



**GLOBAL GOALS, LOCAL ACTION:**  
Kelowna's Voluntary Local Review



# GLOBAL GOALS, LOCAL ACTION: KELOWNA'S VOLUNTARY LOCAL REVIEW

MARCH 2021

The **British Columbia Council for International Cooperation (BCCIC)** is a network of civil society organizations and individuals moving toward a better world based in British Columbia, Canada. By compiling this report, BCCIC hopes to contribute to the critical debate on Canada's role in developing and achieving the Sustainable Development Goals (SDGs).

The **Global Empowerment Coalition of the Central Okanagan (GECCO)** is a Chapter of the BCCIC, working in partnership and participating in initiatives, programming and services.

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The Global Goals cover a broad range of topics and issues, and experts in different fields were relied upon to share their insights into the work being done throughout the province and locally in the Kelowna region, to review content, make goal linkages, and provide constructive feedback. We are grateful for their input and wish to thank and acknowledge the following organizations:

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These, among numerous other organizations, have been instrumental in the formation of this report.



# NOMENCLATURE

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BCCIC	British Columbia Council for International Cooperation
BCIT	British Columbia Institute for Technology
BI	Basic Income
BIPOC	Black, Indigenous, Person of Colour
BOMA	Building Owners and Managers Association
CAAQS	Canadian Ambient Air Quality Standards
CAD	Canadian Dollar
CAT	Kelowna Community Action Team
CERB	Canadian Emergency Response Benefit
CFIB	Canadian Federation of Independent Business
CMA	Census Metropolitan Area
CO	Carbon Monoxide
CO2	Carbon Dioxide
CSD	Census Subdivisions
CSO	Civil Society Organization
C&D	Construction and Demolition
DES	District Energy System
DNU	Do Not Use
EC3	Embodied Carbon Construction Calculator
EPD	Environmental Product Declaration
EV	Electric Vehicle
FLIR	Forward Looking Infrared
FNESC	First Nations Education Steering Committee
FNHA	First Nations Health Authority
GECCO	Global Empowerment Coalition of the Central Okanagan
GHG	Greenhouse Gas
HFI	Household Food Insecurity
ICBC	Insurance Corporation of British Columbia
IH	Interior Health
iOAT	Injectable Opioid Agonist Treatment
IPCC	Intergovernmental Panel on Climate Change
JHS	Journey Home Society
kWh	Kilowatt-hour
LCA	Life Cycle Assessment
LEED	Leadership in Energy and Environmental Design
LICO	Low Income Cut Off
LIM	Low Income Measure

MBM	Market Based Measure
MDMA	Methylenedioxyamphetamine
MMIWG	Missing and Murdered Indigenous Women and Girls
MOU	Memorandum of Understand
MURB	Multi-Unit Residential Building
NEET	Not in Education, Employment or Training
NOx	Nitrogen Oxides
OAT	Opioid Agonist Treatment
OWMO	Organic Waste Management Options
PACT	Police and Crisis Team
PICS	Pacific Institute for Climate Solutions
PM 2.5	Particulate Matter 2.5
RCMP	Royal Canadian Mounted Police
RDCO	Regional District of Central Okanagan
RNG	Renewable Natural Gas
SDG	Sustainable Development Goals
SHARP	Synchronized Hybrid Ambient Real-time Particulate
SOV	Single Occupant Vehicle
TEOM	Tapered Element Oscillating Microbalance
TRC	Truth and Reconciliation Commission
UN	United Nations
VLR	Voluntary Local Review
VOC	Volatile Organic Compound
2SLGBTQQA	Two-Spirit, lesbian, gay, bisexual, transgender, queer, questioning, intersex and asexual



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# EXECUTIVE SUMMARY

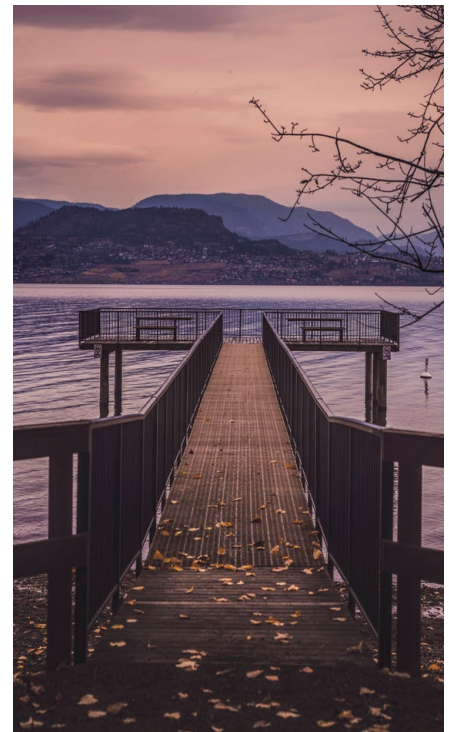
In 2015, the international community adopted the United Nations 2030 Agenda for Sustainable Development, a global strategy that outlines 17 ambitious, interconnected and universal Global Goals that, implemented together, can create a more liveable, equitable world by 2030. These Sustainable Development Goals (SDGs) provide a framework to address environmental, social, economic and security challenges faced by nations and communities worldwide. While originally conceived as country-level goals, and Canada pledging commitment to implementation, success will largely depend on provinces and municipalities also working together on the ground, so to say, to implement and measure progress towards achieving the SDGs.

Voluntary Local Reviews (VLRs), are sub-national reviews of SDG implementation and are increasingly being adopted by municipalities. This Kelowna VLR has been greatly shaped through close consultation with municipal, regional, provincial and federal government agencies, civil society organizations (CSO), academics, and Indigenous organizations. With 169 targets and 232 indicators, it is overwhelming and virtually impossible for municipalities — alone — to comprehensively implement the SDGs. As such, this VLR focuses on 28 community-level indicators that are outcome based, quantifiable and measurable, and localized to the geographical and cultural context. For the selected 28 indicators, trends are shown, and challenges and progress are highlighted through examples from the City of Kelowna, the Regional District of Central Okanagan (RDCO), Province of B.C., Indigenous organizations, and CSOs working throughout the community. The review of progress demon-

strates the intersectionality of the goals and indicators, while also attempting to account for the multijurisdictional nature and complexities amongst the goals, and the collaborations and partnerships necessary to achieve them.

The year 2020 was marked by two key events, COVID-19 and the Black Lives Matter movement, forcing the world to face the extent of inequalities experienced by marginalized groups. Canada is not immune to these inequalities that have been harboured in a history of colonization, systemic racism, and discrimination. Many Indigenous Peoples continue to live with trauma due to the legacies of forced displacement from traditional territories, residential school experiences of abuse and neglect, and the disruption of traditional culture and practices. Furthermore, African, Caribbean and Black Canadians live with the history of slavery, racism and discrimination that still persists today. Many of the rules that govern society and too many of our social and economic policies reflect bias and discrimination (both conscious and unconscious), reinforcing the false premise that some people are better or more deserving than others. Such policies and governance structures are failing marginalized people and impacting access and availability of the resources and opportunities necessary to support well-being.<sup>1</sup> This stark reality has been made evermore apparent during the COVID-19 pandemic. Inclusive solutions require us to reflect on our personal biases, our lack of knowledge and understanding about inequality, and to commit to creating an equitable platform where people, regardless of their background, can share their voice on the issues and solutions, and be listened to.

Change takes time. Progress requires understanding the problem, and then measuring the solutions accordingly: what's measured, matters. Quantifiable progress is not always easy to achieve or even adequate in providing a true analysis; qualitative results are also required to share insight, gain understanding and brainstorm solutions. This report was created with shared knowledge from numerous organizations throughout and beyond the community of Kelowna, in an attempt to capture the voices of different groups that are often left behind, and to also challenge our preconceived ideas around viable solutions. However, there is still much work to be done; more quantifiable and qualitative measurements to be made. We can do better. We must do better!



**Kelowna Waterfront**  
*Photo Credits: Adam Ruby Photography*



# ANALYSIS OF THE GOALS

This report analyzed and narrowed the UN’s 169 targets and 232 indicators down to 28 community-level indicators relevant to Kelowna. The indicators as related to each goal are summarized in Table 3.

Each section of the report covers one of the 17 goals; with each section describing trends of selected indicators for each goal in context of the community of Kelowna. Also highlighted are the challenges and progress currently being made towards achieving each goal, through work by various organizations throughout the community and the

province. Included at the end of each subsection is an illustration on the interconnectedness and interdependency of the goals and their indicators. The goal summaries can stand alone, each can be read and referred to independently, while taken together they form a more complete, integrated report on the SDGs for the community of Kelowna. In many cases, the SDG indicators chosen for this VLR are multijurisdictional, spanning municipal, regional, provincial and First Nations’ government boundaries. This VLR attempts to account for the multijurisdictional nature of these indicators, as well as the interrelations













and complexities amongst the goals, and the intergovernmental and civil society organizations collaborations and partnerships necessary to achieve them.

Although there is much more to discuss, this report only touches the surface on the issues and potential solutions. A select few indicators have been discussed further in Appendices A through F to elaborate on programs already underway, as well as recommendations at the municipal, provincial and federal levels.

Table 3: Summary of Kelowna’s Indicators

GOALS	LOCAL COMMUNITY INDICATORS
<b>1 NO POVERTY</b> 	<ul style="list-style-type: none"> <li>• <b>Low Income.</b> Number of persons in low income measure (LIM)</li> <li>• <b>Chronic Homelessness.</b> Number of persons living in chronic homelessness conditions</li> </ul>
<b>2 ZERO HUNGER</b> 	<ul style="list-style-type: none"> <li>• <b>Active Farmland.</b> Percent land base actively farmed</li> <li>• <b>Food Insecurity.</b> Percent of persons in households who are food insecure (marginal, moderate and severe)</li> </ul>
<b>3 GOOD HEALTH AND WELL-BEING</b> 	<ul style="list-style-type: none"> <li>• <b>Chronic Diseases.</b> Mortality rate attributed to cardiovascular disease, diabetes, and chronic lower respiratory diseases</li> <li>• <b>Illicit Drugs.</b> Illicit drug mortality rate per 100,000 population</li> <li>• <b>Suicide Rates.</b> Illicit suicide mortality rate per 100,000 population</li> </ul>
<b>4 QUALITY EDUCATION</b> 	<ul style="list-style-type: none"> <li>• <b>Post Secondary Education.</b> Highest certificate, diploma or degree obtained</li> </ul>
<b>5 GENDER EQUALITY</b> 	<ul style="list-style-type: none"> <li>• <b>Gender-based Violence.</b> Rate of sexual assaults per 100,000 by sex of victim</li> </ul>



