source: Big River Analytics Calculations

Figure 2.2.7: Population Pyramids, High Development Scenario, Total Region, 2020, 2025, 2030

Source: Big River Analytics Calculations

Discussion

The three population projections scenarios presented in Section 2.2 all show population growth from 2020 to 2024, concurrent with the peak construction period of the LNG Canada and Coastal GasLink projects, as well as the Mills Memorial Hospital construction. In particular, we note that the shadow population in all three scenarios peaks in 2024. Similarly, the proportion of shadow population to total population in all three scenarios is highest between 2023 and 2024, before stabilizing (Scenarios 1 and 2) or falling (Scenario 3) starting in 2025. This suggests that the population growth

exhibited in Scenarios 3 from 2025 to 2030 is largely driven by usual residents. This hypothesis is also reflected in the increase in the number of infants and children aged 5 to 9 by 2030 (see Figure 2.2.7).

BC Stats' P.E.O.P.L.E estimates (2019) collate data at the level of Terrace Local Health Area 517 (see Appendix C). This area is larger than that encompassed by the City of Terrace and the RDKS, Electoral Areas C and E, as defined by the 2020 Population Survey; therefore, the BC Stats base population is larger than the combined population estimate of 20,116. Additionally, P.E.O.P.L.E 2019 did not include the Q4 2018 Major Projects Inventory (MPI), thereby making any direct comparisons with our results difficult. That said, we can observe in Table 2.2.4 that the P.E.O.P.L.E projection shows a steady upward trend throughout the period, growing 8% from 2020 to 2030. This growth trend is most similar to that of the medium development scenario.

Table 2.2.4: Terrace Local Health Area 517, P.E.O.P.L.E Population Projections, 2020 to 2030

Year	Total Population
2020	21,583
2021	21,782
2022	21,978
2023	22,171
2024	22,364
2025	22,546
2026	22,717
2027	22,878
2028	23,033
2029	23,175

Source: BC Stats, 2019

Notes: All figures are as of July 1.

Appendix A - Methodological Appendix: Population Estimates

A1. Producing the Sample

A stratified sample of 730 households was produced, with 373 private dwellings in the City of Terrace (see Table A1.3), and 357 private dwellings in the RDKS Electoral Areas C and E (see Table A1.4). The private dwelling counts listed in Table A1.1 were used to calculate the survey sample size. Our measures of precision/accuracy used were for a 0.05 margin of error, 95% confidence interval.

Table A1.1: Population and Private Dwelling Counts, City of Terrace and RDKS Areas C & E, 2016 Census

Census Subdivision	Population	Private Dwellings Occupied by Usual Residents	Average Household Density
Terrace, CY	11,643	4,625	2.5
Kitimat-Stikine C (Part 1) & E	6,827	2,850	2.4
Total Region	18,470	7,475	2.5

Source: Statistics Canada, 2016 Census of Population, Catalogue no. 98-316-X2016001

Notes: Total region refers to the summation of the City of Terrace and Kitimat-Stikine C (Part 1) and E.

To increase the accuracy of the results, we divided the sample by dwelling types. Different dwelling types are likely to have different counts of residents/dwelling due to each dwelling's size and functionality (i.e., apartments usually have fewer residents per dwelling compared to a detached home). We use the 2016 Census dwelling type percentages found in Table A1.2 to achieve the most accurate distribution of sampled survey participants amongst the following dwelling types:

- Detached Dwelling
- Attached Dwelling
- Apartment
- Mobile Home

For the RDKS Electoral Areas C and E, we combine the Attached Dwelling and Apartment type because the counts for each group are small.

Table A1.2: Counts and Percentages of Dwellings by Type, Terrace and RDKS Areas C & E, 2016 Census

Dwelling Type	Count of Dwelling			Percentage of Dwelling		
	Terrace, CY	Kitimat-Stikine C (Part 1) & E	Total Region	Terrace, CY	Kitimat-Stikine C (Part 1) & E	Total Region
Detached	2,845	2,200	5,045	62%	77%	67%
Attached	630	145	775	14%	5%	10%
Apartment	945	75	1,020	20%	3%	14%
Mobile Home	205	430	635	4%	15%	8%
Total	4,625	2,850	7,475	100%	100%	100%

Source: Statistics Canada, 2016 Census of Population, Catalogue no. 98-400-X2016017

Note: Due to rounding the Total Region Percentage of Dwellings by type does not appear to add up to 100%. Total Region refers to the summation of the City of Terrace and Kitimat-Stikine C (Part 1) and E.

The distribution of dwelling types successfully surveyed, for both the City of Terrace and the RDKS (see Table A1.3 and A1.4), closely follows the distribution of dwelling types reported by the 2016 Census. This mirrored distribution supports our goal of collecting a sample representative of the current population in terms of dwelling characteristics.

Table A1.3: Survey Sample Statistics by Dwelling Type, City of Terrace, 2020

Dwelling Type	Sample Size	Sample Responses	Sample Distribution	2016 Census Distribution	Response Rate
Detached	212	150	58%	62%	71%
Attached	51	38	15%	14%	75%
Apartment	93	58	23%	20%	62%
Mobile Home	17	11	4%	4%	65%
Total	373	257	100%	100%	69%

Source: Big River Analytics Calculations

Table A1.4: Survey Statistics by Dwelling Type, RDKS Areas C & E, 2020

Dwelling Type	Sample Size	Sample Responses	Sample Distribution	2016 Census Distribution	Response Rate
Detached	257	158	75%	77%	61%
Attached & Apartment	28	21	10%	8%	75%
Mobile Home	54	33	16%	15%	61%
Total	357	212	100%	100%	59%

Source: Big River Analytics Calculations

Finally, when collating the City of Terrace administrative data we observe an additional 136 dwellings in 2020 compared to what was estimated in the 2015 Survey of Population and Projection report (see Table A1.5).

Table A1.5: Residential Dwelling Counts and Percentages by Type, Terrace, Administrative Data, 2015 & 2020

Dwelling Type	2020 Count	2015 Count	2020 Percentages	2015 Percentages
Detached	3,694	3,118	73%	64%
Attached	612	1,028	12%	21%
Apartment	539	562	11%	11%
Mobile Home	195	196	4%	4%
Total	5,040	4,904	100%	100%

Source: Administrative Data from the City of Terrace

A2. Enumeration

A total of 469 survey responses were received, for an aggregate response rate of 64%. The margin of error for the total population estimate is +/- 8%, 46 times out of 50. Table A2.1 and A2.2 present the survey response results for the City of Terrace and for the RDKS, Electoral Areas C and E, respectively.

