2017 STATE OF THE BASIN

FULL REPORT

A region-wide check-up on life in the Columbia Basin-Boundary Region

COLUMBIA BASIN RDI
RURAL DEVELOPMENT INSTITUTE

The Columbia Basin Rural Development Institute, at Selkirk College, is a regional research centre with a mandate to support informed decision-making by Columbia Basin-Boundary communities through the provision of information, applied research and related outreach and extension support. Visit www.cbrdi.ca for more information.

EXECUTIVE SUMMARY

OUR ECONOMY

Economic conditions in the Columbia Basin-Boundary region reflect the diverse nature of our communities, as well as some of the economic challenges and opportunities that characterize rural Canada as a whole.

The region saw improvements to the business climate over the past year, including an increase in business counts and business starts. In addition, consumer bankruptcies were at their lowest level since 2009. Though the value of building permits issued in our region has yet to fully rebound from pre-recession levels, $3.6 billion in major projects were under construction in Q3 2017.

Despite the favourable business climate, the Basin-Boundary workforce suffered declining employment last year and a corresponding increase in the unemployment rate. These trends counter those seen at the provincial scale. The region is also seeing an increase in the number of employment insurance recipients. Labour force replacement ratios above the provincial average of 0.67 in most Basin-Boundary regional districts indicate future workforce challenges for our region.

Wages in the Kootenay Development Region were the highest in the province in 2016, but sub-regional disparity in economic opportunities translated to a wide range of average family incomes (from a low of $41,000 to a high of $111,000). Communities with the lowest incomes also had the highest prevalence of low income persons. Living wages ranged from $14.26 to $20.62 depending on the community.

Housing in the Basin-Boundary region is characterized by a relatively high prevalence of single detached dwellings, a low prevalence of renting households and relatively low occupation of dwellings by usual residents (i.e., high numbers of vacation homes). Some municipalities demonstrated vacancy rates as low as 0% and residential property values continued to increase. These statistics collectively indicate a challenge with home affordability in some communities, which is confirmed by data showing that as much as a third of residents in some areas spend more than 30% of their income on shelter costs. A decrease in the number of affordable housing units last year presents additional housing-related challenges for low income families and individuals.

Water use and waste generation rates remained higher than the BC average but were on the decline. For the second year in a row, traffic volumes increased across all permanent count stations in the region. Though our highways are under increasing demand, the duration of a typical Basin-Boundary resident's commute remained well below the provincial average.

OUR SOCIETY

State of the Basin research shows that Basin-Boundary communities are experiencing a fundamental shift in the demographic structures that underlay our society. Though our region is tackling a number of social challenges, residents demonstrate high levels of life satisfaction and commitment to place.

As a whole, the region saw a 3.5% population increase (about 6000 people) from 2011 to 2016, but the trend varied significantly depending on the community in question. The Basin-Boundary population is aging at a faster rate than the Canadian average and seniors now make up a bigger component of the population (22%) than do youth (20%). The aging trend is reflected in relatively high rates of dependency, relatively small households, and a relatively low prevalence of households with children.

Our region is generally a safe and giving one, with most communities having a better crime severity index than the BC average and a similar percentage of households making charitable donations as the Canadian average, despite generally lower incomes. Voter turnout is another important indicator of civic well-being and over the past few election cycles, turnout has increased for provincial government elections but decreased for local government elections.

Last year, most Basin-Boundary school districts beat the provincial average for enrolment increases, but high school completion rates were as low as 75%. Increasing numbers of international students are driving enrolment trends at our region's colleges, demonstrating that post-secondary education is influencing our communities in new and

unexpected ways. Educational attainment levels continued to rise and are now similar to those seen at provincial and national scales.

Life expectancy is now at almost 81 years in our region but remains generally lower than elsewhere in BC. A higher prevalence of low birth weight babies further indicates challenges with health and wellness in Basin-Boundary communities.

OUR CULTURE

Cultural diversity is recognized as a foundation of development, and by embracing existing diversity and welcoming newcomers, our communities can enhance their cultural well-being. Though a strong majority of Basin-Boundary residents are of European descent, over 60 different languages are spoken in our region's households. In addition, a higher percentage of Basin-Boundary residents identify as aboriginal than British Columbians or Canadians taken as a whole.

Municipalities in our region are increasingly committed to cultural pursuits as evidenced by upward trends in spending on parks, recreation and culture, including public libraries. This area is known as a hub of culture and recreation, and that is supported by data showing increasing parks visitation over time. Over 400,000 tourists made use of a visitor's centre in 2017.

OUR ENVIRONMENT

State of the Basin research shows that the Basin-Boundary environment is under pressure, but that a number of programs are in place to help protect or restore the region's land, air, water and biodiversity.

2017 data clearly shows the impact forest fires have on air quality—a concern given that the frequency and intensity of forest fires is expected to increase with climate change. These projections rang true during the 2017 fire season, when the most area in our region burned since provincial wildfire suppression efforts began in earnest following World War II. The area farmed in our region is showing the opposite trend. Regional agricultural planning initiatives aim to reverse this decline, which is also being seen at the provincial and national scales.

Our region enjoys higher rates of land protection than others, but the various ecosystems present here experience uneven levels of protection, and those with the highest levels of protection are at least risk. Over 150 species at risk make their home in the Basin-Boundary region, as do an increasing number of invasive plants (132 at last count). Despite efforts to address the decline of Mountain caribou population numbers, herds in the Basin-Boundary region remain in peril. Landscape changes associated with resource extraction represent the largest threat to caribou; almost 14,000 hectares were logged in our region in 2016.

On a positive note, data shows that efforts to reduce human-wildlife conflict may be having an impact, as the number of bears destroyed in 2017 was the lowest in three years, and the number of incidents liked to improper garbage management was the lowest since at least 2011.

PUBLICATION INFORMATION

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INTRODUCTION

The State of the Basin program monitors and reports on indicators of well-being in the Columbia Basin-Boundary region. Indicator research is disseminated through reports, webinars, and presentations. This report provides a full, technical analysis for each indicator. A companion Snapshot report provides an overview of current State of the Basin research, and a series of Trends Analysis reports provide topic-specific summaries. These reports are available on the State of the Basin webpage.

OBJECTIVES

Every day, people and organizations in the Columbia Basin-Boundary region make decisions that influence the region's future. In order to ensure these decisions are sound, comprehensive research on economic, social, cultural, and environmental conditions and trends is important. The primary goal of the State of the Basin Initiative is to provide access to relevant data that is easily accessible to help inform decisions that lead to greater community and regional well-being.

The State of the Basin Initiative is designed to meet the following four objectives that collectively define how the report contributes to the overarching goal of supporting research-based decision making in the region:

- **Inform** citizens and organizations about the people, natural environment, communities, and economy of the region by providing access to accurate, credible, and timely information;
- **Encourage** understanding of complex issues and trends over time, including into the future when possible;
- **Signal** whether conditions are similar or different within the region, and in comparison to other areas to highlight and celebrate areas of achievement, and to identify significant issues, ideally before they become critical; and
- **Motivate** discussion, information sharing, strategic evidence-based decisions, and collective action.

THE COLUMBIA BASIN-BOUNDARY REGION

The Columbia Basin-Boundary region encompasses more than 8.6 million hectares of land in southeastern British Columbia (see **Figure 1**). It includes the Regional Districts of Kootenay Boundary, Central Kootenay, and East Kootenay, as well as the Village of Valemount, and a portion of the Columbia Shuswap Regional District. Three Development Regions also intersect the borders. Basin-Boundary communities area home to approximately 167,000 people.[1,2]

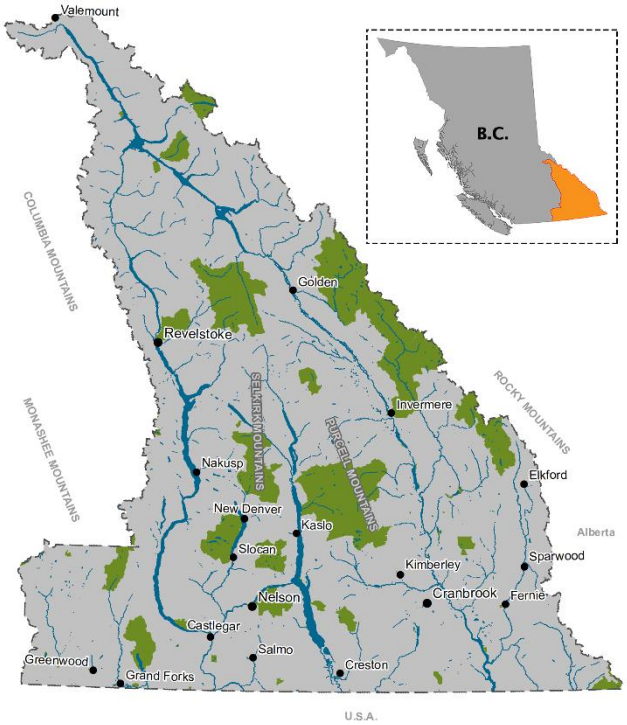


Figure 1: Columbia Basin-Boundary Region

RESEARCH FRAMEWORK

The State of the Basin research framework is centred on the concept of well-being. The framework organizes research efforts into four overarching 'pillars'—economy, society, culture, and environment—and a series of themes within each (see **Figure 2**). While this structure aids in organizing and grouping indicators, in reality, factors that affect well-being are highly interconnected. The RDI's approach to analysis is based on an understanding of the interrelatedness of the pillars, as exemplified by the thematic trends analyses produced as part of the State of the Basin program.

Figure 2: State of the Basin research framework

METHODS, INDICATORS, & DATA SOURCES

State of the Basin research draws on available data from a variety of sources including federal, provincial, and local governments, as well as non-profit initiatives. Some datasets come from open access sources, while others are accessed through custom requests made by the RDI. Some indicators rely on raw data that is analysed by the RDI or the Selkirk Geospatial Research Centre, while others use data that has already been analysed by an external organization. The indicators used typically have a consistent data source – meaning we can access the same information, collected in the same way, in regular data cycles. This report identifies the data source for each indicator.

The indicators are largely quantitative. Many indicator projects adopt a similar approach to research, understanding that "well-being" is a difficult concept to measure in itself. It is important to remember that while these indicators provide a foundation, they only tell part of the story. In addition to State of the Basin reporting, the RDI also conducts research to better understand subjective well-being in the region. Detailed findings for 2016 are presented in the 2016 Subjective Well-Being in the Columbia Basin-Boundary report. Current and past research results, State of the Basin reports, and Trends Analysis Briefs are available at http://www.cbrdi.ca/state-of-the-basin/.

GEOGRAPHIC SCALES OF ANALYSIS

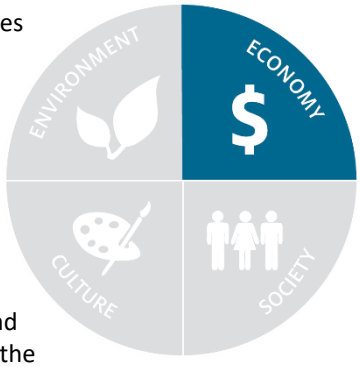
In order to understand geographic trends in indicators, this report compares data across the Columbia Basin-Boundary region and to other regions in BC, and to provincial and national data. The geographic divisions used vary by indicator and depend on the topic being measured. While census divisions may provide for meaningful analysis of demographic data, an analysis of protected areas, for example, is more meaningful if it uses alternative geographic boundaries. For each indicator, the geographic area is explained.

ENGAGEMENT & REVIEW

In an attempt to enhance the relevance and utility of the State of the Basin program, RDI researchers take direction on key topics of interest from the RDI's Advisory Committee which is made up of a cross-section of decision-makers from across the region. Additionally, indicators are selected based on feedback provided to the RDI over the course of the year.

ECONOMIC RESEARCH PILLAR

When discussing the many factors that affect our well-being, few issues resonate as deeply as the economy. A healthy economy is indicative of a society that is using its resources efficiently and sustainably, leading to community resilience and individual well-being. The economic research pillar considers levels of activity and diversity in our region's economic sectors and workforce. Indicators relating to the built environment that support the region's economy are also considered. The economic data discussed below is designed to support informed decision-making as it relates to building a strong economy that is inclusive of all residents.



The economy of British Columbia is important to Canada, as the province with the 4th highest expenditure-based Gross Domestic Product, behind Ontario, Quebec, and Alberta.[3] Although the Columbia Basin-Boundary has a small population relative to the province, this region contributes to the provincial economy in many ways. Economic indicators can help us better understand the economy of our region and individual communities, providing insight as to what is going well and what is in need of assistance. Such indicators can also help us gauge progress over time, as well as our performance relative to other places.

BUSINESS CLIMATE

EMPLOYMENT

What does this measure & why is it important?

This indicator tracks the total number of people employed by Development Region. There are two parts to this indicator: sectoral employment (number of people employed by sector) and employment rates (the percentage of adults over age 15 that are working for pay). Data for this indicator was primarily sourced from Statistics Canada's Labour Force Survey (LFS), with census data added when available for comparison.[4,5]

Employment figures indicate whether there are increasing opportunities for the people of the region and in which sectors they will find potential opportunities. Employment data can be used to help track economic diversity, resilience, and regional prosperity.

The three regional districts that make up the Kootenay Development Region are contained in whole by the Columbia Basin-Boundary region: the Regional Districts of Kootenay Boundary (RDKB), Central Kootenay (RDCK), and East Kootenay (RDEK). Our region also includes portions of the Thompson-Okanagan Development Region (Revelstoke, Golden, and Columbia Shuswap electoral areas A and B) and Cariboo Development Region (Valemount).

What are the trends & current conditions?

The Labour Force Survey shows overall job loss in the Kootenay Development Region over 5 years (-4.53% or -3200 people) and 1 year (-2.32% or -1600) (see **Table 1**). Overall, the services-producing sector employs more people than the goods-producing sectors in the Kootenay Development Region, at the provincial level, and across all BC Development Regions. However, in the Kootenay Development Region between 2011 and 2016, the goods-producing sector experienced growth (+7.3%), while the services-producing sector experience contraction (-9.4%).

	Kootenay Development Region					BC	
Sector	**2011**	**2015**	**2016**	**1 Year Change (2015-16)**	**5 year Change (2011-16)**	**1 Year Change (2015-16)**	**5 year Change (2011-16)**
Total, All Industries	70.6	69.0	67.4	-2.32%	-4.53%	3.18%	6.81%
Goods-producing sector	20.6	22.3	22.1	-0.90%	7.28%	2.40%	8.90%
Agriculture	x	x	x	NA	NA	9.91%	-4.69%
Forestry, fishing, mining, quarrying, oil & gas	5.5	6.7	7.4	10.45%	34.55%	5.18%	24.51%
Utilities	x	x	x	NA	NA	-6.90%	19.47%
Construction	8.2	8.4	7.1	-15.48%	-13.41%	4.86%	7.20%
Manufacturing	5.3	5.3	6.0	13.21%	13.21%	-1.39%	8.48%
Services-producing sector	50.0	46.8	45.3	-3.21%	-9.40%	3.37%	6.31%
Trade	10.4	11.3	7.7	-31.86%	-25.96%	4.82%	4.46%
Transportation & warehousing	3.2	2.5	2.8	12.00%	-12.50%	-1.50%	12.66%
Finance, insurance, real estate & leasing	2.8	2.6	1.9	-26.92%	-32.14%	5.68%	-2.65%
Professional, scientific & technical services	2.3	2.5	3.1	24.00%	34.78%	3.93%	12.23%
Business, building & other support services	3.3	1.7	3.1	82.35%	-6.06%	11.98%	10.79%
Educational services	3.8	4.3	3.8	-11.63%	0.00%	0.98%	6.25%
Health care & social assistance	9.0	9.2	8.4	-8.70%	-6.67%	1.46%	11.09%
Information, culture & recreation	2.1	2.3	3.0	30.43%	42.86%	10.57%	17.66%
Accommodation & food services	6.7	5.3	4.8	-9.43%	-28.36%	-1.86%	-4.81%
Other services	3.8	3.2	3.6	12.50%	-5.26%	-0.48%	7.39%
Public administration	2.6	2.0	2.9	45.00%	11.54%	7.91%	-1.89%

Table 1: Employment by sector (in thousands), 2011, 2015, 2016[4]

Note: 'x' designates data that, for reliability purposes, was not published. The Labour Force Survey does not publish figures valued at less than 1500.

It is important to understand that the LFS data is based on a survey of a sample of an area's residents. Statisticians take the answers from the sample and, based on this information, make estimations of how the whole population would answer the same questions.[6] This method can be very accurate under favourable conditions. However, with smaller sample sizes, like those from rural places, the likelihood of estimation error increases. Please refer to the RDI's report, Understanding Labour Force Survey Variability for the Basin-Boundary Region, for a complete discussion of this issue and recommendations.[7] In order to compensate for this potential error, the RDI applies three-year moving averages to Labour Force Survey data.

When the three-year moving average is applied (see **Table 2**) we see differences in the changes when compared with **Table 1** - in some cases more modest changes and in others greater differences.

	Kootenay Development Region			BC		
Sector	**2015**	**2016**	**1 Year Change (2015-16)**	**2015**	**2016**	**1 Year Change (2015-16)**
Total, All Industries	71.0	68.0	-4.27%	2283.4	2321.4	1.66%
Goods-producing sector	20.6	20.9	1.62%	450.4	459.7	2.07%
Agriculture	0.5	0.0	-100.00%	24.8	23.6	-4.83%
Forestry, fishing, mining, quarrying, oil & gas	6.6	7.1	7.58%	48.4	49.7	2.76%
Utilities	0.0	0.0	NA	13.1	13.9	5.84%
Construction	6.9	6.7	-3.37%	202.1	204.4	1.14%
Manufacturing	5.1	5.3	5.26%	161.9	168.0	3.79%
Services-producing sector	50.5	47.1	-6.67%	1833.1	1861.7	1.56%
Trade	11.7	10.3	-12.00%	357.1	360.3	0.88%
Transportation & warehousing	3.2	2.9	-10.42%	133.7	137.2	2.64%
Finance, insurance, real estate & leasing	2.8	2.5	-9.52%	135.1	133.9	-0.91%
Professional, scientific & technical services	2.7	2.5	-8.54%	182.9	188.6	3.13%
Business, building & other support services	1.8	2.2	18.18%	93.4	95.4	2.11%
Educational services	4.4	4.4	-1.50%	165.5	164.9	-0.34%
Health care & social assistance	9.8	9.0	-7.82%	274.8	282.9	2.96%
Information, culture & recreation	2.6	2.6	-1.27%	109.9	116.3	5.83%
Accommodation & food services	6.1	5.1	-16.85%	180.8	179.0	-0.98%
Other services	3.1	3.4	7.45%	102.3	104.0	1.69%
Public administration	2.1	2.3	7.94%	97.6	99.2	1.71%

Table 2: Employment by sector (in thousands) with 3-year moving average applied, 2015-2016[4]

The LFS data also provides the employment rates for the province and the Development Regions (see **Table 3**). Of the three Development Regions encompassed by the Columbia Basin-Boundary region, the Cariboo had the highest employment rate in 2016 (61.7%), and the Kootenay Development Region had the lowest employment rate (55.1%). Employment rates were trending downwards in 2016, with all three Basin-Boundary development regions showing a negative change over one- and five-year periods.

Region	2011	2012	2013	2014	2015	2016	1 Year Change (2015-16)	5 Year Change (2011-16)
British Columbia	60.2	60.4	59.8	59.5	59.5	60.5	1.68%	0.50%
Vancouver Island and Coast	56.0	55.8	56.1	54.2	54.6	55.4	1.47%	-1.07%
Lower Mainland - Southwest	61.3	61.4	60.6	60.8	60.7	62.5	2.97%	1.96%
Thompson - Okanagan	58.4	58.9	57.5	58.0	58.0	56.9	-1.90%	-2.57%
Kootenay	56.8	58.7	62.1	55.2	56.6	55.1	-2.65%	-2.99%
Cariboo	64.0	67.0	64.5	67.2	62.4	61.7	-1.12%	-3.59%
North Coast & Nechako	64.2	59.1	60.8	58.7	63.5	62.9	-0.94%	-2.02%
Northeast	71.8	75.9	74.0	70.1	71.9	69.4	-3.48%	-3.34%

Table 3: Employment rate for the population aged 15+ (%) for BC and by Development Region, 2011 to 2016[4]

Census data provides additional insight on employment at the census subdivision (community) scale.[2] **Figure 3** shows the employment rate for the population aged 15 years and over and confirms that most Basin-Boundary communities have lower employment rates than the provincial average. Since the employment rate is calculated from the entire population over 15 years, and not just those in the labour force, older populations with a high prevalence of retirees will have lower employment rates. This is reflected in our region, where communities with a high average age (e.g., Midway, Greenwood) have some of the lowest employment rates.

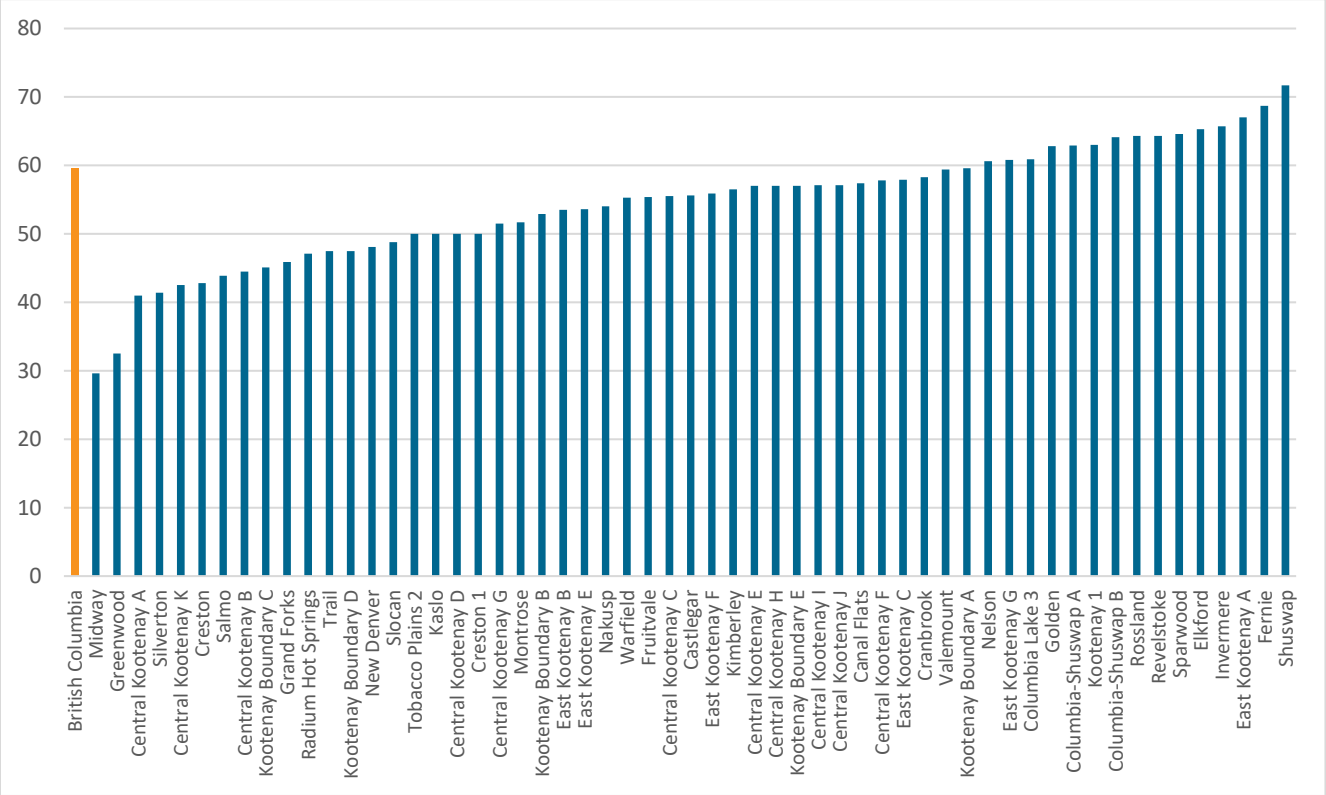


Figure 3: Employment rate for the population aged 15+ by census subdivision, 2016[2]

BUSINESS COUNTS

What does this measure & why is it important?

This indicator measures the annual number of businesses with active establishments, by Regional District. Data for this indicator come from BC Stats' Business Counts reports.[8]

Monitoring changes in the number of businesses operating in the region gives an indication of the overall business climate. If conditions are favourable, we may expect to see net increases in the number of businesses from year to year. This indicator gives a sense of whether the business climate is supporting the development of an expanding or contracting economy.

What are the trends & current conditions?

From 2015 to 2016, the number of businesses increased for all three Kootenay Regional Districts as well as the Northern Basin (see **Figure 4**). The rates of change ranged from +0.02% (1 business) in the RDKB to 2.5% (105 businesses) in the Northern Basin. Unfortunately, changes in how this data was reported beginning in 2014 prevent assessment of long-term trends.

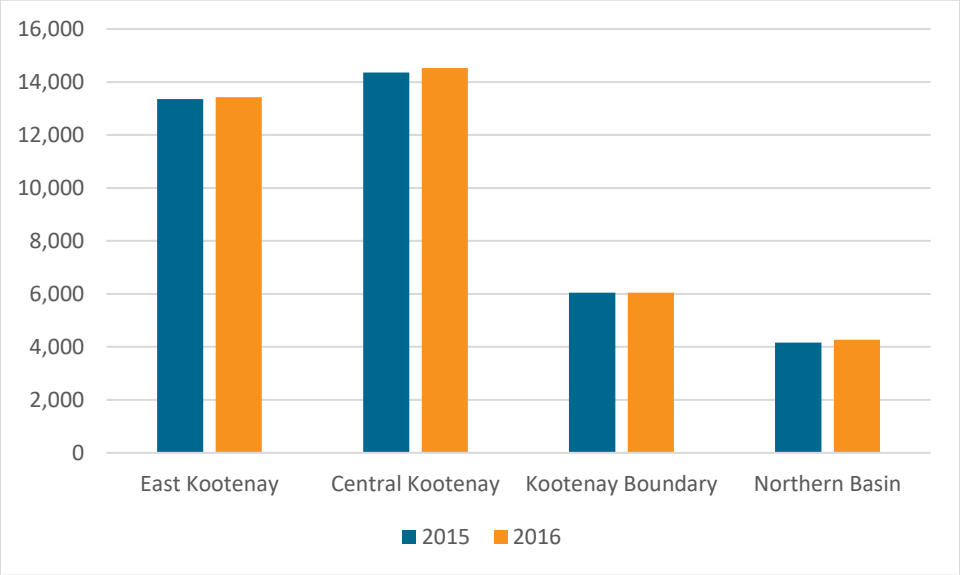


Figure 4: Total number of business locations (all industries) (2015 and 2016)[8]

Figure 5 compares the relative size of major industries based on business counts. Similar to last year, the real estate industry accounts for the largest portion of businesses in all three Kootenay regional districts, which is reflective of the province as a whole. Our region tends to have fewer businesses in the Professional, Scientific & Technical Services sector than the provincial average, and more in the Agriculture, Forestry, Fishing & Hunting sector. Kootenay regional districts experienced growth and loss in different sectors from 2015-2016. The RDEK saw the greatest growth in Educational Services (+46%/69 businesses), while the greatest decrease was seen in Management of Companies and Enterprise (-76%/95 businesses). For both the RDCK and RDKB the greatest growth was seen in Finance and Insurance (+24%/65 businesses and +27%/34 businesses, respectively), while the greatest decrease was seen in Management of Companies and Enterprises (-70%/74 businesses and -83%/55 businesses, respectively).

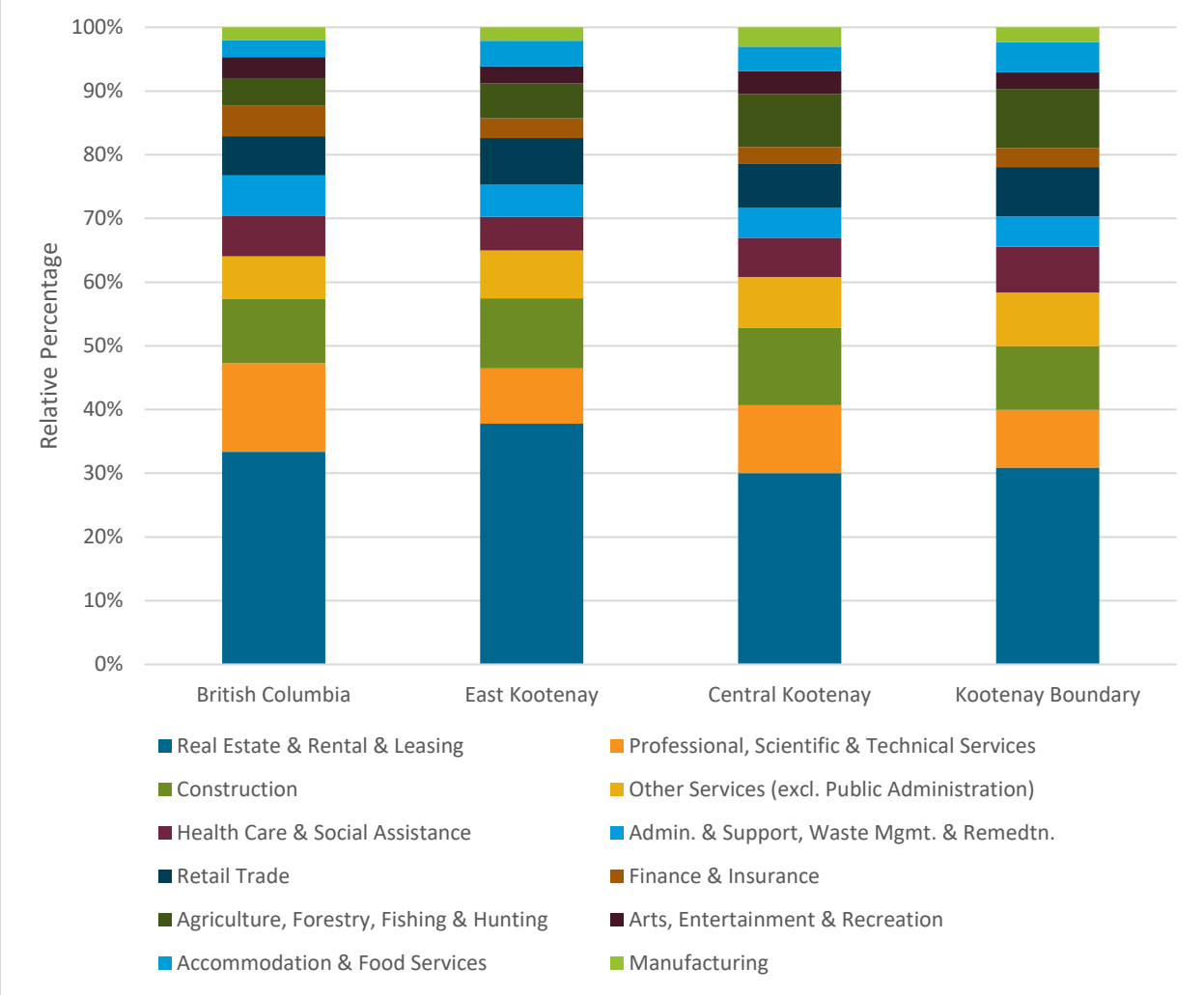


Figure 5: Relative size of major industries, by number of business locations (2016)[8]

BUSINESS STARTS AND CLOSURES

What does this measure & why is it important?

This indicator measures the annual number of business starts and closures by Regional District or Northern Basin community (for business starts) or Development Region (for business closures). Data for this indicator comes from the business formations and failures statistics compiled by BC Stats.[9] Business starts refer to new business incorporations, and closures refer to the number of businesses that have filed for bankruptcy in a given year.

Business starts and closures indicate the overall business climate in the region. If economic conditions are favourable, we may expect to see businesses forming faster than they close, and vice versa. This indicator gives a sense of whether the business climate is supporting the development of an expanding or contracting economy.

What are the trends & current conditions?

Over the past 10 years the number of business starts has fluctuated across the Basin-Boundary region (see **Table 4**); however, the various datasets show similar trends, with the number of business starts peaking prior to the 2008/2009 recession, dropping sharply during and immediately following the recession, and fluctuating since then. Most communities have not yet seen a return to pre-recession levels of business starts, though 2016 saw a marked increase in many communities. The downward 10-year trend in our region's overall number of business formations does not follow that of the province as a whole, which has seen an increasing trend over the past decade[9]

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
RDCK	212	198	171	168	176	157	159	165	186	196
RDEK	390	348	229	266	231	233	221	252	236	262
RDKB	128	98	90	70	68	89	77	70	58	99
Golden	52	37	41	29	25	31	34	24	24	40
Revelstoke	67	68	39	56	46	38	55	52	42	46
Valemount	5	7	2	2	1	7	2	4	7	10
Region	854	756	572	591	547	555	548	567	553	653

Table 4: Business starts in the Columbia Basin-Boundary (2006-2016)[9]

Since 2006, all Development Regions in BC have seen a downward trend in business bankruptcies (see **Figure 6**), similar to the overarching provincial trend.[9] Two businesses filed for bankruptcy in the Kootenay Development Region in 2016.

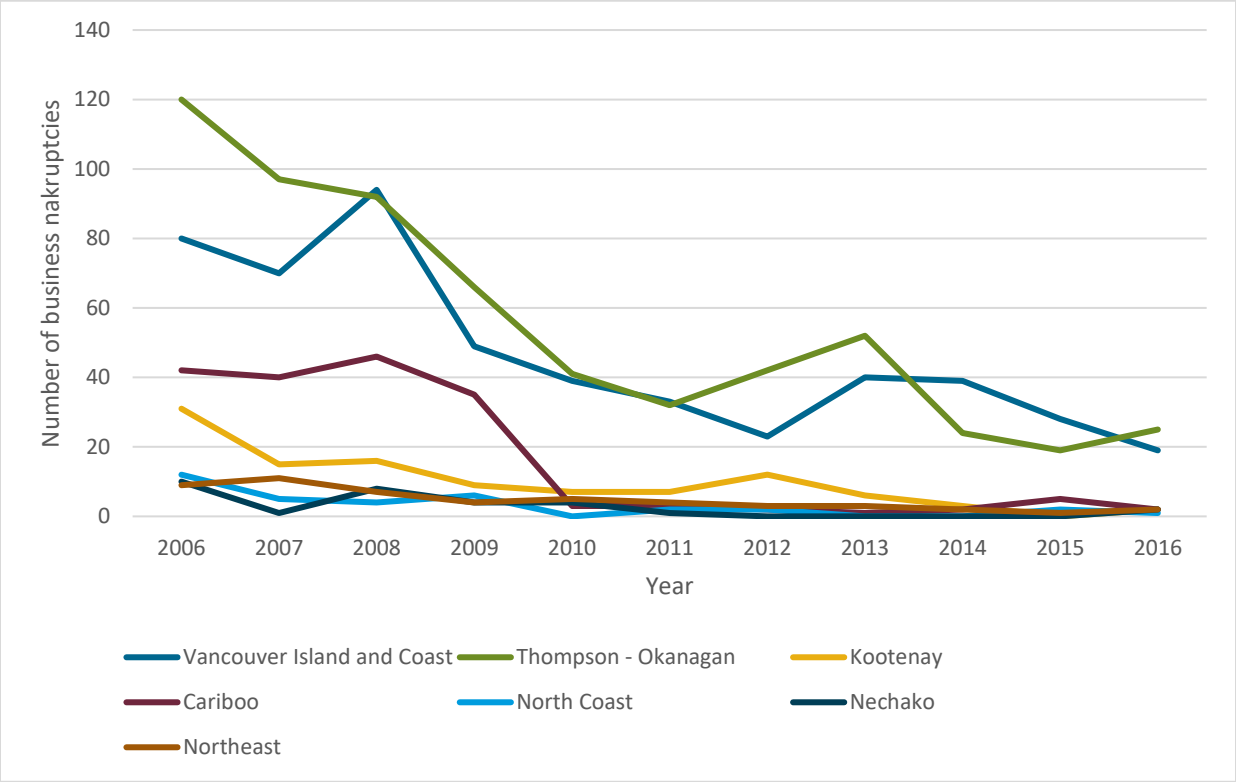


Figure 6: Business bankruptcies by Development Region[i] **(2006-2016)** [9]

Table 5 compares rates of change in business incorporations to bankruptcies by Development Region. Incorporations in the Kootenay Development Region show a greater positive change this year (2015-2016, +16%) when compared to last year (2014-2015, -1.4%), with the one-year change being greater than the provincial figure for the same statistic (+14.8%).

[i] The Lower Mainland-Southwest Development Region has been excluded because the numbers are significantly higher, obscuring the details of the rural Development Regions.

Development Region	Incorporations		Business bankruptcies	
	1 year change (2015-2016)	5 year change (2011-2016)	1 year change (2015-2016)	5 year change (2011-2016)
British Columbia	14.8%	41.2%	-3.2%	-22.4%
Vancouver Island and Coast	19.4%	26.2%	-32.1%	-42.4%
Lower Mainland - Southwest	15.7%	46.5%	-3.1%	-13.0%
Thompson - Okanagan	15.6%	39.2%	31.6%	-21.9%
Kootenay	16.0%	17.3%	NA[ii]	-71.4%
Cariboo	-7.5%	9.5%	-60.0%	-33.3%
North Coast	-22.6%	-6.3%	-50.0%	-50.0%
Nechako	0.6%	59.6%	NA	100.0%
Northeast	-33.0%	-32.8%	100.0%	-50.0%

Table 5: Change in business bankruptcies and incorporations by Development Region (2011-2016)[9]

CONSUMER BANKRUPTCIES

What does this measure & why is it important?

This indicator measures the annual number of reported consumer bankruptcies, by Development Region. Data for this indicator comes from the business formations and failures statistics compiled by BC Stats.[9]

Consumer bankruptcies are an important economic indicator because they have an impact on a diverse array of factors related to economic well-being, including the consumer price index, GDP price measures, corporate profits and taxes.[10] Consumer bankruptcies are typically a result of the combination of many household factors, as opposed to a single cause[10], so understanding the level and change in consumer bankruptcies can provide insight on a variety of other indicators.

What are the trends & current conditions?

Consumer bankruptcies in the Kootenay Development Region are now at their lowest level since 2009; however, the number of bankruptcies in 2016 (188) remained slightly higher than the number reported in 2008, prior to the 2008/2009 recession (181) (see **Figure 7**). The 10-year trend in the Kootenay region generally follows the trend seen in other BC Development Regions (including Thompson-Okanagan and Cariboo) and at the provincial scale.[9]

In 2016, the consumer bankruptcy rate in Basin-Boundary Development Regions was 2.8 per 1000 households for Kootenay, 2.9 for Thompson-Okanagan and 4.3 for Cariboo. The Cariboo Development Region (which includes the Village of Valemount) had the highest rate of consumer bankruptcies of all regions in BC.

[ii] There were 0 business bankruptcies reported in the Kootenay Development Region in 2015.

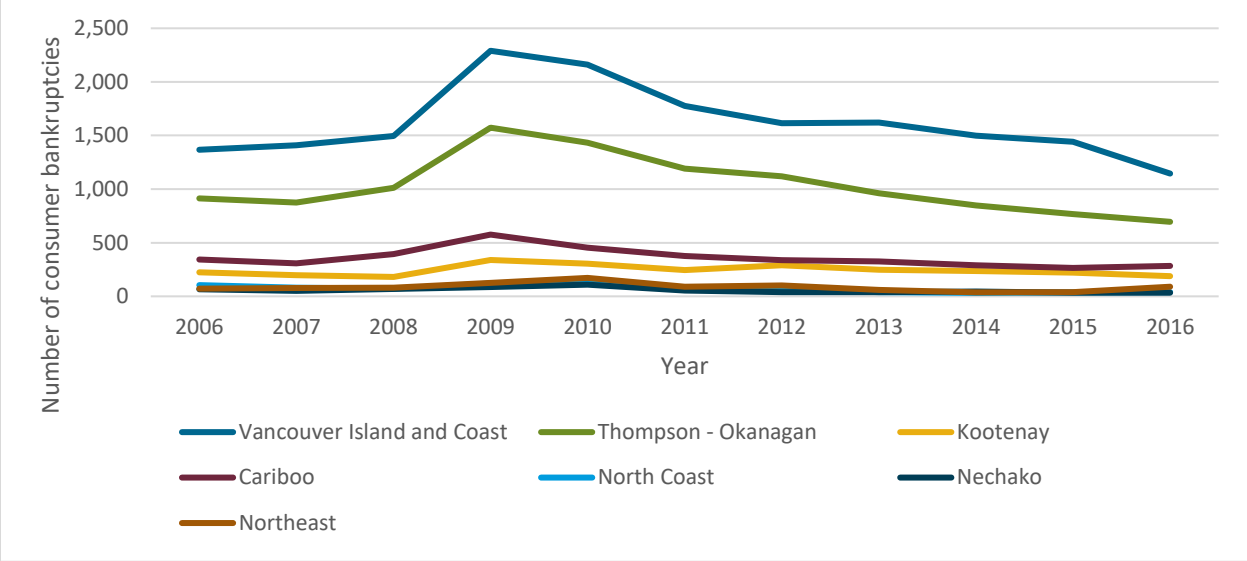


Figure 7: Consumer bankruptcies by Development Region (2006-2016)[9]

BUILDING PERMITS

What does this measure & why is it important?

This indicator measures the value of building permits issued annually, by Regional District or Northern Basin community. Data for this indicator was compiled by Statistics Canada and processed by BC Stats.[11] Housing starts and building permits are well-accepted indicators of economic performance.[12,13] They tend to pick up at the beginning of a business cycle, and taper at the initial signs of economic slowdown. This is reflective of changing consumer expectations, coupled with interest rates (typically low during the emergence from a recession and increasing in response to economic growth).

What are the trends & current conditions?

2017 data shows that building activity in our region has yet to fully recover following the sharp decline that followed the 2008/2009 recession (see **Figure 8**). All three Kootenay regional districts reported lower building permit values in 2016 than in 2008. This is contrary to the provincial average, which experienced the same sharp decline following the recession but has since climbed above 2008 levels.[11] The RDEK continues to see the most building activity in the region, with almost $130 million of building permits issued in 2016.

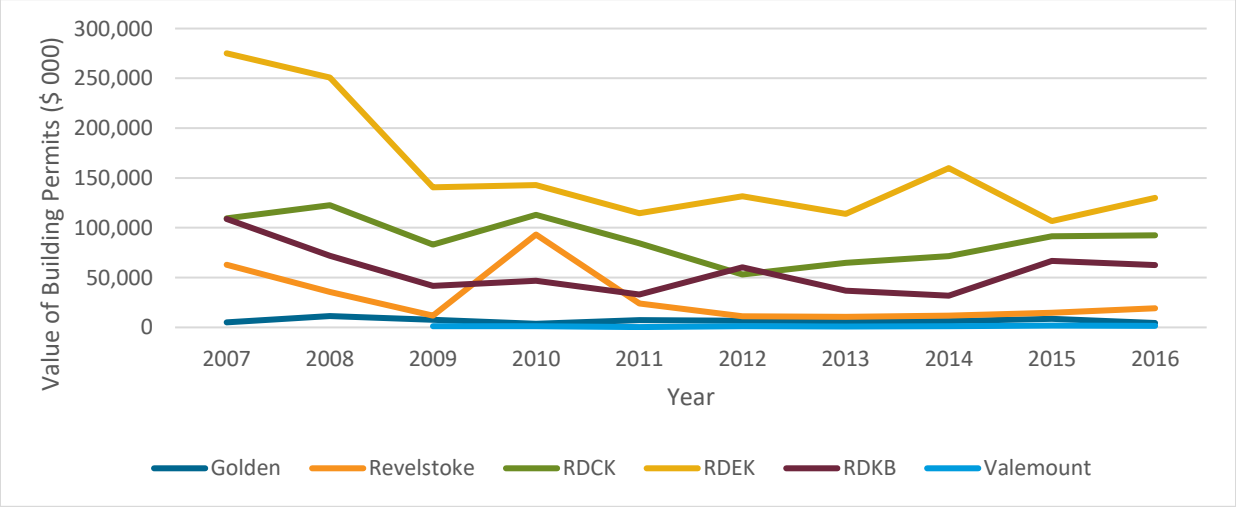


Figure 8: Total value of building permits issued (2007-2016)[11]

MAJOR PROJECTS

What does this measure & why is it important?