GOALS	LOCAL COMMUNITY INDICATORS
<p><b>6</b> CLEAN WATER AND SANITATION</p> 	<ul style="list-style-type: none"> <li>• <b>Water Advisories.</b> Person-days on advisory</li> </ul>
<p><b>7</b> AFFORDABLE AND CLEAN ENERGY</p> 	<ul style="list-style-type: none"> <li>• <b>Electricity Usage.</b> Average household electricity and use</li> <li>• <b>Gas Consumption.</b> Average household gas consumption</li> </ul>
<p><b>8</b> DECENT WORK AND ECONOMIC GROWTH</p> 	<ul style="list-style-type: none"> <li>• <b>Unemployment Rates.</b> Unemployment rates</li> <li>• <b>Youth NEET.</b> Population aged 15 to 29 Not in Education, Employment or Training (NEET)</li> </ul>
<p><b>9</b> INDUSTRY, INNOVATION AND INFRASTRUCTURE</p> 	<ul style="list-style-type: none"> <li>• <b>Sustainable Transportation.</b> Main mode of commuting to work</li> <li>• <b>EV Stations.</b> Number of electric vehicle charging (EV) stations around community locations, residential areas and commercial areas</li> </ul>
<p><b>10</b> REDUCED INEQUALITIES</p> 	<ul style="list-style-type: none"> <li>• <b>Household Income.</b> Median household income relative to average household income</li> </ul>
<p><b>11</b> SUSTAINABLE CITIES AND COMMUNITIES</p> 	<ul style="list-style-type: none"> <li>• <b>Vacancy Rates.</b> Rental vacancy rate</li> <li>• <b>Housing Affordability.</b> Percent of renters spending over 30% and 50% of income on shelter</li> <li>• <b>Air Quality (PM 2.5).</b> Fine particulate matter (PM 2.5) annual, 3-year average</li> <li>• <b>Air Quality (O<sub>3</sub>).</b> Ozone levels annual 4<sup>th</sup> highest daily 8-hour maximum, 3-year average</li> <li>• <b>Green Space.</b> Percent of residents that live within 400m of a park</li> </ul>
<p><b>12</b> RESPONSIBLE CONSUMPTION AND PRODUCTION</p> 	<ul style="list-style-type: none"> <li>• <b>Waste Generation.</b> Per capita waste disposal rate</li> <li>• <b>Burn Permits.</b> Number of burning permits issued</li> </ul>
<p><b>13</b> CLIMATE ACTION</p> 	<ul style="list-style-type: none"> <li>• <b>Community Emissions.</b> Total annual GHG emissions from community activities</li> </ul>
<p><b>14</b> LIFE BELOW WATER</p> 	<ul style="list-style-type: none"> <li>• <b>Riparian Area.</b> Total riparian area permanently protected</li> </ul>
<p><b>15</b> LIFE ON LAND</p> 	<ul style="list-style-type: none"> <li>• <b>Green Space.</b> Percentage of green space protected from development</li> </ul>
<p><b>16</b> PEACE, JUSTICE AND STRONG INSTITUTIONS</p> 	<ul style="list-style-type: none"> <li>• <b>Crime Rate.</b> Crime rate per 100,000 population</li> </ul>
<p><b>17</b> PARTNERSHIPS FOR THE GOALS</p> 	<ul style="list-style-type: none"> <li>• <b>SDG-related Work.</b> Number of non-profit organizations working on the SDGs in domestic and international frameworks</li> </ul>



# INTRODUCTION

In 2015, the international community adopted the United Nations 2030 Agenda for Sustainable Development, a global strategy that outlines 17 ambitious, interconnected and universal Global Goals that together can develop a more liveable, equitable world by 2030. They address five key themes related to **people, the planet, prosperity, peace and partnerships**, adhere to five key principles: **inclusivity, universality, integration, technology driven, and are locally focused**.

Today’s world has the highest level of urban growth and urban migration than ever before, with more than half of the world’s current population living in cities and 86% of British Columbians living in urban and suburban areas. Urbanization brings with it the risk of increased concentration and severity of many social, economic and environmental issues. Yet it also offers an enormous potential to advance sustainable development objectives, with international governance continuing to recognize cities as central drivers for sustainable development. In recent years we have seen local governments and municipalities increasingly focusing on creating healthy communities, encouraging resource efficiency,

and stimulating economic growth, all while developing local level goals, targets and policies for climate action and sustainable development.

The Province of British Columbia (B.C.) has a long history of setting progressive social and environmental policy including the adoption of many sustainability and climate related action plans at the local government level. When aligned with existing planning and policy frameworks, the interrelatedness of the goals can improve planning and help align outcomes at the local, provincial, national and global scale. For mayors, policy-makers, and planners working to improve quality of life in local communities, this set of integrated targets, when localized, can help achieve a community-wide vision that can be pursued irrespective of policy cycles. Localizing the SDGs refers to the manner in which local governments and policy-makers adapt, implement, and monitor the Global Goals at the local level.<sup>2</sup> It takes into account local settings to develop suitable proxy targets, means of implementation, and appropriate indicators, to identify and measure how local and regional governments, universities, civil society organizations (CSO) and private

corporations should they engage in doing so, can support the achievement of the SDGs through “bottom up” action.

A Voluntary Local Review (VLR) is an emerging process by which subnational governments can evaluate and report on local level progress towards achieving the SDGs, enabling a community’s accountability and transparency. A common framework enables cities to compare progress in achieving the SDGs, identify areas where priorities may need to be realigned and/or strengthened, and provide evidence to support communities’ partnerships and advocacies with other agencies and organizations for necessary funds and resources to address gaps in achieving a common sustainability agenda. In the process of developing this VLR for the community of Kelowna, close consultation with the City of Kelowna, as well as regional, provincial and federal government agencies, CSOs, academics, and Indigenous organizations was required. For details on the Kelowna VLR methodology, refer to Appendix G. This project can offer examples to other Canadian cities and regions seeking ways to participate in, and help the world to achieve the global agenda.

Figure 1: UN Sustainable Development Goals





**Kelowna as viewed from Knox Mountain**

*Photo Credits: Amanda Schauerte*

## POPULATION & DEMOGRAPHICS

The population and demographic patterns in Kelowna are an important factor when localizing and aligning the SDGs. Urbanization is a continuously increasing trend across the Province of B.C. and cities including Kelowna are subject to encounter the issues associated with this trend, including restrained economic resources, higher cost of living and the varying needs of a changing population. It is imperative that demographic patterns of the population are identified to set up the community for success when handling future challenges and to a leader in sustainable development. Actual and projected population for Kelowna and Kelowna CMA is outlined in Table 1.

*Table 1 - Actual and Projected Population for Kelowna and Kelowna CMA<sup>3 4</sup>*

	2015 (actual)	2030 (projected)
<b>Kelowna</b>	128,769	157,468
<b>Kelowna CMA</b>	197,759	242,259

Disaggregated demographic information is key to understanding the nature of Kelowna’s population including age ranges, income levels, and race. Those who are most vulnerable and most affected by certain policies and programs are largely driven by systemic differences in how various age groups, class and races are treated. In order to effectively meet communities’ needs, cities must understand the makeup of the communities they are trying to help and prioritize equity in policy and services that reflect the needs of the different groups. The Chief Public Health Officer (CPHO) of Canada states “while the COVID-19 pandemic affects us all, the health impacts have been worse for seniors, essential workers, racialized populations, people living with disabilities and women”.<sup>5</sup> Yet there remain large gaps in the collection of racial and ethnic data in Canada.<sup>6</sup> It is impossible to eliminate systematic economic, social and health issues without a full picture of who is impacted and how. The pandemic, Black Lives Matter movement, and climate crisis all point to underlying social inequalities that require, at a very minimum, the breakdown of data at the community scale based on age,

income level, and race to support evidence-based, equitable policy solutions.

While Kelowna’s population is projected to grow 23% by 2030 as compared to 2015 (refer to Table 1), the most significant growth will be occurring in the 20-39 and 65+ age groups as shown in Table 2. Age demographics are important to identify and project when evaluating progress towards achieving the SDGs. The growth in aging populations tied with varying socioeconomic and racial factors highlight the importance of collecting demographic information to understand the varying needs of the population and offer a myriad of solutions to address these specific needs. There are other marginalized and vulnerable groups (e.g. disabled bodies or members of 2SLGBTQQIA) who may not be explicitly factored into data collection but may still face different experiences from both the issue and solution standpoint. The data gaps must be considered to shed light on the impacts faced by all citizens and to ensure no one is left behind when implementing the SDGs in Kelowna.



Table 2: Projected age distribution data for the City of Kelowna <sup>7</sup>

Age Bracket	2010	2020	2030
0-19	20%	18.2%	16.6%
20-39	25.1%	25.8%	26.3%
40-64	33.9%	32.7%	31.5%
65+	21%	23.3%	25.6%

## GEOGRAPHY

Kelowna is one of the largest metropolitan areas in the province of British Columbia. The city is located in the Okanagan Valley in British Columbia's Southern Interior. Much of this region is forested with dry, open, largely pine forests. Dry grasslands prevail in the arid lower altitudes of the basin, while in the southern Okanagan Valley, the climate is dry enough to be classified as a semi-desert. The city itself lies roughly midway along Okanagan Lake, the largest lake (roughly 120 km by 3.5km) in the Okanagan valley. The valley is

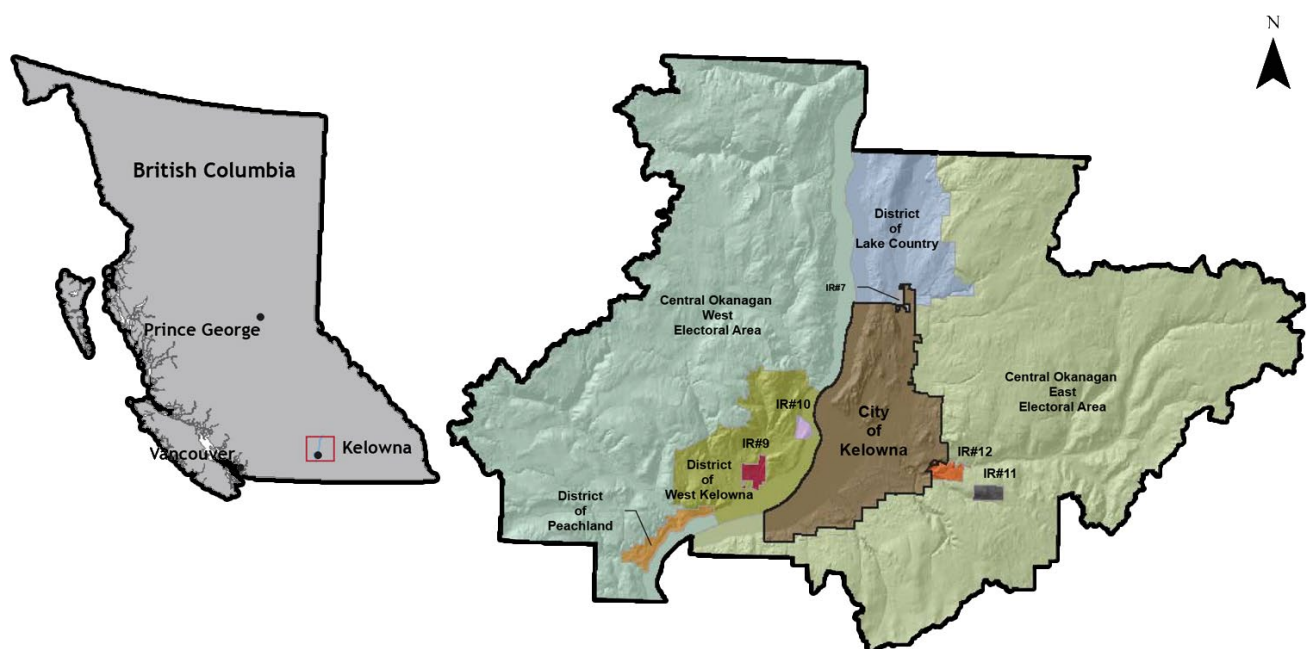
comprised of nutrient and mineral-rich soils; the bedrock of the Okanagan Valley's crucial agricultural economy. The Okanagan Valley is the second-most important agricultural region in British Columbia, with the majority of BC's fruit trees being grown in the Valley. The first apple trees were planted in Kelowna in 1862.<sup>8</sup> By the 1930s, irrigation systems transformed this semi-desert into a premier fruit-growing location. Today, grapes grown in the valley support both local and coastal wineries, and the region's thriving wine industry has been a major contributor to the area's growing tourism sector.<sup>9</sup>

The data to support the indicators outlined in Kelowna's VLR data is gathered from two key geographical data sources, Statistics Canada's census subdivision (CSD) and Census Metropolitan Area (CMA) data. The CSD matches the city's geographical boundaries, while the CMA encompasses the surrounding Central Okanagan region. The CMA is multi-jurisdictional, comprised of the cities, Kelowna and West Kelowna; the district municipalities of Peachland and Lake

Country; Indian Reserve communities, including Duck Lake 7, Tsinstikeptum 10 and Tsinstikeptum 9; and two regional electoral districts within the Central Okanagan. Kelowna's VLR indicators are limited to the data available at the city level (Kelowna, City; CSD) or regionally (Central Okanagan, Region; Kelowna CMA) to ensure statistical relevance and to reflect accurate trends.