Table A2.1: Survey Response Statistics by Dwelling Type, City of Terrace, 2020

Dwelling Type	Dwelling Count	Resident Count	Average Household Density	Shadow Population
Detached	150	398	2.7	13
Attached	38	85	2.2	7
Apartment	58	105	1.8	4
Mobile Home	11	21	1.9	0
Total	257	609	2.4	24

Source: Big River Analytics Calculations

Table A2.2: Survey Response Statistics by Dwelling Type, RDKS Areas C & E, 2020

Dwelling Type	Dwelling Count	Resident Count	Average Household Density	Shadow Population
Detached	158	464	2.9	24
Attached & Apartment	21	52	2.5	4
Mobile Home	33	75	2.3	5
Total	212	591	2.8	33

Source: Big River Analytics Calculations

A3. Questionnaire

The survey questionnaire consisted of the following questions:

1. As of May 1, 2020, how many people (all ages) are living or staying, even temporarily, at this address?
2. Is this address the usual place of residence for all residents? (e.g., where they usually live, where their mail goes to, where they stay most nights?).

3. For how many of the residents you mentioned, is this **NOT** their usual place of residence?
4. During the past year, of those for whom this is **not** their usual place of residence, how many worked at least 30 days in the greater City of Terrace or surrounding area²?
5. How many people living at this address, if any, are currently conducting work that supports or is in association with the LNG Canada project? (LNG Canada export facility/plant)
6. For the individual currently conducting work that supports or is in association with the LNG Canada project, is this their usual place of residence?
7. For those individuals currently conducting work that supports or is in association with the LNG Canada project, for how many is this **NOT** their usual place of residence?

A4. Additional Survey Results

LNG employee population estimates are derived from responses to survey Questions 5 through 7 listed in Section A3. An estimated 586 individuals who conduct work that supports LNG Canada were usual residents in Terrace as of May 1, 2020 (Table A4.1). An additional 397 LNG Canada employees had their usual residence in the RDKS, Electoral Areas C and E, as of May 1, 2020 (Table A4.2). In the RDKS, Electoral Areas C and E, an estimated 122 LNG employees were found to be part of the hard shadow population, for a total LNG employee population estimate of 519 for the RDKS, Electoral Areas C and E, and 1,105 for the region as a whole. The majority of employees associated with the LNG Canada project reside in work camps that are not captured by these assessments. They do not impact demographic growth trends, but may still serve to stimulate economic activity or the perception of economic activity on-the-ground.

Table A4.1: LNG Employee Population Estimate, Terrace, 2020

Estimate	Usual Resident	Hard Shadow	Total
Mean	586	0	586
Lower Confidence Limit	315	0	315
Upper Confidence Limit	857	0	857

Source: Big River Analytics Calculations

Table A4.2: LNG Employee Population Estimate, RDKS Areas C & E, 2020

Estimate	Usual Resident	Hard Shadow	Total
Mean	397	122	519
Lower Confidence Limit	232	0	232
Upper Confidence Limit	563	287	850

Source: Big River Analytics Calculations

² Note: Greater City of Terrace and surrounding area includes the City of Terrace and the RDKS, Electoral Areas C and E.

Appendix B - Methodological Appendix: Economic Scenarios & Population Projections

B1. Detailed Assumptions

1. All local jobs result in additions to the usual resident population (as opposed to the shadow population) because local jobs are treated as permanent jobs. The City of Terrace and RDKS, Electoral Areas C and E, are relatively remote communities and people moving for a local job are assumed to stay, so that the City of Terrace or RDKS, Areas C and E, become their place of usual residence.
2. Regional jobs result in additions to the usual resident and shadow populations. Specifically, 40% of regional jobs that end up in the City of Terrace and RDKS, Electoral Areas C and E, are assigned to the shadow population, while 60% are assumed to become usual residents.
3. Local manufacturing jobs produce local indirect jobs at a rate of 1.6 indirect jobs per local manufacturing job in a tradeable goods industry. This multiplier is informed by the Moretti (2010) study.
4. Local jobs taken up by usual residents support 2.00 people. This is estimated using data from the 2016 National Household Survey. Specifically, it is the ratio of the total population in Terrace and RDKS, Electoral Areas C and E, to the number of household maintainers.
5. We assume that the RDKS, Electoral Areas C and E, receives 30% of all local and regional jobs and associated immigrants. This is informed by internal City of Terrace documentation.
6. The City of Terrace receives a 7% spillover of all the jobs created in Kitimat related to the modelled projects. This estimate is informed by conversations with respective unions that provided skilled labour during the Kitimat Modernization Project (KMP), and in conversation with the Haisla Shuttle, a company that provided daily transportation from Terrace to Kitimat during the KMP. The operational spillover effect after construction is 20%. These percentages are also applied to the RDKS, Electoral Areas C and E.
7. The City of Terrace and the RDKS, Electoral Areas C and E, receives a 2.5% spillover of jobs created in Prince Rupert. This estimate is informed by the literature indicating that spillover effects decline exponentially as a function of distance. This makes sense because Kitimat can be considered a reasonable daily commute for people staying in the City of Terrace or the RDKS, Electoral Areas C and E, while Prince Rupert may not be considered a reasonable daily commute from either of these regions. This assumption is further supported by the work of Monte, et al. (2015). The operational spillover effect after construction is 5%.
8. Assume 170 jobs in the traded goods sector for any manufacturing facility built in the City of Terrace and the RDKS, Electoral Areas C and E. This number is informed by the estimated job creation from the single planned manufacturing facility (QETDZ phase 1 job estimates).

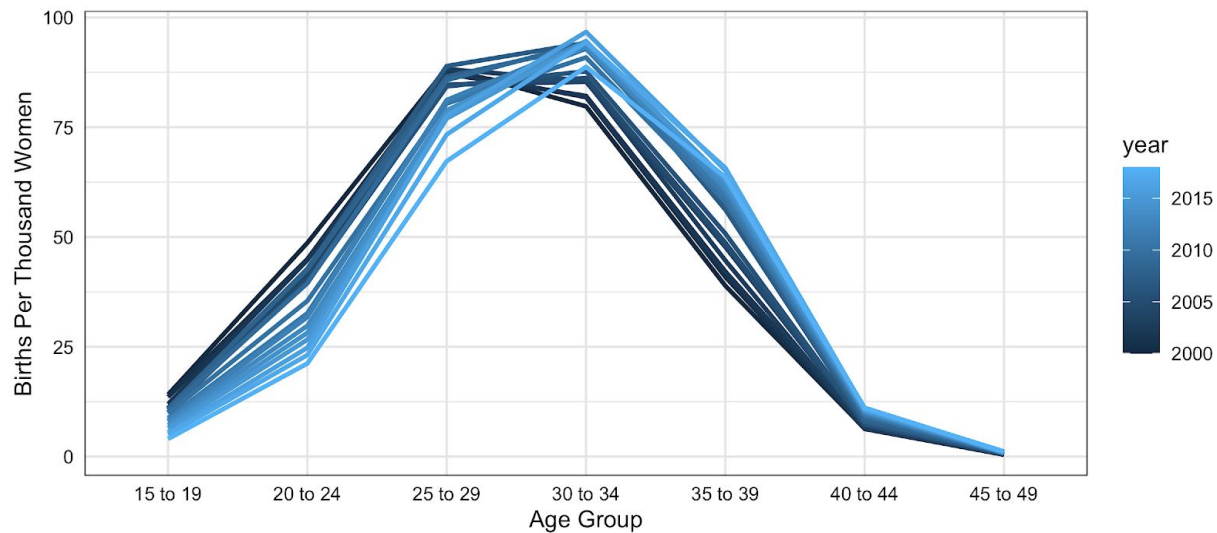
9. The total number of person-years³ detailed in the respective project descriptions is equal to the cumulative number of person-years that will take place over the construction horizon of any project.
10. The distribution of person-years associated with a proposed project is defined by the identified peak employment level, the number of person-years, and the construction time estimate detailed in the respective project descriptions.
11. Shadow populations are only in Terrace and the RDKS, Electoral Areas C and E, during the project construction horizon and they do not reproduce or die during their time in Terrace.
12. Usual residents become integrated into the City of Terrace's population and the population residing in the RDKS, Electoral Areas C and E, and they are included in the usual population dynamics of the city (reproduction and mortality).
13. In the calculation of natural growth and decline, we assume that births come before deaths.
14. The age and gender profile of immigrants to the City of Terrace and the RDKS, Electoral Areas C and E, for regional jobs will have the same age and gender profile of migrants to the WoodBuffalo region in Alberta between 2015 and 2019.