This indicator measures the value of major construction projects planned or underway in the region. The BC Major Projects Inventory is published quarterly and provides a summary of major private and public sector construction projects with an estimated cost of $15 million or greater.[14] Project information collected includes identification (e.g., name, description, location), status (e.g., proposed, on hold, completed), and size.[14] The major projects inventory provides one indicator of investment in infrastructure. Data for this indicator is taken from the 2017 third quarter report, which was the most recently published at the time of research.[14] Data is presented and compared at the Development Region level.

What are the trends & current conditions?

At the end of September 2017, there was a total of 941 major projects in British Columbia, up from 920 in the same quarter of 2016.[14] The total value of these projects was $412.7 billion. If only those projects under construction (as opposed to complete or proposed) are considered there were 355 projects valued at $74.7 billion.[14] Of those projects under construction, projects in the Thompson-Okanagan Development Region accounted for 18% of the total ($14 billion), similar to last year. The Kootenay Development Region accounted for 4.8% ($3.6 billion) of projects under construction.[14] Within the province there were 499 proposed major projects, of which 8 were in the Kootenays.

Table 6 shows the distribution of major projects that were proposed, under construction, or on hold, by sector. The number of projects in the Kootenay Development Region increased from 28 in 2016 to 30 in 2017. Of these, the largest number of projects (10) were classified under the Residential Commercial sector.

Development Region	Residential Commercial	Transportation & Warehousing	Mining & Oil & Gas Extraction	Utilities	Manufacturing	Public Services	Other Services	Total
Vancouver Island / Coast	88	15	6	18	0	13	8	148
Lower Mainland / Southwest	308	52	4	36	2	62	12	476
Thompson / Okanagan	55	12	4	18	1	10	6	106
Kootenay	10	0	7	5	1	2	5	30
Cariboo	5	5	6	7	1	3	1	28
North Coast	2	12	27	9	5	2	1	58
Nechako	1	1	12	5	0	0	0	19
Northeast	2	9	23	17	2	2	0	55
Total	471	106	89	115	12	94	33	920

Table 6: Summary of major projects by Development Region and industrial category (excluding completed projects) July – September 2017[14]

WORKFORCE

UNEMPLOYMENT

What does this measure & why is it important?

This indicator tracks the unemployment rate by Development Region. Data for this indicator comes from Statistics Canada's Labour Force Survey.[4] The unemployment rate measures the percentage of individuals aged 15 and older that are actively seeking work and not able to find it.[10] This analysis also presents data specific to youth. During census years, unemployment data is also collected through the census, which looks at whether people age 15 or older were employed, unemployed, or not in the labour force during a specific period of time, in this case May 1 – 7, 2016.[5] Census data allows for periodic assessment of unemployment at Regional District and Municipal scales.

The unemployment rate is a strong indicator of economic health. If our economy's purpose is to allocate our resources to the best uses, then unemployment rates give us a good indication of how well the economy is using one of our most important resources—people.

What are the trends & current conditions?

The impact of the 2008/2009 recession was clearly seen in the unemployment rate (see **Figure 9**). In 2016, unemployment remained higher than pre-recession levels in all of BC's Development Regions, excepting the North Coast & Nechako where the 2016 rate is on par with pre-recession levels. The reported estimates show an increase in unemployment in 2016 compared to 2015 across most of the Development Regions including those that intersect the Basin-Boundary region. The 2016 unemployment rates for the Kootenay, Thompson-Okanagan and Cariboo Development Regions (8.0%, 7.8% and 7.4% respectively) were higher than both the provincial (6.0%) and national (7.0%) rates.

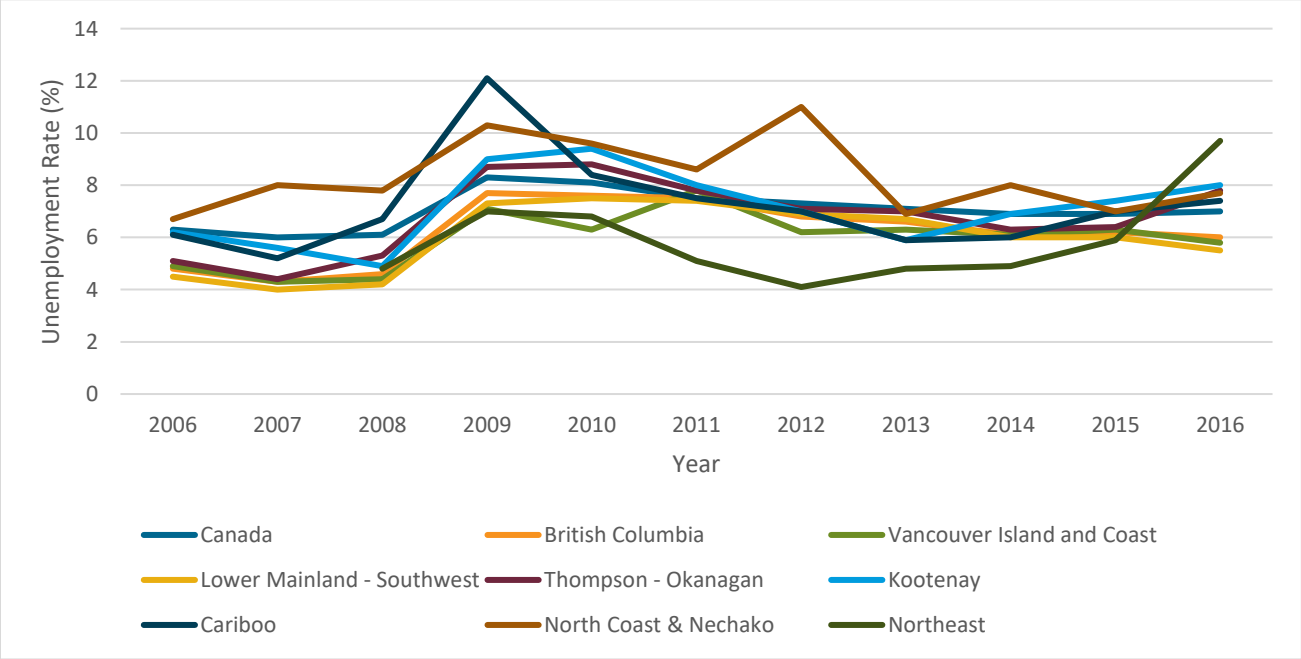


Figure 9: Unemployment rate by Development Region (2006 to 2016)[4]

As with the numbers for the Employment indicator, it is important to understand the limitations of the Labour Force Survey (LFS) data for areas with small sample sizes (i.e., rural areas). When a three-year moving average is applied to compensate for error and variability in this dataset, we see both positive and negative changes, perhaps most notably in the Northeast (see **Table 7**). Within the Kootenay Development Region, we see the 2016 unemployment rate is slightly lower with the three-year moving average applied.

	2016 Unemployment Rate (%)	2016 Unemployment Rate with 3 Year Moving Average Applied (%)
Vancouver Island / Coast	5.8	6.1
Lower Mainland / Southwest	5.5	5.8
Thompson / Okanagan	7.8	6.8
Kootenay	8	7.4
Cariboo	7.4	6.8
North Coast & Nechako	7.7	7.6
Northeast	9.7	6.8
British Columbia	6	6.1
Canada	7	6.9

Table 7: LFS unemployment rate by development region – comparison with 3-year moving average[4]

Census data provides additional insight on unemployment at the census subdivision (community) scale. This dataset shows that 2016 unemployment ranged from a low of 0% in some communities to over 15% in others (see **Figure 10**).[5]

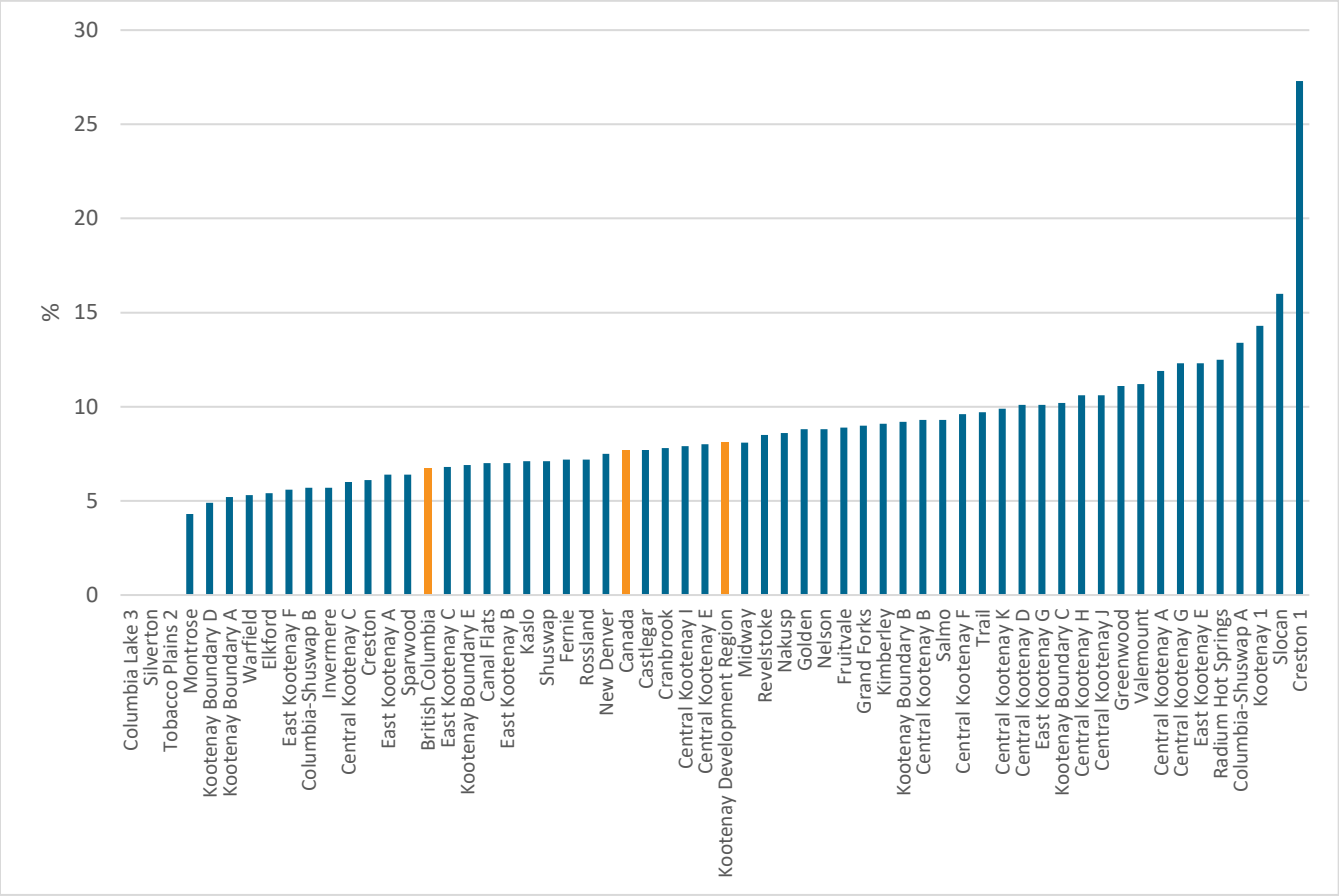


Figure 10: Unemployment rate by census subdivision, 2016[5]

The youth unemployment rate applies to individuals aged 19 to 24 years. Youth unemployment is historically higher than general unemployment—a trend common to the Basin-Boundary region, BC, and Canada.[15] Several factors

contribute to the gap between youth unemployment and general unemployment rates, including the period of unemployment many young people experience while they search for a job following completion of their education.[15] Youth are also more likely to be laid off.[15] However, youth who become unemployed are typically quicker to find new employment than adults.[15]

In 2016, the youth unemployment rate for Canada was 11%, higher than the BC youth unemployment rate of 8.7%.[4] Nationally and provincially the five year trend for youth unemployment shows 2016 levels have decreased from 2011 levels.[4] One source estimates the 2016 youth unemployment rate for the Kootenay Development Region at 18.6%, which was highest in the province.[16] However, it is important to keep in mind that this estimate is based on a very small sample size and likely has low reliability.

EMPLOYMENT INSURANCE

What does this measure & why is it important?

Employment Insurance (EI) is a federally-provided benefit available to individuals who lose their jobs through no fault of their own, such as a shortage of work or lay-offs. The number of EI recipients can indicate differing economic opportunities in a community or region. Apart from economic opportunity, there may be other reasons a person may access income assistance programs; therefore, this indicator should not be viewed in isolation, but rather in consideration of other labour, economic, and social indicators. EI recipient data is available from Statistics Canada at the regional district level on a monthly basis. This report includes data for the month of May for 2013 to 2017. The month of May was chosen as it is outside the winter and summer seasons when there may be variations in employment.

What are the trends & current conditions?

The general trend in the number of recipients[iii] of federal Employment Insurance across the region is an overall increase from 2013 to 2017. As illustrated in **Figure 11**, the Regional District of East Kootenay has seen annual increases since 2014. The number of EI recipients in the Regional Districts of Central Kootenay and Kootenay Boundary also generally increased between 2013 and 2017, but there was a decrease between 2015 and 2016. Changes in the number of EI recipients could be linked to a number of factors, including the completion of large construction projects (within or outside the region) which puts trades people out of work. In 2016, there was a policy change where EI benefits were extended because of high unemployment rates. This change could explain the rebound of EI recipient numbers in 2017 in the RDCK and RDKB.

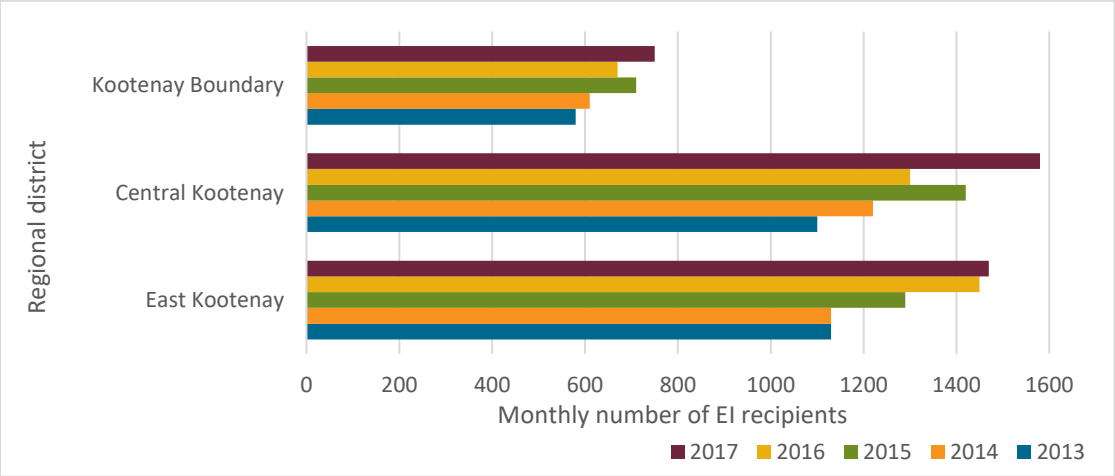


Figure 11: Monthly number of recipients of Employment Insurance, 2013 to 2017[17]

[iii] Recipients include both sexes and persons between 15 and 64 years of age.

LABOUR FORCE REPLACEMENT RATIO

What does this measure & why is it important?

This indicator measures the ratio of the number of people aged zero to 14 in 2016 who will be entering the workforce to the working population age 50 to 64 who will be leaving the workforce in the next 15 years. A ratio of 1.0 means the child and retiree populations are the same. The higher the ratio, the more young people there are relative to potential retirees. A ratio of less than 1.0 means an area is unable to maintain the current labour force with local replacement workers. Responses to this challenge could include encouraging older workers to continue to work, bringing in labour from other regions or countries, adopting technology to replace labour, or scaling down the economy to fit the available labour force.

This indicator was calculated from raw data from the 2016 Census of Canada.[5]

What are the trends & current conditions?

The provincial labour force replacement ratio for 2016 was 0.67.[5] The ratios for four of the five Basin-Boundary Regional Districts are lower than the provincial ratio (see **Figure 12**), which is reflective of our region's relatively high average age. Our region's lowest replacement ratio is found in the RDKB (0.52), while the highest is in the Regional District of Fraser-Fort George (0.78). When comparing regional district figures to specific municipalities within those regional districts, it is evident that municipalities often have higher labour force replacement ratios (see **Figure 12**). This suggests that younger populations tend to reside in the less rural parts of the Basin-Boundary region. Ratios below 1.0, both within the region and the province as a whole, are indicative of the need to attract youth, or pursue other options as noted above, in order to mitigate future labour shortages.

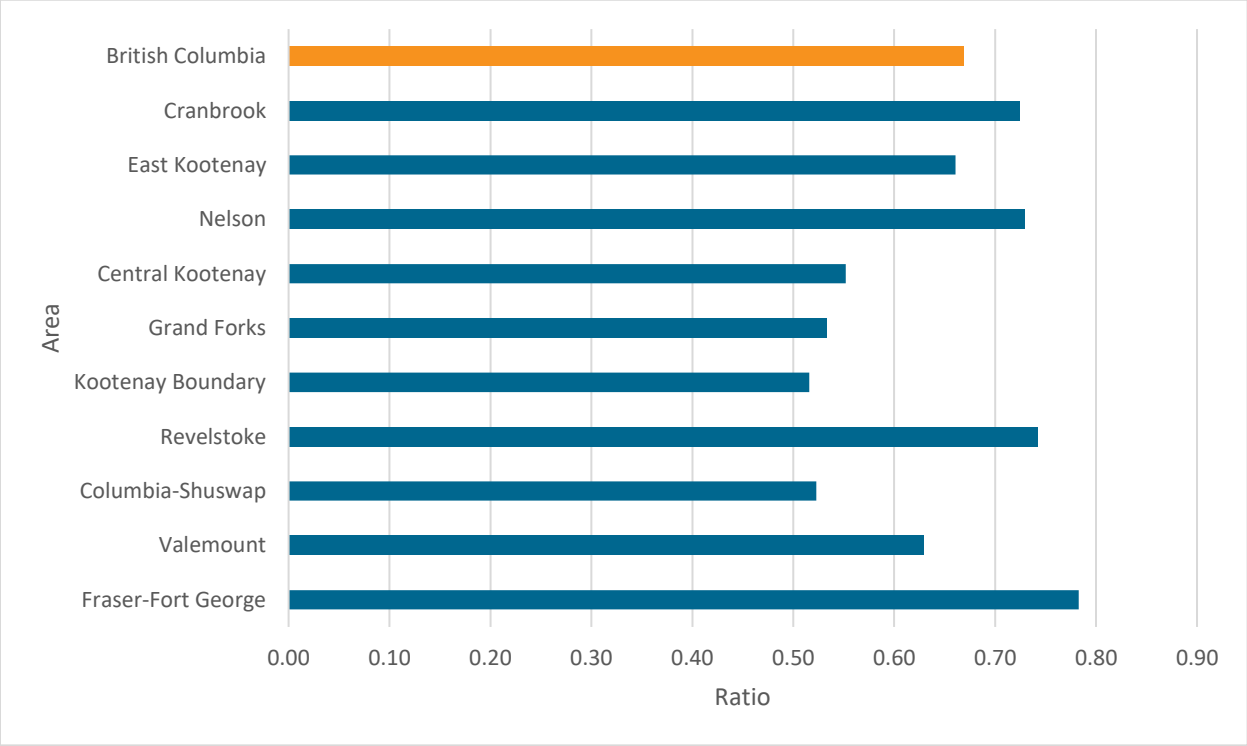


Figure 12: Labour force replacement ratio, by Regional District and select Municipalities (2016)[5]

WORKFORCE EDUCATION

What does this measure & why is it important?

This indicator tracks the percentage of the labour force aged 25 to 64 with post-secondary education (i.e., a post-secondary certificate, diploma or higher) by Development Region. Data for this indicator comes from Statistics Canada's Labour Force Survey.[4]

Education is a critical determinant of the workforce's ability to adapt to change and is therefore important to economic growth.[18] While educational attainment is one indicator of a skilled workforce, other factors, including the quality of education, are also important. In particular, access to quality early education (e.g., pre-school and elementary school) is recognized as being highly influential on workforce skill levels.[19,20]

What are the trends & current conditions?

In 2016, 65% of BC's workforce had a post-secondary certificate or higher. Workforces in the Kootenay, Thompson-Okanagan and Cariboo Development Regions had lower educational attainment levels (63%, 60% and 56% respectively) than the province or Canada (see **Figure 13**). While the data shows variability between years, all Development Regions show an upward trend in this indicator.

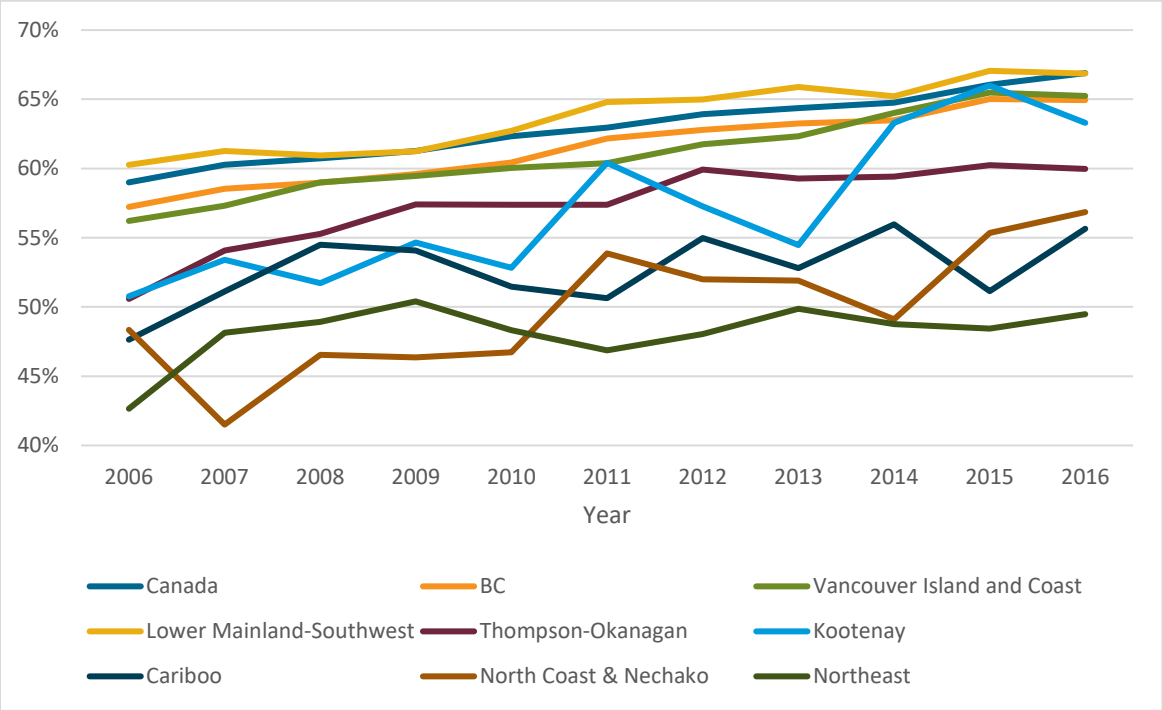


Figure 13: Percent of labour force (age 25-64) with a post-secondary certificate, diploma, degree, or higher (2006 to 2016)[4]

When looking specifically at the component of the workforce with a university degree, our region is also seeing an upward trend but remains substantially below the Canadian or provincial averages. Roughly one fifth of the workforce in Basin-Boundary development regions has a university degree, while 31% of the Canadian or British Columbian workforce has the same.[21]

WAGES

What does this measure & why is it important?

This indicator measures the median hourly wage earned by employees age 15 years and over by Development Region. Results are presented for all, full-time, and part-time employees. Data for this indicator comes from

Statistics Canada's Labour Force Survey. These statistics only consider wages for employees; self-employed workers are excluded.

Employment income constitutes the majority of most households' total income. Since income is a strong social determinant of health, trends in wages strongly indicate trends in a region's social and economic well-being.

What are the trends & current conditions?

Since 2006, wage rates have been on the rise in the Basin-Boundary region, similar to the trend seen at the provincial and national scale (see **Figure 14**). As of 2016, the median hourly wage for all employees was higher in the Kootenay Development Region ($25.00) than the provincial or national average ($22.50 and $22.00, respectively). From 2015 to 2016, the median hourly wage decreased by $0.10 at the provincial scale but increased by $1.90 in the Kootenay Development Region, putting the Kootenay Development Region in a tie with the Cariboo and the Northeast Development Regions for the highest median wages. The Thompson-Okanagan Development Region also saw the median hourly wage increase from 2015 to 2016, but overall wages in this region remain among the lowest in the province.

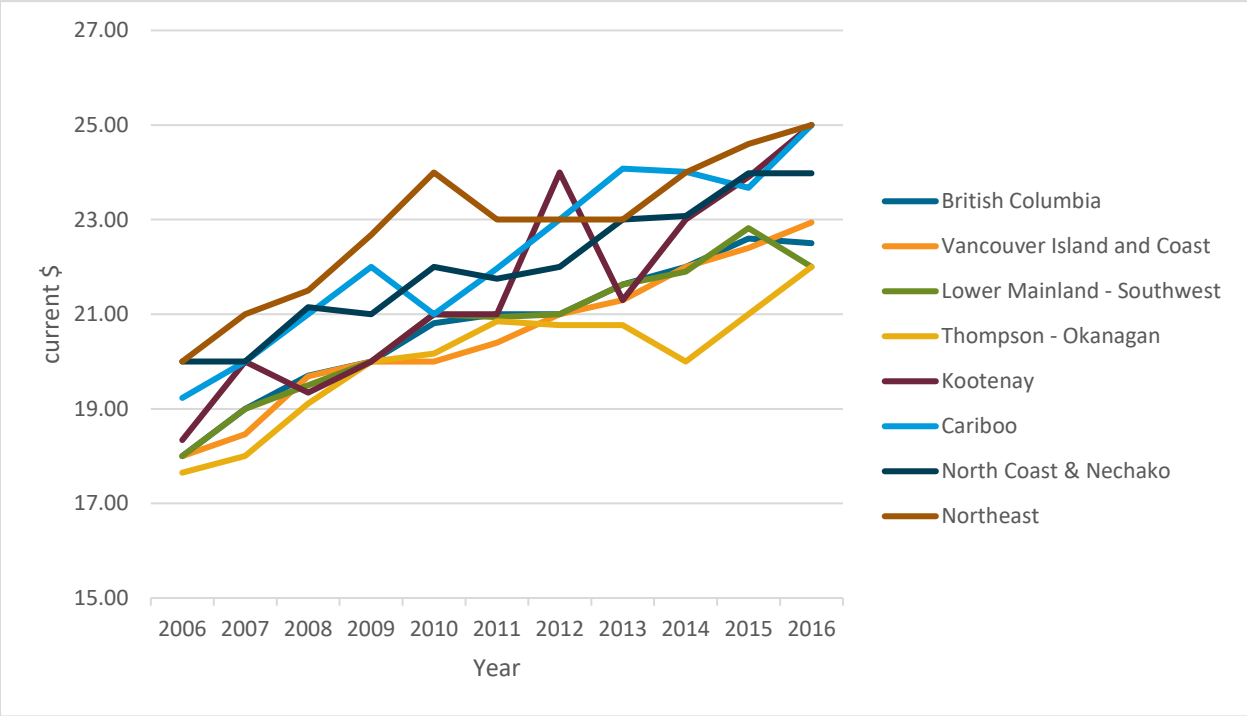


Figure 14: Median hourly wages (in current $) for all employees aged 15+, 2006-2016[4]

Full-time employees earn higher median hourly wages than part-time employees as shown in **Figure 15**. The 2016 median full time wage in the Kootenay Development Region ($28.64) was the highest among the development regions and higher than the provincial median ($25.00). Hourly wages of part-time employees ranged between 55% and 62% of full-time wages across the province. In the Kootenay Development Region, the median part time wage in 2016 was $16.75, representing 59% of the median full-time wage.

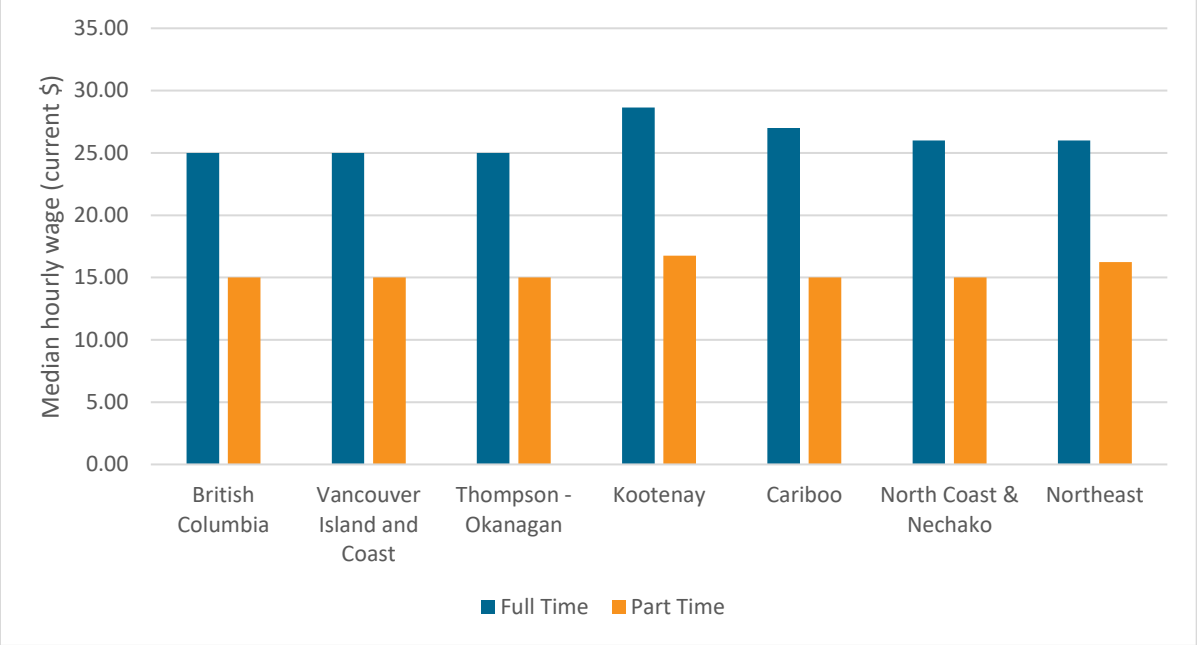


Figure 15: Median hourly wage for part-time versus full-time employees (2016)[4]

INCOME

What does this measure & why is it important?

This indicator includes the average income for Basin-Boundary families by community. The average incomes presented are based on the average for a census family[iv]. Data comes from Statistics Canada's Taxfiler data and includes a comparison from 2011 to 2015. The data presented is based on postal geography, and therefore does not fully align with legal municipal boundaries, but rather includes the municipality as well as the general area surrounding that municipality. This data also does not differentiate between people who earn their income in the community versus someone who travels outside their community for work.

Income levels reflect relative opportunities in a local economy, and income is a substantial determinant of personal well-being. However, it is important to note that income tax data does not consider many factors that affect a family's economic status, including access to external financial supports (e.g., inexpensive child care, tuition support), the family's ability to participate in the economy (e.g., seasonal employment, disability, unemployment), or regional differences in the cost of living (e.g., food, shelter, transportation).[22]

What are the trends & current conditions?

As shown in **Figure 16**, the average income for families in 2015 was highest in the East Kootenay communities of Elkford ($110,668), Sparwood ($99,380), and Fernie ($90,580), along with Rossland ($95,353) in the West Kootenay. The lowest average family incomes in 2015 were found in the West Kootenay communities of Slocan ($40,872), Winlaw ($44,747), and New Denver ($51,441), as well as Greenwood ($43,269) in the Kootenay Boundary. The greatest five-year increase in average income was in Canal Flats which saw a 16.2% increase, followed by Radium Hot Springs (14.1% increase), and Kimberley (13.9% increase). Montrose shows the most marginal increase at 0.4%. The average 2015 income for families across all communities in the Basin-Boundary region was $69,603, which is below the provincial average of $76,878.

[iv] Census Families include: 1) couples (married or common-law) living in the same dwelling, with or without children; and 2) lone-parents (male or female) with one or more children.

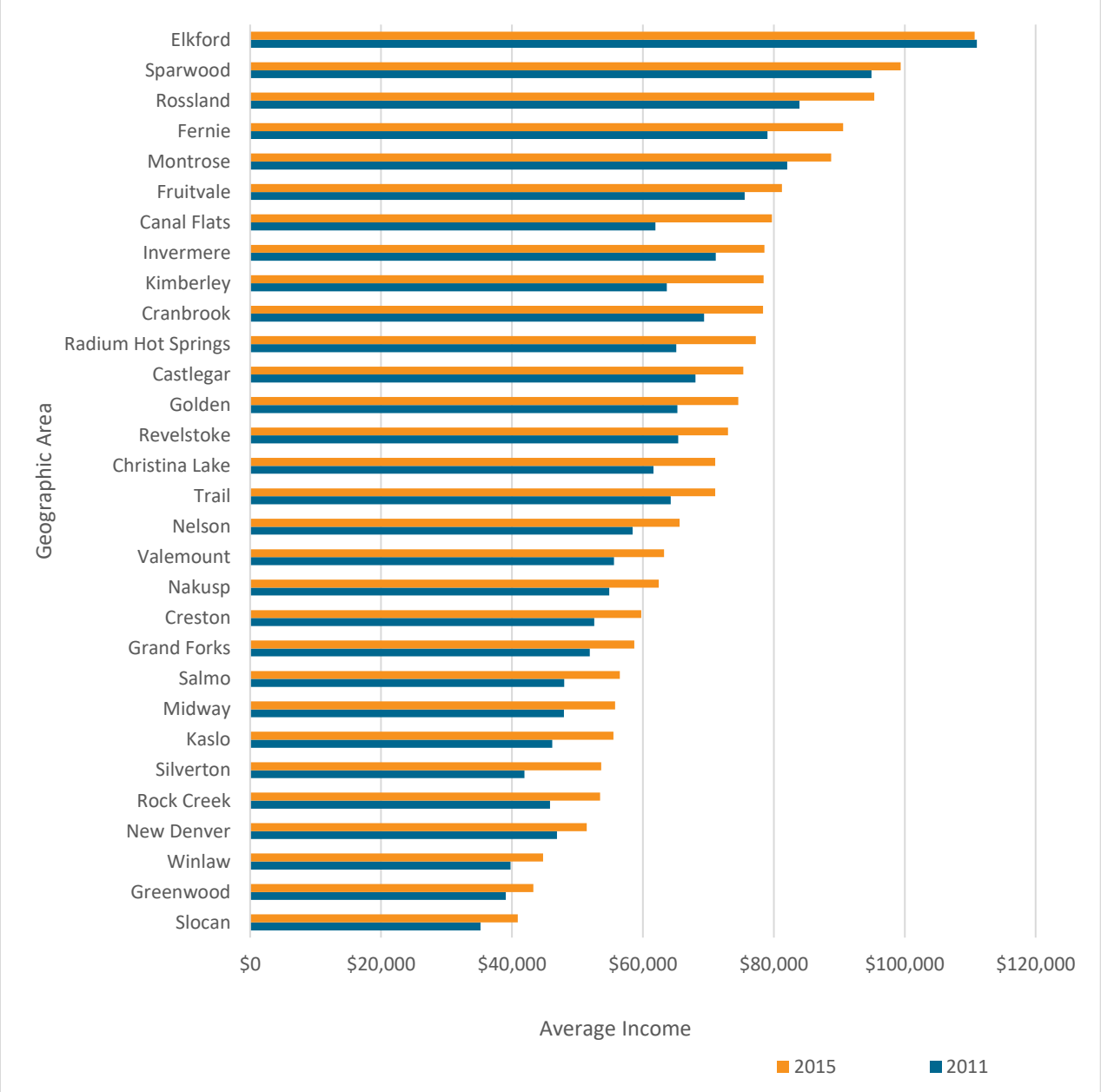


Figure 16: Average income for all families by community, 2011 and 2015[23]

INCOME DISTRIBUTION

What does this measure & why is it important?

This indicator tracks the distribution of personal income, by postal code, using the Gini Index. The Gini Index is a measure of inequality.[24] The RDI's analysis calculates Gini coefficients for after-tax incomes. Data for this indicator were gathered from Statistics Canada's Taxfiler statistics.[25] It is important to note that Statistics Canada distorts taxfiler data to protect the privacy of individuals filing returns, and small communities are impacted the most. Visit Statistics Canada for more information on data confidentiality and rounding and data suppression processes for the taxfiler statistics.

Information on the distribution of incomes shows how well our communities are doing at providing earning opportunities. The Conference Board of Canada notes that income inequality "is an important indicator of equity in an economy, and has implications for other social outcomes such as crime and life satisfaction".[26]

What are the trends & current conditions?

Figure 17 shows the Gini coefficient for each community in the Basin-Boundary region as well as for BC and Canada. Higher values indicate higher inequality in a population's income. Perfect equality (where every member of a population has the same income) would be represented by a score of zero. Communities at the top of the graph (Fernie, Christina Lake, Rossland, and Sparwood) have larger disparities between high income earners and low income earners. Communities at the bottom of the graph (Canal Flats, New Denver, Midway, and Invermere) have more even income distributions. BC and Canada have higher levels of income disparity than all Basin-Boundary communities. Slocan, Salmo, and Montrose saw the greatest increase in income inequality from 2011 to 2014, while Silverton saw the greatest decrease during the same time period. It is not possible to provide a rationale for changes without further research at the community level.

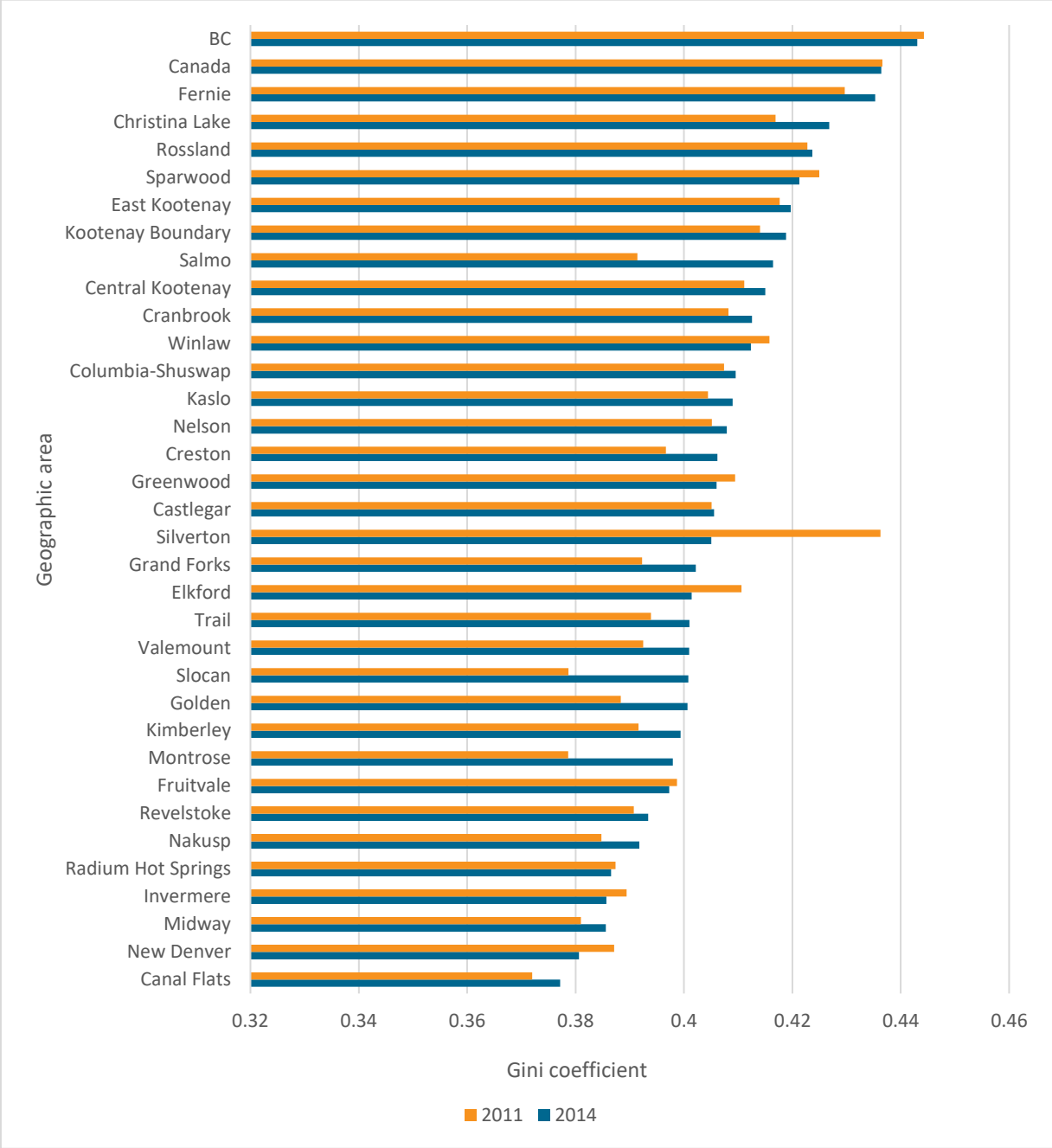


Figure 17: Gini Coefficient for 2011 and 2014 for communities in the Columbia Basin-Boundary[27]

LOW INCOME MEASURE

What does this measure & why is it important?

The Low Income Measure (LIM) is a commonly-used indicator of poverty. "The LIM is a fixed percentage (50%) of median adjusted household income, where "adjusted" means that household needs are taken into account. Adjustment for household sizes reflects the fact that a household's needs increase as the number of members increases. Most would agree that a household of six has greater needs than a household of two, although these needs are not necessarily three times as costly."[28] A family is considered to have low income when their income is below the LIM for their family type and size.

This indicator provides a picture of the extent to which different families were affected by poverty in each geographic area between 2011 and 2015. Data presented is from the after-tax income reporting obtained from Statistics Canada's Taxfiler data. Family categories are as defined by Statistics Canada.[v] The data presented is based on postal code, and therefore does not fully align with legal municipal boundaries, but rather includes the municipality as well as the general area surrounding that municipality.

The impacts of low income on health and education have been studied extensively.[29] Persons living with a low income may have difficulties accessing safe and affordable housing, nutritious food, adequate child care, transportation, and other necessary goods and services. Relying solely on the LIM to measure poverty however, can be problematic according to social policy researchers. Poverty line indicators such as LIM can underreport income not captured within tax data (i.e. cash, informal economy, etc.), and otherwise not capture factors such as assets, access to inexpensive housing, external financial support, and others.

What are the trends & current conditions?

As shown in **Figure 18**, in 2015, nine communities in our region had a percentage of low income persons above the provincial average of 15%. This includes Slocan (33%), Winlaw (30%), Greenwood (24%), New Denver (21%), Salmo (19%), Rock Creek (18%), Kaslo (17%), Silverton (17%), and Creston (16%). Three communities (Grand Forks, Nelson, and Nakusp) had the same as the provincial average of 15%. Elkford, Montrose, Sparwood, and Fruitvale had the lowest percentage of low income persons. In total, 18 communities had a percentage below the provincial average.