The First Peoples of the Central Okanagan district are the Syilx/Okanagan. BCCIC and GECCO, we would like to acknowledge that this VLR covers the traditional, ancestral and unceded territories of the Syilx / Okanagan Peoples. The Syilx People of the Okanagan Nation is made up of seven member communities North of the Canada/US border: the Okanagan Indian Band, the Osoyoos Indian Band, the Penticton Indian Band, the Upper Nicola Band, the Upper and Lower Similkameen Indian Bands, and the Westbank First Nation.<sup>10</sup> Members share the same Nsyilxcən language, culture, and customs, with deep connections to the unique land, flora, and fauna of the valley.<sup>11</sup>

Figure 2: Map of Kelowna and Surrounding Regions in the Province of B.C.





**The sacred spirit of Lake Okanagan is known as N-ha-ha-itk by the Syilx Peoples but was renamed as Ogopogo in the 1920s by folk singers.**

*Photo Credits: Amanda Schauerte*

## LEAVE NO ONE BEHIND - INDIGENOUS APPROACH

This VLR covers the traditional, ancestral and unceded territories of the Syilx / Okanagan Peoples. We at BCCIC and GECCO, recognize our obligation to redress the current unequal power dynamics that emanate from the historical and ongoing consequences of colonialism, as recorded in Truth and Reconciliation Commission of Canada’s (TRC) final report. We acknowledge that our efforts to incorporate Indigenous perspective and [TRC: Calls To Action](#) in this VLR process are only a starting point, and there is still significant work to be done in order to forge a new relationship centred around Indigenous engagement and perspectives, and on honour and respect.

Underpinning the success of the SDGs is the commitment to leave no one behind. Essentially, if the lives of the poorest and most marginalized segments of society do not improve, the goals will not be achieved. In practice, this commitment translates to “a three-part imperative: end absolute poverty in all its forms, to stop group-based discrimi-

nation that results in unequal outcomes for disadvantaged populations and to take action to help the furthest behind first”.<sup>12</sup>

In Canada, considerable disparities in social and economic conditions continue to persist between Indigenous groups (First Nations, Metis and Inuit) and the general population.<sup>13</sup> In particular, Indigenous Peoples face worse health outcomes, a poorer standard of housing, less access to adequate food and higher levels of incarceration than non-Indigenous Peoples. It is important to acknowledge that this has not always been the case. Indigenous Peoples have existed on Turtle Island—what is now understood as North America—for centuries before colonial settlers arrived in 1491. Existing in great numbers, Indigenous groups spanned from Alaska down into South America and had their own economic trade routes, systems of permaculture and agriculture, education systems, sanitation and systems of governance. However, in the centuries after the arrival of European settlers, Indigenous Peoples were forcibly displaced from their land, stripped of basic human rights and dehumanized and devalued

through aggressive assimilation policies.

Historical and ongoing policies of colonization and assimilation as well as systemic racism are the root causes for the current situation that Indigenous Peoples in Canada experience today. The 1876 Indian Act, which is still in effect today, and the residential school system, ending only in 1996, are examples of some of the most damaging elements of Canada’s colonial history. Designed to ‘re-educate’ Indigenous children, Canada forcibly removed children from their families and forbade them from acknowledging their heritage, language and culture. In 2015, The Truth and Reconciliation Commission concluded these policies amounted to a cultural genocide. The physical and mental trauma experienced by residential school survivors continue to reverberate through Indigenous communities, having been passed down.

While the process of this VLR attempts to reflect and act on what reconciliation can look like, there is still significant work to be done. This is not a one-time commitment, but a continuous and on-going effort to learn about Indigenous history, challenge stereotypes, and consult with Indigenous organizations. Though no formal partnerships with Indigenous-led organizations were able to be established for this VLR, the team consulted the local urban Indigenous organization, Ki-Low-Na Friendship Society. This VLR also reflects the team’s insight and learnings from the First Nations Health Authority (FNHA) and BC First Nations Justice Council, among other First Nations programs and initiatives underway. Through this VLR process it was learned that access to and collection of data on Indigenous Peoples must be carried out in collaboration with Indigenous-led organizations and may also require approval from the local First Nations Government. Furthermore, interpretations of this data, including issues and impacts affecting Indigenous populations, must be made with Indigenous Peoples’ and Indigenous-led organizations. Undoubtedly, there is still much learning to be done.





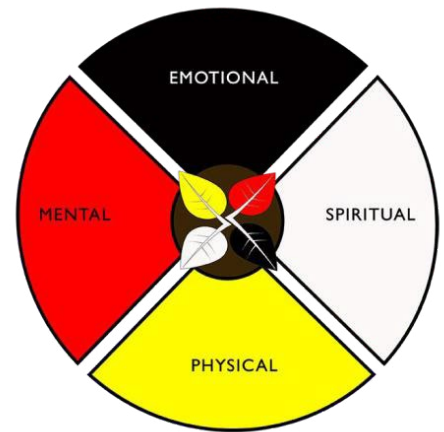
**Kelowna originates from the word ki?lawna? from the Nsyilxc̓an language, spoken by the Syilx People, meaning grizzly bear.**  
*Photo Credits: Amanda Schauerte*

Partnerships take time, intention, dedication and commitment in order to build trust. We recommend for future VLRs in Canada, such partnerships serve as the foundation to the report and be initiated in the early phases.

In Canada, to achieve the SDGs, recognizing and disrupting the inter-generational trauma experienced by Indigenous Peoples through holistic and multifaceted approaches and programs rooted in Indigenous cultures is vital to improving their health and well-being.<sup>14</sup> The Ki-Low-Na Friendship Society identifies the medicine wheel (Figure 3) as a core framework to transforming health among Indigenous Peoples, and central to tackling current social issues such as homelessness. Medicine wheels are culture-specific and come in more than one form, yet they all “represent the alignment and continuous interaction

of the physical, emotional, mental and spiritual realities”.<sup>15</sup>

The Journey Home Strategy (Goal 1) and Kelowna Community Action Team (Goal 3) are examples of where the City of Kelowna, CSOs and Indigenous groups have and continue to work collaboratively to achieve the SDGs. Throughout this report, the team highlights ways the community is working with Indigenous organizations to make progress towards the goals, and identifies opportunities for working together through the future. However, there is still much work to be done. Further relationship building and collaboration is necessary to build on essential work underway. This VLR recognizes the importance of traditional Indigenous knowledge in solving the pressing challenges faced today, and in achieving the SDGs.



*Figure 3: An Example of a Medicine Wheel as Provided by Ki-Low-Na Friendship Society*





# NO POVERTY

## Local Community Indicators:

- **Low Income.** Number of persons in low income measure (LIM)
- **Chronic Homelessness.** Number of persons living in chronic homelessness conditions

SDG 1 aims to end poverty in all its forms everywhere. At the local level, Kelowna’s progress towards achieving this global goal lies in collective local action, partnerships and programs for all persons and families with low incomes, and by alleviating, and eventually eliminating, homelessness throughout the community. Poverty is not exclusive to low income and homelessness. It is also tied to many other SDGs, such as food insecurity (Goal 2) and good health and well-being (Goal 3). Successful measures and targets for Goal 1: No poverty will, by default, ensure progress is being made in many other SDGs. This report provides data on two local community indicators for Goal 1:

- *Number of persons in low income measure (LIM)*
- *Number of persons living in chronic homelessness conditions*

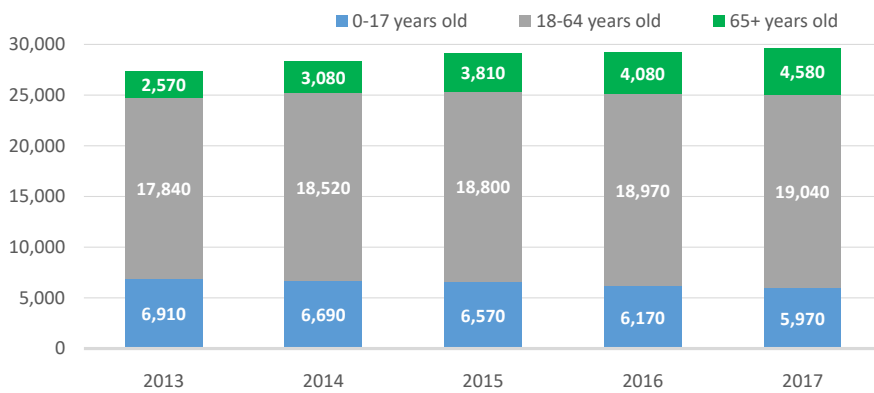
## KELOWNA TRENDS

In 2017, nearly 30,000 people in the Kelowna CMA were living in LIM, as shown in Figure 1.1. The LIM poverty threshold in Canada is 50% of median income, with the poverty rate defined as the proportion of households living on less than half of the median income.<sup>16</sup> For the Kelowna CMA, the total number of people in LIM increased by 8% from 2013-2017, while the percentage of the population within LIM has remained relatively the same at 15% for this same period due to population growth.<sup>17</sup> The 0-17 years age group has fallen by about 14% from 6,910 people in 2013 to 5,970 in 2017; while the 65+ cohort saw nearly an 80% increase, from 2,570 to 4,580. Those aged 18-64 comprise about 65% of the total number of low-income individuals, at 19,040 people. This group experienced about a 7% increase from 2013 to 2017. The 18-

64 cohort is a broad age range, exhibiting differences in lifestyles, education, and work experience. Differentiating the group into 0-24; 25-64; and 65+ age categories would help to better determine important characteristics of the cohorts, such as financial needs of these unique categories. Further recommendations for age and demographic breakdowns can be found in Appendix A.

Homelessness can be described as, “the situation of an individual, family or community without stable, permanent, appropriate housing, or the immediate prospect, means and ability of acquiring it...”<sup>18</sup> “Point in Time (PiT) Counts” in Canada help identify a minimum number of individuals experiencing homelessness on a given night in a community. While this provides a snapshot of the number of people living “on the street” and in homelessness situations on that day, it often underestimates the severity of the situation by failing to account for the hidden homeless population (e.g. people who “couch-surf” with friends, family and acquaintances), and those cycling in and out of homelessness.