B.2 Additional Figures

Figure B2.1 shows the births per thousand women for British Columbia between 2000 and 2018. There is a decrease in births per thousand women for the age groups 15 to 20 and a slight increase in births for those over the age of 30. This indicates an overall shift in fertility trends as women continue to have children later in life. The total fertility rate, which is an estimate of the average number of live births a female can be expected to have in her life-time, decreased from 1.43 in 2012 to 1.28 in 2018. This decreasing fertility trend and outward shift in the age women are deciding to have children is reflected in the stable population counts of the zero migration scenario for the total region (see Figure 2.2.1).

³ Person-year is a unit of measurement for the amount of work done by an individual throughout the entire year, it is not a measure of jobs, but the amount of time spent doing a specific job. For example, three years spent doing one job is three-person years of employment.

Figure B2.1: Age Specific Fertility for British Columbia, 2000 to 2018



Source: Statistics Canada Crude Birth Rate, Age-Specific Fertility Rates, and Total Fertility Rate (2019)

Table B2.1: Percentage of Population for Projection Breakdown by Region, 2020

Estimate	Usual Residents	Total Shadow	Total Population
Terrace	64%	53%	63%
RDKS Area C & E	36%	47%	37%

Source: Big River Analytics Calculations

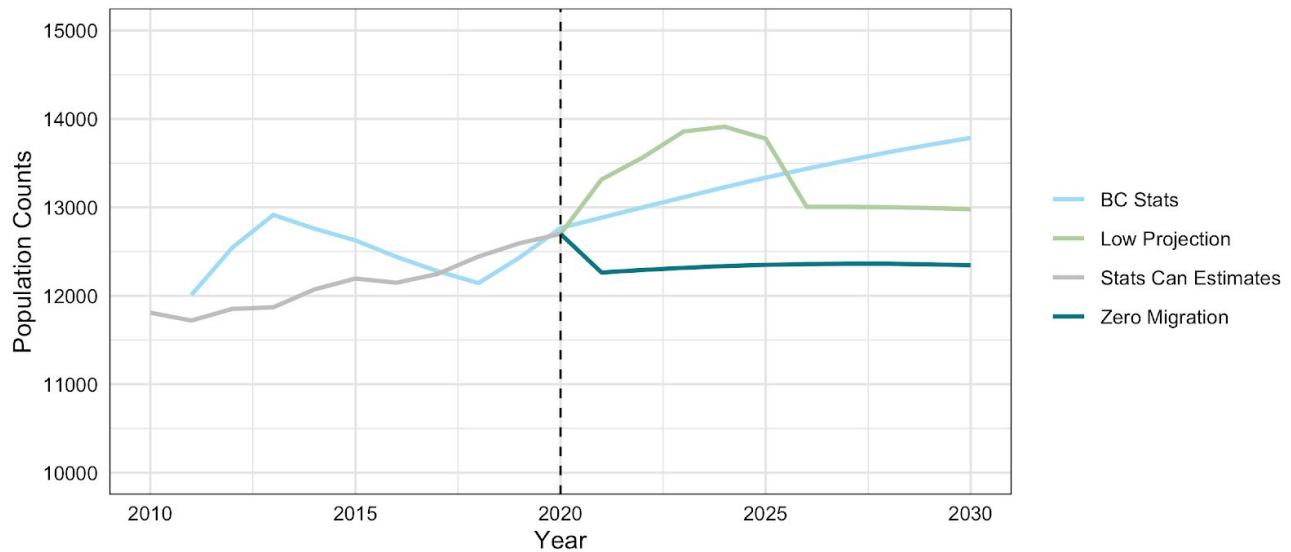
Notes: Percentage of the population is derived from the survey results and population estimations. The Big River Analytics calculated distribution of the population between Terrace and the RDKS Areas C & E is supported by the almost identical distribution calculated from 2016 Census population data.

Table B2.2: Low Development Scenario Population Projections, City of Terrace, 2020 to 2030

Year	Usual Residents	Shadow Population	Total Population
2020	12,229	471	12,700
2021	12,831	484	13,315
2022	13,060	503	13,563
2023	13,342	516	13,858
2024	13,389	523	13,912
2025	13,313	464	13,777
2026	12,556	450	13,006
2027	12,556	450	13,006
2028	12,552	450	13,002
2029	12,543	450	12,993
2030	12,529	450	12,978

Source: Big River Analytics Calculations

Figure B2.2: Low Development Scenario Population Projections, City of Terrace, 2010 to 2030



Source: Big River Analytics Calculations; BC Stats population estimates and projections; Statistics Canada. Table 17-10-0142-01 Population estimates, July 1, by census subdivision, 2016 boundaries.

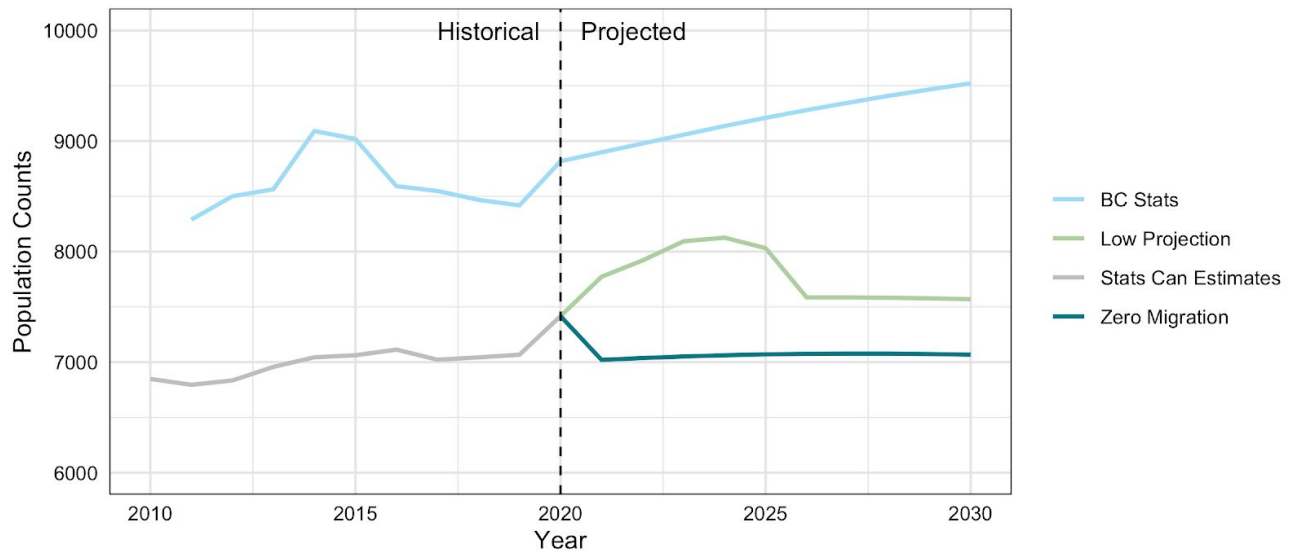
Notes: The total population includes estimates for the usual residents and the shadow population. The BC Stats estimates and projections are for Community Health Service Area 5171, Terrace City Centre, which is reflective of the geographical boundaries used for Statistics Canada estimates and the 2020 Population Projection survey estimates.