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[v] Family Categories are derived from Statistics Canada:[182]

- **Census Family** classifies people in the following manner: *couples* (married or common-law) living in the same dwelling, with or without children and *lone-parents* (male or female) with one or more children. The residual population is called *persons not in census families* and is made up of persons living alone and of persons living in a household but who are not part of a couple family or lone-parent family.
- **Children** are taxfilers or imputed persons in couple and lone-parent families. Taxfiling children do not live with their spouse, have no children of their own and live with their parent or parents. The data available identifies children as 0 -17 years of age.[33]
- **Lone-Parent Family** is a family with only one parent, male or female, and with at least one child.
- **Couple Family** consists of a couple living together (whether married or common-law) at the same address, and any children living at the same address; taxfiling children do not live with their spouse, have no child of their own and live with their parent or parents.
- **Persons not in Census Families** Is an individual who is not part of a census family – couple family or a lone-parent family. These persons may live with their married children or with their children who have children of their own (e.g., grandparent). They may be living with a family to whom they are related (e.g., sibling, cousin) or unrelated (e.g., lodger, roommate). They may also be living alone or with other persons not in census families.
- **Seniors (65+)** is a grouping of persons 65 years of age and over.[33]
- **Total Persons** is a grouping of Census Families and Persons not in Census Families.[33]

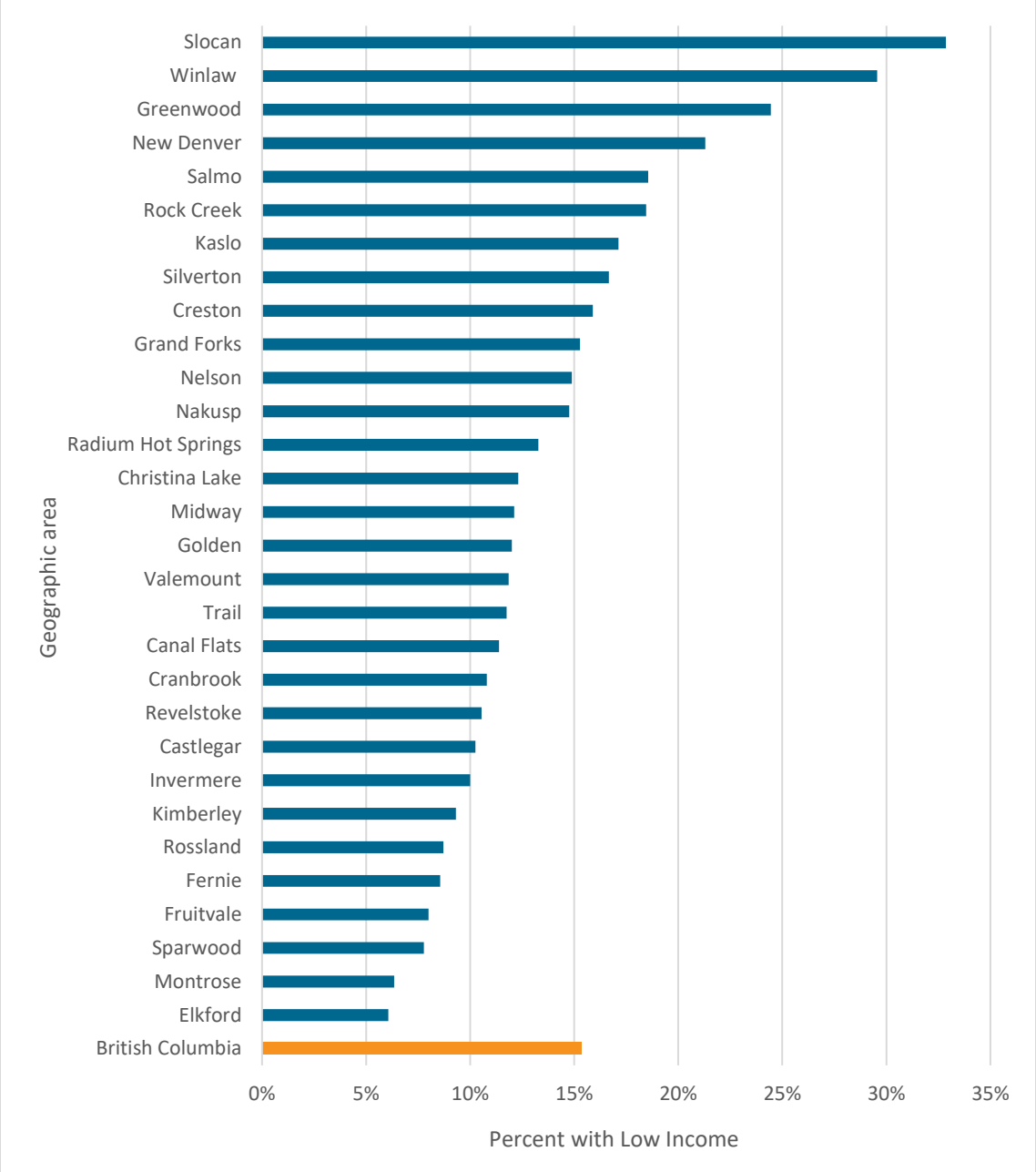

Figure 18: Total persons with low income in 2015[30]

When comparing family categories, lone-parent families have the highest incidence of low income, with up to 40% of all lone-parent families living at or below the LIM in the Central Kootenay and more than 30% in the Kootenay Boundary and East Kootenay (see **Figure 19**). The Central Kootenay consistently shows percentages above the provincial average for low income lone-parent families. The percentage of lone-parent families with low income decreased from 2011 to 2015 for the Kootenay Boundary and Central Kootenay, but remained the same for the East Kootenay.

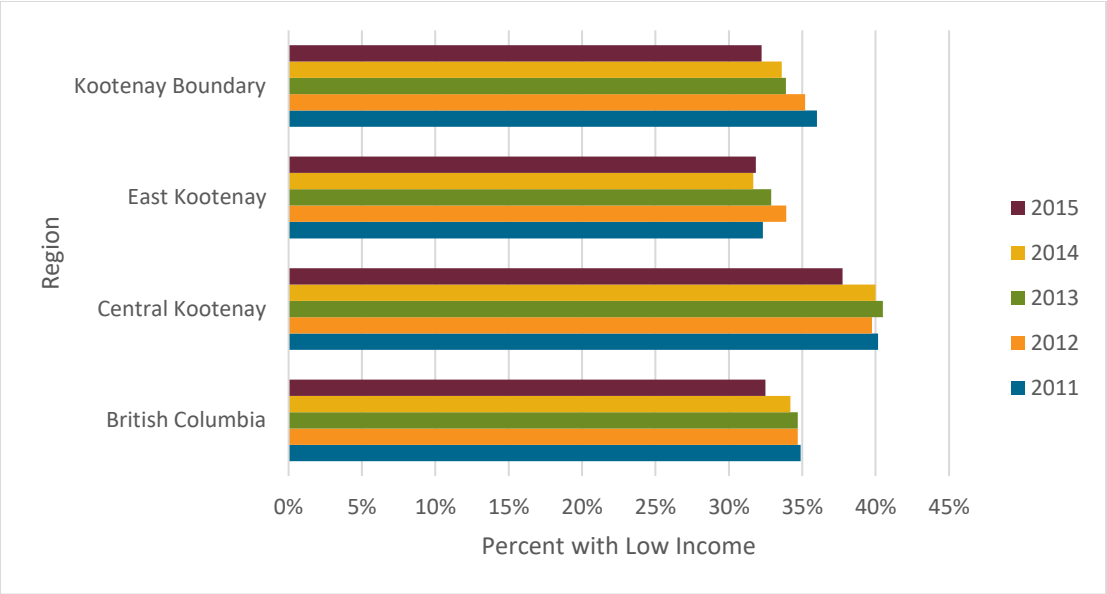

Figure 19: Percent of low income lone-parent families for 2011 to 2015[30–34]

The family categories of seniors (65+) (**Figure 20**) and couple families experienced the lowest incidence of low income. The percentage of Kootenay seniors with low income has been consistently lower than the provincial average, with the East Kootenay showing the lowest percentages. The percentage of seniors with low income did however increase from 2011 to 2015 in all three Kootenay regional districts, as well as at the provincial scale.

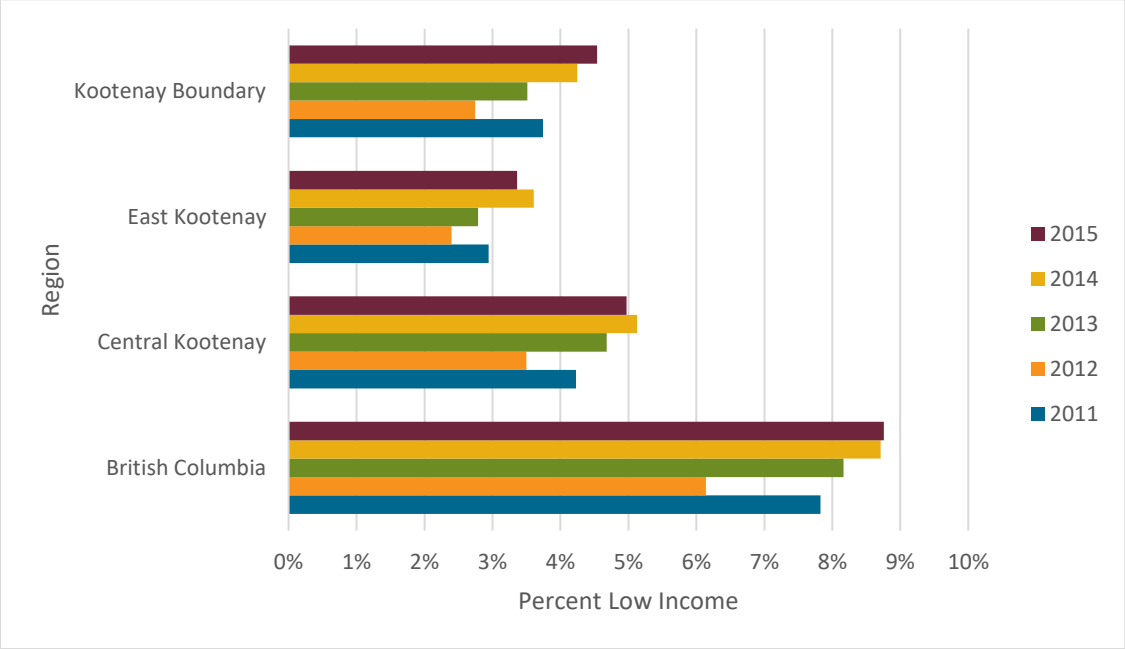

Figure 20: Percent of low income seniors (ages 65+) for 2011 to 2015[30–34]

LIVING WAGE

The 'Living Wage' is a national and international campaign to raise awareness of the costs of living, and is considered the minimum income necessary for a household to meet their basic needs. The Centre for Policy Alternatives provides the Canadian Living Wage Framework[35] as a methodology for the living wage calculation. The living wage for a community is calculated based on the needs of a household consisting of two wage-earning adults and two children (aged four and seven). The needs taken into account include the costs of shelter, food, clothing and

footwear, transportation, child care, education for the parents, and other costs, such as telecommunications and health related costs. To the degree possible, it takes into account costs specific to the community. The calculation also takes into account deductions and transfer payments for which a family of that size and income would be eligible, and the loss of two weeks of income, but otherwise does not include provision for savings or debt repayment.

The living wage will vary from year to year, reflecting not only changes in the cost of local goods and services, but also changes in public policy at a senior level. For instance, increases in the cost of food, housing, or other expenses have been partially offset by the introduction of the Canada Child Benefit.

Table 8 shows the hourly living wage for the five communities in our region who have completed the calculation. The community of Golden has the highest calculated living wage at $20.62, which is the same as the calculation for Vancouver[36]. Cranbrook has the lowest living wage, due to transportation, childcare, and housing all being considerably more affordable in that community.[37] All communities in the Basin-Boundary region that have done calculations show a considerably higher hourly wage required than the provincial general minimum wage of $11.35[38], which is set by the provincial government.

Community	Living wage (hourly)
Revelstoke	$18.77 (2017)
Lower Columbia	$18.21 (2016)
Nelson	$18.21 (2015)
Columbia Valley	$18.25 (2017)
Golden	$20.62 (2017)
Cranbrook	$14.26 (2017)

Table 8: Living wage calculations for five Columbia Basin-Boundary communities[36,39]

It is important to use caution when comparing these values because of the different years in which calculations were made. Living wage researchers suggest that calculations be done consistently and annually, at the same time of year, which can allow for more accurate comparisons. Updated Living Wage calculations for a number of communities across BC, including in our region, are expected in May 2018.

HOUSING

HOUSING STOCK DIVERSITY

What does this measure & why is it important?

This indicator measures the relative size of the single detached house component of the housing stock in Columbia Basin-Boundary communities. Data for this indicator comes from the Census of Canada, which provides details of the number of dwellings, as well as their characteristics.

People in various economic situations and stages of life have different housing needs. Providing a mix of housing types that meets these needs has been shown to help revitalize small towns and enable economic growth.[1] High ratios of single detached homes in a housing stock may indicate that younger, older, or lower-income households are not being accommodated.

What are the trends & current conditions?

Compared to the province as a whole, our region has a high prevalence of single detached homes (see **Figure 21**). Across all Basin-Boundary communities, single detached dwellings made up 73 percent of all occupied dwellings in 2016, down slightly from 75 percent in 2011. The RDEK saw the biggest drop over that time period, from 72% in 2011 to 68% in 2016. The RDKB continues to have the highest percentage of single detached homes in our region (80%) while the Northern Basin communities collectively have the lowest percentage (65%).

There appears to be no clear trend in the prevalence of single detached housing over time in our region. The component of the housing stock classified as single detached was lowest in 1996 at 71% and peaked at 77% in 2001.

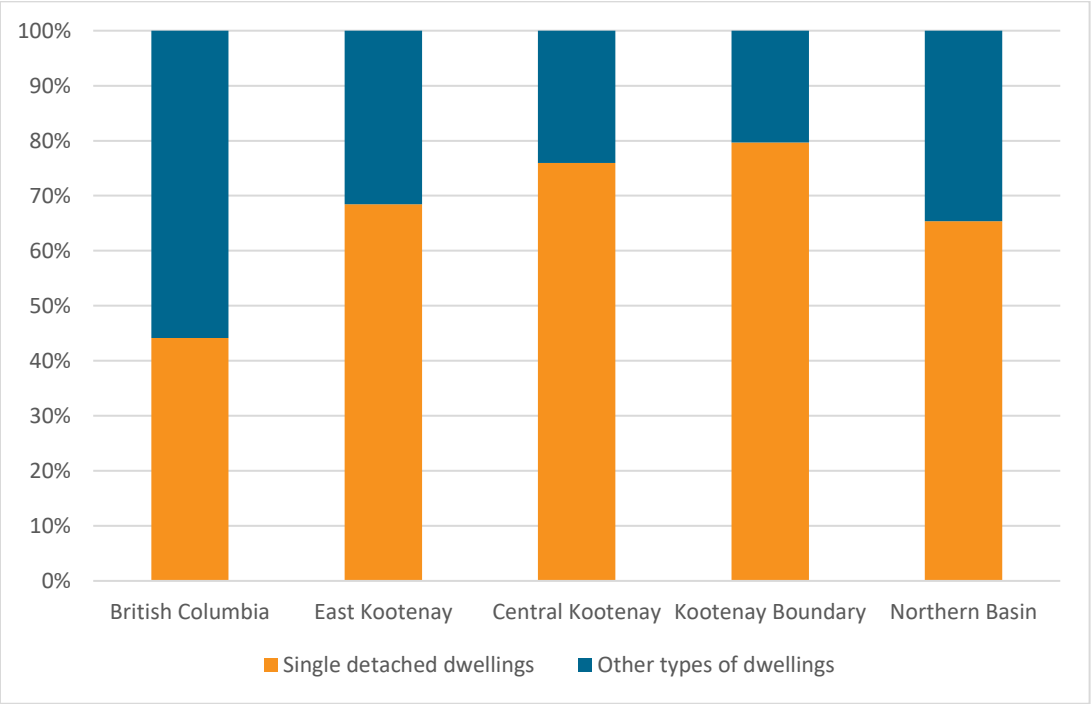

Figure 21: Single detached dwellings as percentage of total occupied private dwellings[5]

VACANCY RATES & RENTS

What does this measure & why is it important?

Through a custom data request, the Market Analysis Centre of the Canada Mortgage and Housing Corporation (CMHC) provided vacancy rates and average rents for a selection of municipalities in the Columbia Basin-Boundary

region for the last five years. These results come from CMHC's annual Rental Market Surveys. As some communities have very small rental markets, information for some municipalities is suppressed for confidentiality reasons.

Vacancy rates are an important indicator of the availability of affordable housing, as a low vacancy rate can impact rental rates. It is generally agreed that a balanced rental vacancy rate is 3%.[41] Average rents provide an indication of the cost of rental housing in a community.

What are the trends & current conditions?

Several municipalities have vacancy rates below the balanced rate of 3% (see **Figure 22**), with Nelson and Golden having 0% vacancy in 2017. Vacancy rates in Cranbrook have consistently decreased over the last five years, from 6.3% in 2013 to 1.2% in 2017. A similar trend exists for Kimberley, Golden, Fernie, and Grand Forks. Trail & Area (which includes Trail, Warfield, and Fruitvale) also shows a general declining trend. There are many factors that can influence vacancy rates including the age and family structure of the local population, local employment and income, rental rates and property management, the rate of new construction, presence of a post-secondary institution, and others. Community-specific research is needed to confirm the factors influencing the major year-to-year changes seen in some communities' vacancy rates.

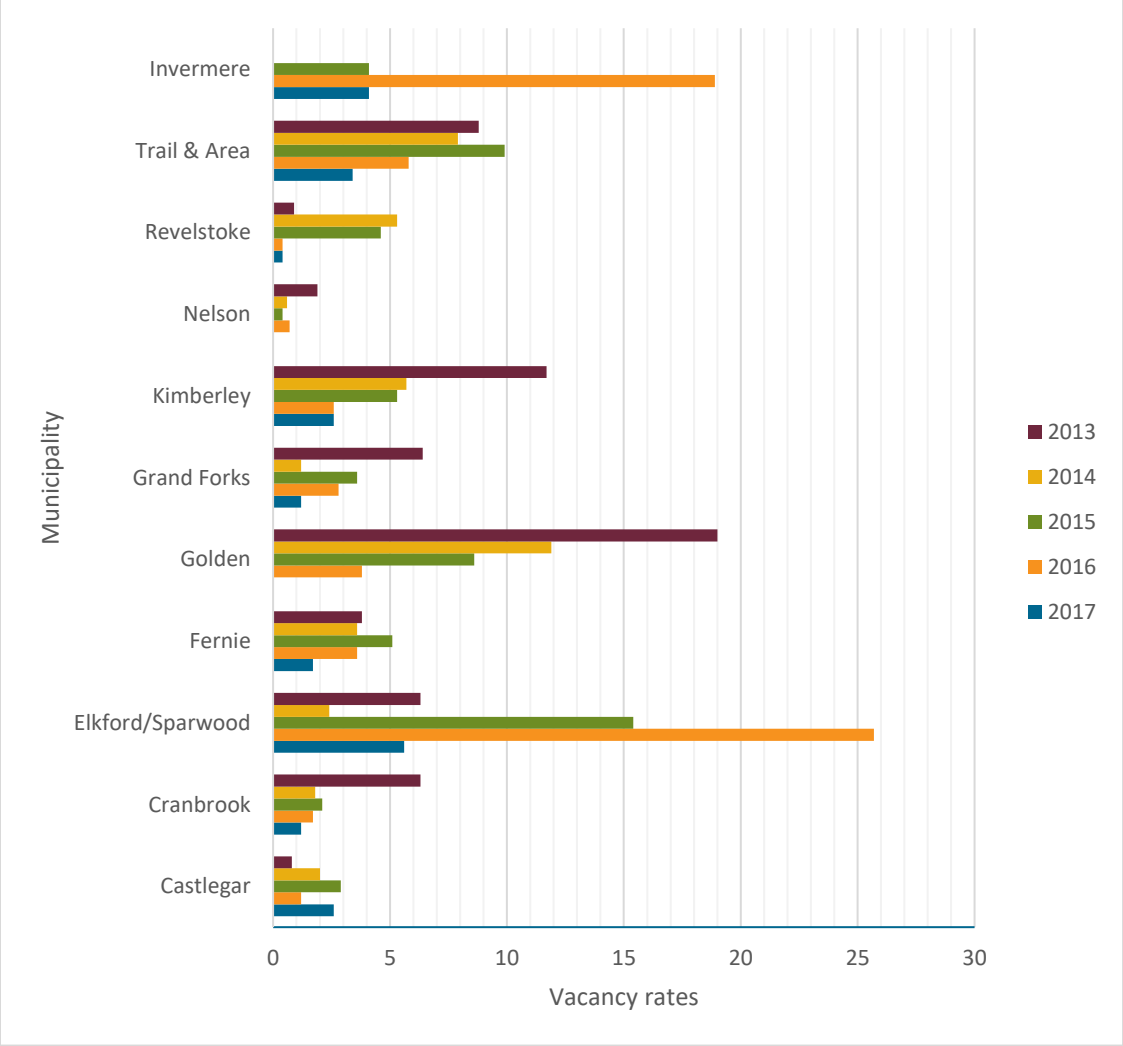

Figure 22: Vacancy rates for selection of Columbia Basin-Boundary municipalities, 2017[42]

In addition to vacancy rates, CMHC provides average apartment rents by community. **Figure 23** shows the total average apartment rents which includes bachelor suites, one bedroom, two bedroom, and three bedroom rentals, although most of the data provided was for one bedroom and two bedroom rentals, likely because this is the

majority of what is available in our communities. Revelstoke has the highest average rent at $923, followed by Fernie, Creston, and Nelson. Rossland shows the lowest average rent at $593.

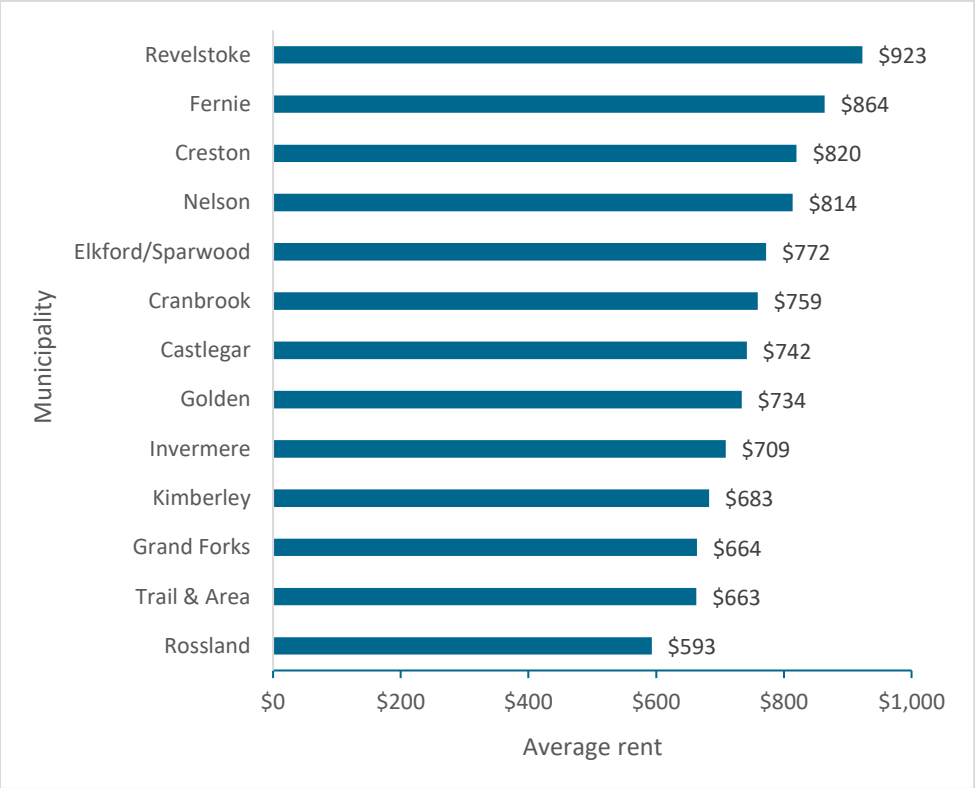

Figure 23: Average apartment rents for a selection of Basin-Boundary municipalities, 2017[42]

RENTING HOUSEHOLDS

What does this measure & why is it important?

This indicator measures the percentage of households that rent the dwelling they live in. Data comes from the Census of Canada[2]. Home ownership is not a goal that all families aspire to, nor is it necessarily an option for lower-income households. In the same manner that populations require diversity in the dwelling types available, diversity in housing tenure options is also required to ensure inclusive communities.

What are the trends & current conditions?

Across the Basin-Boundary region, slightly more than one-fifth of households rented their home in 2016 (see **Figure 24**), roughly the same as ten years prior in 2006. This figure was lower than both the provincial and national average of 32%. The percentage of renters was highest on the Creston 1 Reserve (56%) and in Nelson (39%), and lowest on the Tobacco Plains 2 Reserve (0%) and in Kootenay Boundary Electoral Area B (4%).

While the overall rental rate in our region hasn't changed much since 2006, certain communities have seen notable change. Salmo and Nakusp have both seen the percentage of rentals increase by over 10%, while Silverton has seen the percentage of rentals decrease by 10%.

Similar to conditions seen at the provincial and national scale, the 15-34 age group accounts for the highest percentage of renters in Basin-Boundary communities. In some communities (e.g., Slocan Valley municipalities such as Slocan, Silverton, and New Denver), virtually all households maintained by someone 15-34 years old were rented in 2016. In general, seniors in our region (those aged 65 and over) are the least likely to rent their homes.[2]

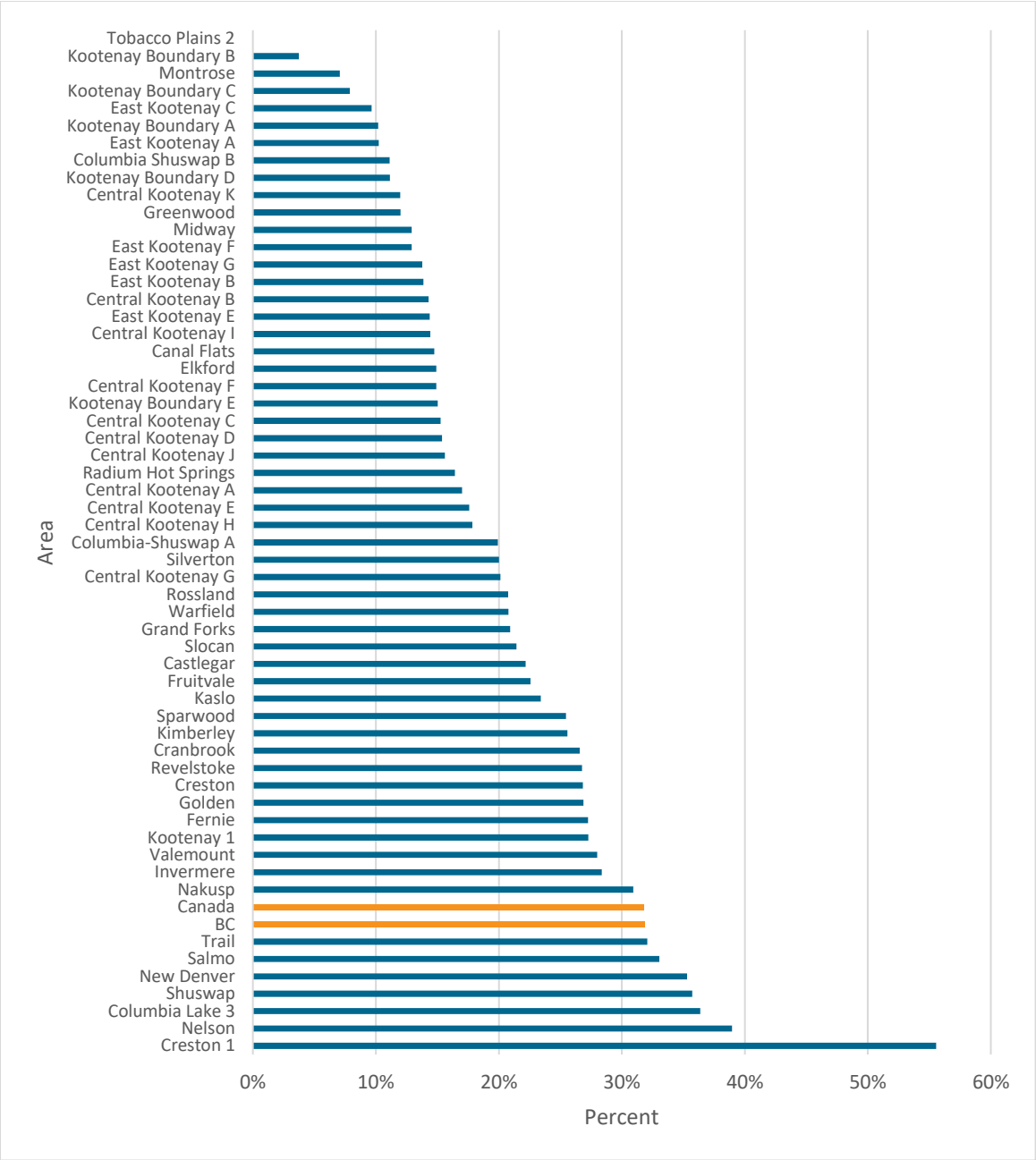

Figure 24: Percent of households that rent their home (2016)

HOUSING AFFORDABILITY

What does this measure & why is it important?

A key measure of housing affordability is the percentage of a household's income that is spent on shelter costs. It is commonly agreed that when more than 30% of a household's income is spent on shelter costs, the housing is unaffordable. As part of the Census, Statistics Canada gathers information to determine how many tenant and owner households are spending more than 30% of their income on shelter related expenses.[43] Shelter costs include electricity, oil, gas, coal, wood or other fuels, water and other municipal services, monthly mortgage payments, property taxes, condominium fees, and rent.[44] In addition to the affordability standard of 30%, the Canada Mortgage and Housing Corporation (CMHC) has also developed standards for adequacy (the housing does not

require major repairs) and suitability (the housing is sufficient in size and has enough bedrooms) when evaluating a household's situation.[43]

Affordable housing is a critical issue. When access to affordable housing is challenging, financial strain is experienced, and consequently access to food, clothing, child care, transportation, and other necessities is difficult. Affordable housing is a basic foundation for well-being, and the right to adequate housing is enshrined under law.[45]

What are the trends & current conditions?

Figure 25 shows the percentage of households that were spending more than 30% of their income on housing costs in 2016. Data was supressed for Tobacco Plains 2, Kootenay 1, Columbia Lake 3, Slocan, Silverton, and Creston 1.

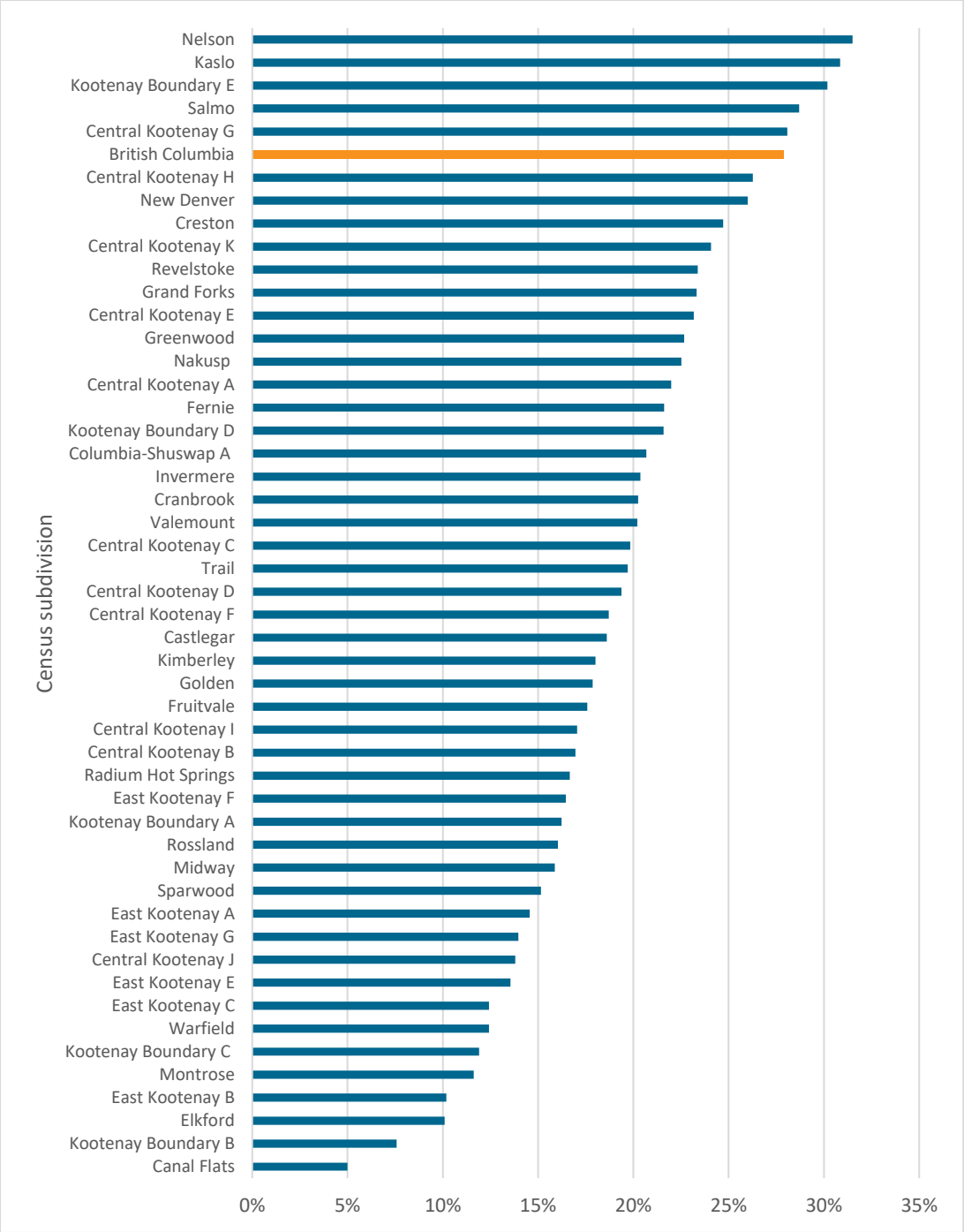

Figure 25: Total (homeowners and tenants) spending more than 30% of their income on shelter costs in 2016[46]

As shown, four communities have a higher percentage of households spending more than 30% of their income on shelter than the provincial average. These include Nelson (32%), Kaslo (31%), Kootenay Boundary E (30%), and Salmo (29%). Central Kootenay G is the same as the provincial average of 28%, while 17 other communities have values of 20% or greater.

The percentage of tenants struggling with housing affordability is higher than homeowners, with 14 communities showing a higher value than the BC average of 43% and 23 communities with a higher percentage than the national average of 40% of tenants. Kaslo and Montrose have the highest percentages, both at 71%. Creston (57%), Greenwood (56%), and Central Kootenay C (53%) also have high percentages, followed by several others.

When comparing the 2016 to 2006 Census data, the percentage of homeowners and tenants spending more than 30% of their income on shelter has increased in Central Kootenay K, Columbia-Shuswap A, Fruitvale, Elkford, Revelstoke, Central Kootenay J, East Kootenay E, Kootenay Boundary Areas D and E, and more. Central Kootenay D and East Kootenay B saw the greatest decreases—from 31% to 19% and from 21% to 10%, respectively.

RESIDENTIAL PROPERTY VALUE

What does this measure & why is it important?

This indicator measures the median[vi] total assessed value (including land and improvements) for Columbia Basin-Boundary properties that are used as single family residences. Data was provided by BC Assessment.

Housing costs affect, and are affected by, many socio-economic factors that are important to Basin-Boundary communities. Housing costs can indicate the desirability of an area, the condition of the housing stock and, importantly, the cost of living in a community. Though home ownership in our region has historically been more affordable than in other parts of BC, local governments and social service organizations recognize the need to ensure that housing prices remain within the means of a diverse cross-section of residents.

What are the current conditions?

The 2016 median value of all single family residences in our region was $273,000, up from the 2015 median of $260,100.[47] **Figure 27** show the 2016 median value of all single family residences. Current median values are highest (>$400,000) in parts of the East Kootenay Regional District, including the Columbia Lake 3 Indian Reserve, the City of Fernie, and East Kootenay Electoral Areas F, B, and A. Median values are lowest (<$150,000) in Greenwood and Fraser-Fort George Electoral Area H.

Compared to 2015, residential property values increased at the regional scale, with a 5% change between the 2015 median of $260,000 and the 2016 median of $273,000. However, the variability between jurisdictions ranged from a percent change of -6% (Trail) to +30% (Fraser-Fort George Area H). Of the 54 census

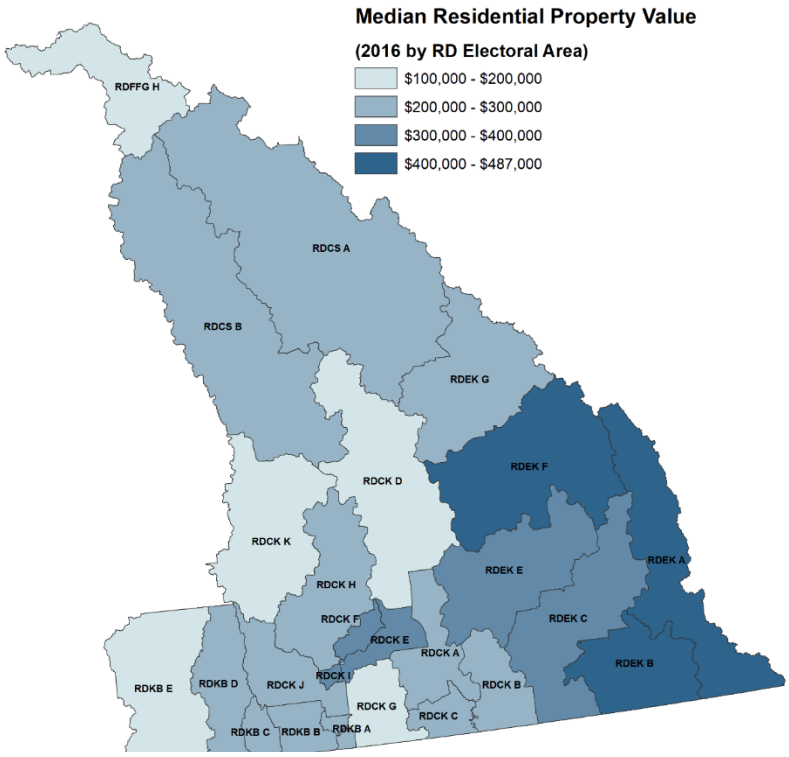

Figure 26: Median residential property value in regional district electoral areas, 2016

[vi] The *median* is the value that is the middle point, where half the numbers are above the median and half are below.

subdivisions within the Columbia Basin-Boundary region, 10 experienced a decrease in assessed values between 2015 and 2016, while the remaining 44 experienced an increase.

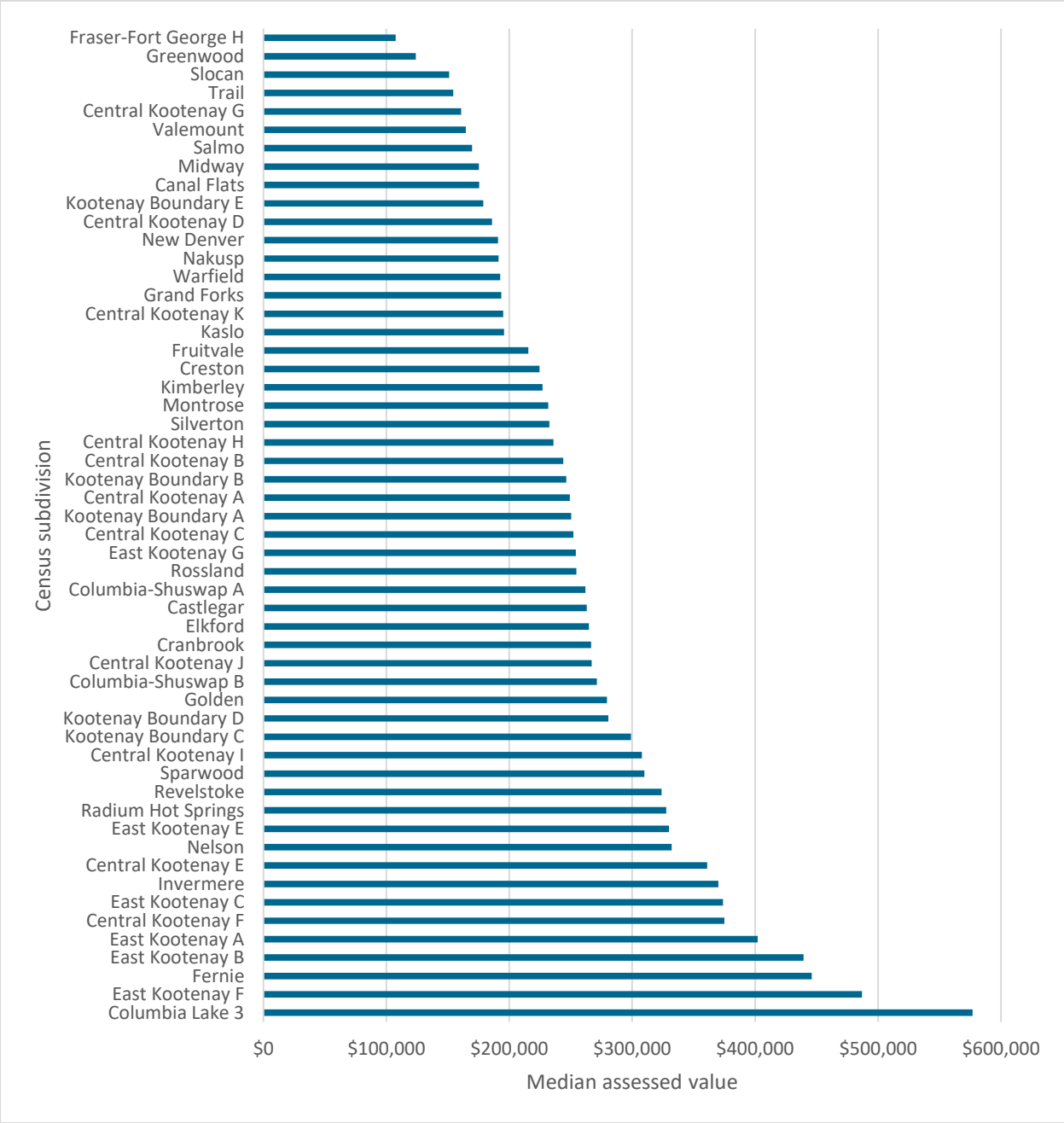

Figure 27: Median total assessed value for single family residences by Census Subdivision, 2016[47]

OCCUPATION BY USUAL RESIDENTS

What does this measure & why is it important?

This indicator measures the percentage of private dwellings that are occupied by 'usual residents', or permanent residents, as opposed to 'non-usual residents' (e.g., temporary residents like second home owners and foreign workers).[48] Data comes from the Census of Canada.[5]

Usual residency is an important topic as it can be challenging for communities to balance the positive and negative impacts that accompany non-usual residency. Second home ownership is a hot topic for rural areas across the world as it is linked with negative impacts such as changes to local house pricing and seasonal shifts in service use, as well

as positive impacts such as increasing competitiveness and connectivity through new skills and networks.[49] If dwellings are not occupied by usual residents, they could also be vacant. Vacant dwellings can be a signal of a struggling economy or out-migration of residents.

What are the trends & current conditions?

Within the Basin-Boundary region 81% of private dwellings are occupied by usual residents, an increase from the 79% reported in 2011. However, there are variations across the region, from 100% in Montrose to 31% on the Columbia Lake 3 Reserve (see **Figure 28**). The regional average is lower than that of the province and Canada, both of which at are 91%.