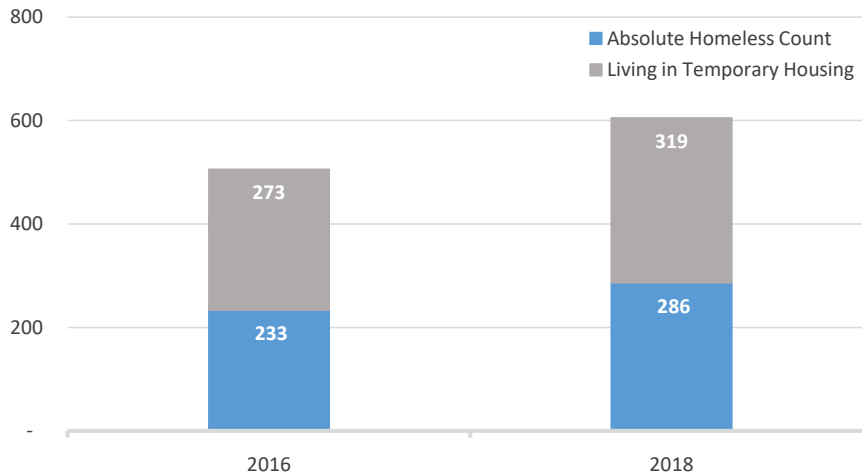
Figure 1.1: Number of Persons in Low Income (after tax) in all Family Units, By Age Groups



Data level: Kelowna CMA  
 Source: Statistics Canada. Table 11-10-0018-01 After-tax low income status of tax filers and dependants based on Census Family Low Income Measure (CFLIM-AT), by family type and family type composition

Figure 1.2 illustrates the number of people living in chronic homelessness conditions (both absolute and temporary situations) according to Kelowna PiT counts, which have shown a 20% increase from 2016 to 2018. Kelowna’s Journey Home strategy reveals approximately 2,000 people in Kelowna will experience homelessness during the course of a year.<sup>19</sup> Furthermore, 26% of the homeless population in 2018 were Indigenous Peoples, though they only comprise 4.4% of Kelowna’s population.<sup>20,21</sup> For further information on how

Figure 1.2: Number of persons living in chronic homelessness conditions



Data level: Kelowna

Source: Central Okanagan Foundation, Point In Time Counts

Canada’s colonial legacy has placed Indigenous populations at a greater risk for homelessness throughout Canadian cities, as well as potential solutions to address this disparity, refer to Appendix B.

## CHALLENGES AND COMMUNITY PROGRESS

Those under LIM are at a higher risk of becoming homeless. When you become homeless, you lose all sense of security and privacy; your life becomes gravely exposed and even criminalized (Goal 16). Targeting prevention techniques

and other appropriate solutions for those under the LIM poverty level will serve those most vulnerable to homelessness. Disaggregated demographic information is critical for the successful development of programs and policies geared at combating poverty. Eliminating homelessness, and developing solutions to end poverty will require the support and implementation of programs from various levels of government including municipal, provincial and federal; CSOs; and industry as it has many intersectional elements that are linked to many other SDGs (e.g. Goal 2 Hunger; Goal 3 Health; Goal 9 Transpor-

tation; Goal 10 household income; Goal 11 affordable housing). Some programs already underway or that could be considered to assist in reducing poverty in Kelowna and beyond, include:

- Journey Home, a five-year, local level strategic plan to address homelessness throughout the community.
- A Regional Poverty Reduction Strategy informed by the Central Okanagan Community Wellness Analysis, which was prepared in 2020 by the Central Okanagan Poverty Reduction Committee.
- [Basic Income province-wide study](#), released in January 2021 provides 65 recommendations for reforming B.C.’s income and social support system. The timing of this report prohibited analysis of the suite of recommendations in this VLR, but offers opportunity for Kelowna to review this important study as part of future projects.
- Living Wage Canada, which calculates a living wage across Canada and offers certification programs for companies to join.

For further details on these strategies and linkages to other goals, refer to Appendix A and Appendix B.

### Goal 1 Interrelations





# ZERO HUNGER

## Local Community Indicators:

- **Active Farmland.** Percent land base actively farmed
- **Food insecurity.** Percent of persons in household who are food insecure (marginal, moderate, and severe)

Addressing the goal of zero hunger is tied to ensuring healthy and sustainable food for all, through strategies to increase food security, reduce hunger and support sustainable and local agriculture. Locally, Kelowna’s 2030 Official Community Plan defines food security as “All community residents [having] access to sufficient, safe, healthy and culturally acceptable foods produced in a manner that promotes health, protects the environment and adds economic and social value to communities”. For the community of Kelowna, part of ensuring access to healthy foods means also ensuring adequate farmland, and promoting local food production and purchase. From an Indigenous perspective, access to foods means access to lands to practice harvesting in traditional ways. These are important strategies to address zero hunger. This report provides data on two local community indicators for Goal 2:

- *Percent land base actively farmed*
- *Percent of persons in households who are food insecure (marginal, moderate and severe)*

## KELOWNA TRENDS

Figure 2.1 identifies the percent of Kelowna’s land base that is actively farmed. This has remained relatively consistent (33-35%) since 2012, however there was a decline in 2018 due to crop switching (e.g. cattle to tree farm; apples to grapes). B.C. Assessment does not deem land actively farmed unless farm revenue is being generated.<sup>22</sup> Once these recent crop transitions are complete and the farms begin generating revenue again, Kelowna’s “actively” farmed land indicator should rise. Benefits of active farmland include reducing heat island effect; flood control; and carbon

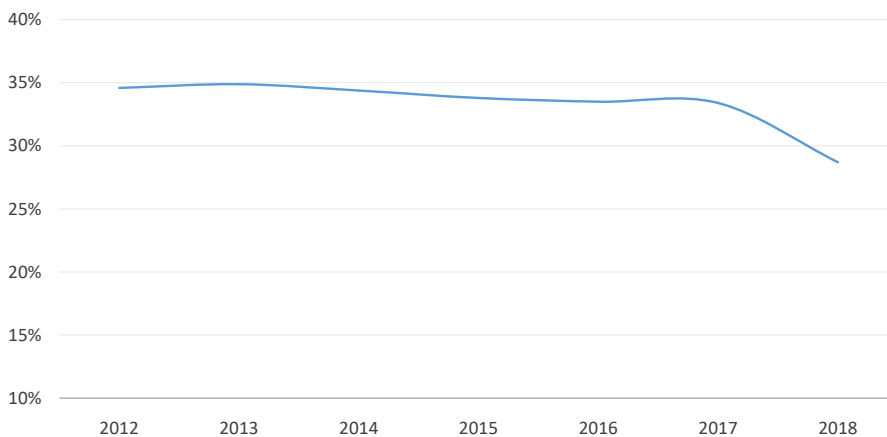
reduction. Identifying Kelowna’s farmed land by crop type can further help to determine the degree of benefits of actively farmed land as well as possible issues or impacts, such as water contamination from livestock and/or pesticide use (Goal 6). Finally, an increase in locally produced food can offer residents greater access to fresh and healthy local products should they have the means to purchase.

Figure 2.2 displays household food insecurity levels in Kelowna’s census metropolitan areas from 2007 to 2018. The trend over this time period has not changed much and indicates that over 10% — more than 15,300 individuals in 2017/18 — struggle to afford a basic healthy diet.

## CHALLENGES AND COMMUNITY PROGRESS

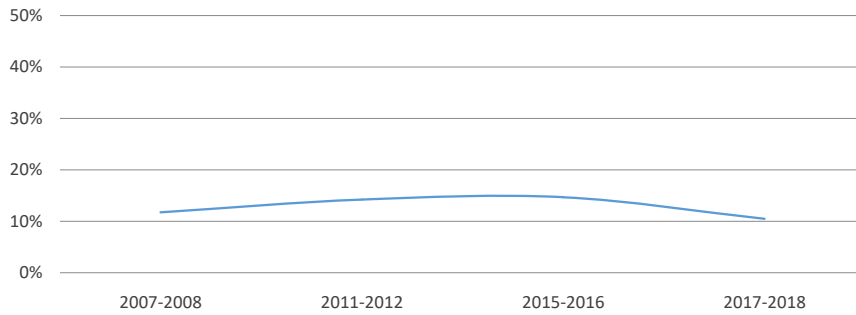
Food insecurity impacts the physical and mental health and well-being of families and individuals (Goal 3). For further details on the impacts and costs to the healthcare system as well as mental health outcomes related to food insecurity, refer to Appendix C. The root cause of household food insecurity is often an issue of inadequate income, especially given rising costs of housing, alongside limited supply of affordable housing (Goal 11). Policies and programs focused on improving household incomes (Goal 10) will assist in reducing food insecurity levels. Finally, although the food insecurity indicator used for this report does not account for Indigenous Peoples on reserve communities, or reflect food

Figure 2.1: Percent Land Base Actively Farmed



Data level: Kelowna  
Source: City of Kelowna

Figure 2.2: Household Food Insecurity



Data level: Kelowna CMA

Source: PROOF (2014), PROOF (2017/2018) and Statistics Canada, Canadian Community Health Survey

Note 1: For the years 2007-2008 and 2011-2012, use with caution (coefficient of variation 16.6% to 33.3%).

Note 2: People living in Aboriginal settlements and full-time members of the Canadian Forces are excluded from the survey.

security from an Indigenous perspective, such data is available through FNHA’s First Nations Regional Health Survey.<sup>†</sup> Obtaining this data requires developing partnerships with local and neighbouring Nations, which can in turn help provide a community-wide approach towards evaluating and monitoring food security in Kelowna. Appendix C includes a discussion on the importance and value of Indigenous Peoples’ traditional food and possible solutions to overcome barriers to access such foods in settler society (Canadian) systems such as food banks.

Goal 2 Interrelations



<sup>†</sup> First Nations Health Authority About Us available at [https://www.fnha.ca/Documents/FNoteNHA\\_AboutUS.pdf](https://www.fnha.ca/Documents/FNoteNHA_AboutUS.pdf). Note: The FNHA is part of a unique health governance structure that includes political representation and advocacy through the First Nations Health Council, and technical support and capacity development through the First Nations Health Directors Association. The First Nations health governing structure works in partnership with BC First Nations to achieve a shared vision.

### 3 GOOD HEALTH AND WELL-BEING



## GOOD HEALTH AND WELL-BEING

### Local Community Indicators:

- **Chronic Diseases.** Mortality rate attributed to cardiovascular disease, diabetes, and chronic lower respiratory diseases
- **Illicit Drugs.** Illicit drug mortality rate per 100,000 population
- **Suicide Rates.** Illicit suicide mortality rate per 100,000 population

Goal 3 aims to ensure healthy lifestyles and well-being for everyone at all ages through preventative measures to avoid illness and disease, and provide modern, efficient healthcare for everyone. Maintaining good health and well-being must factor in both physical and mental health — and from an Indigenous perspective, FNHA well-being also includes healthy spirit, heart, mind and body. As the world continues to face the COVID-19 global health crisis, the need for whole mind and body well-being is becoming more evident. For Kelowna, progress towards achieving good health and well-being, especially in context of an aging population, is measured by three physical and mental health indicators:

#### Physical Health

- *Mortality rate attributed to cardiovascular disease, diabetes, and chronic lower respiratory diseases*

#### Mental Health

- *Illicit drug mortality rate per 100,000 population*
- *Illicit suicide mortality rate per 100,000 population*

## PHYSICAL HEALTH

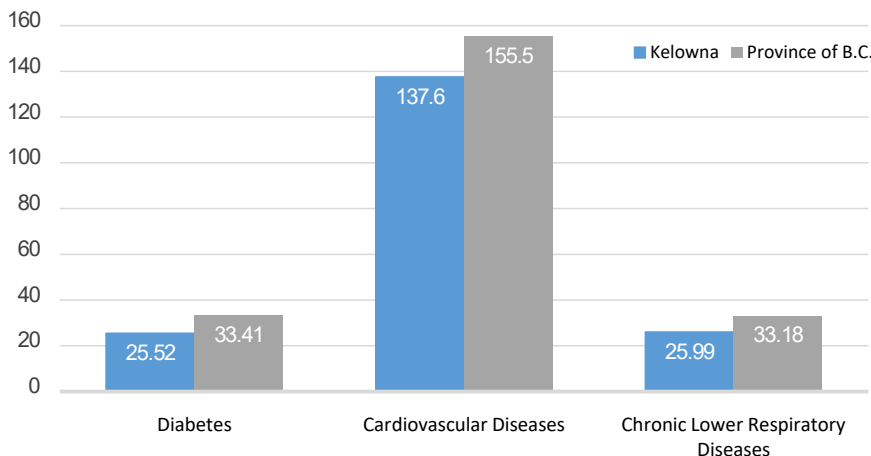
### KELOWNA TRENDS

Of the three chronic conditions illustrated in Figure 3.1 cardiovascular disease yields the highest mortality rate in both Kelowna and B.C. All three diseases exhibit lower mortality rates in Kelowna as compared to rates in the Province. Attributing mortality rates to chronic conditions is complex and challenging. For instance, diabetes mortality rates, although the lowest of the three chronic diseases, may be underreported as the main cause of death as complications can lead to cardiovascular and kidney disease.