Table B2.3: Low Development Scenario Population Projections, RDKS Areas C & E, 2020 to 2030

Year	Usual Residents	Shadow Population	Total Population
2020	7,001	415	7,416
2021	7,345	427	7,772
2022	7,476	444	7,920
2023	7,638	455	8,093
2024	7,665	461	8,126
2025	7,621	410	8,031
2026	7,188	397	7,585
2027	7,188	397	7,585
2028	7,186	397	7,582
2029	7,181	397	7,577
2030	7,172	397	7,569

Source: Big River Analytics Calculations

Figure B2.3: Low Development Scenario Population Projections, RDKS Areas C & E, 2010 to 2030



Source: Big River Analytics Calculations; BC Stats population estimates and projections; Statistics Canada. Table 17-10-0142-01 Population estimates, July 1, by census subdivision, 2016 boundaries.

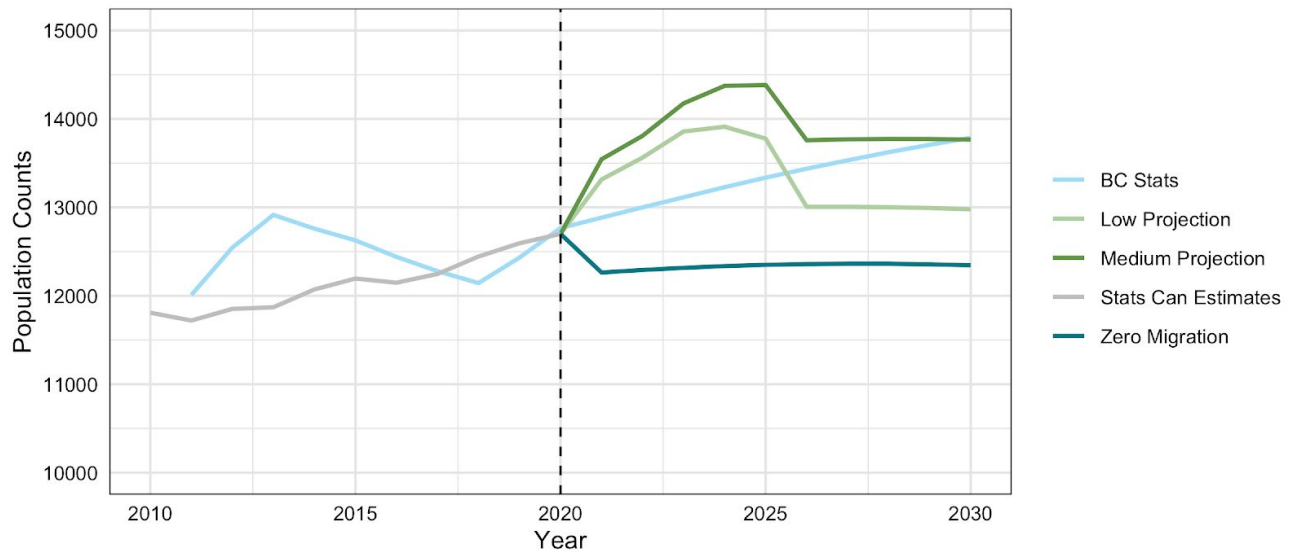
Notes: The total population includes estimates for the usual residents and the shadow population. The BC Stats estimates and projections are for Community Health Service Area 5172, Terrace Rural, which encompasses a larger geographic region than the population survey and the Statistics Canada population estimates. Consequently, estimates using the LHA boundary 5172 are not directly comparable to Statistics Canada population estimates or the population projections.

Table B2.4: Medium Development Scenario Population Projections, City of Terrace, 2020 to 2030

Year	Usual Residents	Shadow Population	Total Population
2020	12,229	471	12,700
2021	13,060	484	13,544
2022	13,302	508	13,809
2023	13,647	529	14,176
2024	13,838	536	14,374
2025	13,907	478	14,384
2026	13,296	463	13,759
2027	13,306	463	13,769
2028	13,311	463	13,774
2029	13,310	463	13,773
2030	13,303	463	13,766

Source: Big River Analytics Calculations

Figure B2.4: Medium Development Scenario Population Projections, City of Terrace, 2010 to 2030



Source: Big River Analytics Calculations; BC Stats population estimates and projections; Statistics Canada. Table 17-10-0142-01 Population estimates, July 1, by census subdivision, 2016 boundaries.

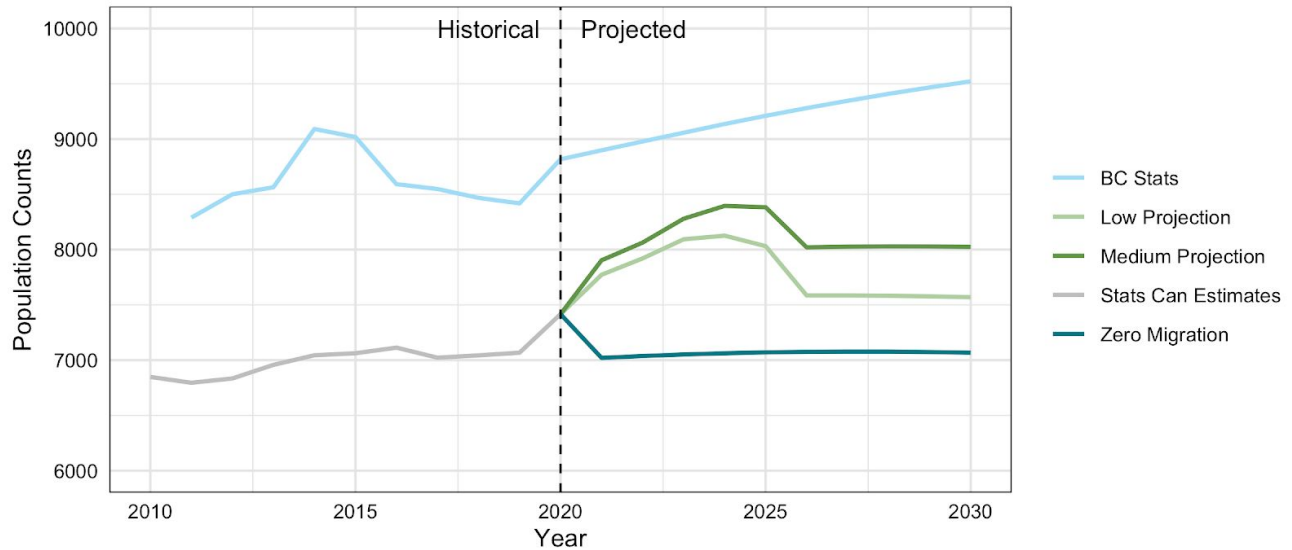
Notes: The total population includes estimates for the usual residents and the shadow population. The BC Stats estimates and projections are for Community Health Service Area 5171, Terrace City Centre, which is reflective of the geographical boundaries used for Statistics Canada estimates and the 2020 Population Projection survey estimates.