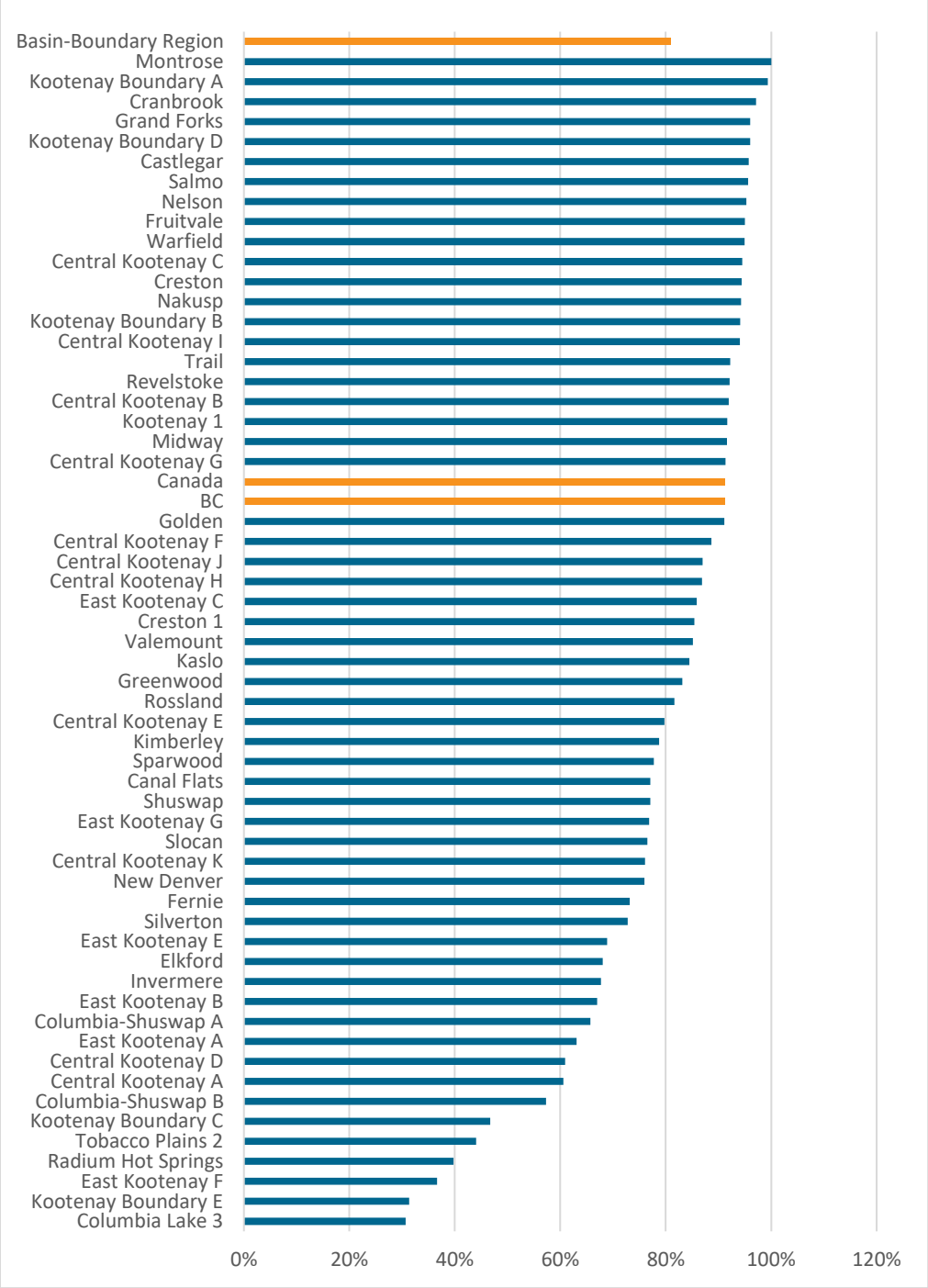

Figure 28: Percent of private dwellings occupied by usual residents (2016)[5]

Of the almost 60 census subdivisions in our region (municipalities, electoral areas and reserves), the communities that saw the biggest decline in usual residency from 2011 to 2016 were the Tobacco Plains reserve (-56 percentage points) and Columbia-Shuswap Area B (-14 percentage points). The communities that saw the biggest increase in usual residency were Radium Hot Springs (+11 percentage points) and East Kootenay Area G (+10 percentage points).

SUBSIDIZED HOUSING

What does this measure & why is it important?

The terms "affordable housing" and "social housing" are often confused. While all social housing is affordable, "social housing" refers specifically to housing that is subsidized by a level of government.[43] The provincial government, through BC Housing, provides programs and supports along the housing continuum that include emergency shelter and housing for the homeless, transitional, supportive, and assisted living, independent social housing, rent assistance in the private market, private market rental, and homeownership housing.[50]

This indicator focuses on the number of Independent social housing units[vii] in the region, with data provided by BC Housing for 2014 to 2016. Independent social housing is an important part of the housing continuum as it assists those who would not otherwise be able to access stable, safe, and affordable housing.[50] The independent social housing units counted here include housing for low income families and seniors. While this does not provide an understanding of the need for affordable housing in each community, it does begin to paint a picture of the amount and distribution of social housing units within the region. This data only represents social housing units that have a financial relationship with BC Housing; other forms of subsidized or social housing are not included.

What are the trends & current conditions?

In 2014, there were a total of 1,278 units of social housing in the Columbia Basin-Boundary region. That number decreased to 1,259 in 2015, and to 1,251 in 2016 based on BC Housing data. As shown in **Figure 29**, the communities with the highest number of independent social housing units are Cranbrook (236), Nelson (155), Castlegar (126), Fernie (109), and Revelstoke (106). Salmo saw the biggest increase in the number of units between 2014 and 2016, with an increase of 28 units (+117%). Kimberley saw a 40% increase with 12 new units over the same time period. Nakusp saw the greatest reduction, with the loss of 12 units (-86%), followed by Rossland with a loss of 19 units (-44%). Additional community level research would be required to determine the reason for the loss of these units.

[vii] This is long-term housing with rent geared to income (30% of household total gross income, subject to minimum rent based on # of people) for people who permanently reside in British Columbia when applying, with gross household income below a certain limit. Client groups include: families, seniors, people with disabilities, and singles and couples.

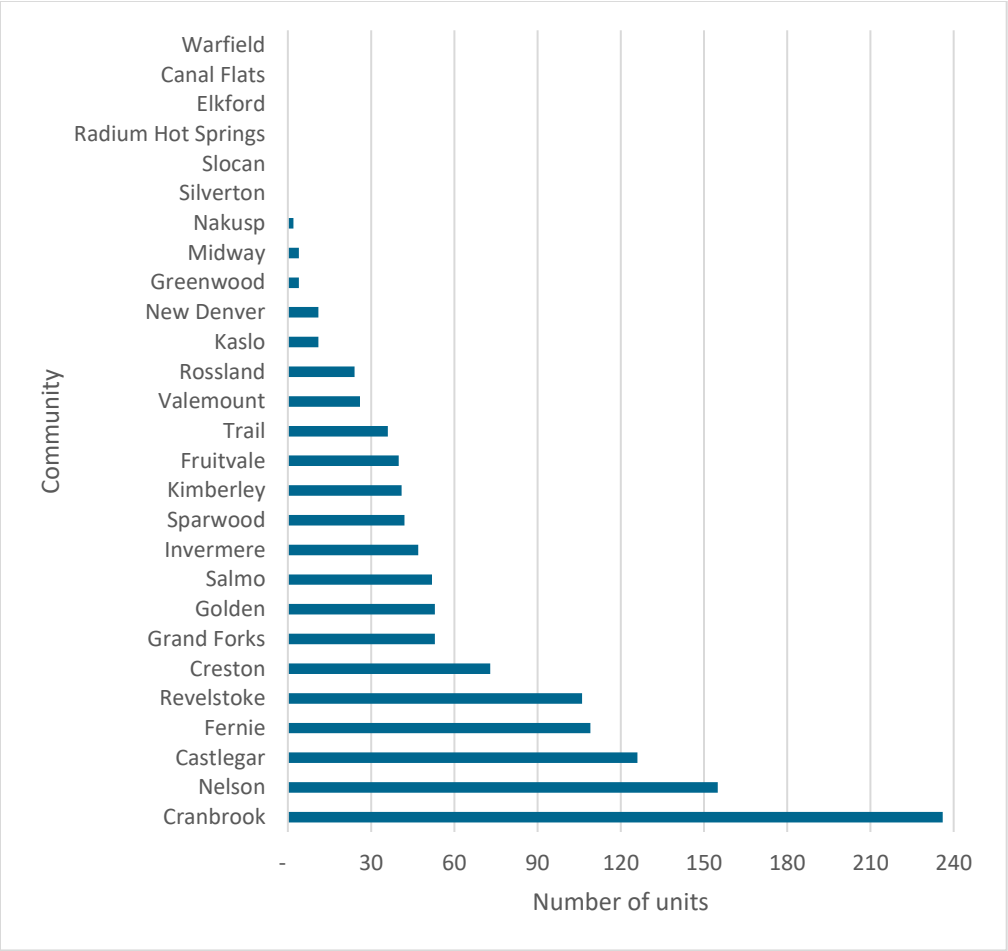

Figure 29: Number of independent social housing units in Basin-Boundary communities in 2016[51]

INFRASTRUCTURE

DRINKING WATER QUALITY

What does this measure & why is it important?

This indicator measures the number of Basin-Boundary drinking water systems for which government health authorities (Interior Health - IHA and Northern Health) have issued a drinking water advisory as of early June each year. Drinking water advisories ("Water Quality Advisories" or "Boil Water Notices") are issued by health authorities when there is concern over the safety of the water supply. Early June was selected as a sample date because of its correlation with spring freshet, which tends to affect turbidity (i.e., cloudiness) in surface water sources, potentially challenging the effectiveness of water treatment systems and leading to issuance of seasonal notices.[52]

Our region has a high number of small water systems, many of which struggle to consistently meet regulatory guidelines for drinking water quality. There are several reasons for this challenge, including the affordability of modern treatment systems, aging infrastructure, and increasingly stringent regulations. Access to clean, reliable drinking water is one of the most important factors affecting human health and the ability of rural regions to achieve their development goals.[53]

What are the trends & current conditions?

As of June 10, 2016, IHA reported public water notifications were issued for 112 water systems.[54] For the same date no water notifications were active for the portion of our region served by Northern Health. The number of notifications for 2016 was down from the 153 issued in 2015.

There are a number of causes for issuing water notifications, however specific causes were not available in the data for the 2016 notices. In previous years, inadequate treatment or source water contamination were the causes associated with the greatest number of advisories. The former generally indicates that a system fails to meet the provincial government's objectives for treatment of their water source, while the latter generally indicates that a system's water quality tests have returned positive results for bacterial contamination.

Of the notices reported in 2016, 101 were boil water notices (BWN) – meaning there is a health risk determined to be in the source and water should be boiled for at least one minute.[55] The remaining 11 were water quality advisories (WQA) – meaning there is risk with consuming the water, but not to the level requiring a boil water notice.[55] The majority of notices (75) have been active for longer than 5 years, indicating a long-term concern with either a water system's source or treatment infrastructure (see **Figure 30**). The high prevalence of long-term water quality notices is a major driver of infrastructure improvement efforts targeting small systems.[56]

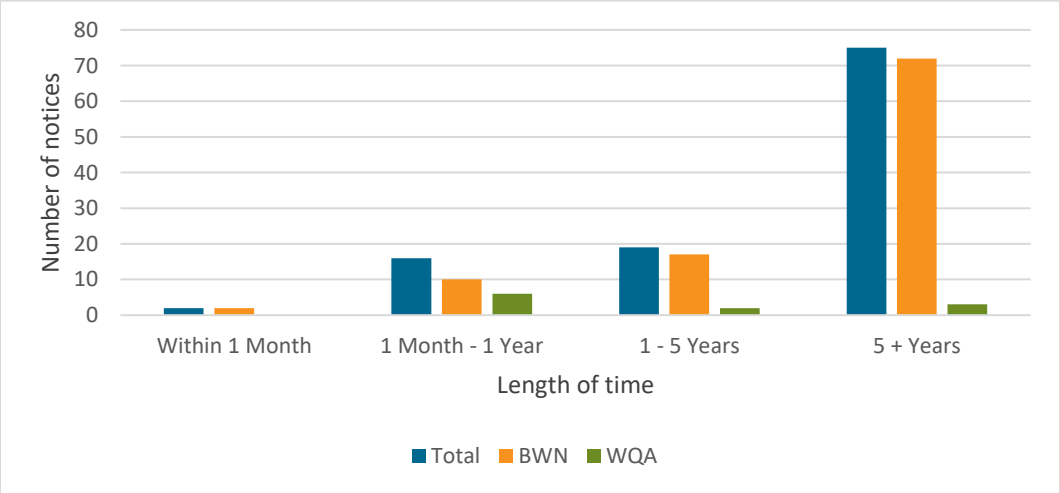

Figure 30: Length of term of water notices, Columbia Basin-Boundary water systems, 2016[54]

WASTE GENERATION & DIVERSION

What does this measure & why is it important?

This indicator tracks the amount of municipal solid waste generated within the Basin-Boundary region each year. Results are reported by regional district. Waste disposal data comes from the BC Ministry of Environment's Environmental Reporting system. The disposal rate includes waste from residential, institutional, commercial, and light industrial sources, plus construction, demolition, and renovation activities.[57] This rate does not include waste that is reused or recycled, as well as waste that is hazardous, biomedical, agricultural, or related to motor vehicles or heavy industry.[57]

Waste statistics provide insight on a variety of factors related to environmental and economic well-being including issues related to land use, pollution, and demand on waste management infrastructure. There are considerable financial and environmental costs associated with waste disposal. Efforts to reduce the amount of waste we generate, and to recover unavoidable waste (through reuse or recycling) can result in environmental benefits and savings for tax payers.

What are the trends & current conditions?

As of 2015, the average per capita waste disposal rate for the province was 497 kg/person (see **Figure 31**). The per capita average for Basin-Boundary regional districts is typically higher than the provincial average. The Regional District of Fraser Fort George, represented in our region by the Village of Valemount, reported the highest waste disposal rate in our region and second highest in the province, at 833 kg/person. The Regional District of Central Kootenay (RDCK) reported the lowest waste disposal rate in our region and the only rate lower than the provincial average (483 kg/person).

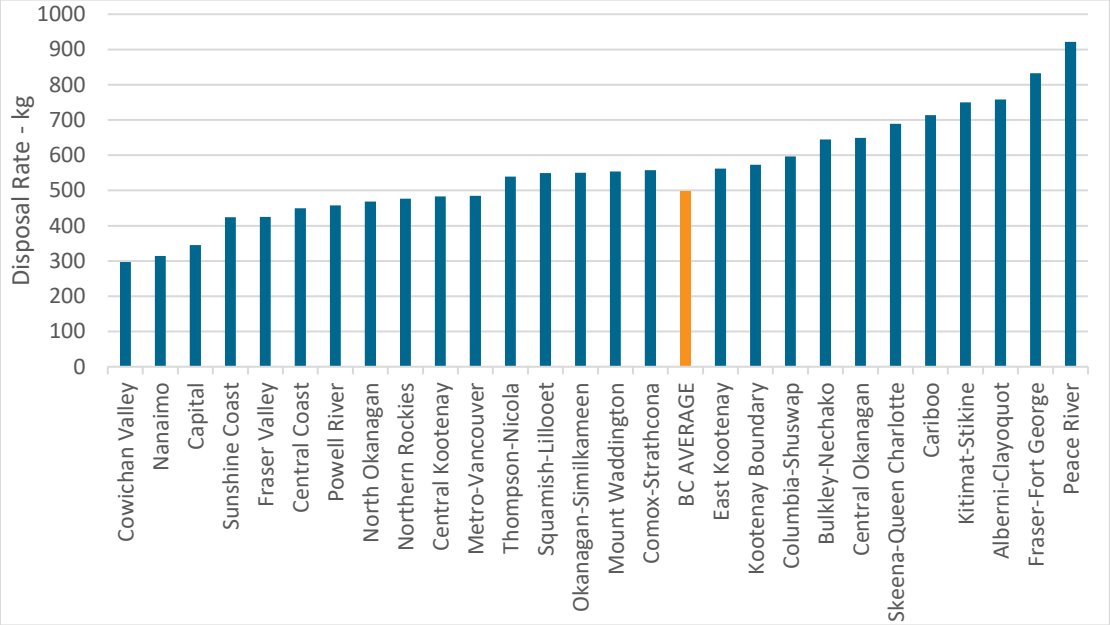

Figure 31: Per capita disposal rates by Regional District, 2015[57]

Many factors can influence the amount of waste collected or diverted in a given year, including the existence of major construction or demolition projects in a landfill's service area or changes to waste disposal regulations. For this reason, it is difficult to reliably compare waste disposal rates over a long time period. Instead, waste managers look at general trends over time (see **Figure 32**). Since 2012, when waste disposal reporting was standardized by the provincial government, there has been a general downward trend in the per capital disposal rate in our region and at the provincial scale.

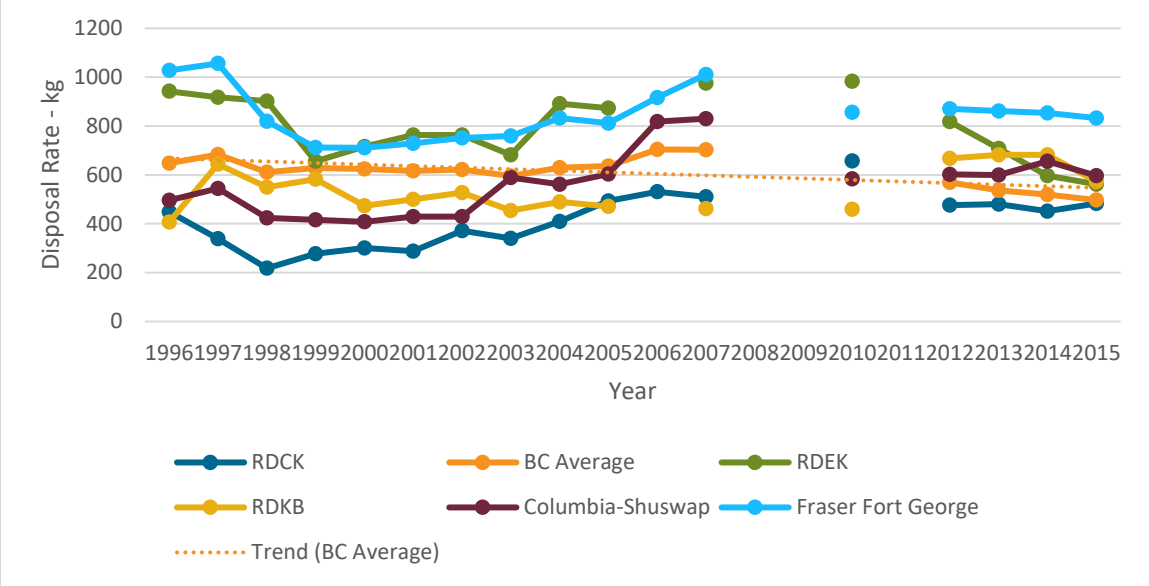

Figure 32: Per capita waste disposal rates by Regional District, 1996 to 2015[57]

TRAFFIC VOLUMES

What does this measure & why is it important?

This indicator monitors annual average daily traffic volumes at permanent traffic count stations across the Columbia-Basin Boundary region (i.e., daily traffic counts measured in number of vehicles). Data comes from the BC Ministry of Transportation and Infrastructure's Traffic Data Program.[58]

Our roads are used for commuting, tourism, and transportation of goods, among other purposes. Traffic volumes indicate the level of demand on a component of our publicly-funded infrastructure, helping planners to properly design and construct transportation networks. Traffic data can help us understand how shifts in the economy affect our communities and our transportation needs.

What are the current conditions?

Last year we observed that the annual average daily traffic counts for 2015 had increased when compared to 2014. Similarly, the 2016 data shows an increase in traffic across all stations, although the average one-year change across reporting stations was less than last year – 4% versus 4.5%. Rock Creek and Yahk stations saw the biggest increase from last year while Cranbrook and Castlegar stations saw the smallest increase (**Figure 33**). It is important to note that in low traffic areas the addition (or removal) of a small amount of traffic can make a substantial difference in terms of percentage. For example, the 3.9% change at Rock Creek 4 (station P-33-4) was a difference of 6 vehicles.

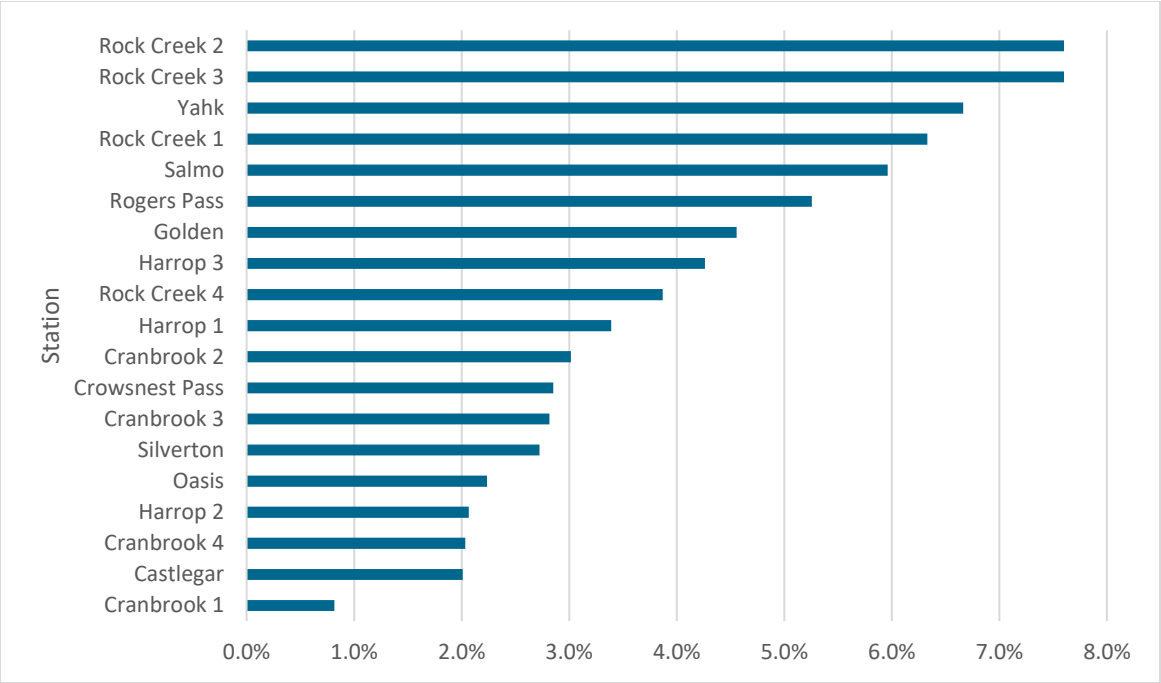

Figure 33: Change in annual average daily traffic counts for Basin-Boundary communities, 2015-2016[58]

Traffic volumes on Basin-Boundary highways are generally much higher during the summer months. The Ministry of Transportation and Infrastructure characterizes traffic at eight stations as "highly seasonal", another 12 as "seasonal", and only one as consistent. In some cases, traffic doubles or triples in August as compared to January. This significant variation in infrastructure demand presents noteworthy planning challenges for communities and transportation managers.

TRANSIT SERVICE

What does this measure & why is it important?

This indicator measures the percentage of developed properties (with registered addresses) in the region that are within one kilometre of a fixed route operated by BC Transit. Spatial data for this indicator were provided by BC Transit and analysed by the Selkirk Geospatial Research Centre.

Public transit provides an important service to Basin-Boundary residents who cannot, or prefer not to, drive to the places where they live, work, go to school or recreate. Since users of transit often include vulnerable citizens, having transit services available can also encourage inclusive communities. Public transit also enables energy-efficient commuting, which can help reduce greenhouse gas emissions.

It is important to note that this indicator only considers fixed transit services—those that operate on a set schedule with a predictable route. Some Basin-Boundary transit systems also include HandyDART services, which offer flexible schedules and routing to meet the needs of residents who cannot otherwise access conventional services.

What are the current conditions?

Transit service in our region has not substantially changed since 2014, when almost 68% of developed properties were within one kilometre of a fixed transit route. Service levels vary widely across the region (see

Figure **34)**. The West Kootenay area has the highest level of transit service, with over 80% of properties located close to transit. Service levels are lowest in the Boundary corridor (30%) and in the Valemount corridor, where no fixed transit routes exist. The 2016 Census reported that that only 2% of Basin-Boundary commuters use public transit, which is considerably lower than BC as a whole (14%).[59] Rates of transit use are highest in the East Kootenay regional district.

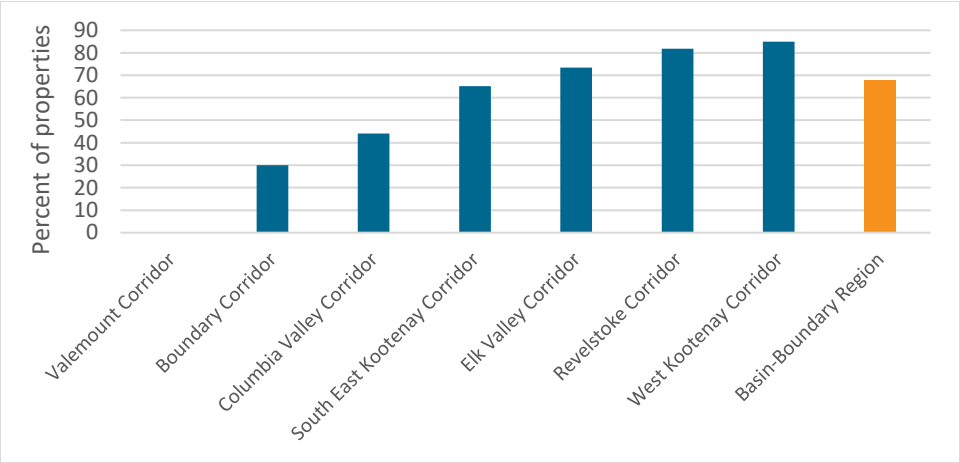

Figure 34: Percent of developed properties within 1 km of a fixed transit route[60]

COMMUTE TIME

What does this measure & why is it important?

The commute time indicator measures the average duration of Basin-Boundary residents' commute to work. Data for this indicator comes from the 'Journey to Work' segment of the 2016 Census.[61] This data was formerly collected as part of the National Household Survey, and as a result of the differences in methodologies for the two surveys, a comparison between 2016 and 2011 data is not possible.

There can be a number of positive or negative effects on well-being related to time spent commuting. This data can help economists assess connections between regional job markets, and help us understand the economic, social, cultural, and environmental impacts of residents having to travel farther to work.

What are the trends & current conditions?

The average Basin-Boundary resident has a shorter commute than the average BC resident. Average commute times in Kootenay regional districts range from 17.1 minutes in the RDKB to 20.2 minutes in the RDEK, with the BC average being 25.9 minutes. Data on commute duration is further broken out into 5 time ranges (see **Figure 35**). Across all Basin-Boundary communities, 57% of people have a commute that is less than 15 minutes, a larger proportion than the average for BC (31%). Commute times vary across the region, with Valemount having the highest proportion of people with a commute of 15 minutes or less.

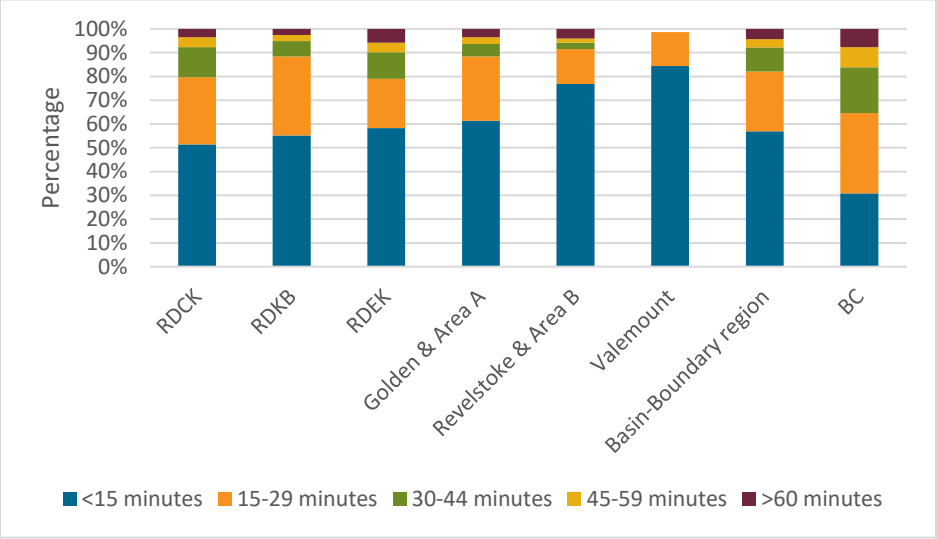

Figure 35: Average commute time by region[61]

SOCIAL RESEARCH PILLAR

Social structures lay the foundation for our interaction with the world. There are undeniable links between social topics like education, poverty, and health, and the overall well-being of residents and communities. Mirroring national and international trends in social indicator reporting, the RDI's social research themes include demographics, education and learning, civic engagement and safety, and health and wellness. Careful analysis of social data can help us better understand the issues and trends that face residents and communities every day. Social indicators are valuable for identifying and anticipating trends and setting organizational, agency and program targets for excellence.[62] Feedback from social indicators helps communities and policy makers assess the value of existing strategies in order to inform effective planning and action for the future.

DEMOGRAPHICS

POPULATION

What does this measure & why is it important?

Population is a measure of the total number of people living in a given area. Statistics Canada reports on total population with each of the Census years and BC Stats provides population projections. Population and population change statistics help planners and local decision makers evaluate current and future community needs, particularly with respect to service delivery and potential impacts to the local economy.

What are the trends & current conditions?

According to Statistics Canada, 167,425 people live in the Columbia Basin-Boundary region—equivalent to 3.6% of BC's total population of just over 4.6 million. Our regional population has increased by 3.5% since 2011, from 161,741 residents.[5] **Table 9** shows the total population for the last three Census years, and the population change from 2011 to 2016 for municipalities and regional districts. The population has increased in all of the regional districts and in 17 of our 28 municipalities, with Fernie, Invermere, and Kimberley showing the largest population increases. Slocan and Canal Flats show the relative decreases in population.

Municipality / Regional District	2006	2011	2016	% Change 2011 to 2016
Regional District of East Kootenay	55,485	56,685	60,439	6.2%
Regional District of Central Kootenay	55,883	58,441	59,517	1.8%
Regional District of Kootenay Boundary	30,742	31,138	31,447	1.0%
Cranbrook	18,267	19,319	20,047	3.6%
Nelson	9,258	10,230	10,572	3.2%
Castlegar	7,259	7,816	8,039	2.8%
Trail	7,237	7,681	7,709	0.4%
Revelstoke	7,230	7,139	7,547	5.4%
Kimberley	6,139	6,652	7,425	10.4%
Creston	4,826	5,306	5,351	0.8%
Fernie	4,217	4,448	5,249	15.3%

Grand Forks	4,036	3,985	4,049	1.6%
Sparwood	3,618	3,667	3,784	3.1%
Rossland	3,278	3,556	3,729	4.6%
Golden	3,811	3,701	3,708	0.2%
Invermere	3,002	2,955	3,391	12.9%
Elkford	2,463	2,523	2,499	-1.0%
Fruitvale	1,952	2,011	1,920	-4.7%
Warfield	1,729	1,700	1,680	-1.2%
Nakusp	1,524	1,569	1,605	2.2%
Salmo	1,007	1,139	1,141	0.2%
Valemount	1,018	1,020	1,021	0.1%
Montrose	1,012	1,030	996	-3.4%
Kaslo	1,072	1,031	968	-6.5%
Radium Hot Springs	735	777	776	-0.1%
Canal Flats	700	715	668	-7.0%
Greenwood	625	708	665	-6.5%
Midway	621	674	649	-3.9%
New Denver	512	504	473	-6.6%
Slocan	314	296	272	-8.8%
Silverton	185	195	195	0.0%

Table 9: Population by jurisdiction (Census years 2006, 2011, 2016) and population change 2011 to 2016[5]

Within the regional districts, there is also notable variability between electoral areas. **Figure 36** shows the percentage population change from 2011 to 2016 for all regional district electoral areas in the Basin-Boundary region. RDEK Area E and RDEK Area B show the greatest increases, while RDCK Area D shows the greatest decrease.

In addition to the population living in municipalities and electoral areas, a total of 816 people live on reserves in the Columbia Basin-Boundary region (see **Table 10**) according to the Census. Kootenay 1 shows the greatest relative increase from 2011 to 2016.

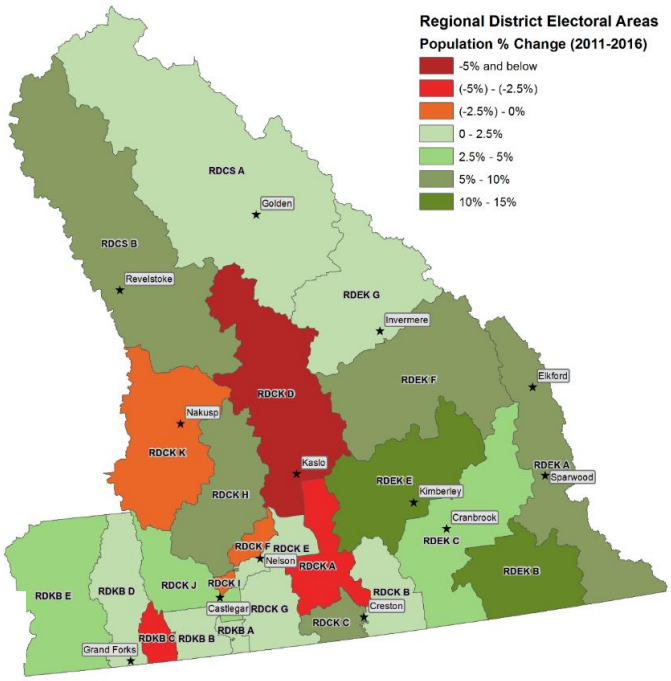

Figure 36: Percentage change in total population for electoral areas (2011-2016)[5]

Reserve	2011	2016	% Change 2011 to 2016
Cassimayooks (Mayook) 5	5	0	-100%
Columbia Lake 3	131	140	6.9%
Creston 1	113	112	-0.9%
Isidore's Ranch 4	0	0	N/A
Kootenay 1	104	170	63.5%
Shuswap	293	319	8.9%
Tobacco Plains 2	57	75	31.6%

Table 10: Population and percentage change by Indian Reserve[5]

The numbers presented in **Table 10**, however, should not be used as an indication of the First Nations or Aboriginal populations within the region because this data is specific to reserves and there are First Nations and Aboriginal people living across the region outside of reserves. See Ethnic Origin & Aboriginal Identity in the cultural research pillar section of this report where demographic data provides information on Basin-Boundary residents who identify as Aboriginal.

According to BC Stats, the region's population[viii] is projected to grow by about 4,732 residents by 2037, representing an overall increase of 2.9%. Compared to the projected change for BC (21.8%), this rate of growth is low. **Figure 37** shows the projected youth (under 20), worker (20-64), and senior (65+) populations. Historic data shows that our region has recently undergone a shift, where the senior component has overtaken the youth component in size. Projections show that the senior component will continue to grow as the baby boomers age. At the same time, the worker population will shrink. These trends are anticipated to stabilize in the late 2020s before the population begins a slow shift back toward a more sizeable worker component.

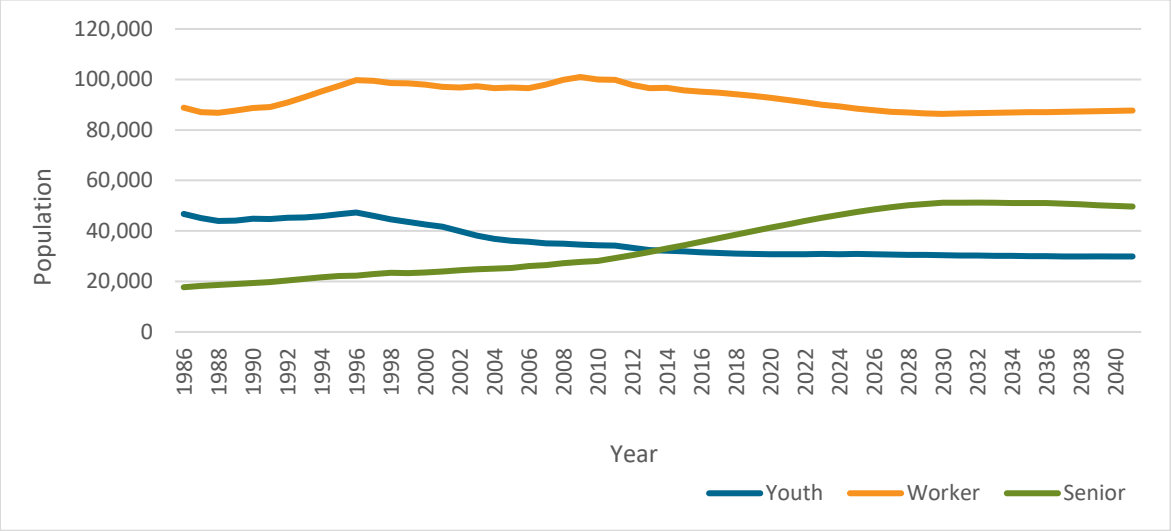

Figure 37: Combined projected population to 2040 for all Columbia Basin-Boundary Local Health Areas, by population component[63]

[viii] Population projection calculations exclude Valemount as they are based on figures provided to the geographic scale of the Local Health Area (LHA). The Prince George LHA, of which Valemount is a part, includes a major population centre that is not included within the boundaries of the Columbia Basin-Boundary region.

BC Stats provides projections to the scale of the Local Health Area, of which there are 14 in the region (Valemount is not included). As shown in **Figure 38**, projections vary across the region. Over the coming 20 years, the Castlegar Local Heath Area is projected to have the highest population increase at 16% and Kettle Valley is projected to have the greatest decrease (-19%). BC Stats' projections are based on past conditions and possible future changes related to fertility, mortality, and migration. They represent the anticipated outcome of only one possible future scenario, and should therefore be used with caution.[64]

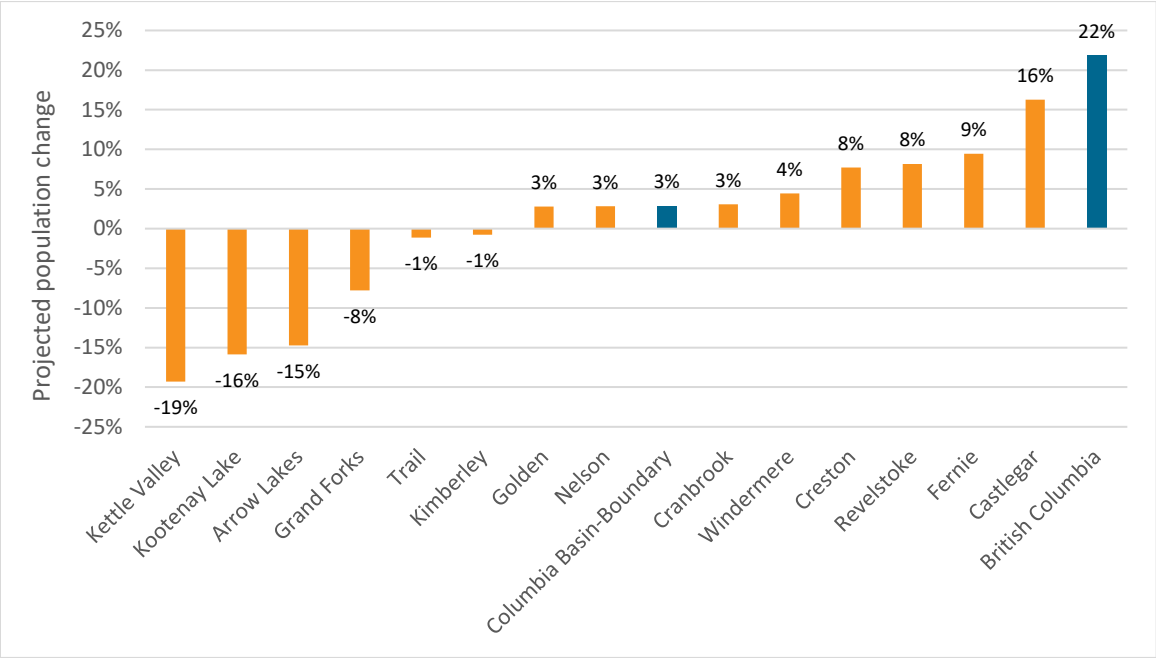

Figure 38: Projected change in total population by Local Health Area, region, and BC (2017-2037)[65]

AGE & GENDER

What does this measure & why is it important?

Statistics Canada Census data reports on age and gender for populations across the country. This indicator includes a measure of the total number of people in the region by five-year age groups, or 'cohorts', by gender. In past Census years, Statistics Canada has reported *median* age as a summary of a population's age structure. In 2016, the switch to *average* age was made as it is anticipated that the average will adjust better as the baby boomers move to older age cohorts. Unfortunately, the change in methodology prohibits comparison of the 2016 Census data to that from any year prior to 2011.

Demographic shifts have important consequences for our communities. Different age groups and household structures have different needs in terms of housing, services (e.g., health, education), employment, and consumption. 2016 marked the first Census year in Canadian history where more seniors were counted than children.[66] Changes in the population structure driven by low birthrates, longer life expectancies, and the aging baby boomers are gaining momentum and can have real impacts on communities. In some parts of rural Canada, including the Columbia Basin-Boundary region, these trends are compounded by unique issues like the out-migration of youth and in-migration of retirees, further challenging local planners and decision makers.[67]

What are the trends & current conditions?

The region's population pyramid (**Figure 39**) is characterized by a large bulge in the population aged 50-70 (the baby boomers) and progressively smaller cohorts in the older population groups. A notable dip in the 20-29 age group is common to population pyramids in predominantly rural areas, and indicates an out-migration of young adults seeking employment and education opportunities elsewhere. The senior component (65+) is slightly larger than the

youth component (under 20). This represents a slight shift from the 2011 Census, when the youth component represented 21% of the population, and the senior component represented 18%.

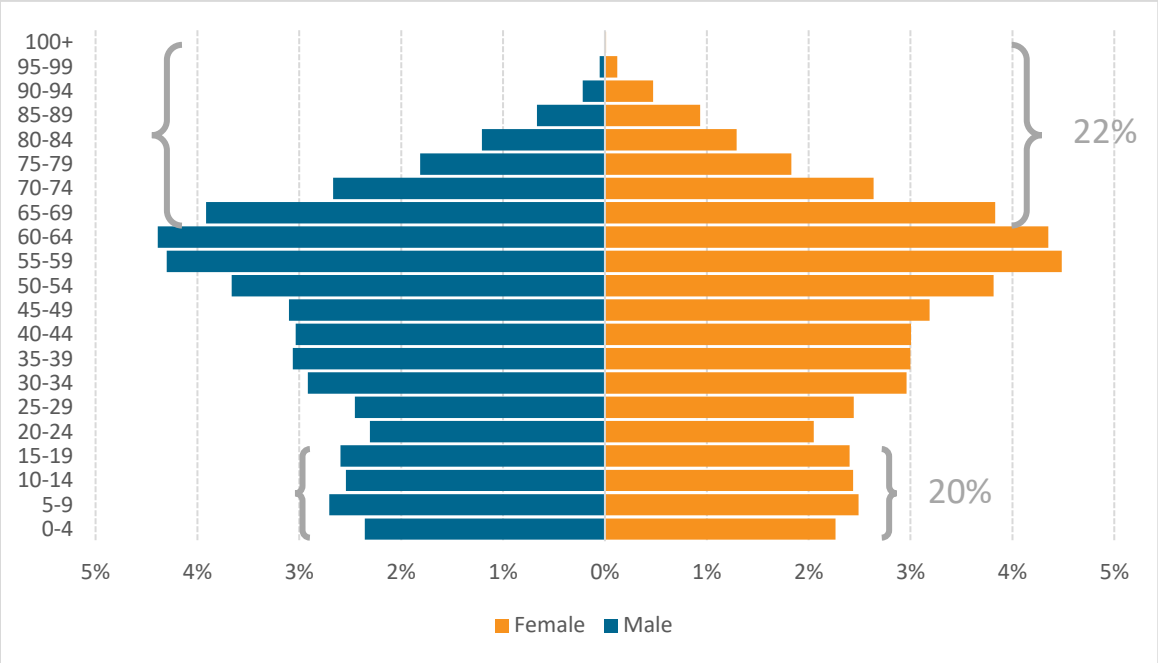

Figure 39: Columbia Basin-Boundary population age structure by 5-year cohort and gender[68]

Table 11 shows the 2011 and 2016 average and median age for Columbia Basin-Boundary census subdivisions. Most communities have higher average and median ages than BC or Canada as a whole. The Indigenous communities in our region tend to have the youngest populations, with the Creston 1, Kootenay 1, and Shuswap reserves showing the lowest average ages (31.9, 36.5, and 36.6, respectively). Silverton, Greenwood, and New Denver show the highest average ages (55.0, 54.8, and 54.4, respectively). The range in average age between populations exemplifies the diversity of our region's communities.