## CHALLENGES AND COMMUNITY PROGRESS

Understanding these complexities, as well as lifestyles and preventative measures tied to socioeconomic status, are important considerations when addressing chronic disease and mortality rates, and in measuring health and well-being throughout the community. The BC Centre for Disease Control will be releasing a finalized “[Healthy Social Environments Framework](#)” in early 2021, which provides a health-based framework towards supporting socially connected and resilient communities. Socioeconomic determinants influence chronic disease rates, including food insecurity, limited access to health services, reduced employment opportunities (Goal 8), and lower incomes (Goals 1 and 10). People who suffer from household food insecurity have higher rates of chronic diseases, including heart disease, diabetes and cancer when compared to food secure/higher income earners (see Goal 2 and Appendix C). The 2020 health crisis from COVID-19 has further highlighted the gravity of socioeconomic inequities in relation to higher rates of chronic disease, including higher risks of COVID-19 related complications and mortality.<sup>23</sup> Understanding and analyzing demographic data to account for socioeconomic determinants and inequities as they relate to chronic disease is essential in determining preventative measures, supporting healthy lifestyles and managing modern healthcare systems to enhance physical and mental health and well-being for all. More information about First Nations social determinants and health can be found in the memorandum

Figure 3.1: Mortality Rate Attributed to Diabetes, Cardiovascular Diseases and Chronic Lower Respiratory Diseases



Data level: Kelowna

Source: Interior Health, Data to Support Sustainability Development Indicator Report for the City of Kelowna

Note: Due to low counts, the age standardized rates provided are for the aggregated time period of 2013-2017.



of understanding (MOU): *Tripartite Partnership To Improve Mental Health and Wellness Services and Achieve Progress on the Determinants of Health and Wellness* established by the First Nations Health Council, the Province of British Columbia and the Government of Canada, with First Nations Health Authority as a supporter.<sup>24</sup> Although not analyzed in this report, it is recommended that Kelowna review this MOU as a foundation to future health and wellness projects and programs. Finally, mortality indicators aren't necessarily the most effective measure of wellness for communities in Canada. Future reporting may wish to include and evaluate other measures of wellness.

## MENTAL HEALTH

Like chronic disease rates, poverty (Goal 1), and food insecurity (Goal 2) can also contribute to poor mental health outcomes. Studies show anxiety, major depression and suicidal thoughts increase as food insecurity increases (as shown in Figure C.1 in Appendix C). In Canada, over 90% of people who took their own life were suffering from a mental health problem or illness.<sup>25</sup>

## KELOWNA TRENDS

With the sharp increases in drug related overdose deaths (Figure 3.2) — most of which are linked to fentanyl (a toxic synthetic opioid) — an ongoing public state of emergency has been declared by B.C.'s Provincial Health Officer since 2016. Additionally, between 2017-2020, more than 80% of illicit drug deaths in B.C. had fentanyl detected.<sup>26</sup> Even more concerning is the higher rate of illicit drug mortality in Kelowna compared to the Province of B.C. This disparity should be further investigated to identify and improve understanding of contributing factors. Since the COVID-19 pandemic began, data from BC Centre for Disease Control and FNHA indicate B.C. has experienced yet another surge in illicit drug deaths, due to increased drug toxicity and more people using alone due to physical distancing and stay-at-home measures.<sup>27 28</sup>

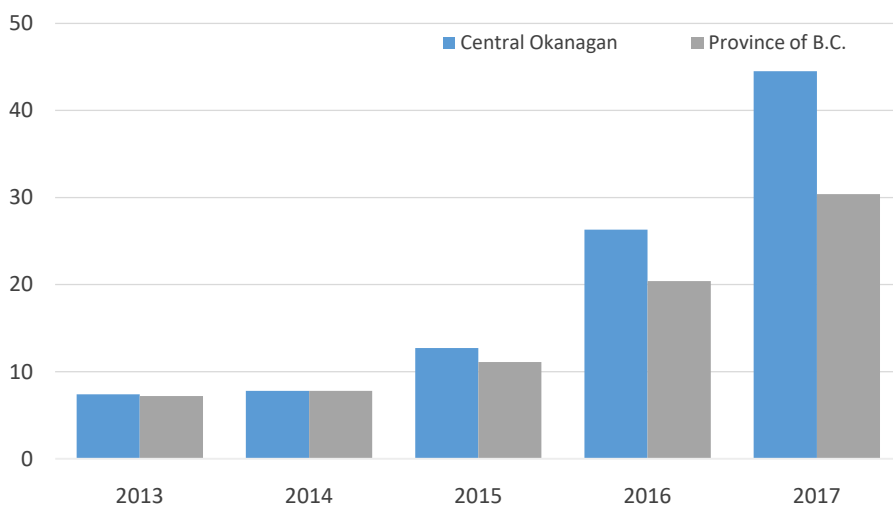
In B.C., suicide continues to be one of the leading causes of death for young people. Since 2013, for reasons unknown, the Central Okanagan has had higher rates of suicide than the province. Investigation into this difference is recommended. As shown

in Figure 3.3, suicides in the Central Okanagan have remained relatively consistent from 2013 to 2017, except for an unexplained hike in 2016 (also observed in illicit drug mortality rates, Figure 3.2).

## CHALLENGES AND COMMUNITY PROGRESS

Acting on illicit drug mortality rates requires a greater understanding of mental health and substance use disorders. Stigma and discrimination from the general public as well as amongst first responders, health care professionals and government representatives create barriers, often preventing people who use drugs and/or who have substance use disorders from accessing the support and treatment they need.<sup>29</sup> Many people view drug use as a “choice”, believing it is only used among people with flawed character and/or those who lack self-control, which is not only inaccurate, but also extremely damaging. Many Canadians use some form of psychoactive substances, including prescription and nonprescription “drugs” and some end up suffering from addiction due to reliance on them for treatment of chronic physical and/or mental pain, loss of or uncertain employment, exposure to abuse and trauma, and other stressful events.<sup>30</sup> Further, it has been found that in B.C., Indigenous Peoples suffer higher rates of drug addiction due to multiple issues such as food insecurity (Goal 2), poverty (Goal 1), poor access to housing (Goal 11), and systemic racism, further amplifying the stigmatization of drug use.<sup>31 32</sup> A recent study in B.C. indicates negative stereotypes of Indigenous Peoples are pervasive in the healthcare system; this racism negatively affects an individual's health and well-being and limits access to proper medical treatment: “all forms of racism experienced by Indigenous Peoples leads to avoidance of care in large part because Indigenous Peoples seek to avoid being stereotyped, profiled, belittled and exposed to prejudice.”<sup>33</sup>

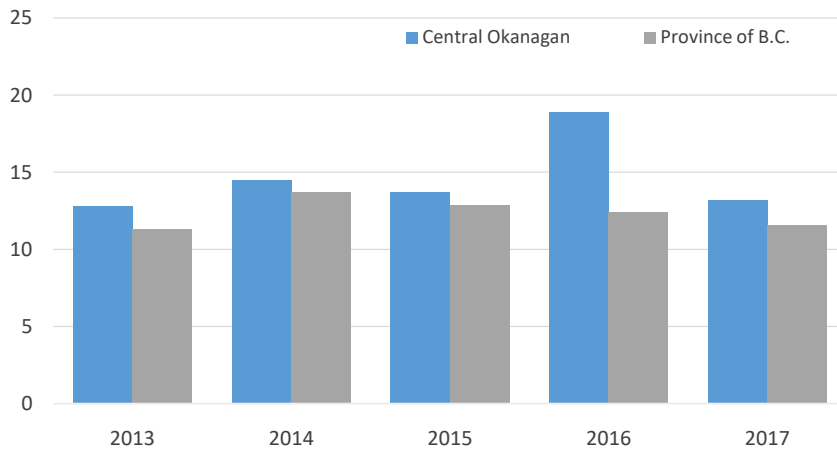
Figure 3.2: Illicit Drug Mortality Rate per 100,000 Population



Data level: Central Okanagan (Local Health Area)  
Source: BC Coroners Service



Figure 3.3: Suicide Rate per 100,000 Population



Data level: Central Okanagan (Local Health Area)  
Source: BC Coroners Service

As reducing illicit drug mortality requires multifaceted solutions around harm reduction, the community has been creative in developing programs and less stigmatizing and more accessible means of dispensing harm reduction kits and safe supply, such as:

- The creation of Kelowna Community Action Team (CAT); a knowledge hub, actively developing strategies for Kelowna and the surrounding region, to take action on the overdose crisis. Kelowna CAT is made up of people with lived and living experiences, and representatives from law enforcement, health authorities, local governments, Indigenous organizations and CSOs among others.
- Interior Health (IH) and numerous CSOs throughout Kelowna, such as The Bridge and Urban Health Centre, are working to distribute naloxone kits, which can quickly reverse the effects of an overdose from opioids (e.g. heroin, methadone, fentanyl and morphine).
- Providing readily accessible and free vending machine delivery of harm reduction supplies.
- For those with severe substance use disorder, an effective treatment option, injectable Opioid Agonist Treatment (iOAT), is being administered at an IH centre in downtown Kelowna.

- First Nations Health Authority is implementing culturally relevant programs such as [land-based healing services](#).

Stigmatization also influences the complexities around emergency response to those in crisis. First responders such as police and paramedics play a vital role in suicide prevention — especially when responding to mental health calls — but can also be at higher risk of suicide due to the exposure of trauma experienced in their work. Kelowna’s Police and Crisis Team (PACT) seeks to connect those in crisis with the services they need as well as reduce stigmas associated with both those in crisis and those responding to the crisis. Formed in 2017, this partnership between IH and Kelowna RCMP supports a team

of specially trained police officer and a mental health nurse to work together to apply non-violent de-escalation techniques to assist the person in distress, while potentially reducing trauma experienced by the person in crisis and the person responding to the crisis.