Table B2.5: Medium Development Scenario Population Projections, RDKS Areas C & E, 2020 to 2030

Year	Usual Residents	Shadow Population	Total Population
2020	7,001	415	7,416
2021	7,477	427	7,903
2022	7,615	448	8,063
2023	7,813	466	8,279
2024	7,922	473	8,395
2025	7,961	421	8,383
2026	7,611	409	8,020
2027	7,617	408	8,026
2028	7,620	408	8,029
2029	7,620	408	8,028
2030	7,616	408	8,024

Source: Big River Analytics Calculations

Figure B2.5: Medium Development Scenario Population Projections, RDKS Areas C & E, 2010 to 2030



Source: Big River Analytics Calculations; BC Stats population estimates and projections; Statistics Canada. Table 17-10-0142-01 Population estimates, July 1, by census subdivision, 2016 boundaries.

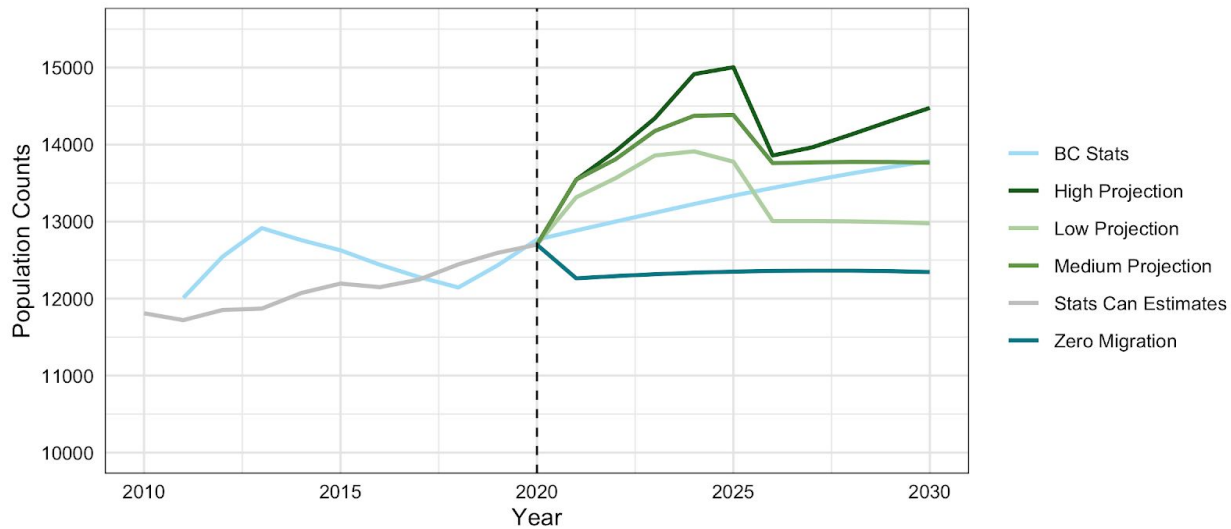
Notes: The total population includes estimates for the usual residents and the shadow population. The BC Stats estimates and projections are for Community Health Service Area 5172, Terrace Rural, which encompasses a larger geographic region than the population survey and the Statistics Canada population estimates. Consequently, estimates using the LHA boundary 5172 are not directly comparable to Statistics Canada population estimates or the population projections.

Table B2.6: High Development Scenario Population Projections, City of Terrace, 2020 to 2030

Year	Usual Residents	Shadow Population	Total Population
2020	12,229	471	12,700
2021	13,060	484	13,544
2022	13,369	545	13,914
2023	13,754	587	14,341
2024	14,187	729	14,915
2025	14,307	697	15,004
2026	13,362	495	13,858
2027	13,495	468	13,963
2028	13,666	464	14,131
2029	13,841	464	14,306
2030	14,012	464	14,476

Source: Big River Analytics Calculations

Figure B2.6: High Development Scenario Population Projections, City of Terrace, 2010 to 2030



Source: Big River Analytics Calculations; BC Stats population estimates and projections; Statistics Canada. Table 17-10-0142-01 Population estimates, July 1, by census subdivision, 2016 boundaries.

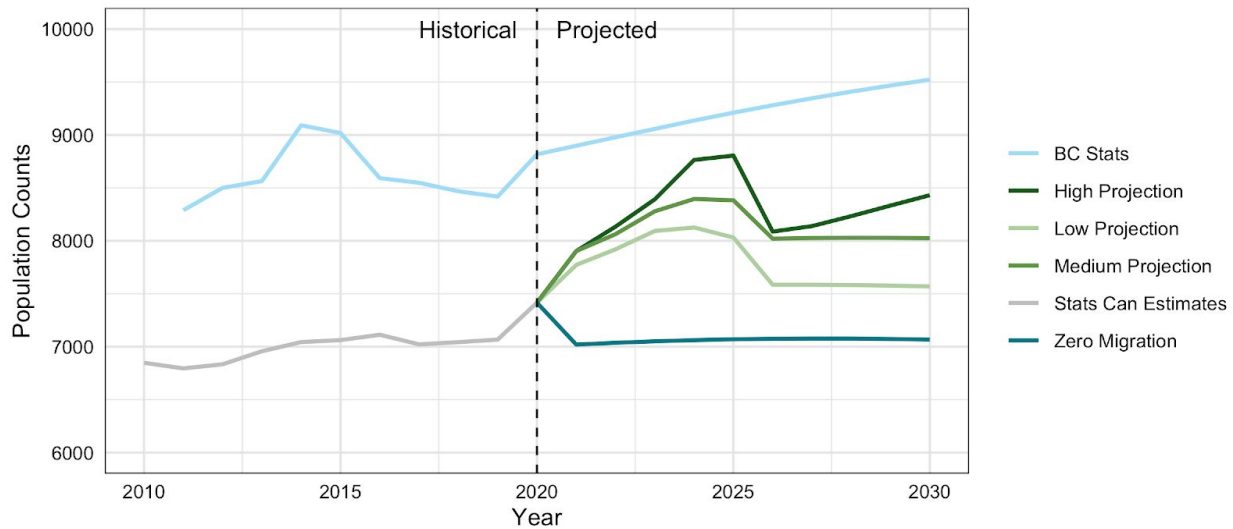
Notes: The total population includes estimates for the usual residents and the shadow population. The BC Stats estimates and projections are for Community Health Service Area 5171, Terrace City Centre, which is reflective of the geographical boundaries used for Statistics Canada estimates and the 2020 Population Projection survey estimates.