	Average Age			Median Age		
	2011	2016	% Change	2011	2016	% Change
Canal Flats	39.6	42.8	+3.2	41.5	46.7	+5.2
Castlegar	44.2	44.9	+0.7	46.1	46.7	+0.6
Central Kootenay A	50.9	52.6	+1.7	56.2	58.5	+2.3
Central Kootenay B	43.3	45.4	+2.1	48.6	52.0	+3.4
Central Kootenay C	46.9	48.5	+1.6	52.8	54.8	+2.0
Central Kootenay D	46.3	49.4	+3.1	51.9	54.9	+3.0
Central Kootenay E	43.7	45.8	+2.1	47.4	49.6	+2.2
Central Kootenay F	42.8	44.3	+1.5	46.2	47.2	+1.0
Central Kootenay G	41.0	42.3	+1.3	43.8	44.6	+0.8
Central Kootenay H	42.5	43.2	+0.7	45.1	45.5	+0.4
Central Kootenay I	42.3	44.6	+2.3	45.1	48.2	+3.0
Central Kootenay J	41.6	43.4	+1.8	45.0	46.9	+1.8

Central Kootenay K	49.2	52.9	+3.7	55.0	58.6	+3.6
Columbia Lake 3	43.4	41.4	-2.0	46.8	42.5	-4.3
Columbia-Shuswap A	40.3	43.2	+2.9	42.8	46.0	+3.2
Columbia-Shuswap B	43.6	45.0	+1.4	48.2	49.0	+0.8
Cranbrook	41.8	43.1	+1.3	43.1	44.5	+1.4
Creston	50.5	52.2	+1.7	55.2	57.7	+2.5
Creston 1	31.1	31.9	+0.8	32.5	28.0	-4.5
East Kootenay A	39.7	41.4	+1.7	40.9	43.1	+2.1
East Kootenay B	43.8	46.1	+2.3	48.4	51.1	+2.7
East Kootenay C	43.5	44.8	+1.3	48.0	49.8	+1.8
East Kootenay E	48.0	48.8	+0.8	52.3	54.0	+1.8
East Kootenay F	46.0	50.0	+4.0	51.0	55.5	+4.5
East Kootenay G	44.2	45.5	+1.3	48.9	51.1	+2.2
Elkford	36.8	37.4	+0.6	38.3	38.0	-0.4
Fernie	40.2	39.2	-1.0	39.9	38.0	-1.9
Fruitvale	42.8	45.5	+2.7	45.3	48.8	+3.5
Golden	39.1	41.0	+1.9	38.1	40.2	+2.1
Grand Forks	48.4	50.4	+2.0	52.3	55.1	+2.8
Greenwood	51.8	54.8	+3.0	57.6	60.5	+2.9
Invermere	43.9	43.1	-0.8	45.8	42.9	-2.9
Kaslo	45.6	49.6	+4.0	49.9	56.0	+6.1
Kimberley	44.2	44.6	+0.4	46.3	46.2	-0.1
Kootenay 1	31.8	36.5	+4.7	28.5	37.0	+8.5
Kootenay Boundary A	42.5	43.6	+1.1	46.9	47.8	+0.9
Kootenay Boundary B	46.4	48.0	+1.6	51.2	53.9	+2.7
Kootenay Boundary C	48.8	52.6	+3.8	53.8	58.6	+4.7
Kootenay Boundary D	47.5	49.9	+2.4	52.3	55.4	+3.1
Kootenay Boundary E	46.3	47.4	+1.1	51.9	53.3	+1.4
Midway	52.8	54.2	+1.4	58.3	60.3	+1.9
Montrose	44.8	46.0	+1.2	50.0	50.9	+0.8
Nakusp	47.0	47.8	+0.8	50.6	51.4	+0.8
Nelson	41.1	42.5	+1.4	40.9	42.3	+1.4
New Denver	52.3	54.4	+2.1	56.5	60.9	+4.4
Radium Hot Springs	43.0	47.3	+4.3	47.4	52.3	+4.9

Revelstoke	40.2	40.2	+0.0	40.3	39.1	-1.2
Rossland	38.9	40.0	+1.1	39.9	41.1	+1.3
Salmo	43.1	46.5	+3.4	45.7	50.6	+4.9
Shuswap		36.6	N/A		34.3	N/A
Silverton	51.0	55.9	+4.9	55.0	60.1	+5.1
Slocan	43.0	45.8	+2.8	47.5	51.0	+3.5
Sparwood	38.8	39.2	+0.4	39.5	39.8	+0.3
Tobacco Plains 2		37.5	N/A		36.5	N/A
Trail	46.8	47.1	+0.3	49.8	50.6	+0.8
Valemount	41.9	42.9	+1.0	44.3	45.3	+1.0
Warfield	42.3	43.3	+1.0	45.4	45.3	-0.0
BC	41.2	42.3	+1.1	41.9	43.0	+1.1
Canada	40.1	41.0	+0.9	40.6	41.2	+0.6

Table 11: Change in average and median age for Basin-Boundary census subdivisions[68]

Only three of the Basin-Boundary region's 57 census sub-divisions became younger overall between 2011 to 2016. These are Fernie, Invermere, and the Columbia Lake 3 reserve. While the average age in both BC and Canada also rose from 2011 to 2016, our region, on the whole, is aging at a faster rate. Sixty-seven percent of Columbia Basin-Boundary census subdivisions saw a higher change in average age than BC, and 76% saw the same as compared to Canada.

When looking at gender, the Columbia Basin-Boundary region has an even gender balance, with a ratio of one male per female in the total population (**Figure 40**). This differs from the overall BC and Canada figures, which both show slightly more females (51%) than males. It is common in developed countries for the population's gender balance to lean slightly toward females. In Canada, this has been the case for almost 40 years and is primarily attributed to the female population's longer life expectancy.[69]

At the census subdivision scale, sex ratios vary. The communities with the highest male-to-female ratios (i.e., highest percentage of males) are the Kootenay 1 reserve and Central Kootenay Area G, with ratios of 1.42 and 1.19 respectively. The communities with the lowest male-to-female ratios (i.e., the highest percentage of females) are the Creston 1 reserve and New Denver, with ratios of 0.77 and 0.79 respectively. It is important to note that for communities with very small populations, including the Kootenay 1 and Creston 1 reserves (both with populations of under 200 individuals), the addition or loss of a few males or females can have a significant impact on the sex ratio. Therefore, planners in these communities may choose to consider long-term trends in the population structure, rather than current conditions, when determining how best to arrange services to meet the needs of residents.

Women are typically over-represented in the older age cohorts. This may further influence the gender balance as the population ages. In the Basin-Boundary region, there are only 76 males for every 100 females over 80 years of age. This point is especially notable when considered with the fact that boys are typically over-represented in the younger age cohorts.[69] There are 106 males for every 100 females under 10 years of age in our region.

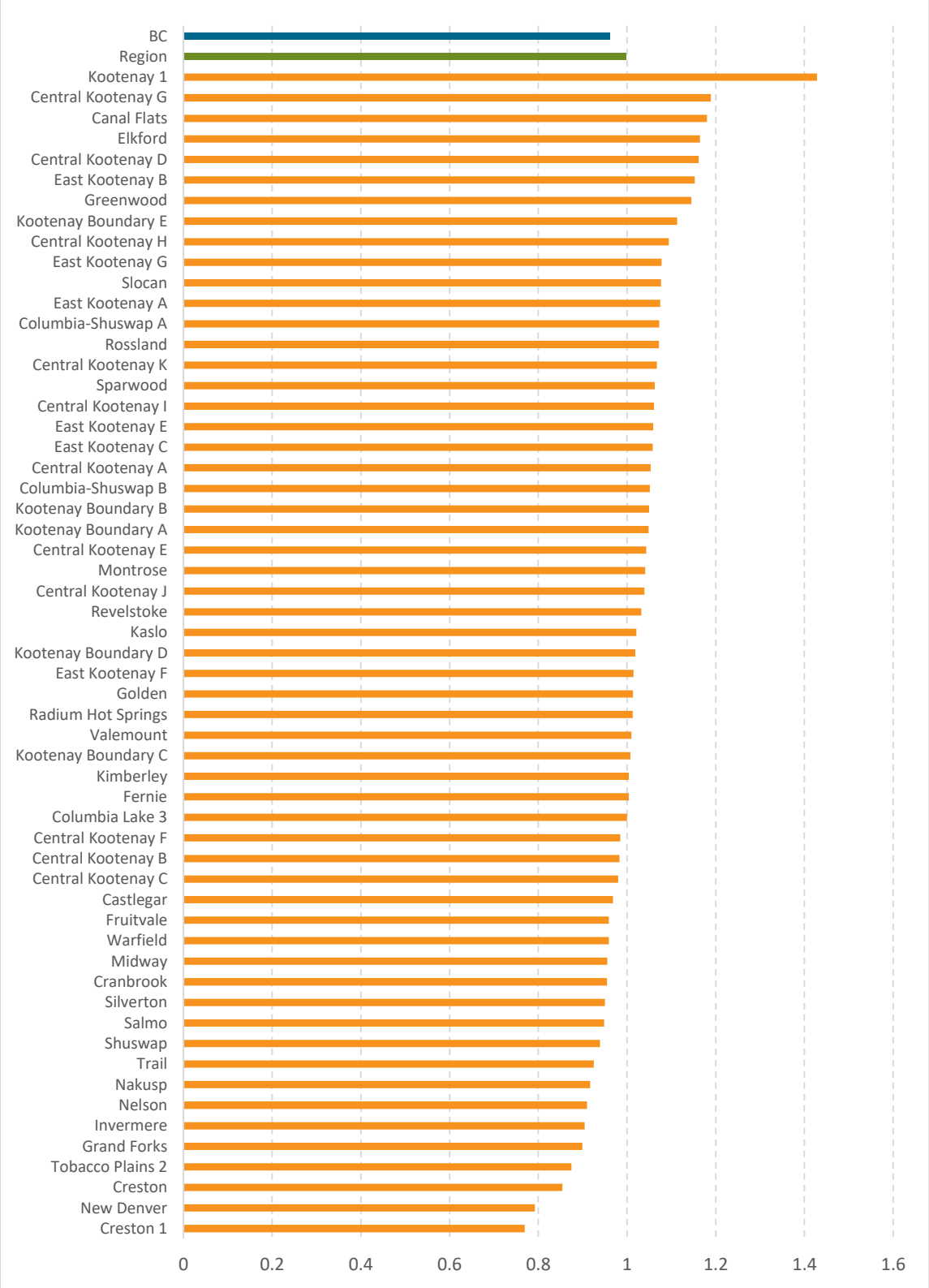

Figure 40: Sex ratios (male : female) for Basin-Boundary census subdivisions, 2016[68]

DEPENDENCY

What does this measure & why is it important?

This indicator compares the percentage of residents who are of working age to those who are not of working age. Data for this indicator are gathered from Statistics Canada. Both youth (under 20 years) and senior (over 65 years) dependencies are discussed. The working age population includes all residents aged 20 to 64. The dependency level is calculated by dividing the dependent population by the workforce population to determine the percentage of the population that is 'dependent' on the workforce.

Many of the supports provided to children and seniors such as personal care, parenting, education, playgrounds, health care, activity programs, and facilities are supported by personal time and tax dollars contributed by those who are in the workforce. As dependency increases with the aging population, communities may be challenged to maintain supports and services that rely on contributions from the workforce.

Note that dependency ratios are calculated strictly based on the age of the population. They do not account for people of working age that do not work, or vice-versa. Dependency ratios are useful for comparative purposes and to understand the general structure of a population, but are not a true reflection of the component of the population that is economically dependent.

What are the trends & current conditions?

Our region's total dependency ratio is 71 dependants per 100 workers, up from 65 in 2011. The change is primarily driven by an increase in the senior dependency ratio from 30 to 37 dependants per 100 workers. The youth dependency ratio dropped slightly from 35 to 34 dependants from 2011 to 2016. Our region's dependency ratio is higher than that for BC and Canada (see **Figure 41**).

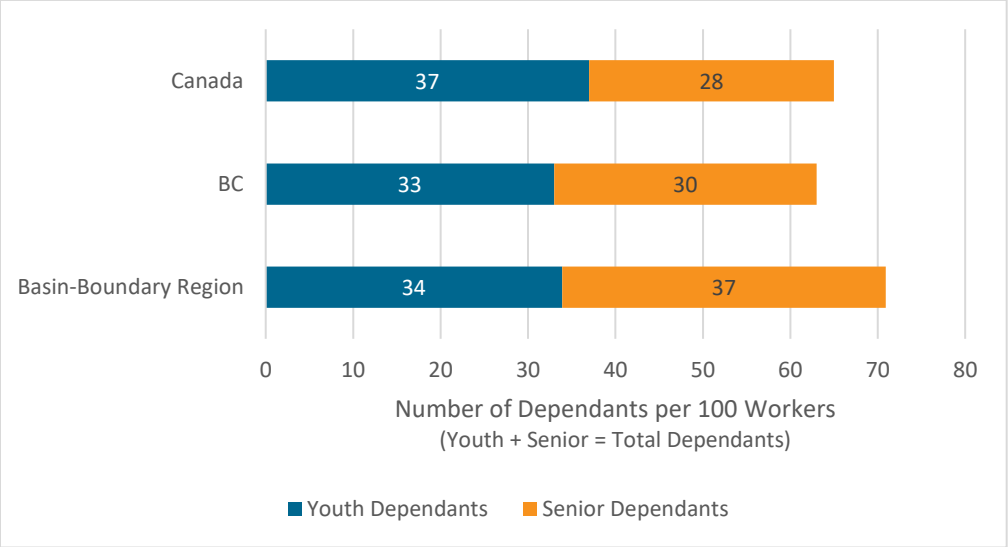

Figure 41: Columbia Basin-Boundary dependency ratios as compared to BC and Canada[68]

Dependency ratios vary significantly by community. Those with the highest overall rates of dependency include Midway, Creston, New Denver, and Greenwood. Each of these communities have more dependants than workers, and the dependency is primarily driven by the large senior population. The communities with the lowest rates of dependency include the Tobacco Plains 2, Shuswap, and Kootenay 1 reserves. Dependency in the Indigenous communities in our region is primarily driven by the large youth population.

FAMILY CHARACTERISTICS AND MARITAL STATUS

What does this measure & why is it important?

Family characteristics such as size of families, marital status, and family composition can help inform social, economic, health, and education programming, as well as planning and development around infrastructure needs (e.g., housing). This indicator measures average household size, as well as the prevalence of certain family types in our communities. Data comes from the Statistics Canada 2016 Census.

What are the trends & current conditions?

Among Columbia Basin-Boundary communities in 2016, average household size ranged from a high of 3.1 people on the Kootenay 1 reserve, to a low of 1.8 in Silverton and New Denver, with a median of 2.2. More than half of Basin-Boundary communities saw a drop in average household size from 2011 to 2016, and only eight had a higher average household size than BC (2.4) in 2016[5]. Collectively, these statistics are indicative of declining birthrates and our region's aging population, which is accompanied by a higher number of households occupied by retirees whose children have left the home.

There are 49,675 families in our region. Of those, 16,505 are couple families with children, 26,625 are couple families without children, and 6,535 are lone-parent families. The communities with the highest percentage of couple families with children are the Tobacco Plains and Kootenay 1 reserves (50% and 44%, respectively). The communities with the highest percentage of couple families without children are Silverton and Central Kootenay Area A (77% and 71%, respectively). **Figure 42** provides more detailed data at the regional district scale[ix]. As shown, there are more people married or living with a common-law partner than not. There are also more couples (married or common-law) without children at home than there are with children at home. Overall, our region has a higher percentage of couple families without children (and conversely, a lower percentage of couple families with children) than BC as a whole.

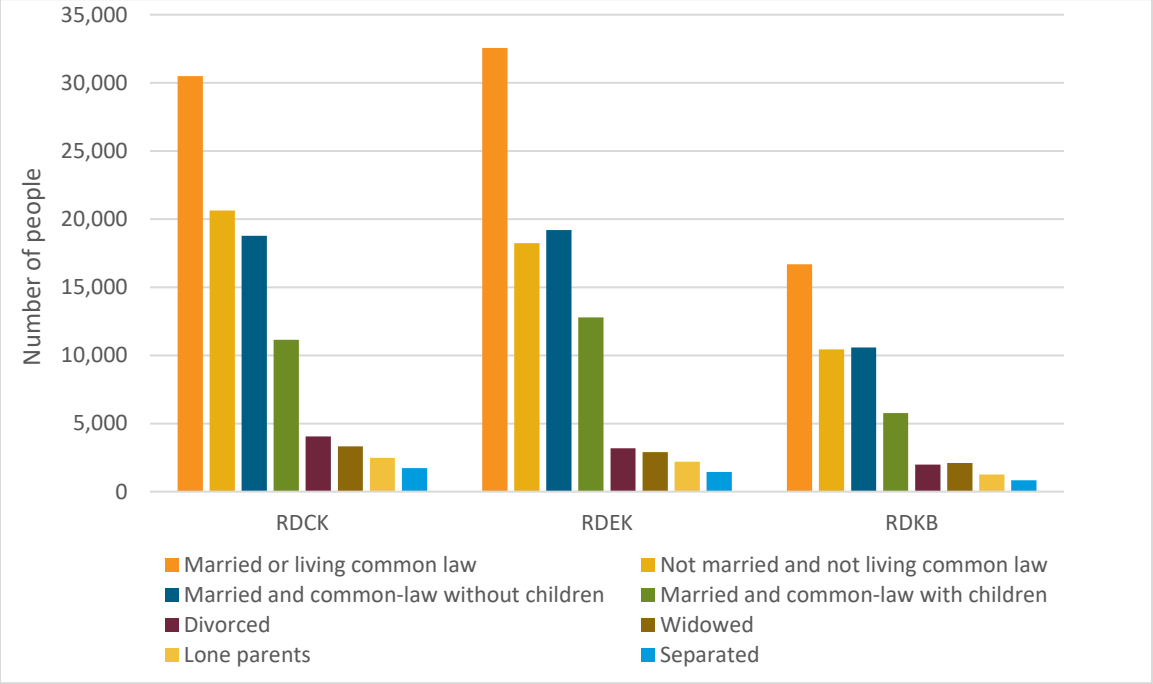

Figure 42: Family characteristics by regional district, 2016[70]

[ix] Communities outside these three regional districts were not included because their surrounding regional district is not necessarily indicative of the make-up of individual communities.

MIGRATION

What does this measure & why is it important?

This indicator measures the movement of people into and out of the Kootenay Development Region[x]. International migration refers to people who move to the region from outside of Canada. Interprovincial migration refers to people who move to the area from another province, and intraprovincial migration refers to people who move to the area from elsewhere within the province. Data comes from mobility data published by BC Stats.

What are the trends & current conditions?

As shown in **Figure 43**, more people have been moving out of the Kootenay Development Region than moving in for the last 15 years, except for 2005-2006 and 2006-2007 when there was positive net total migration. This trend in net out-migration is accounted for by the large intraprovincial outflow, with the loss of 445 people to other parts of the province in 2015-2016, and much larger numbers in previous years. The net interprovincial numbers however show that people have moved to the Kootenay Development Region from other provinces over the last two years, with the addition of 260 people in 2015-2016 and 171 people in 2014-2015 from other provinces. Twelve of the last 15 years show a positive net international migration, indicating that many of the newcomers to the region are from other countries.

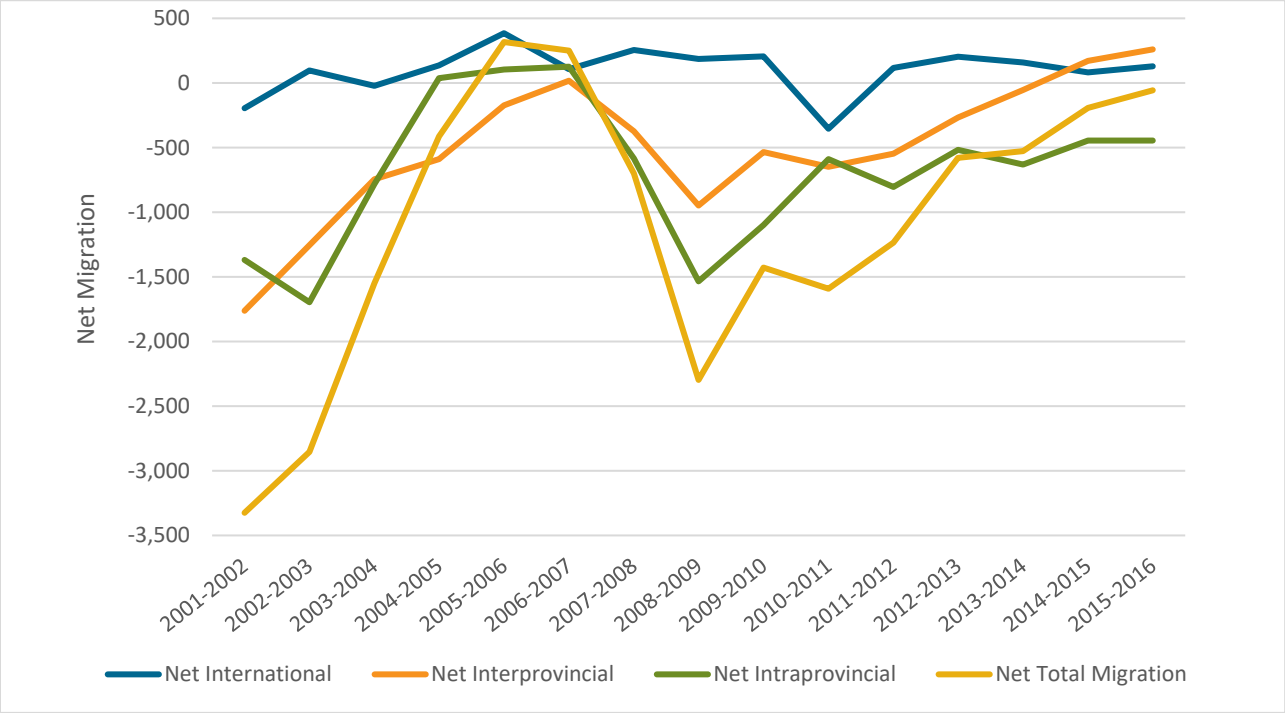

Figure 43: Net migration for the Kootenay Development Region from 2001 to 2016[71]

Migration trends in the Kootenay Development Region have been somewhat similar to trends seen in the Caribou, Nechako, North Coast, and Northeast Development Regions. The Thompson-Okanagan and Vancouver Island & Coast Development Regions experience greater volumes of growth, but not as much as that of the Lower Mainland-Southwest. While some of the Kootenay Development Region's migration is interprovincial, much of it is similar to the province, where in-migration is largely accounted for from international migrants.

[x] The Kootenay Development region includes all three Kootenay Regional Districts (RDCK, RDEK, and RDKB).

CIVIC ENGAGEMENT & SAFETY

VOTER TURN OUT

What does this measure & why is it important?

This indicator measures the percentage of eligible voters in the Columbia Basin-Boundary region who voted in local government elections. Data for this indicator comes from CivicInfo BC's compendium of local election results[72] which includes data for 2008, 2011, and 2014. Data for municipalities was available for all three years, but data for regional district electoral areas was only available for the 2014 election. Recent federal and provincial election results are also included.

Voter turnout is an indicator of the health of a democracy, and can be seen as a reflection of the level of 'civic mindedness' – the capacity and motivation of individual citizens.[73] Voter turnout is related to cultural and historical factors, as well as the role of institutions and the characteristics and qualities of the electoral system.[74] Regional and community identity and the level of jurisdictional authority wielded by a regional or local government are important determinants of the willingness of the electorate to participate in elections.[75]

What are the trends & current conditions?

Average local government voter turnout for the Columbia Basin-Boundary region is shown in **Figure 44** for all three years (2008, 2011, and 2014) of available data. The highest voter turnout was in 2008 at 51.1%, followed by 44.8% in 2011, and then another decline to 40.9% in 2014. Average voter turnout in the region is considerably higher than the provincial average, which was only 27.8% in 2008. For the 2014 election, the provincial voter turnout was 33.3% for municipal elections and 22.8% for regional district electoral areas.

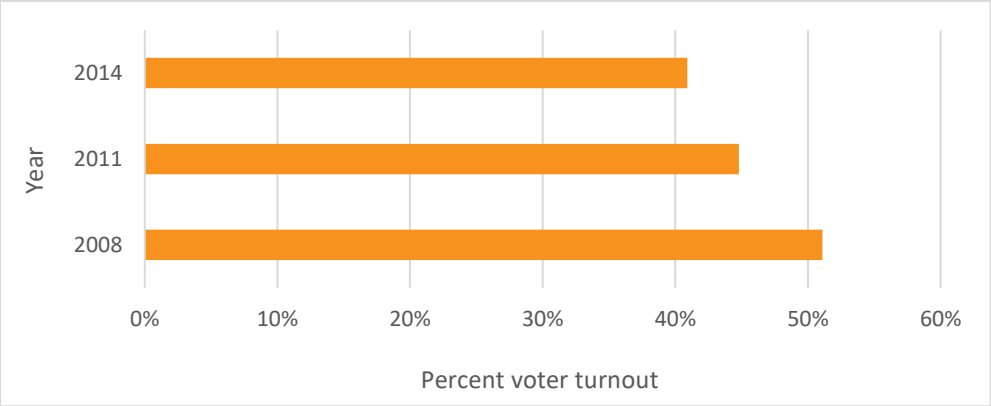

Figure 44: Average voter turnout for Basin-Boundary local government elections between 2008 to 2014[43]

Voter turnout varies across the municipalities and electoral areas of the region. **Figure 45** shows the voter turnout for 2008, 2011, and 2014 for all municipalities in the region. Data for regional district electoral areas became available in 2014.

Greenwood had the highest turnout at 70% for both the 2011 and 2014 municipal elections. Golden had the lowest turnout of Columbia Basin-Boundary municipalities in 2011, and Elkford in 2014, both at 25%. The lowest voter turnout for electoral areas in 2014 was 17% in East Kootenay Area C, and the highest turnout was in Central Kootenay D at 60%.

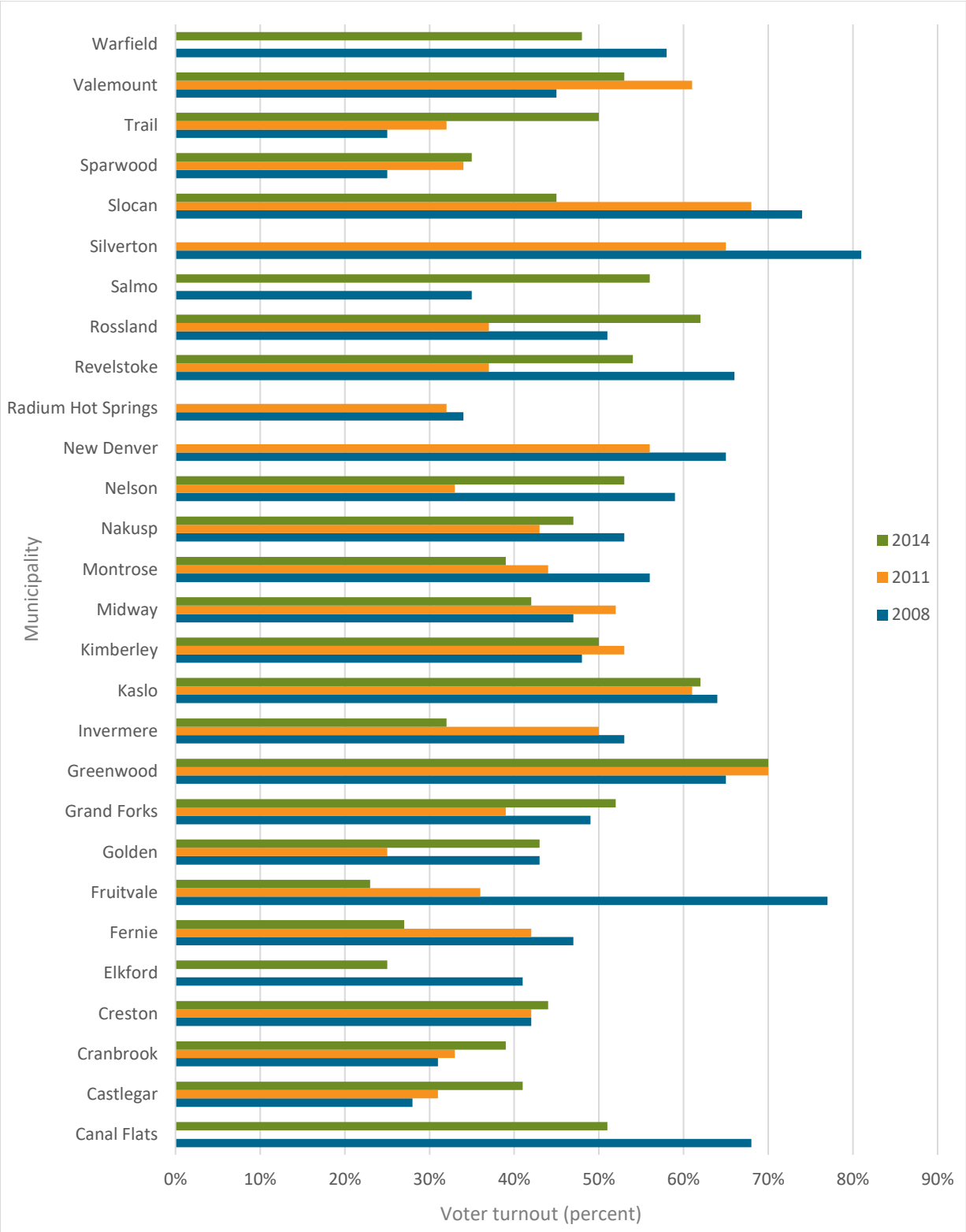

Figure 45: Voter turnout for Columbia Basin-Boundary municipal elections for 2008, 2011, and 2014[72]

The RDI's 2015 poll of residents[76] found that the vast majority of respondents (85%) indicated that they planned to vote in the 2015 federal election. Results from the 2015 federal election show that 73% of the eligible voters in Kootenay-Columbia (Nelson to Fernie, Golden and Revelstoke) voted. South Okanagan-West Kootenay (which covers Castlegar to Nakusp to Penticton) also saw a high voter turnout of almost 74%. Valemount forms part of the

Prince George-Peace River-Northern Rockies riding, where voter turnout was similar to the national turnout of 68%. National voter turnout for the 2015 federal election was up from 61% in 2011. The same trend rings true for Columbia Basin-Boundary ridings, where turnout was 65% in 2011.

When reviewing results from the last provincial election (May 2017), voter turnout was higher than the provincial average (61.5%) for two of the electoral districts in our region – Nelson-Creston (64.20%) and Boundary-Similkameen (64.80%), with Kootenay West (60.78%) and Columbia River-Revelstoke (59.79%) not far behind (see **Table** 12). Voter turnout in our region has remained steady or slightly increased over the last three provincial elections. Nelson-Creston and Boundary-Similkameen have consistently seen above average voter turnout.

	2009	2013	2017
Kootenay East	55.87%	53.41%	55.71%
Nelson-Creston	60.30%	57.63%	64.20%
Kootenay West	59.10%	56.92%	60.78%
Boundary-Similkameen (includes Oliver, Osoyoos, Princeton)	62.31%	61.85%	64.80%
Columbia River-Revelstoke	56.17%	53.60%	59.79%
Prince George-Valemount (includes Prince George)	51.95%	56.56%	56.75%
British Columbia	55.14%	57.10%	61.5%

Table 12: Percentage of registered voters who voted for electoral districts within Basin-Boundary and BC[77]

CRIME SEVERITY

What does this measure & why is it important?

Previous State of the Basin reporting has included the Composite Index of Crime. Based on a change in data availability, the RDI has selected a new indicator of crime: The police reported Crime Severity Index, sourced from the Uniform Crime Reporting Survey by Statistics Canada. The Crime Severity Index considers all Criminal Code violations[78] and is reported at the police service scale. All crimes included in the index are assigned a weight based on their seriousness. The level of seriousness is based on actual sentences, where more serious crimes are assigned higher weights and less serious offences lower weights, and as a result, more serious offences have a greater impact on changes in the index.[78] The Crime Severity Index is not available for police services or detachments with populations of less than 1000, and data for populations of less than 5000 should be used with caution.

Crime rates are a common indicator of public safety. They can help measure the effectiveness of law enforcement and community engagement initiatives, and inform decision-making about law enforcement policies and practices. Crime rates have been associated with areas of higher poverty and thus could inform poverty reduction strategies.[79] Crime rates also contribute to perceptions of safety, which is an important determinant of subjective well-being.[80] Feelings of fear can disrupt a sense of harmony, and can deter people from using certain spaces, or feeling uncomfortable at night, which may drive people away from a community. Research suggests that residents of rural areas report higher levels of trust and perceived safety than those in urban areas.[81]

What are the trends & current conditions?

Figure 46 illustrates the percent change in crime severity from 2015 to 2016 for police services in the Basin-Boundary region. A negative CSI means a decrease in the volume and severity of crime, while a positive number means an increase. Data was not available for Fernie, Radium Hot Springs, Fruitvale, or Rossland.

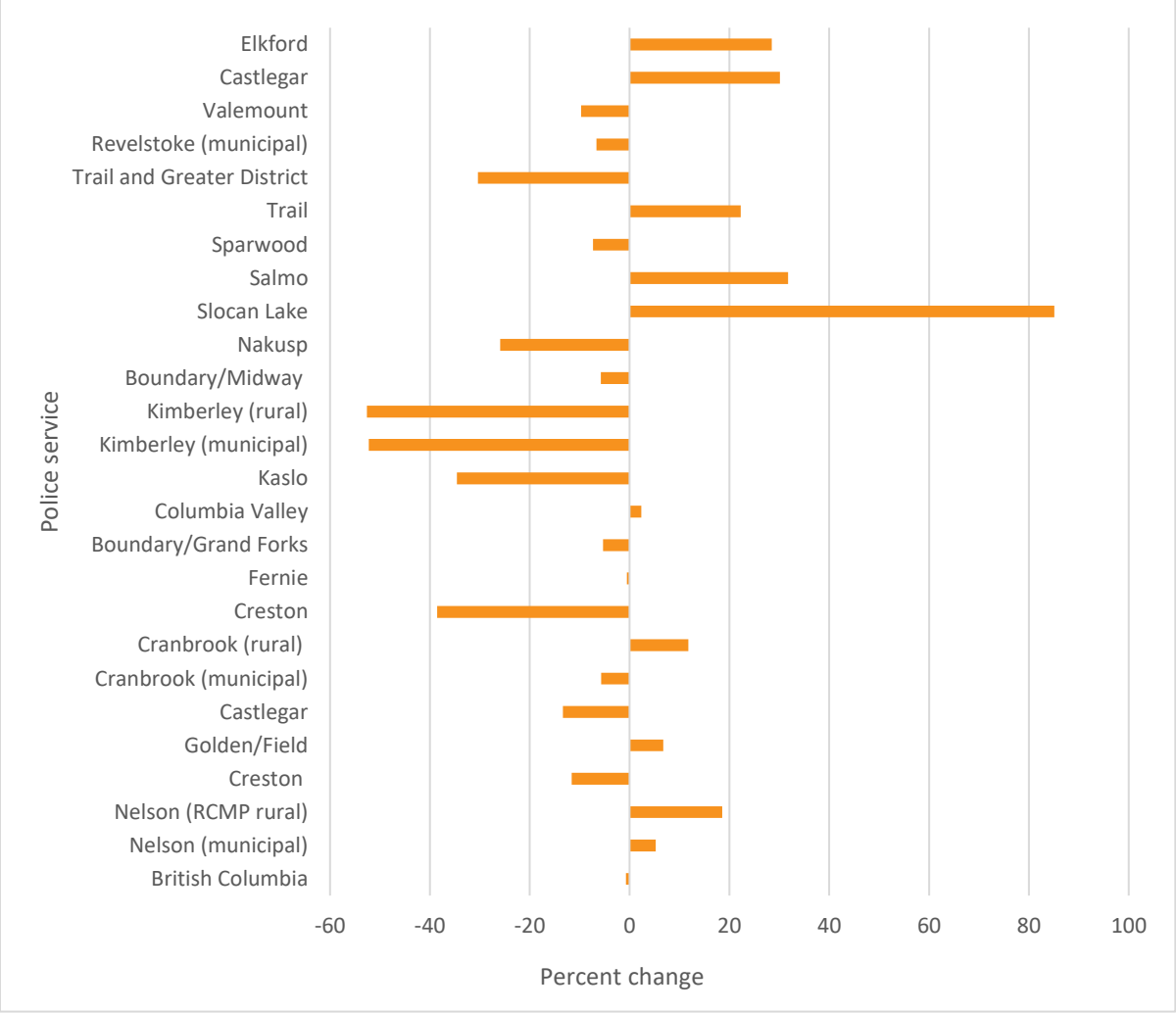

Figure 46: Percent change in Crime Severity Index from 2015 to 2016[78]

Ten police services show an increase in volume and severity of crime from 2015 to 2016, while the rest show a decrease. Slocan Lake shows the largest increase at 85.1%, followed by Salmo at 31.8%. The greatest decrease is in Kimberley at -52% for both the municipal and rural RCMP stations. Creston (-38.6%), Kalso (-34.6%), Trail and Greater District (-30.4%), and Nakusp (-25.9%) also show considerable decreases in volume and severity of crime.

Table 13 shows the CSI for each police service from 2007 to 2016, demonstrating the fluctuation that can occur year to year. Slocan Lake is noticeable with some large increases in 2009, 2010, and 2016, but also with a large decrease in 2015. Creston also shows a considerable difference in the 2014 (-32.0) and 2015 (90.2) CSI values, and Kaslo for the 2013 (120.0) and 2014 (-46.3) values. These values, again, should be taken with caution given the small populations. In communities with relatively low baseline levels of crime, single serious incidents can have a large impact on changes to the index.

Police Service	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
British Columbia	-5.3	-8.0	-8.2	-6.9	-7.1	-1.9	-6.8	3.3	3.2	-0.7
Nelson (municipal)	-21.6	-1.9	-8.9	5.8	-10.7	-0.4	7.6	-17.7	-2.8	5.3
Creston	-	-	-	0.0	0.0	87.6	23.4	-21.9	-10.5	-11.6
Golden/Field	-2.1	27.4	-26.5	-3.4	13.2	-15.6	-3.3	-8.2	22.4	6.8

Castlegar	-14.6	-6.0	9.6	1.8	-5.8	-9.0	-14.5	25.9	-11.3	-13.3
Cranbrook (municipal)	4.7	-24.2	-7.0	2.3	1.0	4.3	-21.1	-12.3	4.4	-5.7
Cranbrook (rural)	25.0	-20.7	19.3	50.9	-26.4	-16.5	-12.0	-15.3	-13.1	11.8
Creston	-0.5	-18.4	-0.2	-5.3	-14.2	1.9	-3.0	-32.0	90.2	-38.6
Fernie	7.9	-27.8	-5.3	9.7	-9.5	-23.8	-1.5	-4.5	-2.3	-0.5
Boundary/Grand Forks	9.5	16.6	19.2	-13.9	-12.7	-3.5	-30.9	13.2	0.5	-5.3
Columbia Valley	22.8	-17.6	15.7	-26.5	9.0	4.1	-26.8	-17.6	10.1	2.4
Kaslo	-20.7	-62.5	14.9	-2.5	3.7	39.7	120.0	-46.3	47.4	-34.6
Kimberley	-3.9	7.7	-29.4	4.5	-1.0	-21.7	31.0	-50.0	73.7	-52.3
Kimberley	-11.4	-19.6	1.4	34.3	-2.4	-40.0	32.3	-12.4	77.9	-52.6
Boundary/Midway	-16.2	144.2	-26.7	44.8	-10.1	-42.5	-11.9	-6.7	59.5	-5.8
Nakusp	-20.1	16.5	65.1	-32.4	11.3	-14.1	7.2	-8.0	5.0	-25.9
Nelson (RCMP rural)	-19.8	-8.9	-15.9	-13.4	23.9	11.7	-21.1	-0.1	-3.3	18.6
Slocan Lake	-10.3	-17.2	102.5	92.8	4.9	-2.6	-17.6	0.9	-45.2	85.1
Salmo	-10.9	26.1	-19.5	-0.7	35.8	-19.1	2.1	-26.9	12.3	31.8
Sparwood	-15.3	-7.5	-0.6	-12.2	3.7	-24.9	-18.3	18.0	-29.9	-7.3
Trail	-22.0	24.8	-24.5	-3.4	20.4	-18.4	-6.8	-4.1	-21.3	22.3
Trail and Greater District	12.9	-7.9	-2.2	-17.0	33.9	-14.1	-2.9	32.4	-25.2	-30.4
Revelstoke (municipal)	-4.5	26.5	-17.7	-10.6	8.6	8.3	-27.4	-11.1	8.3	-6.6
Valemount	-31.5	12.5	11.4	-26.8	-8.8	16.8	1.9	-6.5	20.6	-9.7
Castlegar	-8.4	-5.8	-25.4	-4.5	-8.1	-8.1	1.2	-5.5	-4.2	30.1
Elkford	-2.0	-6.8	-28.1	74.9	-42.0	24.1	-23.9	-7.9	-34.6	28.5

Table 13: Crime Severity Index for Basin-Boundary police services, 2007 to 2016[78]

CHARITABLE DONATIONS

What does this measure & why is it important?

A databank of charitable donations made by Canadians is derived from income tax returns. This databank provides information on tax filers classified as *charitable donors* – those who reported donations and claimed a related tax credit. Eligible donations are those made to Canadian registered charities and Canadian amateur athletic associations. Donations are also eligible if made to: prescribed universities outside Canada, certain tax exempt housing organizations in Canada, Canadian municipalities, the United Nations, and certain charities outside Canada to which the Government of Canada has made a gift.[82]

Charitable donations play a role in improving community well-being, assisting with a variety of causes, from food banks, to environmental protection, to advancing research.[83] Charitable giving can be viewed as a capacity to give, as well as an attitude or belief in sharing and supporting others. Charitable giving is also tied to the economy, where people may give more or less depending not only on their personal financial situation, but the state of the economy.[84] Charitable giving can also provide a sense of satisfaction and joy for those who are giving, contributing to their own positive sense of well-being.

What are the trends & current conditions?