To effectively address the structural factors that give rise to illicit drug use and suicide, programs and services aimed towards ending poverty (Goal 1), zero hunger (Goal 2), reducing inequalities (Goal 10); and improving physical and mental health are a key priority. Alongside such programs and services, greater attention needs to be given the complexities and stigmatizations of illicit drug use and suicide. Stigma, discrimination and racism need to be addressed so those that require health care services are provided supportive preventative measures, and the respect and treatment they deserve. The TRC Calls to Actions 18-24 focus on closing the gap in health outcomes between Indigenous and non-Indigenous Peoples in areas such as chronic diseases, suicide, and mental health. Continued efforts amongst local, provincial and federal governments, working with First Nations and CSOs on the collection, use of data, information and resources (including demographic information, on gender, age, race, etc. that respects privacy) will be critical to the development of successful policy and programs for Goal 3.

### Goal 3 Interrelations





# QUALITY EDUCATION

## Local Community Indicators:

- **Post-Secondary Education.** Highest certificate, diploma or degree obtained

SDG 4 aims to provide equal access to quality primary, secondary and post-secondary education for all children and adults. Quality education at both the early childhood and post-secondary levels provides the foundation for comprehensive development and long-term life outcomes contributing to overall well-being and employment skills. For public primary education (K-12), Kelowna is served by the Central Okanagan School District, which is the fifth largest and third fastest growing district in the province.<sup>34 35</sup> Kelowna also boasts a variety of post-secondary campuses, including the University of British Columbia Okanagan and Okanagan College. To measure quality education in terms of access and outcomes, this report focuses on the following indicator:

- *Highest certificate, diploma or degree obtained*

## KELOWNA TRENDS

Figure 4.1 identifies the highest level of education obtained by local residents. The Kelowna CMA and the province of B.C. have similar rates for post-secondary education at 54% and 56% respectively in 2016. Relevant targets for “quality education” are an increase in secondary and postsecondary education rates, alongside a decrease in the percentage of population with no certificate, diploma or degree. It is important to note that the indicator selected shows the highest level of education of those living in Kelowna, however it does not disaggregate or identify where the education was achieved. In some cases, Kelowna residents may have had to leave the city to obtain a higher level of education, while highly educated individuals may have moved to Kelowna

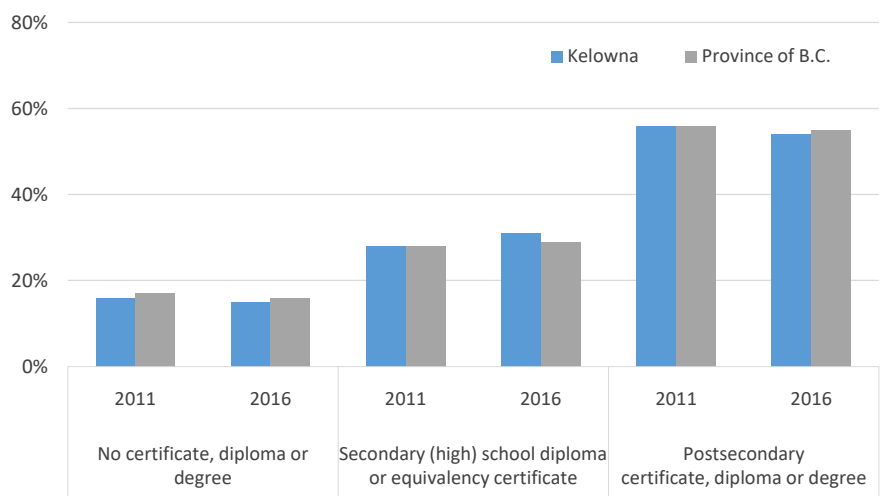
to acquire employment opportunities. This indicator makes it difficult to identify specific barriers to quality education Kelowna residents may face due to demographics and inequalities tied to gender, race, immigrant status, household income, etc.

## CHALLENGES AND COMMUNITY PROGRESS

Those with post-secondary training in B.C. generally make higher wages than those without.<sup>36</sup> The return on investing in education stands to reduce poverty and income inequality, and improve the general standard of living. Yet education opportunities remain highest for those who can afford it, leaving those who are already vulnerable with the risk of falling further behind. Providing financial means such as Basic Income can help support individuals to complete their

secondary or post-secondary education without the financial strain or debt that may hold people back. (For more information on how Basic Income ties to quality education, refer to Appendix A.) Kelowna’s academic institutions can also address financial burden through innovative programs and increasing enrollment. For instance, COVID-19 has driven organizations and educational institutions to rethink and restructure the way education is delivered to create more equitable access for those facing financial hardships. During the spring of 2020, the British Columbia Institute for Technology (BCIT) offered a typically in-person course online, and subsidized up to 90% of the original enrollment fee. Enrollment for this course increased approximately 400%, with a 95% positivity rate for student satisfaction.<sup>37</sup> BCIT plans to continue offering a modified online version for this specific course,

Figure 4.1: Highest Certificate, Diploma or Degree Obtained



Data level: Kelowna CMA  
 Source: Statistics Canada, 2011 National Household Survey and 2016 Census of Population  
 Note: Postsecondary includes: University certificate, diploma or degree; apprenticeship or trades certificate or diploma; and college, CEGEP or other non-university certificate or diploma

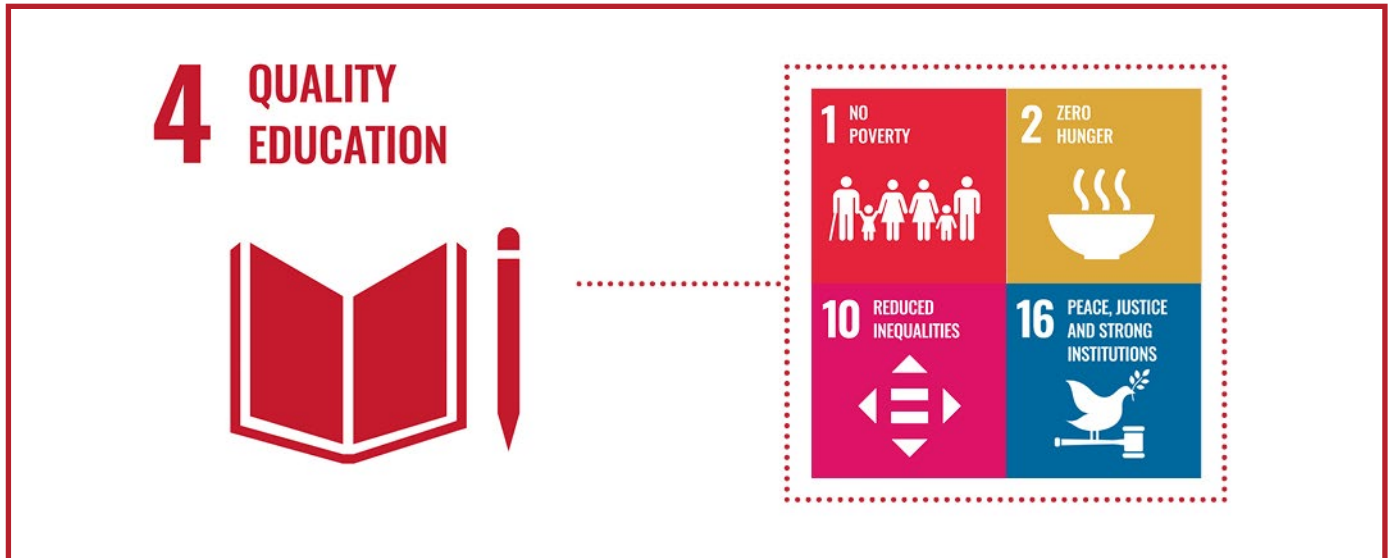
enabling students to take a portion of the course at a reduced price.

Barriers to formal education such as poverty (Goal 1), household income (Goal 10), food security (Goal 2), discrimination and institutional racism (Goal 16) can also exclude people from quality primary and secondary educational opportunities. These circumstances are being further highlighted as schools moved to part or full-time online learning due to the COVID-19 pandemic. Barriers for lower income household students, such as limited to no access to internet-enabled computers, coupled with parents or guardians having little opportunity to assist with

home-schooling, are being associated with poorer academic performance.<sup>38</sup> Recognizing specific barriers to formal education is an important step for the community to take in achieving quality education for all. For First Nations, barriers to formal education also persist due to historical and intergenerational trauma associated with residential school experiences, creating distrust of the mainstream education systems. The First Nations Education Steering Committee (FNESC) is a First Nations-led policy and advocacy organization that supports First Nations students and advances First Nations education in B.C. by “disseminating information, undertaking research, administering programs and

services, and advocating and negotiating with the provincial and federal governments and other key stakeholders.”<sup>39</sup> It’s also important to work directly with local Indigenous leaders in the community and in higher education institutions to better understand Indigenous student experiences and how they can be improved. In addition, the TRC’s calls to actions numbers 7, 11 and 55i and 55ii are directly relevant to this indicator. To help ensure quality education for all, educational authorities and government agencies should consult with and support the work of FNESC and other Indigenous organizations to understand and assist in addressing barriers unique to Indigenous Peoples.

#### Goal 4 Interrelations





# GENDER EQUALITY

## Local Community Indicators:

- **Gender-based Violence.** Rate of sexual assaults per 100,000 by sex of victim

SDG 5 aims to achieve gender equality and empower all women and girls, everywhere. Throughout Canada, females, especially Indigenous women and girls, are more likely to be victims of sexual assault, and sexual assault is the only violent crime that is not in decline.<sup>40</sup> Sexual violence remains a key barrier to achieving gender equality, which is directly tied to other SDGs, such as health and well-being, socioeconomic status and peace and prosperity. All levels of government, law enforcement and CSOs must work together to facilitate equality and promote a safe and welcoming community for all vulnerable populations including women, Indigenous women and girls, and 2SLGBTQIA. An indicator Kelowna can use to measure progress towards achieving Goal 5 Gender Equality is:

- *Rate of sexual assaults per 100,000 by sex of victim*

## KELOWNA TRENDS

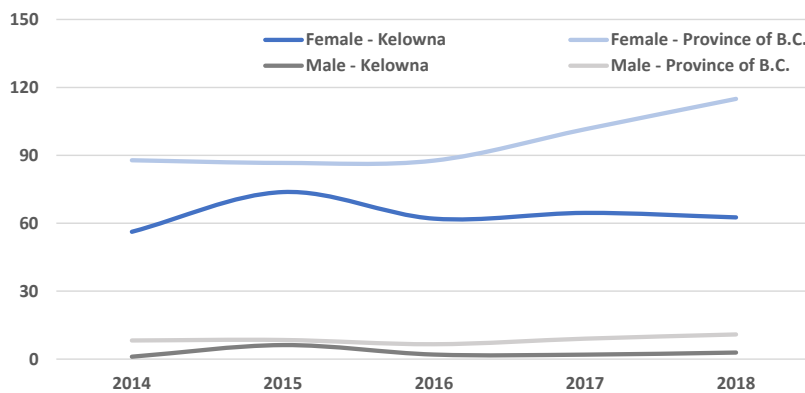
While sexual assault affects both males and females, Figure 5.1 shows females are assaulted at significantly higher rates than males in both B.C. and Kelowna. It should be noted that Figure 5.1 only illustrates police-report cases. The true extent of sexual assault is much higher as only 5% of sexual assaults are reported to police.<sup>41</sup> In addition, sexual assault rates among Indigenous women in Canada is almost three times that of non-Indigenous women.<sup>42</sup> Reported police-recorded violent crimes fail to reflect the complexities of gender-based violence, including increased rates towards Indigenous women and girls, and 2SLGBTQIA peoples.