Table B2.7: High Development Scenario Population Projections, RDKS Areas C & E, 2020 to 2030

Year	Usual Residents	Shadow Population	Total Population
2020	7,001	415	7,416
2021	7,477	427	7,903
2022	7,653	481	8,134
2023	7,874	518	8,392
2024	8,121	643	8,764
2025	8,190	615	8,805
2026	7,650	437	8,087
2027	7,726	413	8,139
2028	7,824	410	8,233
2029	7,924	410	8,333
2030	8,021	410	8,431

Source: Big River Analytics Calculations

Figure B2.7: High Development Scenario Population Projections, RDKS Areas C & E, 2011 to 2030



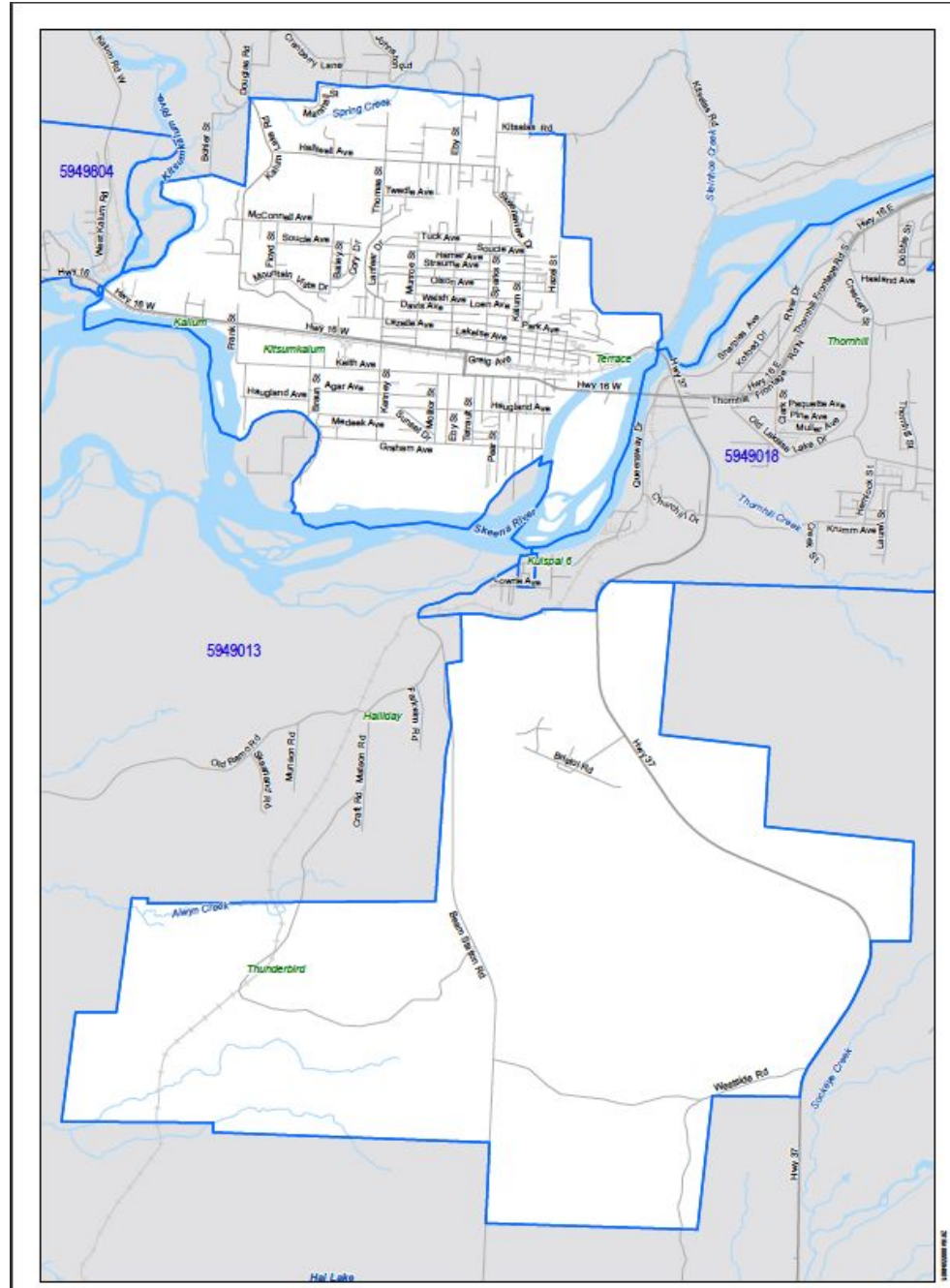
Source: Big River Analytics Calculations; BC Stats population estimates and projections; Statistics Canada. Table 17-10-0142-01 Population estimates, July 1, by census subdivision, 2016 boundaries.

Notes: The total population includes estimates for the usual residents and the shadow population. The BC Stats estimates and projections are for Community Health Service Area 5172, Terrace Rural, which encompasses a larger geographic region than the population survey and the Statistics Canada population estimates. Consequently, estimates using the LHA boundary 5172 are not directly comparable to Statistics Canada population estimates or the population projections.