In 2014, over 23,000 Basin-Boundary taxfilers made charitable donations totaling about $30 million. **Table 14** shows the total number of donors and percentage of taxfilers for the Census Divisions of Central Kootenay, East Kootenay, and Kootenay Boundary, as well as for BC and Canada. While the East Kootenay shows the highest number of donors and amount of donations in the region, the Kootenay Boundary shows the highest percentage of taxfilers who donated (23%). While charitable donations are often associated with levels of income, it is interesting to note that the Central Kootenay had the highest median donation ($320) with the lowest median income ($49,470) in our region. This median donation is also higher than the Canadian median of $280 (with a median income of $57,930).

Location	Total # donors (and % tax filers)	Total donations $'000	Median donation	Median income
Central Kootenay	8,370 (19%)	$11,085	$320	$49,470
East Kootenay	9,550 (21%)	$12,650	$270	$59,840
Kootenay Boundary	5,660 (23%)	$5,930	$240	$55,490
British Columbia	694,870 (20%)	$1,353,040	$410	$56,770
Canada	5,543,740 (21%)	$8,797,115	$280	$57,930

Table 14: Total number of donors and donations, and median donation and median income for Columbia Basin-Boundary Census Divisions, BC, and Canada for 2014[85]

Age-specific donor data shows that, in general, the older the age group, the higher percentage who donate. The majority of donors are over the age of 55 for all three Census divisions, as well as for BC. The smallest percentage of donors are from the 25 to 34-year-old age group. The average age of donors in 2014 for BC was 55 years old, and for Canada it was 54 years old. The average ages for our region are slightly older at 56 years for East Kootenay, 58 years for Kootenay Boundary, and 59 years for Central Kootenay.

The percentage of taxfilers who donated over time is shown in **Figure 47** for Canada, BC, and the average of all Basin-Boundary municipalities (except Warfield as data was not available). Over the five-year period, the percentage of donors has generally declined for Canada and BC. This trend was also present in the Basin-Boundary region, but the percentage of donors rebounded somewhat in 2014. Some of the highest average donations per taxfiler made in our region in 2014 include the municipalities of Creston ($344), Cranbrook ($336), Nelson ($328), and Invermere ($325). Some of the lowest are in Silverton ($80), Salmo ($86), Greenwood ($100), and Slocan ($115).

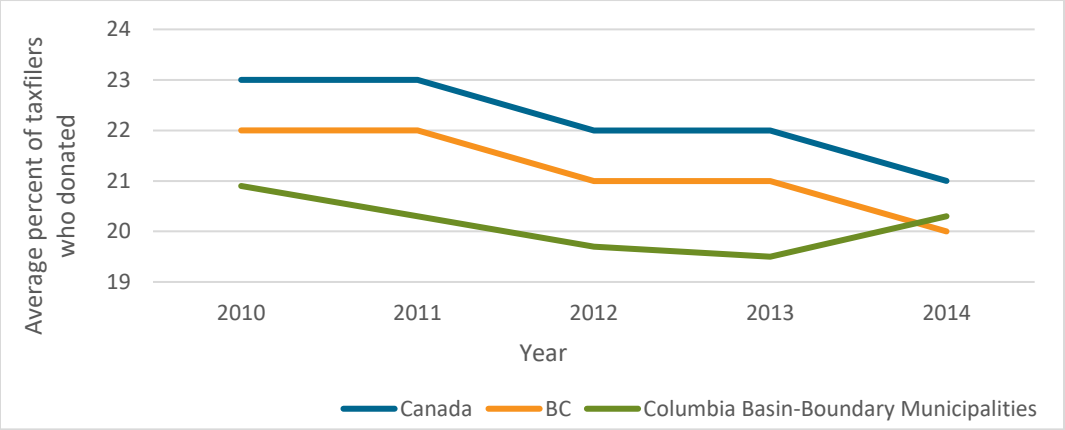

Figure 47: Average percent of taxfilers who donated for Columbia Basin-Boundary municipalities, BC, and Canada, from 2010 to 2014[59–62]

In its 2016 poll of residents, the RDI asked survey participants about various activities they may have participated in over the last 12 months, including whether they had "donated to a non-profit or charity"; 84% said yes.[86]

EDUCATION & LEARNING

EARLY DEVELOPMENT INSTRUMENT

What does this measure & why is it important?

The Early Development Instrument (EDI) is a questionnaire administered by kindergarten teachers and measures five core areas of early child development that are known to be good predictors of adult health, education, and social outcomes: (1) physical health and well-being, (2) language and cognitive development, (3) social competence, (4) emotional maturity, and (5) communication skills and general knowledge. The EDI assesses the developmental readiness of a group of children with an aim of identifying vulnerabilities. To be vulnerable means that a child is at increased risk of encountering difficulties in the school years and beyond, when some aspect of their development is delayed at kindergarten entry.[87] Vulnerability is most often reported by the percentage of children who are vulnerable on one or more scales (physical, social, language, emotional, communication) of the EDI.

In BC, the research team at the University of British Columbia has established the Human Early Learning Partnership (HELP)[88] to help track and report EDI data. Data is collected in groups called 'waves', where each wave is comprised of data collected from several consecutive school years.

Examining EDI scores over time allows us to assess trends in vulnerability of school-aged children. The early years are crucial in influencing a range of health and social outcomes throughout one's life. Research shows that many challenges in adult society, including mental health problems and criminality, have their roots in early childhood. Understanding who the most vulnerable young children are and where they live allows us to allocate our resources and adjust policies to most effectively support all children in their early years.

What are the trends & current conditions?

Based on the most recent EDI data (Wave 6), there are currently two school districts in the region, Boundary at 33% and Kootenay Lake at 35%, that have a higher percentage of vulnerable children on one or more scales than the provincial average of 32% (see **Figure 48**). The remaining school districts have a lower percentage children vulnerable than the provincial average: Revelstoke (9%), Arrow Lakes (17%), Kootenay Columbia (22%), Rocky Mountain (29%), and Southeast Kootenay (30%). Generally, over the last five waves of EDI data, the majority of school districts in our region have shown lower rates of vulnerability than the provincial average and the Revelstoke school district consistently shows the lowest rates in our region.

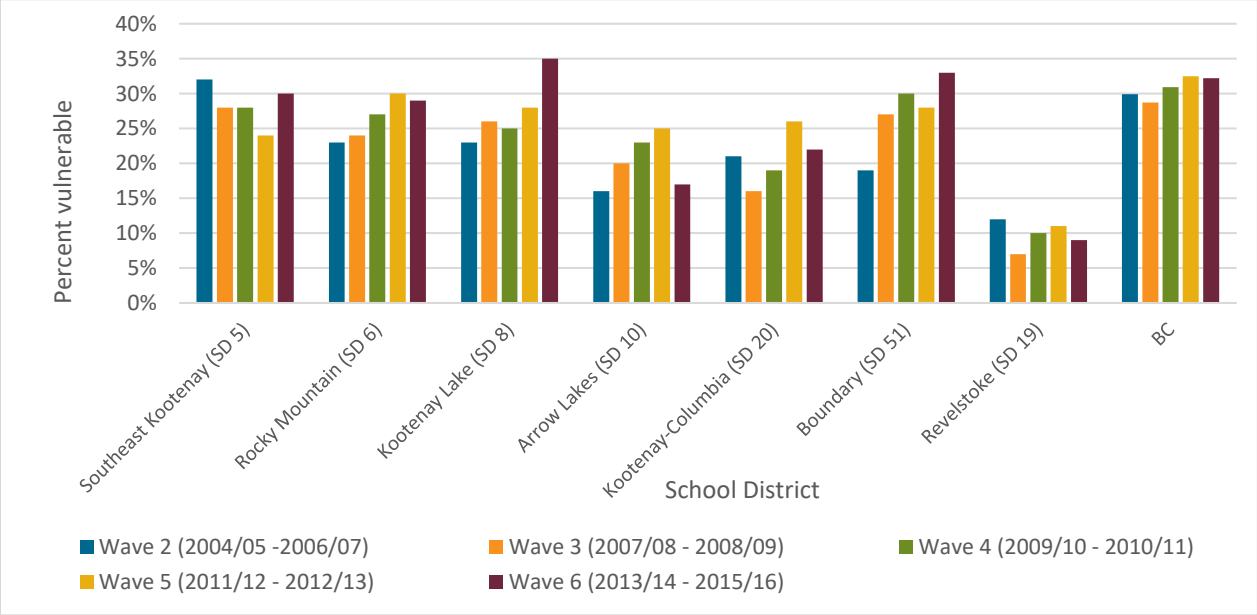

Figure 48: Percentage of children vulnerable in one or more domain for 2004/05 to 2015/16 [89]

As shown, between 2004/05 (Wave 2) and 2015/16 (Wave 6) school years, the number of kindergarten children who were vulnerable on at least one aspect of their development decreased in two of the seven school districts in our region; Revelstoke from 12% to 9% (25% decrease) and Southeast Kootenay from 32% to 30% (6.3% decrease). These two school districts countered the provincial upward trend in vulnerability, which is a 7.7% increase from Wave 2 to Wave 6. All other districts in our region show an increase in vulnerability over time. Some show small increases, namely Kootenay Columbia with a 4.8% increase and Arrow Lakes with a 6.3% increase. Others show much larger increases, including Rocky Mountain with a 26.1% increase, Kootenay Lake with a 52.2% increase, and Boundary with a 73.7% increase in vulnerability from Wave 2 to Wave 6.

Data for each specific scale (physical, social, language, emotional, and communication) is available at the school district and neighbourhood level through HELP's EDI interactive map[90]. HELP is currently in year two of Wave 7, and the next EDI results will be available in fall 2019.

STUDENT ENROLLMENT

What does this measure & why is it important?

This indicator measures the number of all adults and school-age persons who are enrolled in public schools and working towards graduation. Information on specific types of students is also discussed. Data for this indicator comes from the Ministry of Education's provincial reports[91] and school district reports[92]. While homeschooled children are required by law to be registered with a public, francophone, distributed learning, or independent school, the statistics do not include these students. Statistics for some Independent Schools[93] are available.

Student enrollment trends provide important information about changing demography and movement of people in and out of the region. It is valuable information for schools and school districts to incorporate into school growth plans and other longer term planning. Trends allow for forecasting and can assist in adapting over time. Student enrollment can impact school districts' resourcing and budgets, which can have ripple effects in the community. Enrollment can also influence the quality of students' learning experiences.

What are the trends & current conditions?

Over the last five school years, most school districts in the Basin-Boundary region have seen a downward trend in student enrollment. However, when comparing the last two school years, five of the seven districts in our region show an increase in enrollment, consistent with the slight increase overall for the province (see **Table 15**). Kootenay-Columbia and Rocky Mountain school districts show the greatest increases at 3.2% and 3.1% respectively. Arrow Lakes shows the largest decrease at -3.1%, however, it is a very small district where a decrease in a few students can have a greater impact.

School District	2012/13	2013/14	2014/15	2015/16	2016/17	1 year change (%)
Southeast Kootenay (SD 5)	5,259	5,260	5,276	5,396	5,474	1.4%
Kootenay Lake (SD 8)	5,458	5,245	5,157	4,981	4,950	-0.6%
Kootenay-Columbia (SD 20)	3,870	3,739	3,661	3,657	3,774	3.2%
Rocky Mountain (SD 6)	3,086	3,082	3,102	3,150	3,249	3.1%
Revelstoke (SD 19)	1,022	959	950	952	974	2.3%
Arrow Lakes (SD 10)	504	475	460	454	440	-3.1%
Boundary (SD 51)	1,317	1,285	1,271	1,268	1,295	2.1%
All Public Schools	564,531	558,983	552,787	553,378	557,630	0.8%

Table 15: Student enrollment by district and percent change from 2015/16 to 2016/17 school years[92]

The Ministry of Education produces reports on projections of public school headcount enrolment[94], using the provincial population projections. The 2016/17 district and provincial report projects to 2026, showing an increase of around 1% per year for total enrolment at the provincial scale. Projections for the Basin-Boundary school districts

vary, with both Revelstoke and Kootenay-Columbia showing small but steady increases in enrolment. The Southeast Kootenay, Rocky Mountain, and Arrow Lakes districts also show increases for the first few years, but then generally minor decreasing enrolments projecting to 2026. Kootenay Lake and Boundary show steady decreases in projected enrolments, but again, the annual decreases are minor—1% to 3% per year.

Enrollment by Student Type

School District reports break down the number of students enrolled into various categories including number of students enrolled as Aboriginal, English Language Learner, French Immersion, and Non-Residents. **Table 16** shows the average percentage of students in these four selected categories based on all students for the 2012/13 to 2016/17 school years.

All seven districts show over 13% of students are Aboriginal, with a high of 29% in the Boundary. An Aboriginal student is a student who has self-identified as being of Aboriginal ancestry (First Nations, status and non-status, Metis and Inuit). Five of the seven districts report having English Language Learners, but no districts with more than 1.8% enrolled. English Language Learners are students "whose English language proficiency is assessed as being sufficiently different from standard English that they are identified as requiring specialized services to develop intellectually, to develop as a citizen and to achieve the expected learning outcomes of the provincial curriculum"[95]. Southeast Kootenay has the highest percent of French Immersion students on average at 8.8%. Three districts – Revelstoke, Arrow Lakes, and Boundary, do not have French Immersion (a separate program where instruction is offered in the French language), although all districts have students enrolled in Core French and French Programs. All districts have a small percentage of non-resident students, with Rocky Mountain having the highest at 3%.

District	Aboriginal (%)	English Language learner (%)	French Immersion (%)	Non-Residents (%)
Southeast Kootenay (SD 5)	17.5	0.7	8.8	1.3
Kootenay Lake (SD 8)	19.6	0.7	5.3	1.3
Kootenay-Columbia (SD 20)	13.3	0.6	6.2	0.1
Rocky Mountain (SD 6)	20.9	1.7	4.6	3.0
Revelstoke (SD 19)	14.0	1.8	N/A	1.6
Arrow Lakes (SD 10)	19.9	N/A	N/A	0.7
Boundary (SD 51)	29.1	N/A	N/A	0.2

Table 16: Average percent of student type by district, 2012/13 to 2016/17 school years[92]

CLASS SIZE & COMPOSITION

What does this measure & why is it important?

The BC Ministry of Education's school district reports[92] provide an overview on class size and composition which includes average class size, number of classes with numbers of students entitled to an Individual Education Plan (IEP), and number of classes with assigned Education Assistants (EA). Class size and composition contribute to the quality of students' learning experience and educators' ability to meet the learning needs of students. Smaller class sizes generally mean better learning conditions and higher student achievement, especially for younger children and disadvantaged students.[96] As a class becomes larger and more diverse, the ability to address the individual needs of students becomes more difficult.[97] With greater support, the diverse range of students can be better reached, resulting in improved learning outcomes.

What are the trends & current conditions?

As shown in **Table 17**, average class sizes in our region are generally smaller or very close to the provincial average. The Arrow Lakes school district shows the smallest class sizes across all grades, with about half as many students as

the provincial average. Kootenay-Columbia shows the largest average class sizes, which are above the provincial average for all grades.

School District	Average Class Size			
	Kindergarten	Grades 1-3	Grades 4-7	Grades 8-12
Southeast Kootenay (SD 5)	17.8	21.7	23.7	20.8
Kootenay Lake (SD 8)	17.5	18.4	19.7	20.1
Kootenay-Columbia (SD 20)	20.2	21.7	26.7	24.1
Rocky Mountain (SD 6)	19.0	21.8	25.6	23.7
Revelstoke (SD 19)	18.8	21.0	23.7	18.5
Arrow Lakes (SD 10)	9.3	11.1	12.7	10.7
Boundary (SD 51)	19.6	20.3	21.2	19.8
All BC Public Schools	19.1	20.4	24.5	22.9

Table 17: Average class sizes by district as of October 31, 2016[92]

With respect to composition, for kindergarten through grade 12, the number of students entitled to an Individual Education Plan (IEP) must not exceed three students per class, unless the principal has consulted with the teacher and the superintendent, and the principal's opinion is that more students are appropriate.[98] Students with IEPs are those with a designated category of special needs. The number of classes reported by district with four or more students entitled to an IEP is shown in **Table 18** for the 2016/17 school year.

School District	Kindergarten to Grade 3 (#)	Grade 4-12 (#)	Classes with 4 or more students with IEPs (%)	Classes with assigned EAs (%)
Southeast Kootenay (SD 5)	8	381	33.4	34.6
Kootenay Lake (SD 8)	2	129	13.2	20.6
Kootenay-Columbia (SD 20)	2	79	22.3	34.4
Rocky Mountain (SD 6)	1	52	17.0	36.2
Revelstoke (SD 19)	1	53	28.3	27.2
Arrow Lakes (SD 10)	0	4	2.2	29.0
Boundary (SD 51)	3	43	34.8	48.5

Table 18: Number of classes with four or more students entitled to an IEP and number of classes with EAs, 2016/17 school year[92]

Six of the seven districts in our region reported classes in kindergarten to grade 3 having four or more students with IEPs (up from four districts in 2015/16). All districts reported classes in grade 4 to 12 with four or more students with IEPs, with some districts showing high numbers of classes with this scenario. When comparing the last two school years, Kootenay Lake stands out with an increase from 98 to 129 grade 4-12 classes having four or more students with IEPs. Rocky Mountain and Boundary also show increases from the previous year for this grade range, while Arrow Lakes shows a considerable decrease, from 24 to four grade 4-12 classes having four or more students with IEPs.

Table 18 also shows the percentage of classes with assigned Educational Assistants (EA). EAs provide additional support for the classroom teacher and students with IEPs. The provincial average of classes having an assigned EA is 30%.[99] In our region, four districts have a rate above this average, with a high of 48.5% of classes in the Boundary school district having assigned EAs.

HIGH SCHOOL COMPLETION

What does this measure & why is it important?

This indicator measures the proportion of students who graduate—meaning they earn a BC Certificate of Graduation or BC Adult Graduation Diploma—within six years of the first time they enroll in grade 8. Six-year completion rates reported by the BC Ministry of Education at the school district[92] and provincial level[91] are included here, which combine public and independent schools. Six-year completion rates are reported for all students, as well as for male, female, Aboriginal, English Language Learning, and Special Needs students. Public School Reports[100] are also available which provide data for individual schools.

High school completion rates indicate how successful our families, schools, and communities are in supporting youth in achieving high school graduation. High school graduation is now the minimum education level for most employment options, and therefore an important foundation for positive workplace conditions and future employment success and well-being.[101]

What are the trends & current conditions?

The average high school completion rate from 2011/12 to 2015/16 school years is above the provincial average for three of the seven districts in our region. As shown in **Table 19**, Revelstoke consistently shows higher completion rates than the provincial level, along with Boundary and Arrow Lakes for some years. These three districts have seen completion rates of 90% and higher. Southeast Kootenay, Kootenay Lake, and Rocky Mountain show completion rates lower than the provincial average for all of the last five school years, with Rocky Mountain showing a considerably lower completion rate of 65.5% in the 2015/16 school year.

District	2011/12	2012/13	2013/14	2014/15	2015/16	5-year average
Southeast Kootenay (SD 5)	76.9	79.4	77.7	77.4	77.5	77.8
Kootenay Lake (SD 8)	78.5	75	76.6	77.6	71.4	75.8
Kootenay-Columbia (SD 20)	77.4	83.9	80.5	81.9	87.1	82.2
Rocky Mountain (SD 6)	78.8	76.5	79.2	76.3	65.5	75.3
Revelstoke (SD 19)	88.4	90.1	86.1	90.5	81.0	87.2
Arrow Lakes (SD 10)	92.2	82.6	90.3	96.8	78.8	88.1
Boundary (SD 51)	93.7	82.1	85.2	84.4	87.2	86.5
All BC Public Schools	81.8	83.6	84.2	83.9	83.6	83.4

Table 19: High school completion rates (%) and 5-year average by school district[91,92]

Table 20 shows the average completion rate of female, male, Aboriginal, or Special Needs students over five school years (2011/12 to 2015/16). Completion rates are consistently higher for females compared to males. Average high school completion rates for Aboriginal students are generally lower in comparison, although all school districts in our region show higher completion rates for Aboriginal students than the provincial average. Special Needs students' completion rates are the lowest with the lowermost at 55.1% in the Kootenay Lake school district.

Data for English Language Learners (ELL) was limited and only available for: (1) Southeast Kootenay for the 2014/15 school year with a cohort of 13 students and a completion rate of 95%; (2) Kootenay Lake, which shows an average of 47.5% completion over the five schools years; and (3) Rocky Mountain, with a 76.6% completion rate on average for ELL students from the 2011/12 to 2013/14 school years. The provincial average completion rate for ELL students for all public schools in BC is 85.9%.

District	Average % Completion			
	Females	Males	Aboriginal Students	Special Needs Students
Southeast Kootenay (SD 5)	80.4	75.3	72.3	65.9
Kootenay Lake (SD 8)	77.9	73.8	67.7	55.1

Kootenay-Columbia (SD 20)	83.8	80.8	67.5	61.4
Rocky Mountain (SD 6)	75.3	75.3	71.6	59.8
Revelstoke (SD 19)	89.2	85.6	74.1**	70.9
Arrow Lakes (SD 10)	95.9	80.3	60.9*	87.4***
Boundary (SD 51)	86.9	86.4	82.1	67.3
All Public Schools	85.5	81.4	60.8	61.9

Table 20: Average high school completion rates by student type, by district, 2010/11 to 2015/16 school years[92]

* based on data only from 2013/14 school year
** based on data from 2010/11 to 2014/15 school years
*** based on data only from 2014/15 school year

COLLEGE ENROLLMENT

What does this measure & why is it important?

This indicator is a headcount of domestic and international students enrolled at post-secondary institutions in the Basin-Boundary region. Data for this indicator comes from the Ministry of Advanced Education[102].

Post-secondary student enrollment is valuable information for institutional planning and forecasting, and has an impact on resourcing and budgets. Enrollment provides information related to a region's potential upcoming workforce. It can also influence the quality of students' learning experiences. Domestic and international student headcounts provide insight into trends in student attraction and potential new resident and worker recruitment.

What are the trends & current conditions?

There are four colleges in the Columbia Basin-Boundary region, including Selkirk College, College of the Rockies, College of New Caledonia, and Okanagan College, with 18 unique campuses. All Selkirk College and College of the Rockies campuses fall within the Basin-Boundary region. College of New Caledonia has a Valemount campus and Okanagan College has a Revelstoke campus; however, enrollment numbers for these colleges are not specific to the campuses in our region.

As shown in **Table 21**, Selkirk College has seen a dramatic increase in enrollment of international students, with a 230% increase over the last five school years. Domestic student enrollment has also increased, at 9.5%. College of the Rockies has also seen a large increase in international students with a 97.5% increase over the last five school years, but domestic student headcount has decreased by almost 26%.

Institution	2011/12	2012/13	2013/14	2014/15	2015/16	Percent Change 2011/12 to 2015/16
Selkirk College						
Domestic Students	10,765	9,925	11,230	11,545	11,785	9.5%
International Students	250	255	360	575	825	230.0%
College of the Rockies						
Domestic Students	12,615	10,580	10,325	9,805	9,375	-25.7%
International Students	200	215	385	390	395	97.5%
College of New Caledonia						
Domestic Students	9,610	8,560	9,130	8,110	7,965	-17.1%
International Students	340	385	390	460	515	51.5%

Okanagan College						
Domestic Students	19,475	18,695	18,355	18,225	18,525	-4.9%
International Students	925	715	855	985	1,130	22.2%
All BC Public Post-Secondary Institutions						
Domestic Students	409,920	396,660	393,195	381,705	377,350	-7.9%
International Students	33,330	35,835	39,560	45,205	50,995	53.0%

Table 21: Domestic and international student headcount for colleges within the Basin-Boundary region, 2011/12 to 2015/16 school years and percent change over time[102]

Enrollment at College of New Caledonia and Okanagan College mirrors the five-year provincial trend, which shows an increase in international students and a decrease in domestic student headcounts.

EDUCATIONAL ATTAINMENT

What does this measure & why is it important?

This indicator measures the highest level of educational attainment for people over the age of 15. Data comes from the Statistics Canada 2016 Census.

With higher education, people generally achieve greater ability and more resources to attain a healthy and secure life.[103] Research shows that lower education levels lead to lower levels of general health, resulting in higher incidences of hospitalization and mortality from a number of conditions and diseases.[104] Education levels are highly correlated with other social determinants of health such as level of income, working conditions, and employment security. Education helps people move up the socioeconomic ladder and provides them with better access to other societal and economic resources.[101] Better-educated citizens also have more ability to adapt and benefit from new training opportunities if their employment situation suddenly changes.

What are the trends & current conditions?

Overall, 56% of residents aged 15 and older in our region have some post-secondary education[xi], which is similar to the BC and Canada averages. As shown in **Figure 49,** 16% of Basin-Boundary residents have a university certificate, diploma or degree at a bachelor level or above, while 17% of people in our region have no certificate, diploma or degree, and 28% have only a high school diploma or equivalent.

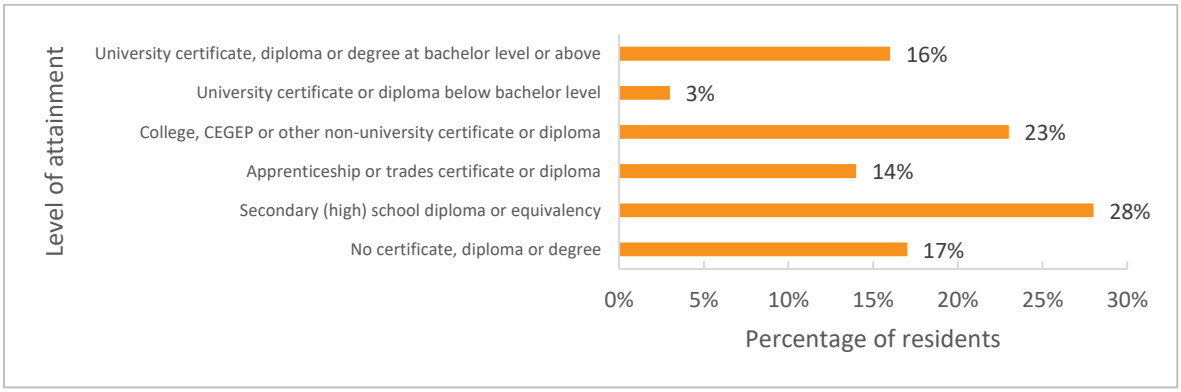

Figure 49: Percentage of Basin-Boundary residents over the age of 15 by level of educational attainment[105]

[xi] Includes: apprenticeship or trades certificate or diploma; college, CEGEP or other non-university certificate or diploma; university certificate or diploma below bachelor level; university certificate, diploma or degree at bachelor level or above.

Educational attainment levels vary across Basin-Boundary communities (see **Figure 50**). Some of the highest percentages of residents with post-secondary education are found in Rossland (71%), Fernie (67%), Invermere (64%), and Central Kootenay F (64%). Communities with the lowest percentages of people with post-secondary education include Canal Flats (32%), Midway (38%), and Tobacco Plains 2 (38%).

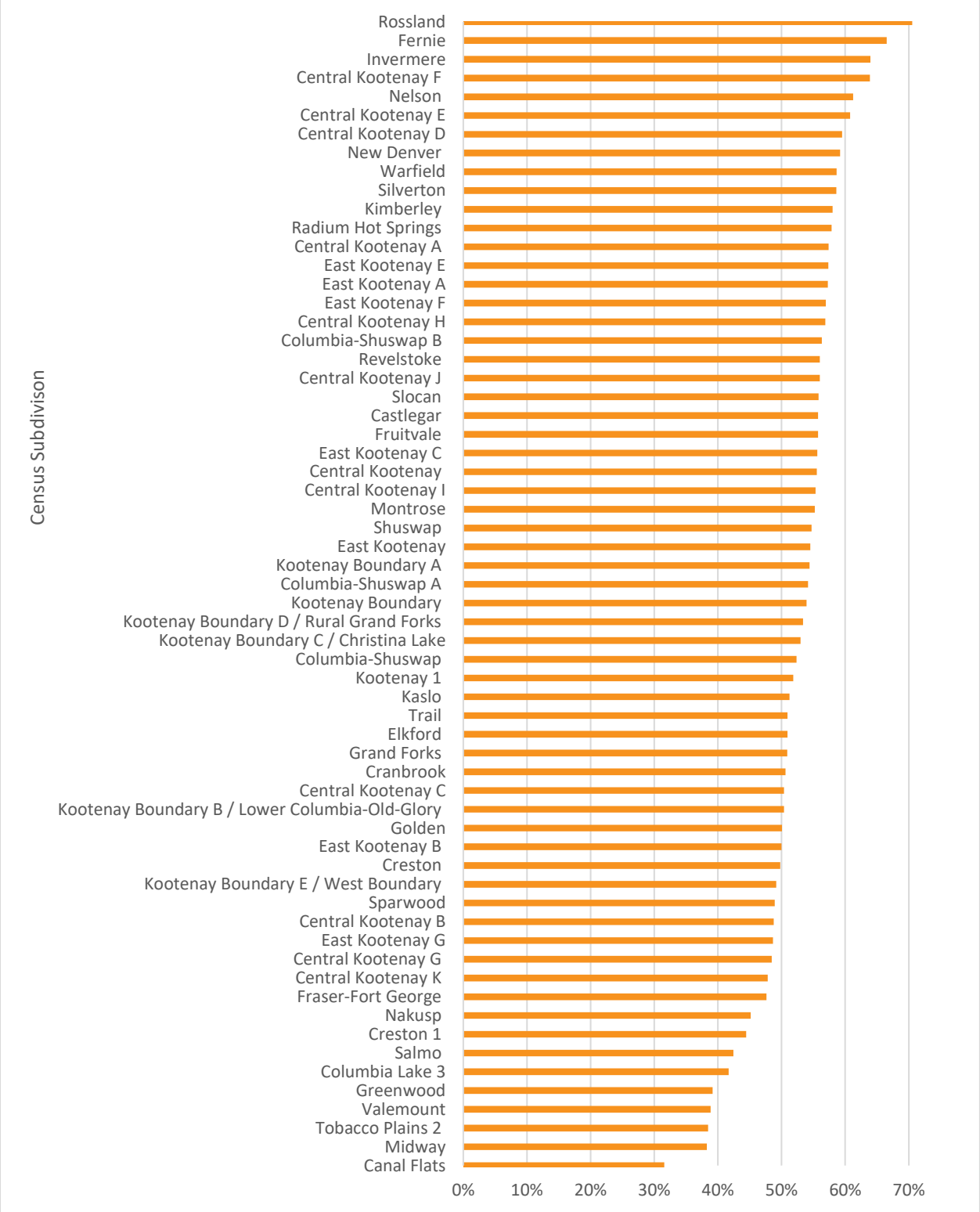

Figure 50: Percentage of population with some post-secondary education[105]

HEALTH & WELLNESS

LIFE EXPECTANCY

What does this measure & why is it important?

This indicator reports on the number of years a person is expected to live based on mortality statistics for a given period of time for a defined area. Data for this indicator comes from BC Stats' collection of vital statistics. The 2011 to 2015 average was used for this analysis.

Life expectancy measures quantity rather than quality of life, and is a widely used indicator of the health of a population. The trend to longer life expectancy continues in Canada and much of the developing world. While a longer life does not automatically mean a better life, it is generally understood to be an important and positive indicator. Life expectancy trends help planners understand how changes in population health may affect social and community services.

What are the trends & current conditions?

As shown in **Figure 51**, life expectancy varies across the Local Health Areas (LHA) in the Basin-Boundary region. The highest life expectancy is found in the Windermere LHA at 83.0 years – the only LHA in our region that has a higher life expectancy than the province as a whole for the 2011-2015 time period. Kootenay Lake has the lowest life expectancy at 77.6 years of age. The average life expectancy across Basin-Boundary LHAs for the 2011-2015 period is 80.8 years, up from 80.2 from the 2007-2011 time period. Compared to provincial numbers, the average life expectancy for our region (80.8) is about two years lower than BC (82.6).

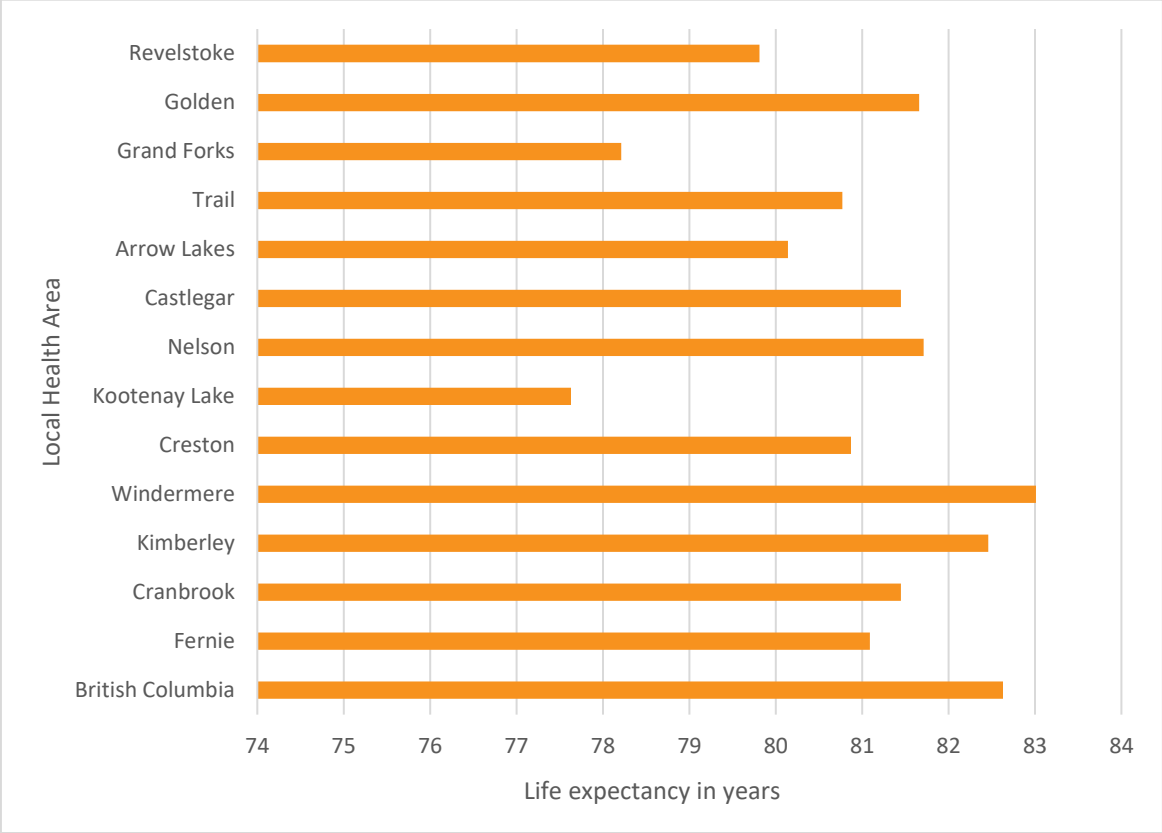

Figure 51: Life expectancy by Local Health Area and BC, average 2011 - 2015[106]

When comparing males and females, the life expectancy is lower for males for our region, at 78.5 years, compared to 83.5 for females. This difference is similar to the provincial averages, where life expectancy for males is 80.6 and females is 84.6.

LOW BIRTH WEIGHT

What does this measure & why is it important?

A baby's weight at birth is a strong indicator of maternal and newborn health and nutrition. Low Birth Weight (LBW) is defined as newborns whose birth weight is more than five grams and less than 2,500 grams.[107] While a variety of factors contribute to low birth weight among infants, LBW is an important determinant of mortality, morbidity, and disability in infancy and childhood, and can have long-term impacts on health outcomes in adulthood.[108]

Data on low birth weight babies for the Basin-Boundary region was received from the British Columbia Perinatal Data Registry through a custom data request. Five years of data was provided, from 2011/12 to 2015/2016 fiscal years. Tabulated data was provided by municipality and electoral area for the postal codes of the newborn's usual residence, as well as by Local Health Area (LHA). For the LHAs, only the communities within the Columbia Basin-Boundary were included.

What are the trends & current conditions?

Between April 1, 2015 and March 31, 2016, Basin-Boundary communities witnessed 1,294 live births[xii]. 5.0% were low birth weight babies. As shown in **Table 22**, over the last five fiscal years, the percentage of low birth weight babies in our region has fluctuated from a low of 4.4% in 2012/2013 to a high of 5.3% in 2013/14. Compared to BC, the percentages for our region are slightly higher for all five of these years.

	Percentage LBW newborns for Basin-Boundary region	Percentage LBW newborns for BC
2011/12	4.8%	4.1%
2012/13	4.4%	4.3%
2013/14	5.3%	4.2%
2014/15	5.2%	4.2%
2015/16	5.0%	4.1%

Table 22: Percentage of Low Birth Weight babies for Basin-Boundary region and BC[107,109]

The number of low birth weight babies varies across Basin-Boundary Local Health Areas (see **Table 23**). The highest number of low birth weight newborns in 2015/16 occurred in Cranbrook (17 individuals). The highest percentages were in Kootenay Lake and Revelstoke (both at 14.3% in 2015/16). A longer term dataset is needed to effectively evaluate trends in the prevalence of low birth weights.

Local Health Area	2011/12		2012/13		2013/14		2014/15		2015/16	
	#	%	#	%	#	%	#	%	#	%
Fernie	3	1.9	5	2.9	9	5.3	6	3	5	2.8
Cranbrook	10	4.3	10	4.5	13	5.4	11	4.5	17	7.2
Kimberley	4	5.3	3	3.8	1	1.3	0	0.0	5	6.9
Windermere	3	3.9	4	5.6	5	6.6	6	7.5	5	6.8

[xii] Late terminations and still births are excluded; only live births are included[107]

Creston	6	5.0	7	8.1	3	3.0	4	4.9	6	6.2
Kootenay Lake	0	0.0	0	0.0	1	5.9	0	0.0	2	14.3
Nelson	9	3.8	4	2.0	7	3.4	22	10.5	5	2.5
Castlegar	7	5.8	7	5.6	6	5.4	7	6.4	6	5.0
Arrow Lakes	0	0.0	1	5.6	3	8.8	4	17.4	2	7.4
Trail	12	6.3	7	4.2	13	7.3	7	4.2	6	3.7
Grand Forks	7	14.0	4	9.5	5	10.0	2	4.4	1	3.1
Kettle Valley	2	13.3	2	12.5	1	4.4	1	5.9	1	6.7
Golden	3	7.9	2	4.4	1	3.3	1	3.2	0	0.0
Revelstoke	4	4.6	1	1.3	5	4.9	1	1.4	3	14.3
Prince George	0	0.0	2	22.2	2	22.2	0	0.0	1	12.5
Total	**70**		**57**		**73**		**72**		**64**	

Table 23: Number and percentage of Low Birth Weight babies by Local Health Area (2011/12 to 2015/16)[107]

CULTURAL RESEARCH PILLAR

Culture is multi-faceted and dynamic, embracing a diversity of aspects that describe and shape our way of life and quality of life. The RDI supports a broad and inclusive definition of culture, and recognizes cultural well-being as both the vitality that individuals and communities enjoy through participation in recreation and creative and cultural activities, and the freedom to retain, interpret, and express their arts, history, heritage, and traditions. The cultural pillar includes the four themes of arts, culture, heritage, and recreation.

MUNICIPAL SPENDING ON PARKS, RECREATION, & CULTURE

What does this measure & why is it important?

This indicator measures the percentage of total municipal spending dedicated to parks, recreation, and culture relative to total municipal expenses. Data comes from the BC Ministry of Community, Sport & Cultural Development's Local Government Statistics[110].

Spending is important because it provides an indication of the resources allocated to supporting the amenities and activities in a community. With adequate resourcing, cultural initiatives are more likely to succeed. The cultural sector is identified as a driver of economic prosperity, influencing job creation as well as attraction of new residents, tourists, and investors.[111] Research also suggests that cultural investments contribute to the development of a healthy 'creative economy', and can increase the success of an economic development strategy.[112] Parks and recreation are integral to individual and community well-being, and play an important role in community health and development.[101,113]

What are the trends & current conditions?

Figure 52 shows the trend in spending on parks, recreation, and culture over the past 30 years for Columbia Basin-Boundary municipalities and all municipalities in BC. Municipal spending on parks, recreation, and culture has generally increased over time, with a peak for our region in 2008 at 15.2% of total spending. For all BC municipalities, the average has increased slightly in the last few years as well, with a peak of 16.8% in 2013. The average of total spending for Basin-Boundary municipalities from 1985 to 2016 is 11.4%, while the average for all BC municipalities is 12%.

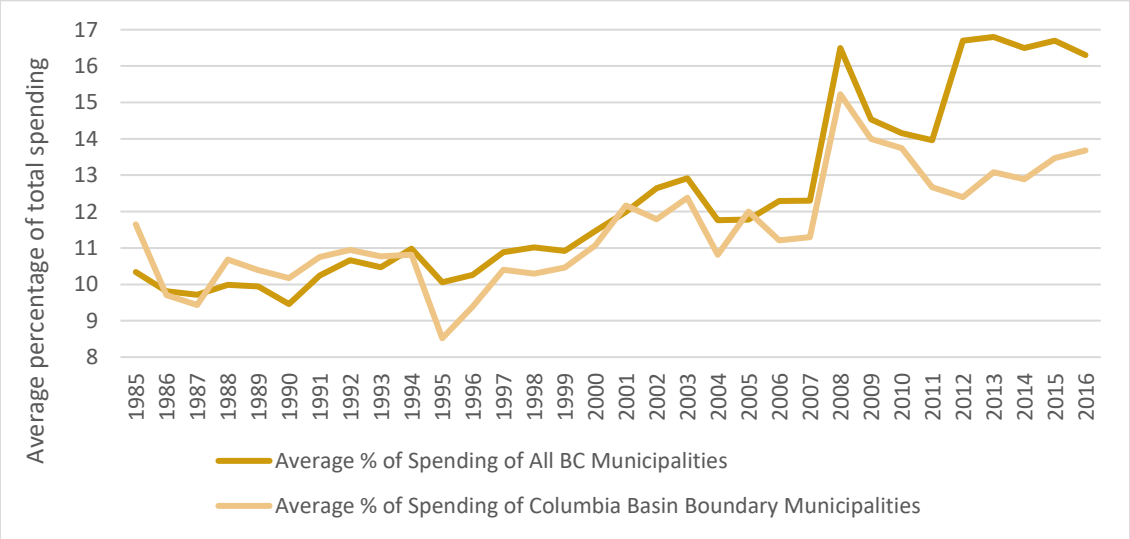

Figure 52: Percent of spending by municipalities on parks, recreation and culture from 1985 to 2016 – averages for Basin-Boundary and all BC municipalities [110]

The municipalities with the highest expenditures on parks, recreation, and culture in 2016 include Kimberley (24.7%), Elkford (24.6%), New Denver (22.4%), Fernie (22.2%), and Trail (22.8%). The lowest for 2016 was Jumbo Glacier, which has been included in the municipal statistics for the last three years, each year showing no expenses on parks, recreation, and culture. Other municipalities with the lowest expenditures on parks, recreation, and culture in 2016 include Creston (3.0%), Kaslo (3.8%), Salmo (4.4%), and Radium Hot Springs (4.8%).

Some communities with consistently higher spending may have more parks, recreation, or cultural facilities, which require more funds to maintain. In some years, communities may spend more because of capital projects or cultural developments, while in other years there may be different needs and priorities. It is important to note that each community is unique, and different factors influence spending. It is also important to note that in the Regional District of Central Kootenay (RDCK), for example, Recreation Master Plans are developed which are intended to guide decision making regarding recreation facilities and services provided by the RDCK for the various municipalities and electoral areas. These include consideration of "all associated stakeholders, including regional partners, other levels of government, local non-profit volunteer groups, and the private sector".[114]

LANGUAGE

What does this measure & why is it important?