## CHALLENGES AND COMMUNITY PROGRESS

Recent social movements such as #MeToo in October 2017 highlighted the extent to which sexual assault goes unreported. The number of cases brought to the police increased notably throughout Canada in 2017 and 2018, and is shown for B.C. in Figure 5.1.<sup>43</sup> Yet, in Kelowna, the number of reported cases decreased during this same time period. And at the same time, a disproportionate amount of sexual assault cases were deemed “unfounded” and dismissed by police.<sup>44</sup> The sexual assault false reporting rate is typically around 2% to 8%.<sup>45</sup> Yet, in 2017, 41% of Kelowna’s Level 1<sup>††</sup> cases were deemed unfounded; while, in 2018, 36% were categorized as unfounded.<sup>46</sup> This high level of dismissal resulted in an RCMP Sexual Assault Review Team investigation, which discovered a clerical issue in reporting. Some cases have since been reopened.

Sexual assault affects an individual’s health and well-being (Goal 3), and can lead to various mental health concerns such as post-traumatic stress disorder, depression, suicidal behaviours, self-harm and substance abuse issues.<sup>47</sup> When reports are dismissed, the emotional trauma endured is at risk of being further compounded.<sup>48</sup> Kelowna RCMP has since taken steps to resolve the issues around its unfounded cases and to better address sexual assault reports, including the deployment of a sexual assault unit and collaboration with CSOs, such as Elizabeth Fry, to train officers in trauma-informed practices and bias awareness.<sup>49</sup> Yet there is much more to be done to rebuild trust.

Figure 5.1: Rate of Sexual Assaults per 100,000 by Sex of Victim (Police-Reported Violent Crimes)



Data level: Kelowna CMA  
 Source: Statistics Canada. Table 35-10-0050-01 Victims of police-reported violent crime and traffic violations causing bodily harm or death, by type of violation and sex of victim.  
 Note: Includes Level 1, 2 and 3 sexual assaults. These levels range from Level 1 having minor or no physical injuries to Level 3 of wounding, disfiguring or endangering the life of the victim.

<sup>††</sup> Sexual assault reports are categorized to Level 1, 2 and 3 cases. These levels range from Level 1 having minor or no physical injuries to Level 3 of wounding, disfiguring or endangering the life of the victim.





A red dress hung up at Mission Creek in Kelowna as part of the Red Dress Awareness Campaign aiming to increase the public’s knowledge about the increasingly high numbers of missing and murdered Indigenous women and girls in Canada and the USA.  
 Photo Credits: Jessica Arends

Officer training should specialize in psychology and interview techniques, with continuous, rigorous and dynamic education on sexual assault, marginalized populations, and the impacts of systemic racism. With high rates of assault on Indigenous women and girls, training and action must be Indigenous-rights based and reflect a decolonizing approach, as outlined in the Calls for Justice in the Missing and Murdered Indigenous Women and Girls (MMIWG) Final Report, and the TRC Calls to Action numbers 40 and 41.

In many cases, CSO’s offer, through trust and relationship building, support to the community on issues of sexual assault, in ways our formal law enforcement processes do not. For instance, Elizabeth Fry indicates a 500% increase in reports from 2018 through 2020 (an increase in 53 reports in 2018/2019 to 257 in 2019/2020).<sup>50</sup> The challenge is, Elizabeth Fry as well as other CSO’s throughout the region, have limited capacity and resources to address this vast increase in sexual assault reporting. Partnerships must be put in place to ensure CSO’s

and law enforcement are working together, alongside Indigenous Peoples, provincial and federal agencies. Through such partnerships, the community of Kelowna can work towards supporting gender equality; physical and mental health and well-being (Goal 3); and, long-term peace and prosperity (Goal 16) for all. Progress towards achieving Goal 5 hinges upon the cultural (re) valuation of women, girls, and gender, alongside the commitment to uphold Indigenous Peoples rights.

Goal 5 Interrelations





# CLEAN WATER AND SANITATION

## Local Community Indicators:

- **Water Advisories.** Person-days on advisory

SDG 6 aims to ensure clean water and sanitation for everyone, everywhere — a basic health need for all, which has become even more crucial during the COVID-19 pandemic. At the local scale, Kelowna’s progress towards achieving this goal is tied to city and regional infrastructure and planning, and partnerships and programs with IH, local water authorities, and provincial and federal agencies. A measurable indicator at the local community level for SDG 6 is:

- *Person-days on advisory*

## KELOWNA TRENDS

IH’s “person-days on advisory” indicator measures the number of days drinking water systems across the region are on disinfection advisories. The health authority calculates this by simply mul-

tiplying the number of days on advisory by the estimated number of people affected.<sup>51</sup>

Figure 6.1 shows a significant drop in the “person days on advisory” from 2017 to 2018. This change was a result of IH working closely with a water purveyor to address a long-standing water advisory. Together, IH and water authorities continue to support long-term solutions to improve water quality citywide and throughout the region.<sup>52</sup>

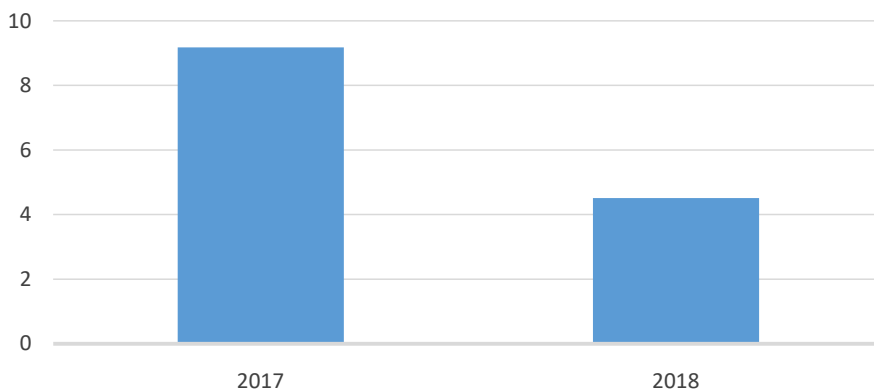
## CHALLENGES AND COMMUNITY PROGRESS

Kelowna’s water purveyors use both ground and surface water sources for Kelowna’s domestic supply. Drinking water systems that draw from surface sources (i.e. creeks, rivers and lakes)

have a much higher chance of contamination (pathogenic microorganisms) than ground water sources, which have natural ground filtration.<sup>53</sup> Every spring during freshet snow pack melts quickly, and creeks swell up, pulling contaminants from their banks. Maintaining an adequate amount of healthy riparian area (Goal 14) around creeks and other water-ways assists in filtering contaminants, helping to maintain surface source water quality.

It is important to note that at the time of this report, the “person days on advisory” indicator applies to large water systems only. Yet small water systems (i.e. systems that supply for 500 persons or less) face greater challenges in accessing and maintaining necessary technical skills, resources and finances and are less likely to be resolved in a timely fashion. For instance, over a 10-year period (2006-2015), 60% of large water system advisories managed by IH were resolved within one month, while only 39% of small water systems were resolved in this entire time frame.<sup>54</sup> Ideally, the “person days on advisory” indicator for this report should account for all water systems, large and small (with data available from IH), while differentiating the percentage of the population on each. Furthermore, “do not use” (DNU) notices, which are issued when chemical contaminations occur (e.g. through naturally occurring metals, or nitrate accumulation due to agricultural activity) are not reflected in this indicator.<sup>55</sup> As agricultural activity in the region increases, it may be beneficial to understand if DNUs are tied to contamination from agricultural land use, taking into account both crop type and percent

Figure 6.1: Person-days on Drinking Water Advisories (in millions), Large Water Systems



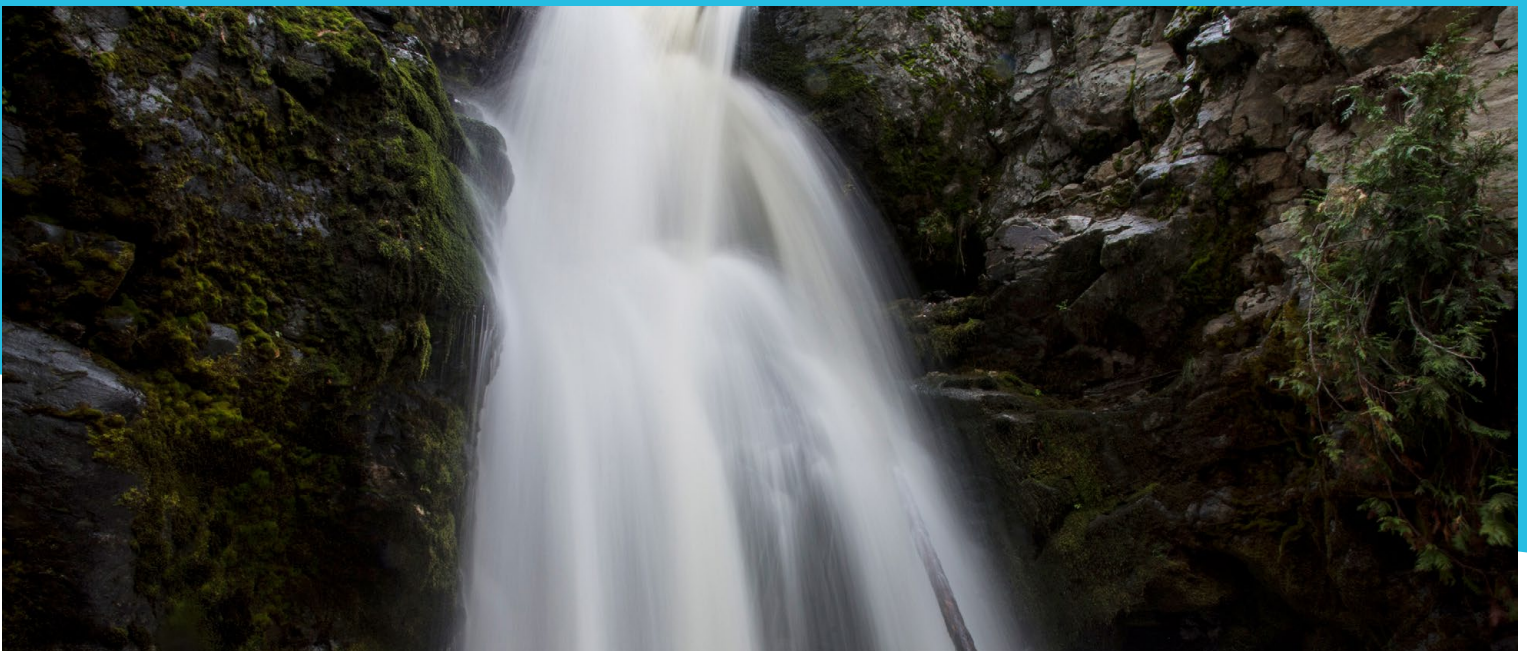
Data level: Kelowna

Source: Interior Health, Data to Support Sustainability Development Indicator Report for the City of Kelowna.

Note 1: Includes Water Quality Advisories and Boil Water notices. Excludes Do Not Use water notices - chemical and physical water quality parameters in excess of acceptable concentrations.

Note 2: Data provided for large water systems only - those servicing populations of 500+ persons.