Appendix C - Geographic Areas

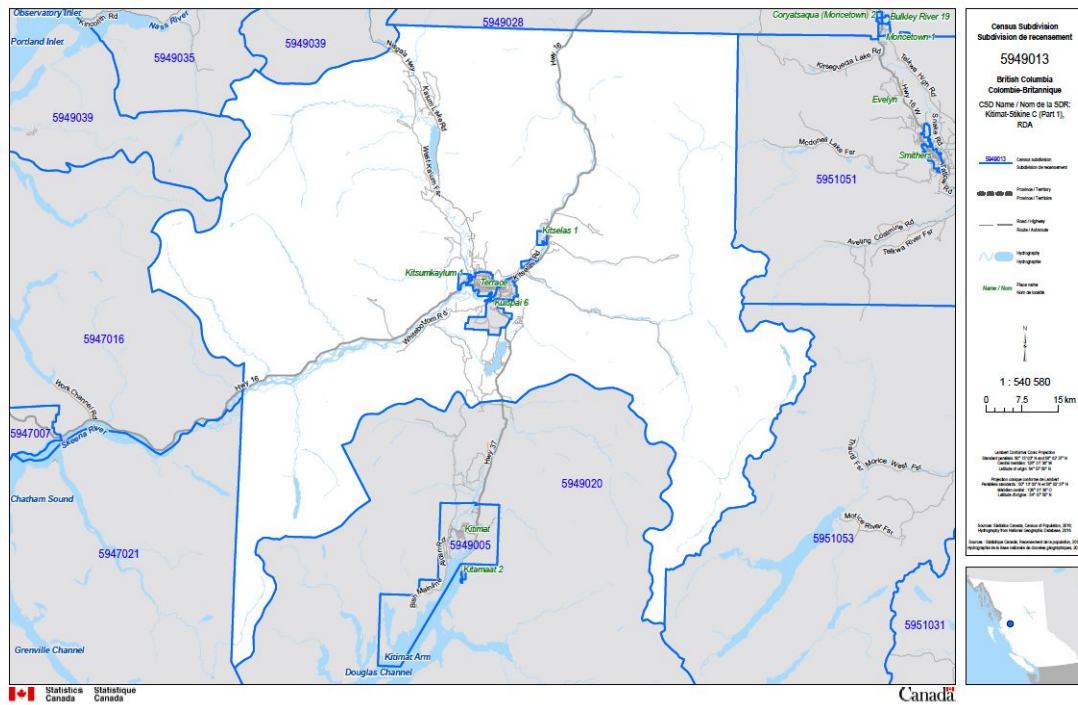
C1. 2016 Census Boundaries

Figure C1.1: Terrace, CY, Census Subdivision



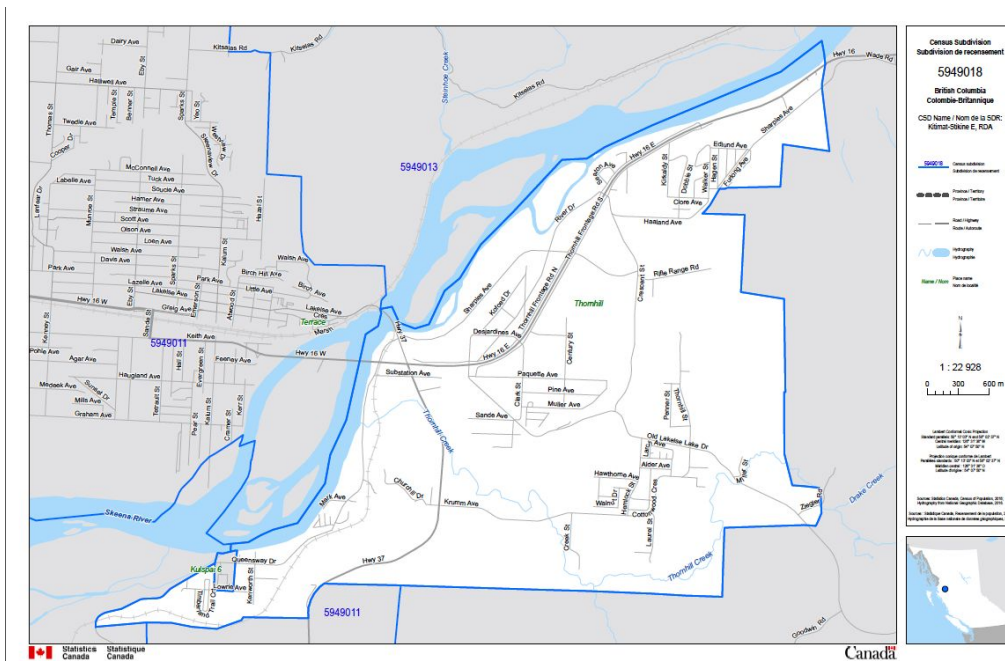
Source: [Statistics Canada, 2016a](#).

Figure C1.2: Kitimat-Stikine C (Part 1), Regional District Electoral Area (Census Subdivision)



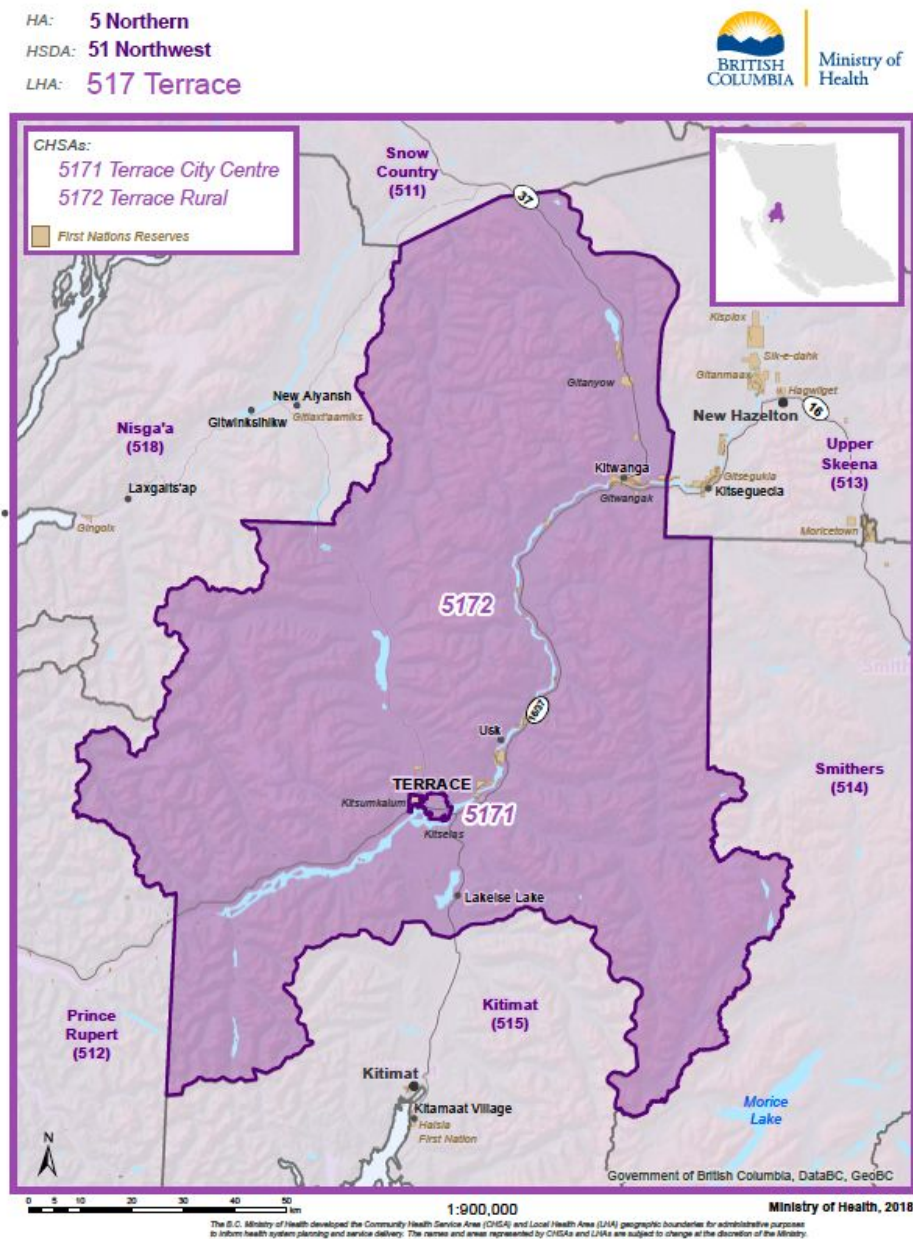
Source: [Statistics Canada, 2016b](#).