This indicator measures the percentage of Columbia Basin-Boundary residents who speak English, French, or "other" languages most often at home. "Other" languages include Aboriginal languages and selected non-Aboriginal languages. This indicator also measures the number of different languages spoken across the region. Data for this indicator comes from the 2016 Census.[5]

Language data provides insight into the cultural diversity of our region. The rapid demise of languages is a concern regarding cultural identity in an increasingly globalized culture.[115] In 2001, UNESCO adopted the Universal Declaration on Cultural Diversity that included cultural diversity as a "common heritage of humanity" and considers its safeguarding to be a concrete and ethical imperative, asserting cultural diversity "as necessary for humankind as biodiversity is for nature".[116] While cultural diversity is difficult to quantify, one indication is thought to be the count of the number of different languages spoken in a region.[115]

What are the trends & current conditions?

Language data from the 2016 Census shows that the vast majority (96.3%) of residents in the Basin-Boundary region speak English most often at home, higher than BC (79%) and Canada (63.7%) (see **Figure 53**). The percentage of residents speaking French most often at home is 0.6%, which is similar to that of BC at 0.4%, but the percentage speaking other languages in our region (3.1%) is considerably lower than BC (20.7%) as well as Canada (16.3%). This is an indication that our region is less culturally diverse than BC or Canada and is likely related to the fact that there are no large urban centres in our region which tend to support a higher diversity of language and culture. Little change in this indicator is seen when comparing our region's 2011 census data to that from 2016.

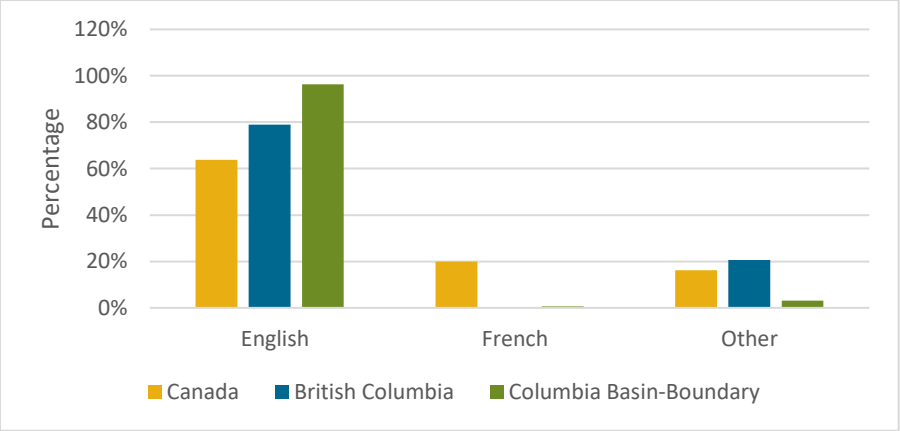

Figure 53: Language spoken most often at home, 2016[5]

Census data shows that there are at least 60 different languages within the "other" category spoken in the Basin-Boundary region, including Afrikaans, Chinese, Hungarian, Italian, Russian, Spanish, and more. Higher numbers of people who speak other languages are generally found in our region's larger communities, such as Cranbrook, Castlegar and Nelson. Rossland, Revelstoke and Fernie have the highest number of French speakers.

ETHNIC ORIGIN AND ABORIGINAL IDENTITY

What does this measure & why is it important?

This indicator includes two measures, both taken from the 2016 Census data. First, ethnic origin by geographic area, including North American Aboriginal, Other North American, European, Caribbean, Latin, Central, and South American, African, Asian, and Oceania origins. Second, the population that identifies as Aboriginal, including those who identify as First Nations, Metis, Inuk (Inuit), or multiple Aboriginal identities, and which includes those with Registered or Treaty Indian Status, and those who report membership in a First Nation or Indian Band.[59]

Both measures are indicative of cultural diversity. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), "diversity widens the range of options open to everyone [and] it is one of the roots of development, understood not simply in terms of economic growth, but also as a means to achieve a more satisfactory intellectual, emotional, moral, and spiritual existence".[116] Understanding the cultural makeup of the region can serve to inform needs around policy and programs relating to cultural heritage and inclusivity, as well as potential opportunities for community and economic development.

What are the trends & current conditions?

Figure 54 shows the relative prevalence of eight categories of ethnic origin by regional district, and for BC and Canada. European ethnic origin is the largest percentage across the region, province, and country. The component of the Basin-Boundary population that is of European origin ranges between 75.0% and 87.3%, which is 20% to 30% higher than BC or Canada. People identifying as 'other North American' (e.g., Acadian, American, Newfoundlander, Québécois) is the next highest percentage for our region and varies from 26.3% in the RDCK to 32.3% in the RDFFG with all regional districts having higher percentages than the provincial average. North American Aboriginal origin is slightly higher across Basin-Boundary regional districts compared to BC and Canada, with the highest in Fraser-Fort George. Asian origin is much lower for our region compared to BC, with only 3% to 6.9% in our regional districts compared to 28.8% for BC. Percentages of people whose origin is Caribbean, Latin American, African, and Oceania are all under 1% of our region's population. Overall, this measure suggests less cultural diversity in the Basin-Boundary region compared to BC and Canada.

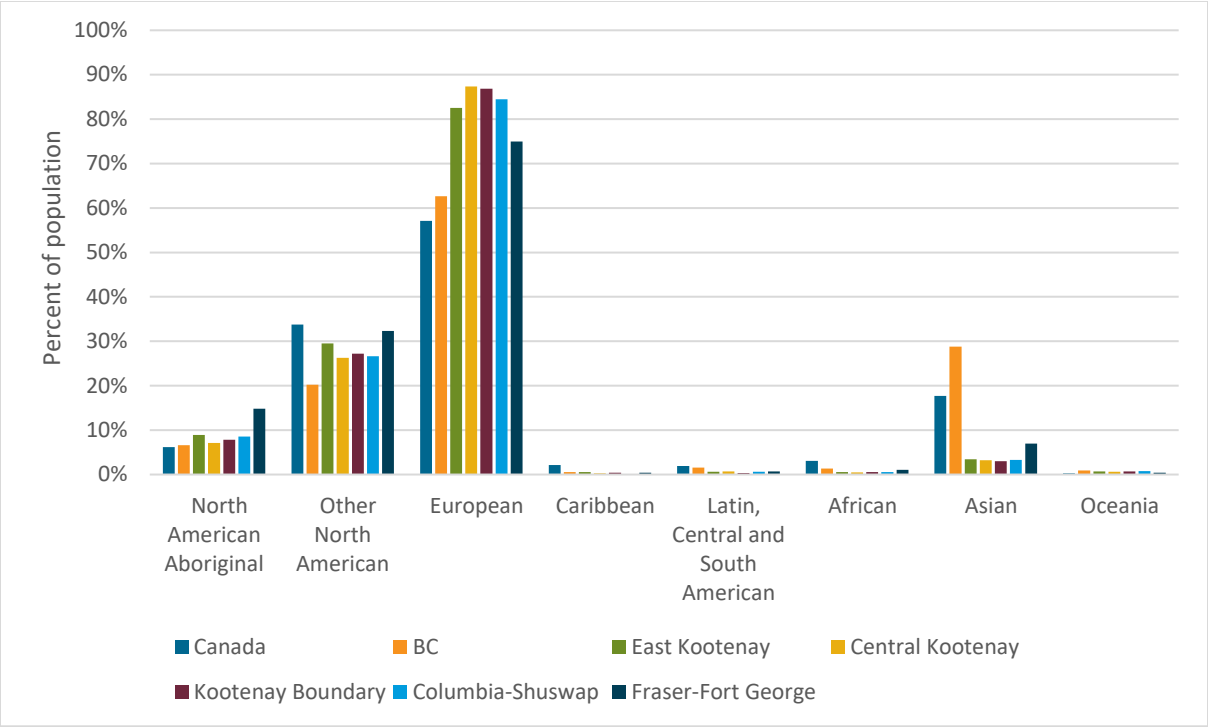

Figure 54: Percent of 2016 population by ethnic origin[117] [xiii]

There is a continued need for reconciliation efforts across Canada with Aboriginal peoples.[118] Informed decision making in this respect requires an understanding of the population who identify as Aboriginal. **Figure 55** shows the percentages for the regional districts in our region and for BC and Canada. Fraser-Fort George shows the highest percentage of Aboriginal identity at 14.4%. This is much higher than BC and Canada, which are 5.9% and 4.9% respectively. The East Kootenay shows the next highest percentage for our region, at 7.9%, followed by Columbia-Shuswap at 7.3%.

The percentages for those who identify as First Nations is below the provincial (3.8%) and national (2.8%) percentages for most regional districts in our region, with the exception of Fraser-Fort George at 8.1%. Fraser-Fort George also has a higher percentage of Metis (6%), compared to BC (2%) and Canada (1.7%). The other regional districts also have higher percentages of Metis compared to the province and country, ranging from 4.3% in the East Kootenay to 3.1% in the Central Kootenay. The percentages for those who identify as Inuk or multiple Aboriginal identities is very low across all regional districts, which is similar to BC and Canada, at less than half a percent of the population.

At the Census subdivision scale, the highest percentages of people with Aboriginal identity are found on the reserves, such as Creston 1 (95.5%), Kootenay 1 (94.1%), and Tobacco Plains (93.3%). Over half of the municipalities in our region have a higher percentage of people with Aboriginal identity than the BC percentage of 5.9%, with Valemount (15.7%) at the highest percentage, followed by Canal Flats (10.3%), and Golden (10%). The lowest percentage is in Silverton at 0%, followed by New Denver at 2.3%.

[xiii] As people can have complex ethnic backgrounds, a person may report more than one ethnic origin on this question, accounting for these numbers adding up to more than the total population (or more than 100%).

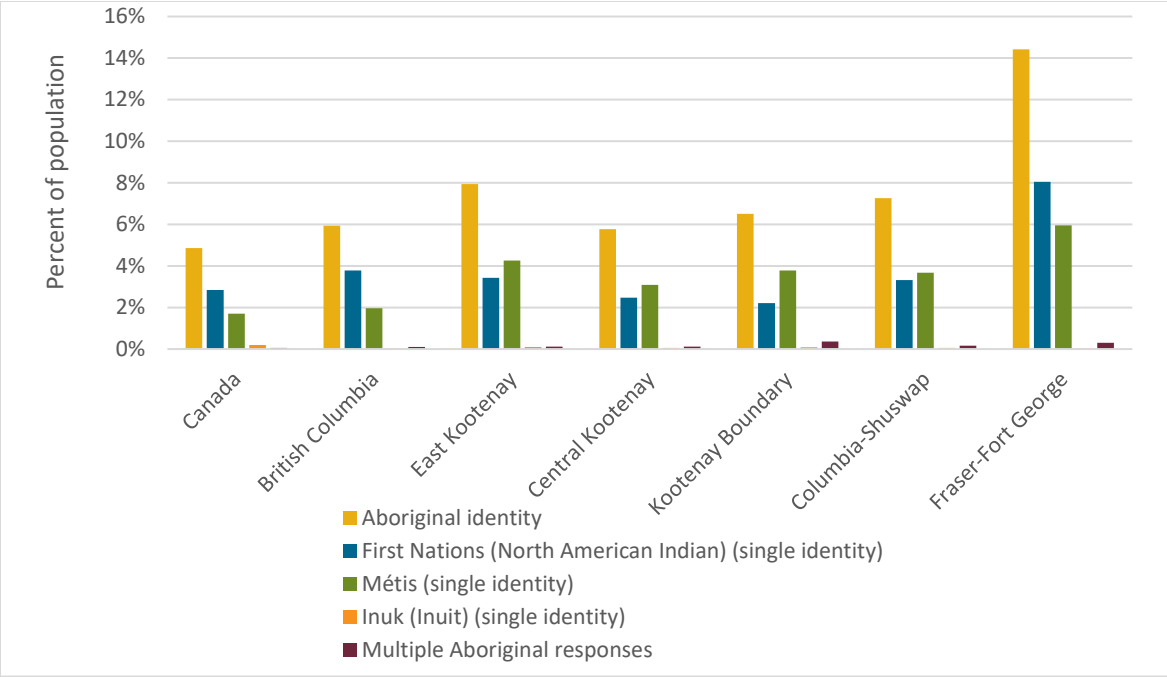

Figure 55: Percent of 2016 population who identify as Aboriginal[5]

PUBLIC LIBRARIES

What does this measure & why is it important?

The BC Ministry of Education, through its Libraries Branch, publishes annual Public Library Statistics[119]. There are numerous indicators that provide insight into the state of public libraries including statistics on circulation, attendance, human and financial resources. RDI sought advice from experts on which indicators to report on as a way to begin to paint a picture of the health and capacity of libraries across our region, and reported on several indicators in the 2016 State of the Basin report. This 2017 report includes circulation per capita and local government support of libraries.

There are 22 libraries in the Basin-Boundary region, most falling within the Kootenay Library Federation. As the Golden and Revelstoke libraries are part of the Okanagan Regional Library, which reports to the province as a regional library system, the Libraries Branch statistics were supplemented with data provided directly from staff at the Okanagan Regional Library.[120] Data for 2011 to 2015 was available and is reported for the indicators below.

Libraries are integral partners in maintaining healthy and vibrant communities.[121] Libraries are often a gathering place for residents, where a diversity of programs and services are offered – from toy collections for children, to computer stations or meeting spaces for teens, and seniors' groups.[122,123] Libraries include physical and virtual learning environments, and offer literacy development across a range of disciplines. Library statistics are useful for providing an indication of the health and capacity of these facilities in serving community needs and interests.

What are the trends & current conditions?

Circulation per capita is the total circulation of all materials divided by the service population, and is used as a performance measure.[124] As shown in **Figure 56,** circulation varies across the libraries, with some of the highest rates of circulation per capita in Midway, Nakusp, and Valemount. The lowest rates of circulation per capita occur in the East Kootenay communities of Radium Hot Springs, Elkford, and Sparwood. Some libraries, such as Golden, Valemount, Radium Hot Springs, and Beaver Valley have seen declines in circulation per capita from 2011 to 2015, while others, such as Salmo, Rossland, Kaslo & District, Fernie, and Trail & District have seen increases.

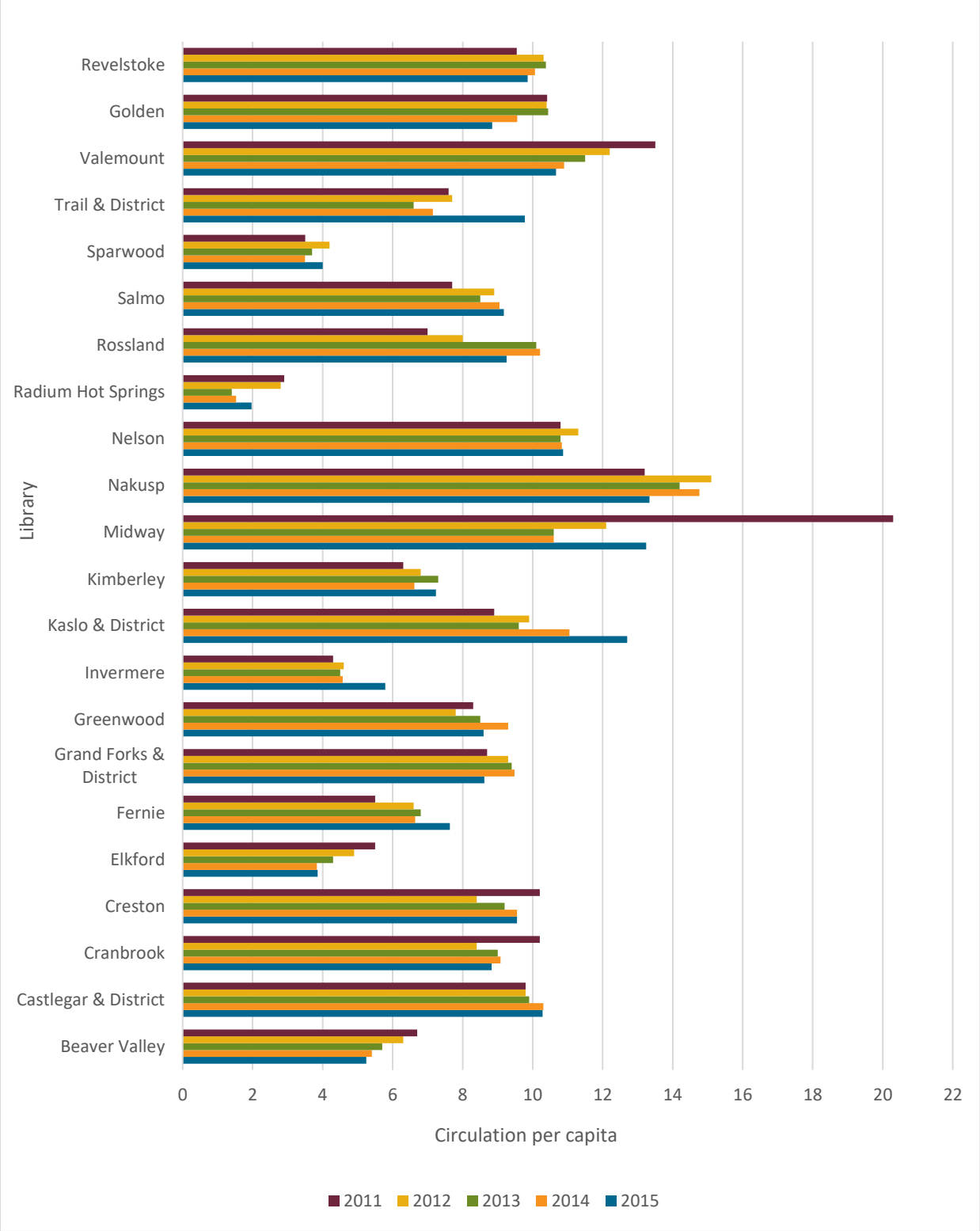

Figure 56: Circulation per capita for libraries within the Columbia Basin-Boundary, 2011 to 2015

In 2015, the provincial average circulation per capita for all public libraries was 9.4. The average for our region was lower at 8.6, but with several libraries having above provincial average circulation per capita, including Castlegar & District (10.3), Creston (9.6), Kaslo & District (12.7), Midway (13.2), Nakusp (13.3), Nelson (10.9), Trail & District (9.8), Valemount (10.7), and Revelstoke (9.9).

Financial resources are an important indicator of capacity. In 2015, the provincial government provided a total of $830,520 to libraries in our region, up 2.6% from $809,207 in 2011. While the provincial government does provide funding through library grants each year, libraries are primarily funded by local governments.[125]

Total local government support in our region increased by about 8.4% between 2011 and 2015, at $5.1 million in 2015. The median local government amount for 2015 is $186,661 with a range from $10,800 (Greenwood) to $703,155 (Cranbrook). **Figure 57** shows the support per capita for the region using the median value of all 22 libraries. As shown, the per capita support has increased over time, from $30 in 2011 to $35 in 2015.

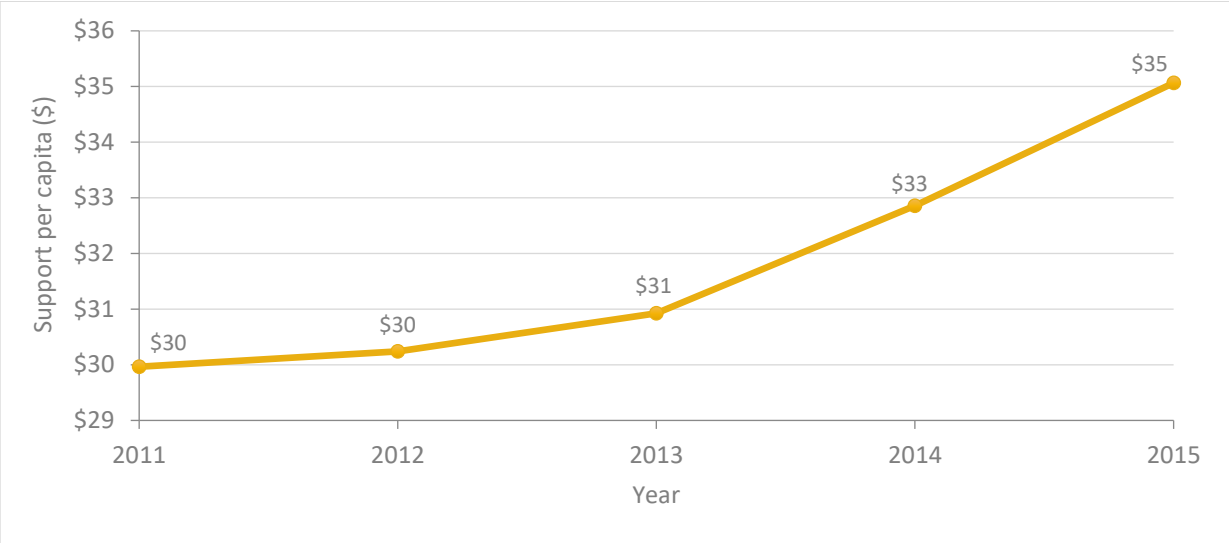

Figure 57: Local government support per capita for all libraries in Columbia Basin-Boundary

In addition to provincial and local government support, libraries have other revenue sources, including federal, provincial, and other project grants, library generated revenue, donations and fundraising, and other miscellaneous revenue. In 2015, the libraries in our region reported a total other revenue of $916,803.[xiv] The average of total other revenue per library over the years is between $39,000 and $46,000.

TOURIST ACTIVITY

What does this measure & why is it important?

This indicator measures the number of visitors to the Visitor Centres in the Kootenay Rockies tourism region. To provide additional insight on tourist demographics and motivations, statistics from an In-Market Research Report by Tourism BC are also reviewed.[126]

Currently, eight of BC's 14 Resort Municipalities (57%) are in the Basin-Boundary, which provides an indication of the prominence of tourism in our region. These include Fernie, Golden, Invermere, Kimberley, Radium Hot Springs, Revelstoke, Rossland, and Valemount. Tourism plays an important role in the local economy of these and other communities, but can also affect the social dynamics within a community, particularly with its seasonality. Tourism is cross-sectoral in nature, but typically draws on the arts, culture, heritage, and natural and recreational assets of a place.

What are the trends & current conditions?

Destination BC reports on visitor statistics for Visitor Centres across all six tourism regions in the province. Travellers that are considered 'tourists' come from within the Basin-Boundary region or travel from other parts of the province, the country, and the world. **Figure 58** shows the number of visitors recorded at Visitor Centres in the

[xiv] Data for Golden and Revelstoke was not available.

Kootenay Rockies region for each year from 2013 to 2017.[xv] The annual data shows that visitor traffic has increased over most years, with a 10.4% increase between 2013 and 2014. There was however an 8.2% decrease between 2016 and 2017 for the Kootenay Rockies region, while provincially, there was only a 2.6% decrease in total visitors to Visitor Centres.

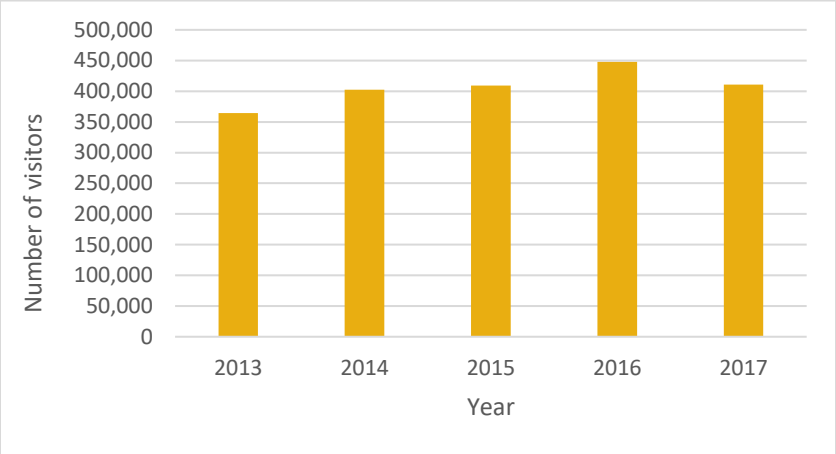

Figure 58: Number of visitors to Visitor Centres in the Kootenay Rockies, 2013 - 2017[127]

Data is also available for each individual Visitor Centre (see Destination BC's Reports). As each Visitor Centre is owned and operated by each community, staff may be able to provide additional statistics and information related to tourist activities upon request.

An In-Market survey by Tourism BC in 2012 provides some insight into the demographics and interests of visitors to the Kootenay Rockies region as a whole. Visitors were more likely to be female (55%), and the female visitors were generally younger than male visitors. Visitors who responded to the survey were most commonly from Alberta (38%), followed by the Lower Mainland (34%), Eastern Washington (21%), and other parts of BC (8%). Visitors predominantly had some level of post-secondary education (37% had some college/university, 27% university/bachelor, 12% graduate), and the majority of household income reported was between $40,000 to $100,000. *Sightseeing / nature / wildlife viewing* was the top activity noted by 53% of visitors. This was followed by *visiting national and/or provincial parks* (44%), and *hiking* (44%). *Shopping* was the fourth (41%) most cited activity.

PARKS VISITATION

What does this measure & why is it important?

British Columbia has the third largest parks system in North America after Parks Canada and the US National Park Service.[128] One of the Basin-Boundary region's natural assets is its abundance of parks. Four of the seven national parks in British Columbia are found in our region, along with at least 60 provincial parks.[129] Visitation to parks measures the number of people using this asset, as well as trends over time. Parks usage is an indication of both resident and tourist activity, and illustrates the importance of these natural and cultural assets.

What are the trends & current conditions?

The national parks in our region include Glacier, Mount Revelstoke, Kootenay, and Yoho. Combined, these parks see visitation of about 2 million people per year. **Figure 59** shows the number of visitors for these parks for 2015/16 and 2016/17. All four national parks have seen an increase in visitation over the last two years of 4% to 6%.

[xv] It is important to note that these statistics do not account for all visitors to the area or visitor centre. Only the visitors that enter a visitor centre and speak with a counsellor are included.

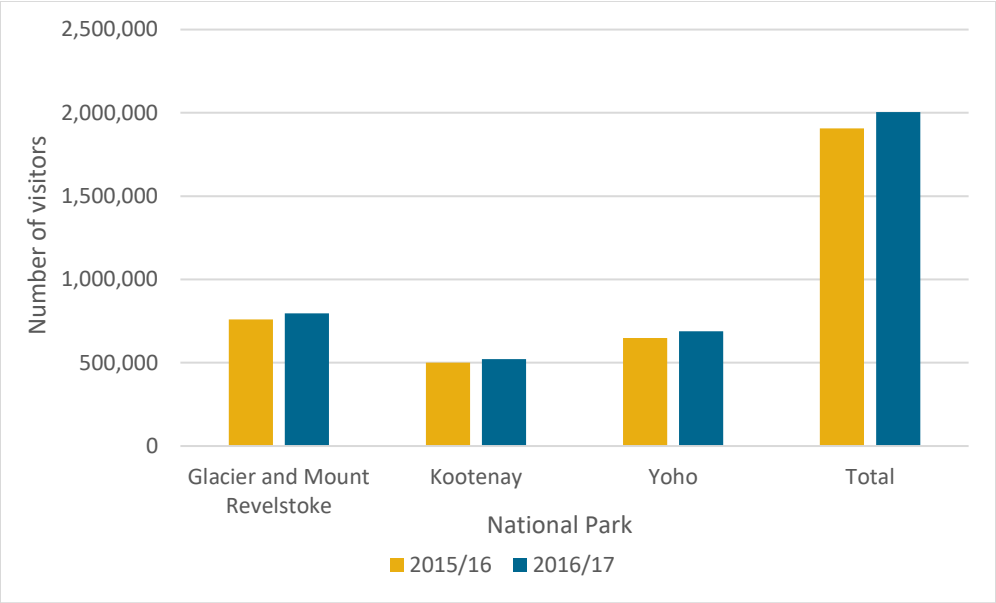

Figure 59: Number of visitors to national parks in the Columbia Basin-Boundary, 2015/16 to 2016/17[130]

BC Parks reports annual statistics on all provincial parks. Parks in the Basin-Boundary region fall within the Kootenay Okanagan region. **Figure 60** shows the day use attendance for all parks in the Kootenay Okanagan region from 2011/12 to 2015/16 fiscal years. Visitation has increased over time, with a 17.4% increase over the last five years of data. Comparing the last two fiscal years, there has been an increase of 13.2% between 2014/15 and 2015/16, slightly higher than the provincial increase of a 12.4%.

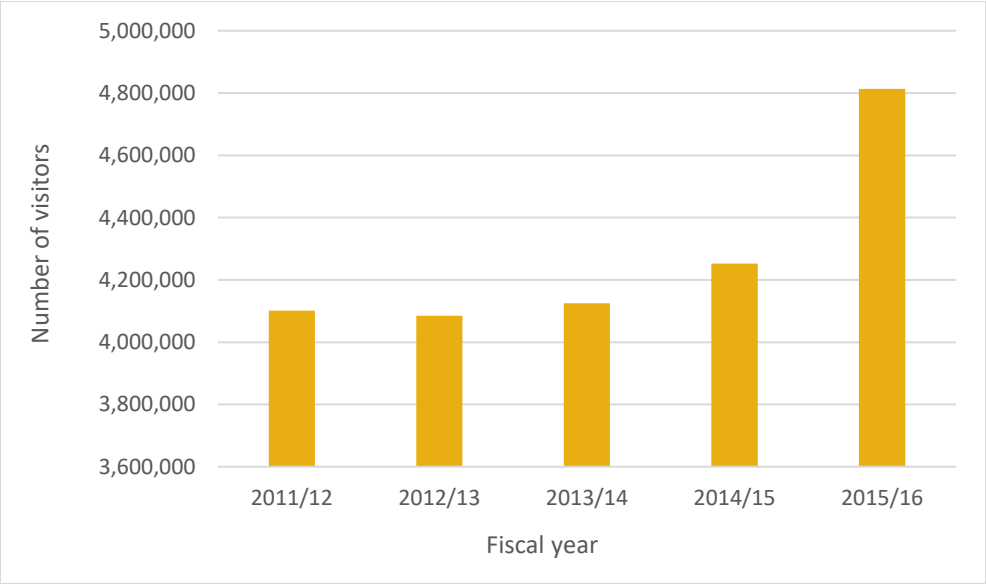

Figure 60: Number of day use visitors to provincial parks in Kootenay Okanagan region, 2011/12 to 2015/16[131]

Camping attendance has also seen an overall increase in Kootenay Okanagan parks, with a 14.7% increase between 2011/12 and 2015/16, and a 5.2% increase over the last two years of data. This is slightly lower than the provincial parks as a whole, which saw a 6.7% increase in camping attendance over the last two years of data.

Provincial park attendance is variable depending on a number of factors such as park access and management, expansion or reduction of facilities, weather, and other causes. For example, Summit Lake Provincial Park saw a 29% increase in visitation between 2013/14 and 2014/15 with excellent weather noted as a key reason. Similarly, Kokanee Glacier Park saw an increase of 33% during this time, which was also attributed to good weather and the

opening of a previously closed access road. Premier Lake in the East Kootenay went from about 50,000 to almost 100,000 visitors between 2013/14 and 2014/15, but the BC Parks report notes that the reason for this increase is unknown. Nearby Whiteswan Lake saw a decrease in attendance in 2014/15 due to forest fires which caused a three-week temporary park closure. The BC Parks annual statistics reports also include results from satisfaction surveys, along with revenues and expenses. Details for each specific park are available.

ENVIRONMENTAL RESEARCH PILLAR

The unique, diverse natural landscapes and resources of the Columbia Basin-Boundary region are the foundation for many aspects of well-being. These landscapes provide habitat for a multitude of species, land to grow food, clean air and water, and the backdrop for economic, social and cultural pursuits. We are fortunate that many Columbia Basin-Boundary residents place value on their environment and are working to maintain and improve its well-being.

AIR & CLIMATE

AIR QUALITY

What does this measure & why is it important?

The air quality indicator tracks annual average hourly readings of fine airborne particulates (referred to as $PM_{2.5}$) from monitoring stations in the region. Data comes from the BC Lung Association's State of the Air Reports and BC Ministry of Environment's air data archive.[132,133]

There are many sources of air pollution. For example, wood smoke from home heating is the leading contributor to $PM_{2.5}$ pollution in BC.[134] Other sources include wildfires, agriculture, and dust from unpaved roads. High concentrations of $PM_{2.5}$ can have negative effects on human health and the environment. Because the particles are small enough to enter the deepest part of human lungs, $PM_{2.5}$ can cause respiratory problems and contribute to cardiovascular disease.[134] Fine particulates can also impair visibility and affect the climate.

What are the trends & current conditions?

The Grand Forks station recorded the lowest annual $PM_{2.5}$ levels in the region in 2016, at 4.1 micrograms per cubic meter ($\mu g/m^3$), while the highest readings reported were at the Golden Helipad station (7 $\mu g/m^3$). When comparing results from different communities, it is important to note that the Grand Forks station uses older instrumentation than the Golden and Castlegar stations. Newer instruments tend to record higher levels of particulate. All annual average values for the last 10 years were below the provincial air quality objective of 8.0 with the exception of the Golden Helipad station in 2015 (see **Figure 61**). Decommissioning of stations within the region, or conversions from one type of measurement instrument to another, makes it difficult to identify long term trends.

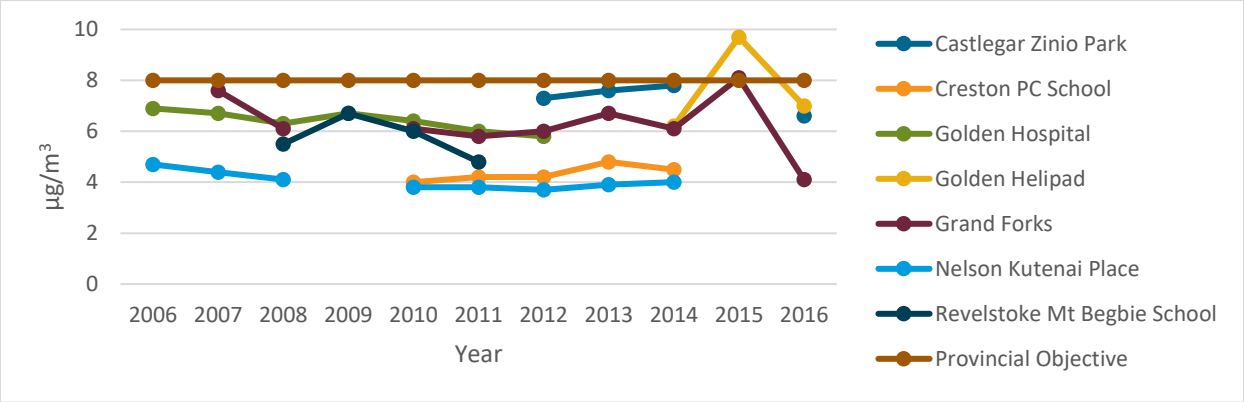

Figure 61: Annual average hourly $PM_{2.5}$ readings at monitoring stations in the region[133]

A comparison of 2016 and 2017 average daily readings for the Castlegar Zinio Park Station (see **Figure 62**) sheds some light on major air quality issues in our region. Differences between the two years were most pronounced during the summer, where readings were much higher in 2017 as a result of the intensity of the 2017 forest fire

season. There were several instances in 2017 when Castlegar readings exceeded the province's 24-hour objective of 25 ug/m³.

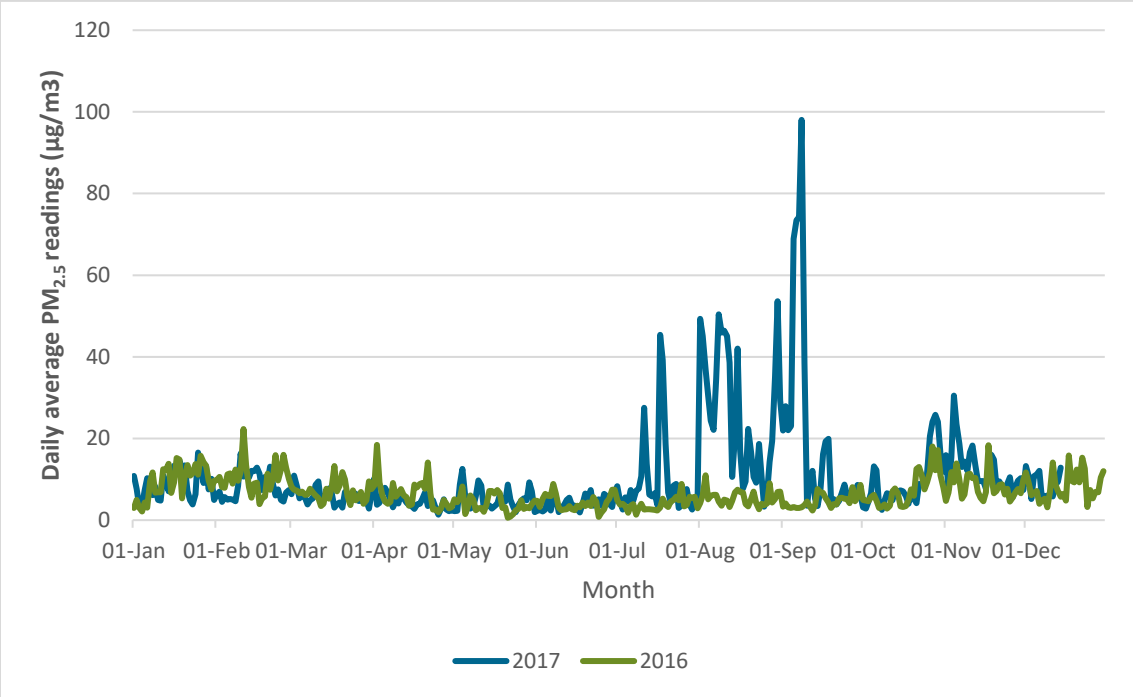

Figure 62: Daily average $PM_{2.5}$ readings (µg/m³) in 2016 and 2016, Castlegar Zinio Park Station[132]

BIODIVERSITY

SPECIES AT RISK

What does this measure & why is it important?

This indicator measures the number of 'red listed' species in the Columbia Basin-Boundary region (meaning they are extirpated, endangered, or threatened[135]), drawing primarily on data from the British Columbia Conservation Data Centre's database of species at risk.[136] An ecosystem's diversity of plant and animal communities affects its resilience in the face of change and capacity to provide ecosystem services. There are thousands of different species whose ranges include the Basin-Boundary region. The majority of these demonstrate healthy population counts. However, there are some species that are declining in numbers, or are threatened by habitat loss, disease, or competition from non-native species. An important aspect of environmental well-being is our society's concern for all native species, regardless of how well we understand the roles they play in the ecosystem.

What are the trends & current conditions?

The BC Conservation Data Center currently reports 152 species that are red listed in the Basin-Boundary region. The list includes 38 animals, 108 plants, and six species of fungus.

There has been a slight decrease from the number of red listed species since last year (155), with several individual species being either removed or added from the list for our region. This change could be attributed to multiple factors, including a change in some species' listing status or improvements to the inventory of species studied by biologists. The list of extirpated species does not include the Steelhead, Sockeye, and Chinook salmon that used to migrate up the Columbia River prior to the construction of hydroelectric dams. These salmon runs were completely eliminated with the construction of the Grand Coulee Dam in 1941.[137]

Higher numbers of red listed species tend to be found in the lowest elevation biogeoclimatic zones, such as the Ponderosa Pine zone, where the level of protection by federal or provincial parks is the lowest. For example, 27 red listed species inhabit the 1062 square kilometres of land considered to comprise the Ponderosa Pine zone in the Basin Boundary region, resulting in a density of red listed species of over 25 per 1,000 square kilometres. Conversely, the higher-elevation Englemann Spruce-Subalpine Fir zone benefits from a relatively high level of protection but is home to a density of just over 1 red listed species per 1,000 square kilometres (see **Table 24**).

Biogeoclimatic Zone	Number of red listed species	Area (km^2)	Red listed species per 1,000km^2
Engelmann Spruce-Subalpine Fir (ESSF)	45	42905	1.05
Interior Cedar-Hemlock	56	23328	2.40
Interior Douglas Fir	48	4620	10.39
Interior Mountain Heather Alpine	15	6350	2.36
Montane Spruce	27	7698	3.51
Ponderosa Pine (PP)	27	1062	25.42
Sub-boreal Spruce	9	140	64.19

Table 24: Protection of BEC Zones and concentration of red listed species in the Columbia Basin-Boundary region[136]

THREATENED ECOSYSTEMS

What does this measure & why is it important?

This indicator tracks the area of 'red listed' ecosystems found within each biogeoclimatic zone in the Basin-Boundary region, drawing on data from the BC ecosystem explorer.[136] A red listed ecosystem is an ecological community that is extirpated (no longer exists in BC), endangered (facing imminent extirpation), or threatened (likely to become endangered if measures are not taken to protect what remains) in BC. The prevalence of threatened ecosystems provides an indication of how human activities (including restoration) are affecting environmental well-being over time.

What are the current conditions?

In our region, there are 15 unique threatened ecosystems with a combined area of 2,897,887 hectares. Collectively, these ecosystems account for more than 30% of all land in the Basin-Boundary region. Thirty-six percent of the area covered by these threatened ecosystems is found in the Interior Cedar-Hemlock biogeoclimatic zone (see **Figure 63**), which occurs at lower and middle elevations of southeast BC and has high resource values related to forestry and recreation.

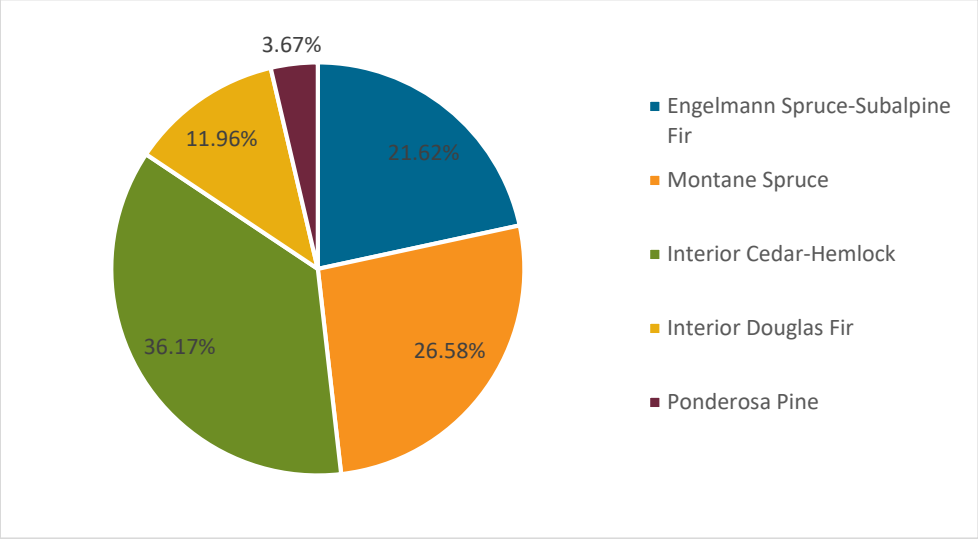

Figure 63: Percent of total area of threatened ecosystems in the Basin-Boundary region, by biogeoclimatic zone[136]

INVASIVE SPECIES

What does this measure & why is it important?

This indicator tracks the number of invasive plants found in our region. Data comes from the Invasive Species Council of BC and the provincial government's Invasive Alien Plant Program.[138,139] Invasive species are a serious threat to the Columbia Basin-Boundary region's environment and economy. They can displace native species, degrade habitats, change nutrient cycles, change wildfire cycles, and damage infrastructure.[138] Invasive plants negatively impact agriculture by reducing quality forage for livestock, reducing crop yields and increasing the need for expensive pesticide and herbicide applications. Some plants can also be damaging to human health, such as Giant Hogweed.[140] The best way to control invasive species is prevention and early action.

What are the current conditions?

In 2017 there were 132 invasive plants recorded in the Basin-Boundary region.[139] This is an increase from the 129 recorded in 2016, and the 114 recorded in 2014. This number continues to change over time as new species become established in our region, and as invasive plant inventories become more complete.