Figure C1.3: Kitimat-Stikine E, Regional District Electoral Area (Census Subdivision)



Source: [Statistics Canada, 2016c](#).

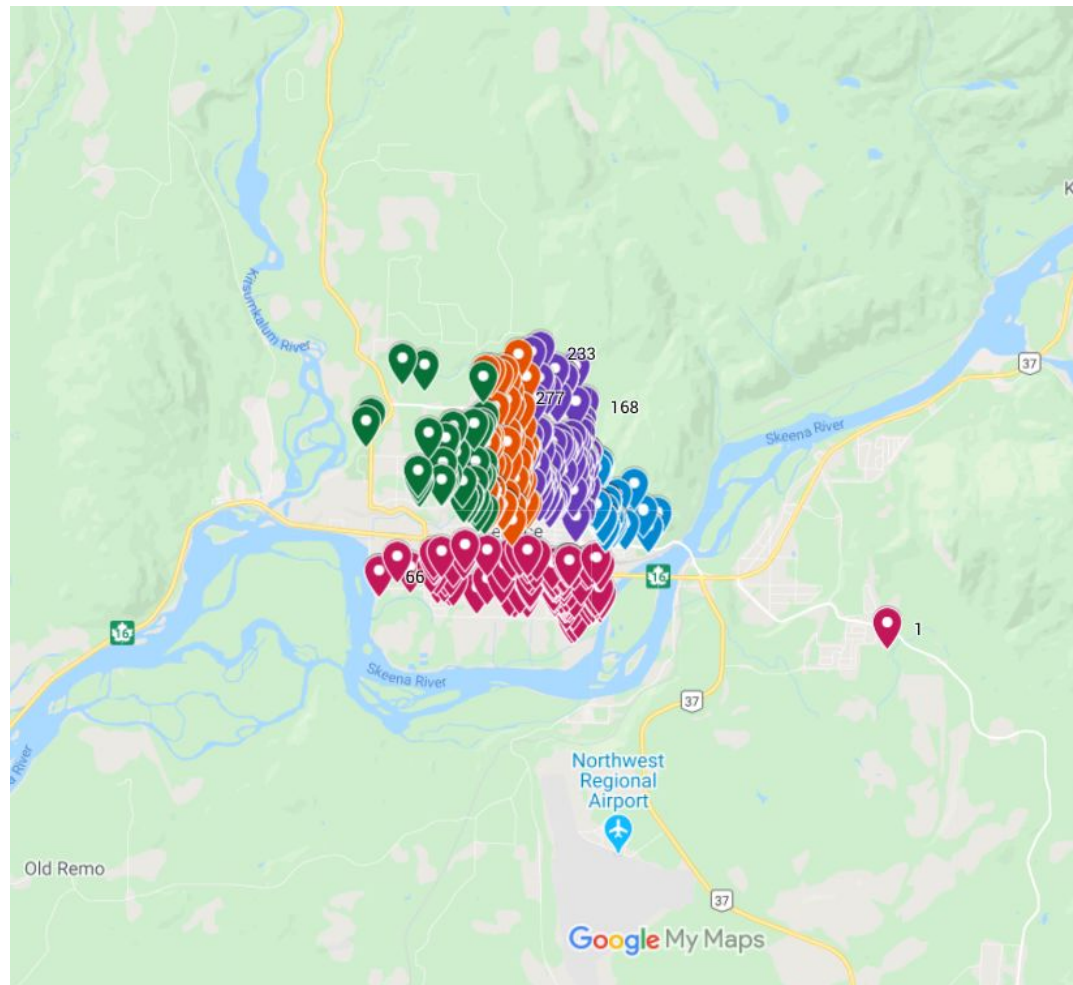
Figure C2.1: 517 Terrace



Source: [BC Ministry of Health, 2018.](#)

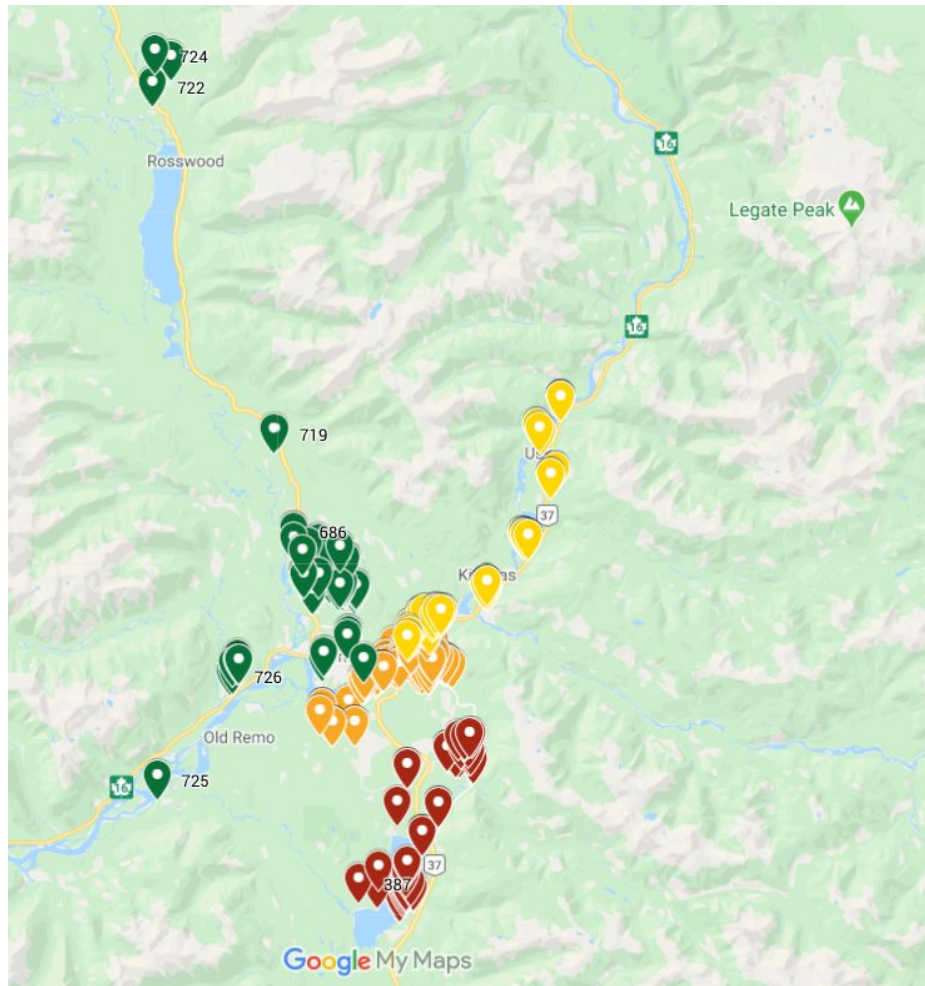
C3. Survey Samples

Figure C3.1: City of Terrace Survey Samples, 2020



Source: Big River Analytics, 2020 Survey of Population

Figure C3.2: RDKS (Electoral Areas C and E) Survey Samples, 2020



Source: Big River Analytics, 2020 Survey of Population

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