Some species are listed as regulated 'noxious weeds' under the *BC Weed Control Act*, meaning that all land occupiers must control these designated noxious plants due to their highly destructive nature.[141] See **Table 25** for the noxious weeds identified in Basin-Boundary regional districts.[142]

Regional District	Regionally Noxious Weed
Central Kootenay	Blueweed *(Echium vulgare)* Common Tansy *(Tanacetum vulgare)* Hawkweed, Orange *(Hieracium aurantiacum)* Thistle, Plumeless *(Carduus acanthoides)*
East Kootenay	Blueweed *(Echium vulgare)* Common Tansy *(Tanacetum vulgare)* Hawkweed, Orange *(Hieracium aurantiacum)* Perennial Pepperweed *(Lepidium latifolium)*
Kootenay Boundary	Common Bugloss *(Anchusa officinalis)* Field Scabious *(Knautia arvensis)* Hoary Alyssum *(Berteroa incana)*
Columbia-Shuswap	Blueweed *(Echium vulgare)* Burdock (*Arctium* spp.) Common Tansy *(Tanacetum vulgare)* Hawkweed, Orange *(Hieracium aurantiacum)* Hoary Cress (*Cardaria* spp.) Knapweed, Meadow *(Centaurea pratensis)* Sulphur Cinquefoil *(Potentilla recta)*
Fraser-Fort George	Burdock (*Arctium* spp.) Marsh Plume Thistle *(Cirsium palustre)*

Table 25: Noxious Weeds by Regional District[142]

A variety of control methods are employed to reduce the impact of invasive weeds and to control their spread. This includes manual removal, herbicide application, soil disturbance reduction and biocontrol release. Biocontrols are typically natural enemies (e.g., insects, parasites, pathogens) of the targeted invasive weeds that infect or feed on various parts of the plants to reduce their vigour or seed production. In the Basin-Boundary region, 18 different biocontrol agents have been used on 13 invasive weed species. For example, six different agents work on several different species of knapweed, which have shown to be effective in reducing knapweed densities.[143]

In addition to invasive weeds, there are also invasive animals present in the Basin-Boundary region, such as the American bullfrog. Our region's invasive species organizations are working to prevent, eradicate or contain these threats to our native ecosystems.

BEARS DESTROYED

What does this measure & why is it important?

This indicator monitors the number of bears destroyed by Conservation Officers on an annual basis in the Columbia Basin-Boundary region. It also tracks reported attractants that lead to bears coming into conflict with humans. Data for this indicator was provided by the Conservation Officer Service.[144]

A number of factors can cause unwanted encounters between humans and wildlife. These can include factors beyond an individual's control, such as development expanding into bear habitat, or unusual weather that causes wildlife to seek refuge outside of its natural habitat. However, the majority of human-wildlife conflict in our region is linked to bears that are drawn into our communities as a result of improper management of attractants (e.g., garbage, fruit trees). Unfortunately, hundreds of bears are destroyed in BC each year because of human behavior, particularly when bears become conditioned to human food sources and therefore to humans themselves.[145,146]

'Human-habituated' bears represent a risk to public safety because they are less wary of humans and, in some cases, become aggressive.

Fortunately, there are many groups and individuals working to reduce human-wildlife conflict in our region. For example, WildSafeBC works closely with communities and Conservation Officers to enhance public awareness of strategies to reduce bear encounters while also implementing innovative conflict-reduction programs.

What are the trends & current conditions?

In 2016 a total of 150 bears were destroyed by Conservation Officers, while partial data for 2017 (current to late November) shows 75 bears destroyed (see **Figure 64**). The vast majority of these—97% in 2016 and 88% in 2017—were black bears. Both 2016 and 2017 demonstrate lower numbers than 2015, which saw the greatest number of bears destroyed over the period of record. For incidents linked to a specific attractant, garbage is consistently associated with the largest percentage of incidents, accounting for 25.4% of bears being destroyed between 2011 and 2017.

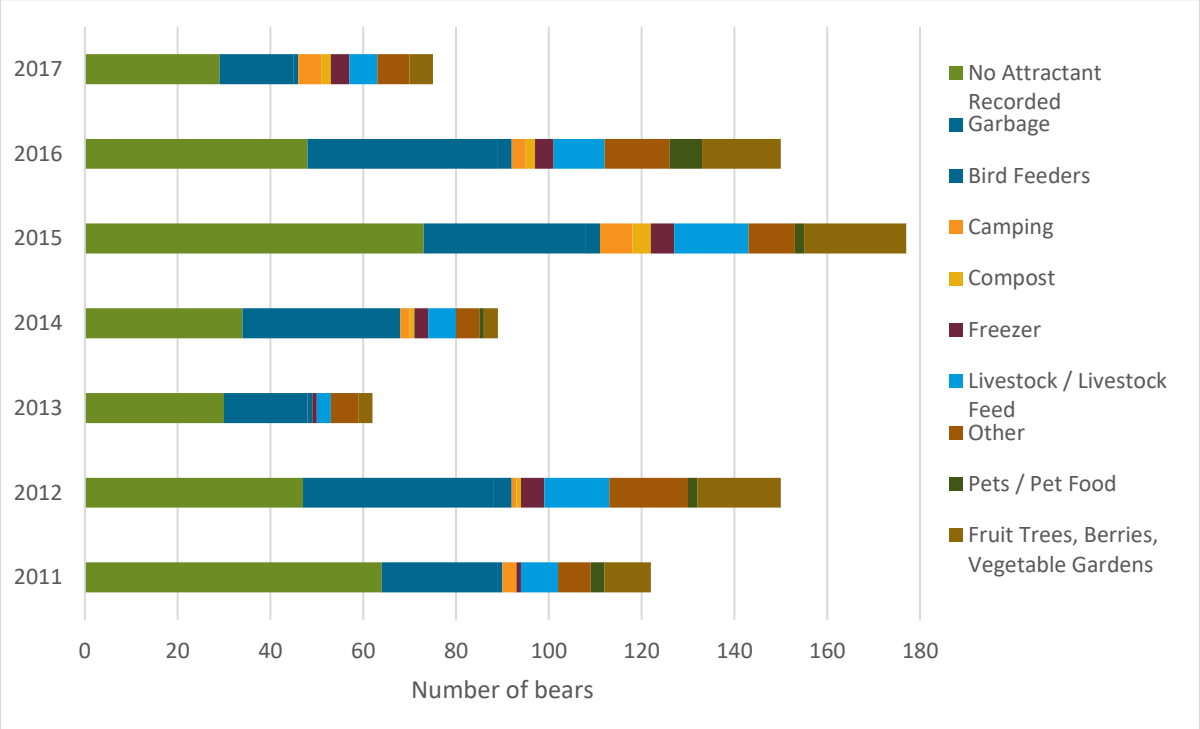

Figure 64: Number of bears destroyed by Conservation Officers in the Columbia Basin-Boundary region, 2011-2017, by primary recorded attractant[144]

The number of bears destroyed on an annual basis varies due to a number of factors. One of the most influential factors in our region is the size of the berry crop (e.g., huckleberry). Strong berry crops can keep bears satisfied with a natural food source, but when the crop is poor, bears tend to look elsewhere for food.

MOUNTAIN CARIBOU POPULATION

What does this measure & why is it important?

This indicator monitors caribou counts throughout various mountain ranges in the Columbia Basin-Boundary region. Data comes from census results of the Mountain Caribou Census administered by the provincial government. Caribou rely on large areas of old growth forest and do not tolerate human disturbance. The decline in caribou numbers is due to a variety of factors, including increased predation and habitat destruction from human activities[147,148], and they are now confined to high elevation areas in small, scattered populations. The same changes in habitat (i.e., forest harvesting, fires) that have led to the decline in caribou numbers may also have resulted in

shifts to other ungulate population numbers. For example, elk numbers have increased significantly over the past century.[149]

What are the trends & current conditions?

Between 1996 and 2016, the total population of mountain caribou declined from 654 to 206 (see **Table 26**). During this time, significant efforts to reverse this trend have taken place including snowmobile closures in caribou habitat, transplanting animals, and predator control. Some projects have shown promising results, while others have had limited success.

The rate of decline between the mid-1990s and 2002 was over 6% per year, which then decreased to 3.5% per year between 2002 and 2013. However, recently the rate of decline in caribou has increased substantially to 22% per year from 2013-2016. While some herds (the South Purcells and North Columbia) had seen increased counts in 2013, their numbers are once again on the decline. In the South Purcells herd, calf recruitment rates in 2016 were 6.3%, which is well below the recommended rate of 12-16% needed for a stable population. However, some herds' calf recruitment rates were higher than this suggested range. For example, the South Selkirks' herd showed a calf recruitment rate of 16.7% for 2016.

Efforts to recover caribou are continuing with some projects aimed at relocating pregnant cows to specially constructed secure enclosures in their native habitat, and others geared towards collaring and relocating predatory wolves whose range overlaps with those of caribou herds. Moreover, a proposal for a Selkirk Mountain Caribou park has been submitted which calls for the additional protection of over 150,000 hectares of caribou habitat.

Herd	Mid 1990s	2002	2006	2013	2016
South Selkirk	52	34	37	27	12
South Purcell	63	14	16	20	16
Central Selkirk	148	96	83	53*	35
Monashee	10	4	7	4***	1
Frisby Boulder	36	20	16	11	11**
South Columbia	105	29	26	6	4
North Columbia	206	145	125	152	124*
Central Purcell	15	5	0	0	0
South Kinbasket	19	5	0	3****	3****
Total	654	352	310	276	206

Table 26: Mountain caribou population estimates for Columbia Basin-Boundary region herds[150–153]
* 2014 estimates
** 2013 estimates
***2012 estimates
****2008 estimates

LAND & FOOD

AREA FARMED

What does this measure & why is it important?

This indicator measures the amount of total farm area in Kootenay regional districts as reported by farm operators surveyed through the Census of Agriculture. This indicator is useful to understand the viability of agriculture in our region, and how efforts to overcome common barriers to agricultural production (e.g., agricultural plans adopted by the Regional Districts of Kootenay Boundary, Central Kootenay and East Kootenay) are affecting farming activity over time.

What are the trends & current conditions?

The 2016 Census of Agriculture confirmed that the majority of farmland in our region exists within the boundaries of the RDEK (see **Figure 65**). These numbers are based on 1,157 reporting farms: 348 in the RDEK, 537 in the RDCK, and 272 in the RDKB. The amount of land under agricultural production continues to decline, with the area farmed in the Kootenays in 2016 being 14% lower than five years prior.

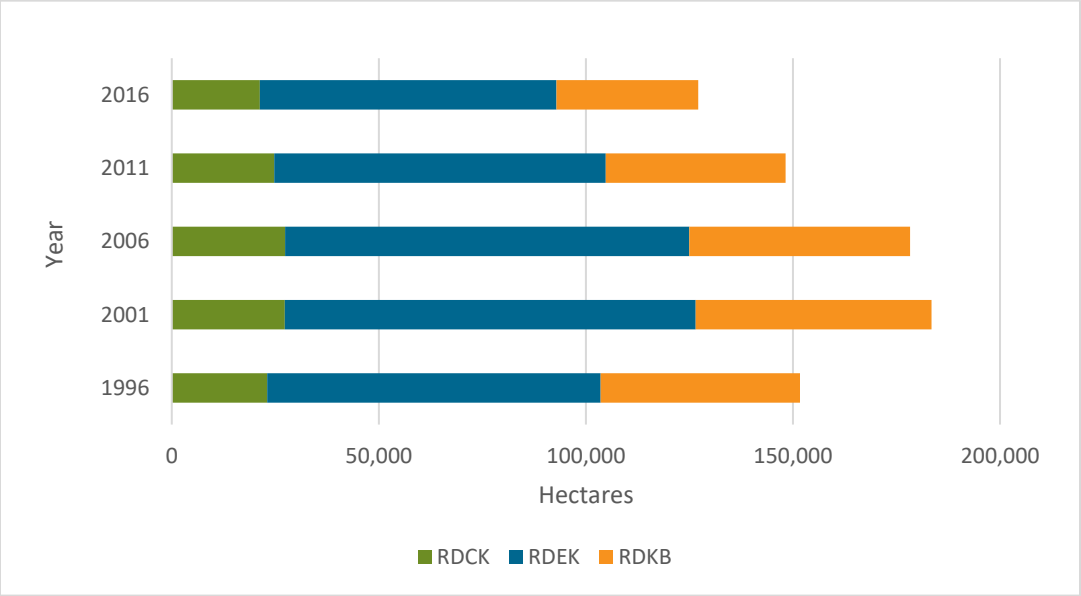

Figure 65: Total area farmed in Kootenay regional districts[154–157]

A comparison of the area of land farmed to the area of land classified under the Agricultural Land Reserve (ALR) provides some measure of utilization of farmland in the region, though it is important to note that not all farmed land is ALR, and not all ALR land is farmed. At the regional district level, in 2016, the amount of farmland being used in comparison with the amount of land in the ALR was 63% in the RDKB, 34% in the RDCK, and 27% in the RDEK. Provincially, the amount of land reported as being farmed accounts for 56% of the land in the ALR.[157,158]

AGRICULTURAL LAND RESERVE

What does this measure & why is it important?

This indicator measures the amount of land that is held within the Agricultural Land Reserve (ALR), and how that amount of land has changed over time. The Agricultural Land Commission (ALC) administers the ALR. The purposes of the ALC is to: i) preserve agricultural land; ii) encourage farming in collaboration with other communities of interest; and iii) encourage enabling and accommodation of farm use of agricultural land and uses compatible with agriculture in plans, bylaws, and policies.[159]

The ALR is a provincial land use zone designated for agriculture. Provincial legislation sets out processes for the inclusion or exclusion of land to and from the ALR and for non-farm use and subdivision of land within the ALR. The ALC administers the process and the applications to include or exclude land from the ALR. The number of applications made to the ALC for land to be included and excluded can be tracked and therefore this can be a useful indicator to gauge the pressure on agricultural lands. The amount of land available for agricultural purposes is one determinant of the economic viability of food production in our region.

What are the trends & current conditions?

The 'Kootenay Panel' region[xvi] as defined by the ALC has a total of 391,000 hectares (ha) of ALR.[158] The reported number is unchanged from last year, but down 2,775 ha since 2008/2009 when the Kootenay Panel reported 393,775 ha of ALR land (see **Figure 66**). A decrease of 879 hectares is attributed to the Elk Valley ALR Boundary Review that occurred in 2013/2014 which was part of an in-depth review involving the RDEK, local governments, the ALC, and local stakeholders to refine the boundaries of the ALR in the East Kootenays.

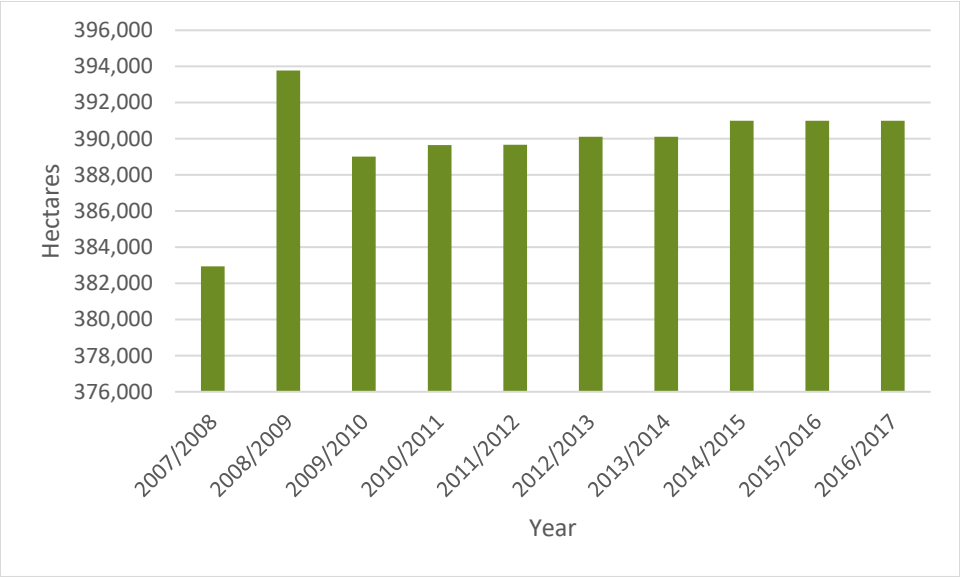

Figure 66: Hectares of land in ALR – Kootenay Panel[158,160–165]

Each year the ALC receives applications for subdivision, non-farm use, inclusion, exclusion, transportation, utility, and recreational uses of ALR land.[158] The number of applications varies year to year, but there is no clear correlation between application numbers and changes in area of ALR land. A review of applications show a downward trend in the number of total applications as well as the number of applications requesting to exclude land from the ALR, although last year saw an increase from the previous year for both of these metrics (see **Figure 67**). A variety of factors can influence the number of applications the ALC receives and processes, including the magnitude of non-agricultural pressures on agricultural land (e.g., development) and the amount of resources the ALC dedicates to application review.

[xvi] The 'Kootenay Panel' includes the three Kootenay Regional Districts and the portion of the Columbia-Shuswap Regional District surrounding Golden. It excludes other parts of the Columbia-Shuswap Regional District and Valemount.

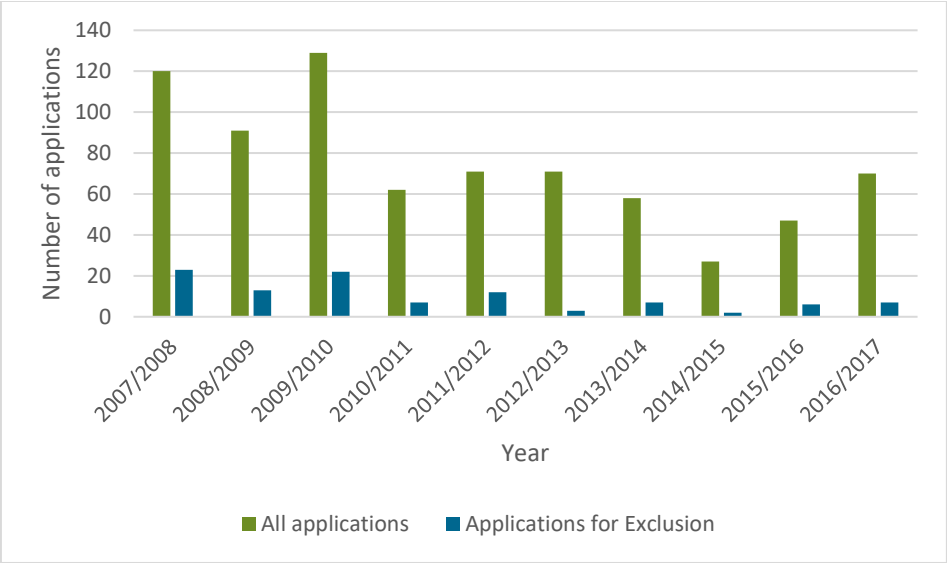

Figure 67: Number of applications made to the ALC – Kootenay Panel[158,160–165]

WILDFIRE

What does this measure & why is it important?

This indicator measures the area in the Basin-Boundary region that is burned each year by wildfires. Data comes from the provincial government's long-term fire record.[166] The area burned from year to year is highly variable and is closely correlated with both temperature and precipitation.[167] Therefore, the data has been analysed using a moving average, which measures the average area burned over the previous 10 years.

Wildfires can cause economic, social, cultural, and environmental losses by destroying buildings, forests, heritage sites, or communities. They can cause respiratory problems, affect water quality in community watersheds, close transportation routes, and in the worst cases, result in loss of life. However, wildfires also have ecological importance. They have occurred naturally for centuries and contribute to increased biodiversity and ecosystem resilience.[168] Therefore, it is important to balance the competing demands for public safety and ecosystem health through the management of wildfires and prescribed burning, especially in increasingly populated areas.

What are the trends & current conditions?

2017 was a record breaking year for forest fires in British Columbia, with over 900,000 hectares of land burned, tens of thousands of people evacuated, homes and businesses destroyed, and timber and other natural resources lost. Within the Basin-Boundary region, 2017 saw the most area burned since 1940 (see **Figure 68**).[166] The 10-year moving average shows the impact fire suppression efforts have had since they began following World War II. A comparison of the 10-year average value (13,880 ha) to the actual area (107,750 ha) burned in the Basin-Boundary region in 2017 further underscores the magnitude of the latest fire season.

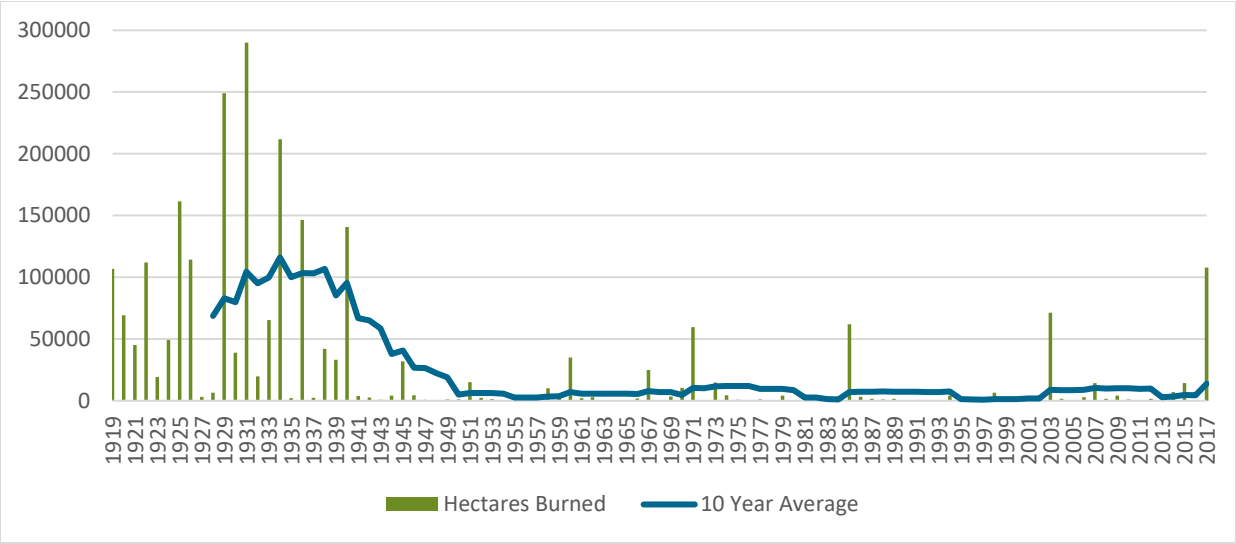

Figure 68: Area burned by wildfires in the Columbia Basin-Boundary region (1919-2017), with a 10 year moving average[166]

The risk of catastrophic fire in forests that have high fuel loads can be mitigated through fuel reduction treatments. Due to the significant risks associated with wildfire, in recent years, Community Wildfire Protection Plans have been prepared for most communities in the Basin-Boundary region. These plans assess the forests immediately surrounding the communities, map high-risk areas, and describe fuel treatment options. These plans are an important contribution to the management of wildfire hazard, but many communities struggle to implement the recommended treatments due to jurisdictional issues and a lack of resources.

PROTECTED AREAS

What does this measure & why is it important?

This indicator tracks the percent of public land in the region that is protected as a national park, provincial park, ecological reserve, national wildlife area, provincial protected area, or by private land conservation organizations. Habitat destruction is a leading threat to biodiversity worldwide, and protected areas provide landscapes that guard against this destruction. Protected areas also provide us with recreational opportunities, clean air and water, spiritual rejuvenation, and reference ecosystems for long-term research and monitoring.

This indicator uses the Biogeoclimatic Ecosystem Classification (BEC) system to assess the degree to which different ecosystems are protected. The BEC system identifies 16 different zones within BC that share similar ecological characteristics. The BEC zones in the Basin include Engelmann Spruce - Subalpine Fir (ESSF - 49% of the land base), Interior Cedar – Hemlock (ICH - 28%), Montane Spruce (MS - 9%), Interior Mountain Heather Alpine (IMA - 7%), Interior Douglas Fir (IDF - 6%), Ponderosa Pine (PP - 1%) and Sub-Boreal Spruce (SBS - 0.2%). Data for this indicator was retrieved from The Government of British Columbia (BC)[169,170] and the NGO Conservation Areas Database.[171]

What are the trends & current conditions?

More than 13,000 km^2 of land in the Basin-Boundary region is protected under a variety of management regimes (see **Figure 69**). We are fortunate that four of the seven terrestrial National Parks in BC are found in our region (Yoho, Kootenay, Mt. Revelstoke and Glacier National Parks). These four National Parks account for 5% of the land in the region, and contribute 31% of the total area protected. Provincial parks contribute another 53% of the protected area in the region. Recent changes to the provincial park system include expansions to Syringa Provincial Park (by 22.88 hectares) and West Arm Provincial Park (by 1,219 hectares).[172]

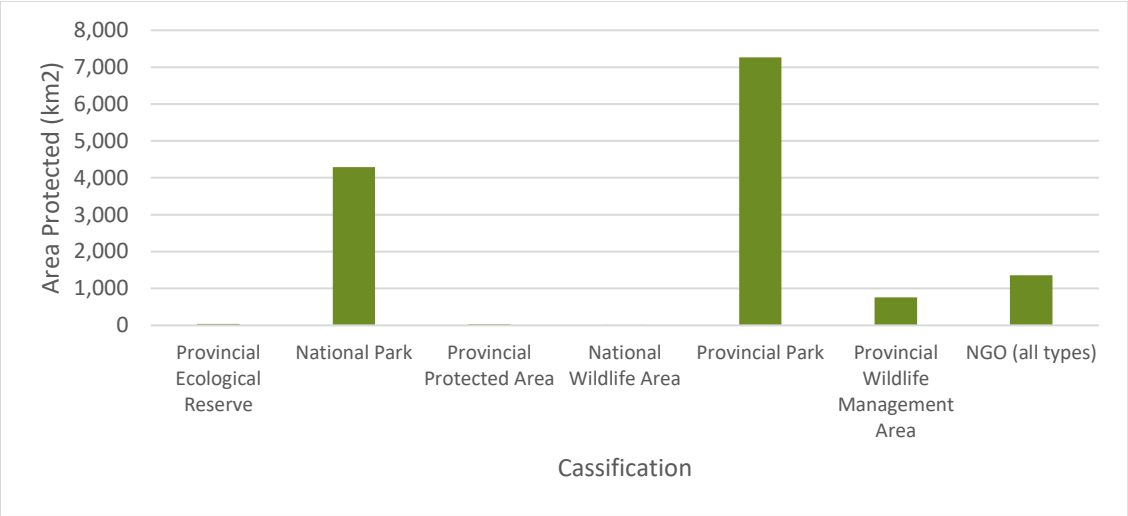

Figure 69: Area protected in the Columbia Basin categorized by conservation land type

The distribution of ecosystems protected in the Columbia Basin-Boundary region is unevenly weighted toward those found in the ESSF BEC zone (see **Table 27**). The ESSF zone covers 64% of protected land in the region, and 22% of all ESSF lands fall within protected areas (primarily provincial parks). Conversely, only 3.4% of all land in the PP zone is protected. Private land conservation organizations are working to balance disparities in ecosystem protection within the Basin-Boundary region. For example, in the protected Ponderosa Pine zone areas, parks protect only 28%, while the remaining 72% is protected by private land conservation organizations.

	Percent of protected land within zone	Percent of zone in protected areas
Engelmann Spruce-Subalpine Fir	64.0	21.5
Interior Cedar-Hemlock	13.3	8.5
Interior Douglas Fir	2.8	11.7
Interior Mountain Heather Alpine	12.7	27.1
Montane Spruce	6.9	16.6
Ponderosa Pine	0.2	3.4
Sub-boreal Spruce	0.02	2.3

Table 27: Distribution of protected areas by ecosystem type

AREA LOGGED

What does this measure & why is it important?

This indicator tracks the area logged on crown land each year in the Columbia Basin-Boundary region. The forestry sector is an important economic driver and employer in our region, yet harvesting can have an impact on the environment, including biodiversity, water quality and quantity, soil productivity, slope stability, wildlife habitat, and fisheries. Data was accessed through DataBC and is based on reporting by tenure holders on crown land.[173,174] The area logged is calculated based on the total cutblock size, less all reserves (e.g., wildlife tree patches, riparian reserves). The year a block was considered to be logged was based on the year logging was initiated.

What are the trends & current conditions?

In 2016, almost 13,884 hectares were logged in the region, down from 17,665 in 2015. Whether the harvesting trend is increasing, remaining stable, or decreasing depends on the time frame considered. For example, the linear trend when considering data from 1960 until present is upward, while an analysis beginning in the 1980s, 1990s, or

2000s indicates a stable or slightly downward trend. There is also variation from year to year due to variables such as lumber prices or forest fires (see **Figure 70**). It should be noted that the data for 2017 is incomplete (current to August 2017).

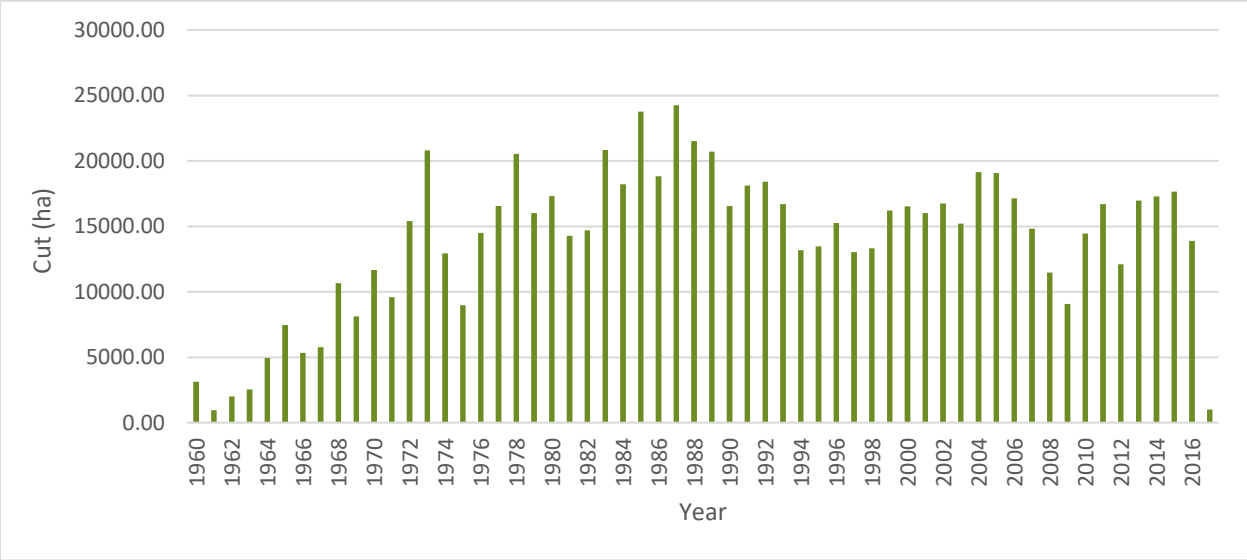

Figure 70: Annual area logged on crown land in the Basin-Boundary region, 1960-2017[173,174]

Of the rural jurisdictions in our region, Kootenay Boundary Area E saw substantially more area logged over the 10-year period spanning 2007-2016 than any other (see **Figure 71**).

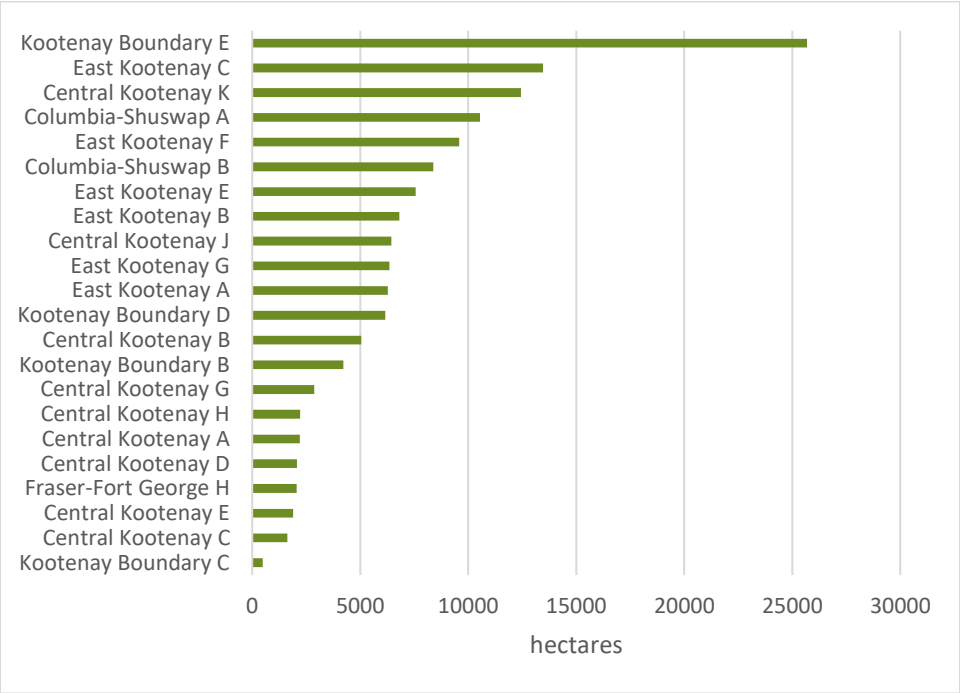

Figure 71: Area logged by census subdivision, 2007-2016

WATER

CONSUMPTIVE WATER USE

What does this measure & why is it important?

This indicator considers two measures of consumptive water use: 1) average per capita daily supply, and 2) gross annual supply (total fresh water withdrawal per water utility). Fifteen Basin-Boundary municipalities are included in this year's analysis. Data and contextual information for this indicator were provided by the Columbia Basin Water Smart Initiative and the City of Grand Forks.[175] The baseline year used to compare change in gross annual supply is 2009.

Consumptive water use is an important issue in the Basin-Boundary region for several reasons. First, rates of water use in this region are typically higher than the reported averages for BC and Canada.[176] Second, the diversion, treatment, and delivery of drinking water has costs—both financial (e.g., infrastructure operations, maintenance, and expansion costs) and environmental (e.g., drawdown of water sources). These costs increase with growing water demand. Third, certain areas of the region sometimes experience water shortages during periods of peak demand. This issue may become more widespread if projected climate changes materialize and Basin-Boundary communities are not prepared to adapt.

What are the trends & current conditions?

Across reporting Water Smart communities, average per capita daily supply stood at 985 litres per person per day in 2015 (see Figure 72), roughly 160% of the reported 2009 BC average of 606 litres per person per day.[176] This figure does not include the City of Grand Forks, where there is uncertainty around the total service population.

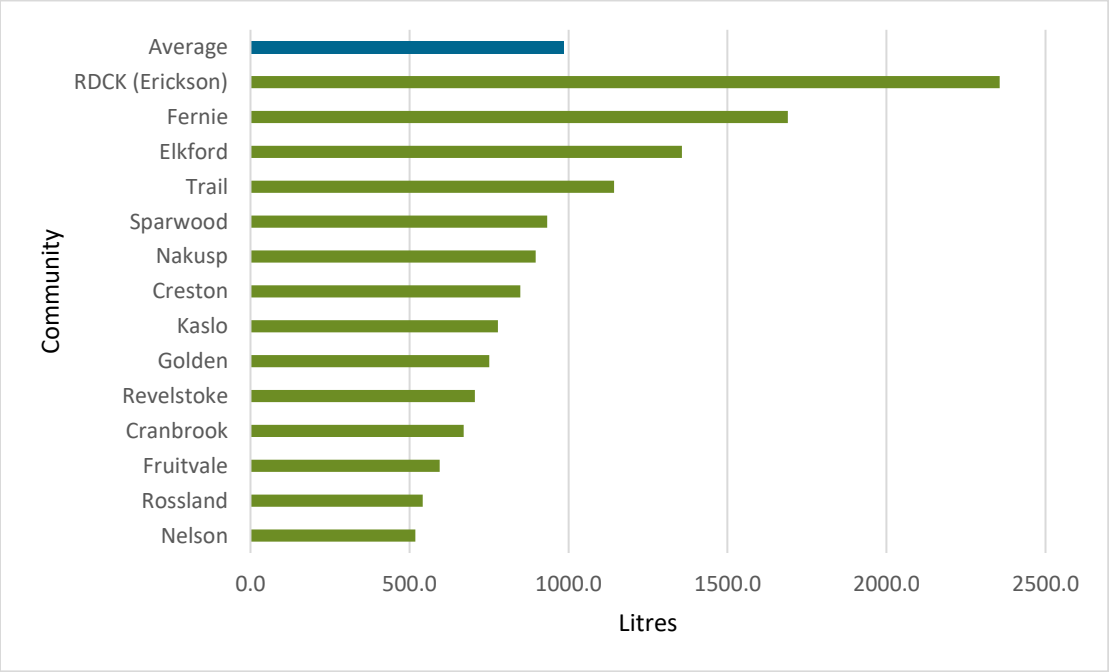

Figure 72: Per capita daily water supply (in litres), 2015[175]

There are several reasons for high water rates in our region, including:

- water distribution infrastructure is generally aging and therefore prone to leakage;
- there is a common perception among residents that water is an abundant resource; and
- residential and commercial water use is largely unmetered and may be underpriced in comparison to other areas in BC and Canada.

Most reporting communities reduced their consumptive water use over the period 2009 to 2015 (see Figure 73). Gross annual supply (which includes commercial, industrial, institutional, and residential consumption, as well as water loss in the distribution system) changed by an average of -11%. Figures for individual communities can vary from year to year for a range of reasons, including changes in water demand, differences in weather, the impact of water conservation initiatives, or changes in infrastructure (e.g., deterioration, repair).

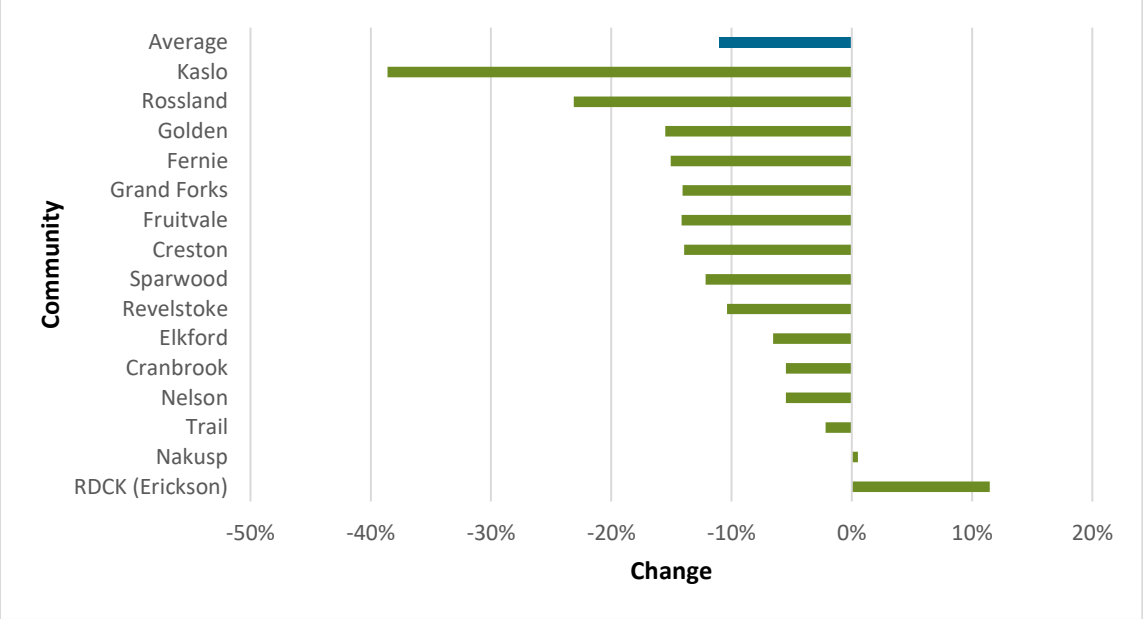

Figure 73: Change in gross annual water supply, 2009 compared to 2015[175,177]

Most communities continue to build their capacity to effectively manage and reduce water demand through a variety of actions, although these actions may not yet be reflected in the gross annual supply figures. Such actions typically include water data acquisition improvements, infrastructure repair and replacement, public awareness and education, and improvements in distribution system operations and maintenance. Some utilities are choosing to install water meters on their systems in an attempt to better understand their usage profile. These investments in our region's water systems are expected to result in substantial water savings in future years.

SNOWPACK

What does this measure & why is it important?

The snowpack indicator uses data collected through snow surveys conducted by the BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development at various locations across the Columbia Basin-Boundary region. Snowpack data is collected either automatically or manually and annual or monthly values area reported as a 'percent of normal'.[178]

Snow accumulation is an important determinant of the volume and timing of stream flow in the Basin-Boundary region. In the Columbia Basin 65% of precipitation falls as snow and over the past half century, snowpack has been declining in both the southern and northern parts of the Basin.[179] The amount of snowfall is determined by weather conditions, and with the continued progression of climate change, snowfall patterns are expected to change.[180] Climate projections for our region predict that warmer weather will shift winter precipitation from snowfall to rain, with the greatest effects expected at lower elevations. Less precipitation as snowfall can have serious economic implications (e.g., winter tourism), and can change stream flow dynamics to drive earlier spring peak flows and lower summer flows.[180,181]

What are the current conditions?

Snowpack data for 2017 demonstrated a lower than average snowpack from January to March, particularly in the Boundary basin, but a higher than average snowpack in the spring (April – June) (see **Table 28**). These results are the inverse of 2016 where winter was higher than normal, and spring lower.

Basin	% of normal					
	Jan 1	Feb 1	Mar 1	April 1	May 1	June 1
Upper Columbia	88	81	87	100	115	107
West Kootenay	80	73	91	119	134	117
Easy Kootenay	87	75	99	116	137	105
Boundary	73	59	59	86	121	178

Table 28: 2017 percent of normal snowpack for four regions in the Columbia Basin[178]

Because the vast majority of the BC snowpack has generally accumulated by early April[178], the April 1 snow water index provides a good indication of the amount of water that will be available to serve human and environmental needs over the spring and summer seasons. Since 2010, basin snow water indices for our region have fluctuated between 61% and 135% of normal (see **Figure 74**). Above-average years were generally experienced in 2011 and 2012, and below average years were generally experienced in 2010 and 2015.

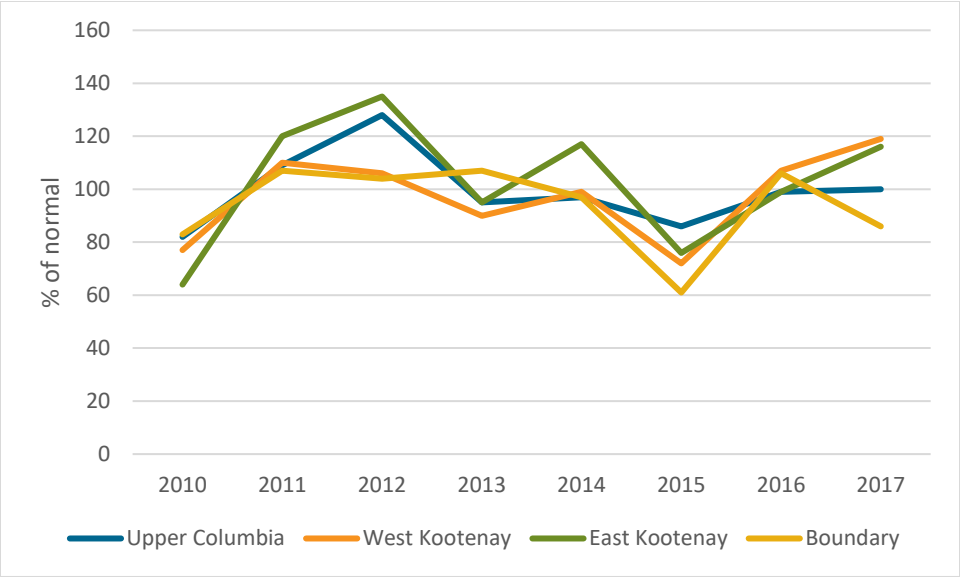

Figure 74: April 1 basin snow water indices for the Basin-Boundary region, 2010-2017

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