**Crawford Falls in Kelowna**  
*Photo Credits: Adam Ruby Photography*

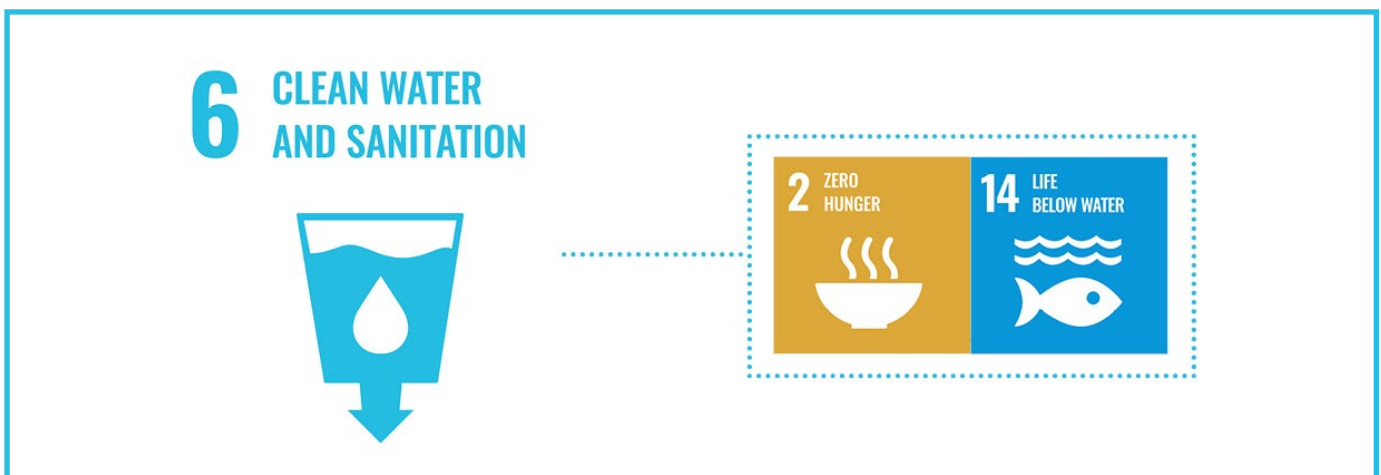
land base actively farmed (Goal 2).

For First Nations communities in B.C., the FNHA — governed by and serving B.C. First Nations individuals and communities — provides water quality testing and recommendations on drinking water advisories. B.C. is the first and only province in Canada with a health service delivery organization responsible for administering a variety of health programs and services, including water quality testing and advisories through direct services and collaboration with

provincial partners for First Nations people. This Health Authority is unique in its operation and partnerships, offering a successful model to water quality and health services for First Nations communities in other parts of Canada. The FNHA, like their neighbouring regional water authorities, shares similar challenges regarding capacity to operate (e.g. trained operators); operations and maintenance funding; and, increased pressure on source water quality and quantity due to environmental hazards and climate change impacts.

IH, FNHA, and other regional authorities and water purveyors will need to continue to work in partnership with the City, the Province, and federal agencies to address water advisories. Together, these organizations will need to ensure infrastructure and facilities and developed and maintained in coordination with population growth and anticipated residential, agricultural and industrial land use change, to ensure clean water and sanitation now and into the future, throughout the Kelowna region.

*Goal 6 Interrelations*



## 7 AFFORDABLE AND CLEAN ENERGY



# AFFORDABLE AND CLEAN ENERGY

### Local Community Indicators:

- **Electricity Usage.** Average household electricity and use
- **Gas Consumption.** Average household gas consumption

SDG 7 aims to ensure access to affordable, reliable, sustainable and modern energy for all. The reliance on fossil fuels and maintaining our current energy consumption habits are not only unsustainable but also harmful to the planet. As Kelowna’s population ages, and especially given work-from-home advisories due to COVID-19, many Canadians are spending more time at home. Having a secure, stable and comfortable home where our energy needs are met reliably and affordably is critical to our quality of life. Our household comfort relies on adequate heating in the winter and cooling in the summer, with indoor air quality and ventilation becoming an ever more important priority. Increasing energy efficiency in our homes can reduce overall energy consumption while offering cost savings, improved ambient comfort, and better indoor air quality. This report provides data on two measures for Goal 7:

- *Average household electricity use*
- *Average household gas consumption*

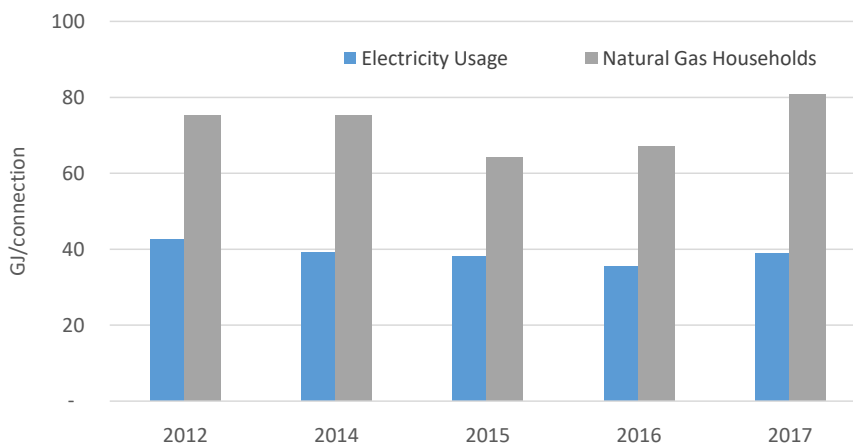
### KELOWNA TRENDS

Figure 7.1 illustrates the average household energy consumption for natural gas and electricity use in a given year for Kelowna. As observed, natural gas accounts for about twice as much energy use in Kelowna’s homes compared to electricity. Figure 7.2 shows the equivalent greenhouse gas (GHG) emissions produced from average household hydroelectricity and natural gas consumed. Natural gas is responsible for over 100 times more emissions than hydroelectricity due to natural gas methane leakage from production and storage, and carbon dioxide (CO<sub>2</sub>) emissions when combusted.

### CHALLENGES AND COMMUNITY PROGRESS

Year by year, the average household energy consumption fluctuates partly due to changing weather patterns (e.g. colder, longer winters require more energy to heat our homes). The increase in energy consumption is more predominant in natural gas usage versus electricity. For example, in 2017, average household electricity consumption increased by 4 GJ, while natural gas consumption increased more than three times as much, by 14 GJ. Natural Resources Canada indicates 76% of B.C.’s household energy is used to provide heat for hot water and space heating.<sup>56</sup> As fluctuating weather patterns (e.g. longer, colder winters) influence energy used for space heating, it can be challenging to compare annual changes in household energy consumption. Providing data that incorporates heating degree-days can allow for a more comparable annual energy use data set.

Figure 7.1: Average Household Energy Consumption for Natural Gas and Electricity

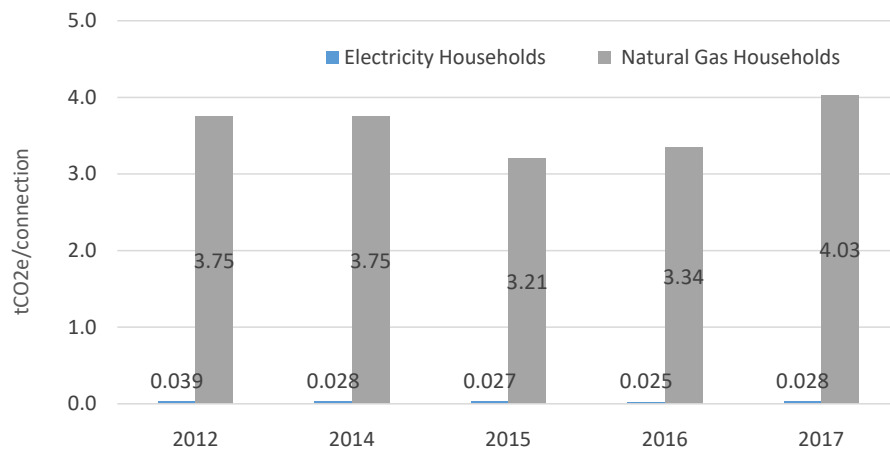


Data level: Kelowna

Source: B.C. Utilities Energy Data at the Community Level

Increasing consumption patterns are also influenced by household size. In 1990, the average living space in Canada was approximately 122m<sup>2</sup>, while in 2013 the average grew to 142m<sup>2</sup>, despite the fact that people per household dropped from 2.8 to 2.5 over the same period.<sup>57</sup> To account for these changes and to help provide a more accurate evaluation of efficiency improvements, energy use intensity (GJ/m<sup>2</sup>/connection) and/or energy consumed by the population (GJ/person) may also be analyzed to gain greater insight into household energy efficiency trends.

Figure 7.2 : GHG Emissions Produced from Electricity Versus Natural Gas



Data level: Kelowna  
Source: B.C Utilities Energy Data at the Community Level

In Kelowna, natural gas and hydro-electricity are the two main energy sources for residential buildings, with wood, heating oil, and propane also used in some circumstances for space heating. In 2017, buildings accounted for 40% of Kelowna’s community GHG emissions (Goal 13). Focusing on improving efficiencies in residential space heating and hot water supply would reduce overall energy consumption and GHG emissions in Kelowna, while also offering potential energy costs savings for residents. For example, converting households from natural gas furnaces and/or water boilers to high efficiency electric heat pumps for space heating and hot water and/or increasing insulation can reduce household greenhouse gas emissions. The energy efficiency gains (taking into account climate zones), and the overall

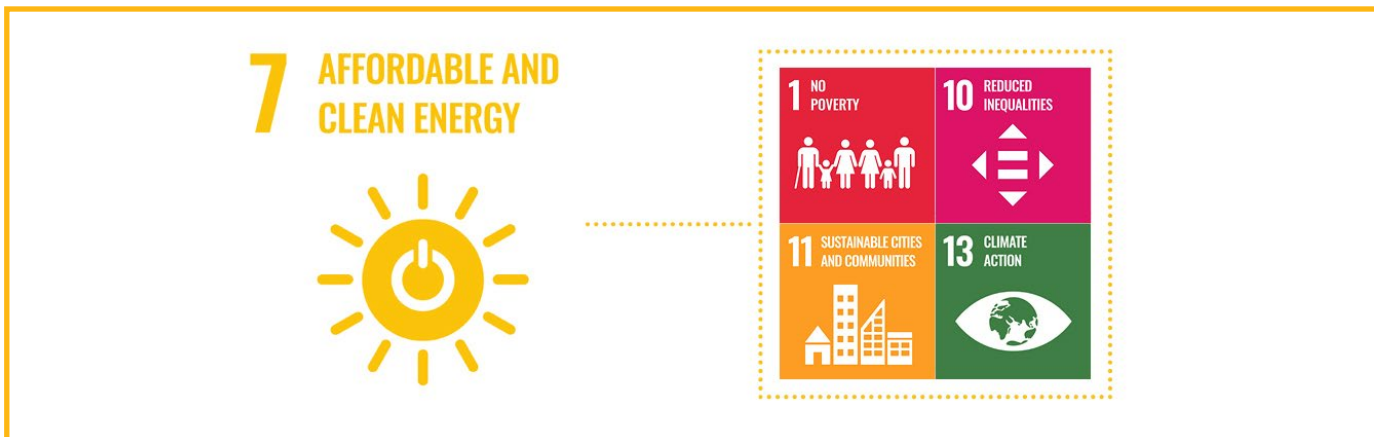
cost analysis, including electricity rate structures of such conversions and/or improvements, have yet to be explored.

Examples of energy conservation programs and incentives underway in the city and province, such as Fortis BC’s Energy Conservation Assistance Program, as well as household energy use recommendations are outlined in Appendix D. In context of these programs, it is important to factor in who pays, and issues on affordability and equity with regards to implementing building energy efficiencies. Are people below the median income threshold in Kelowna (Goal 10) able to afford implementing these energy efficiency improvements, even with the current rebates? It may be unrealistic for the nearly 30,000 people in the Kelowna CMA region living below the LIM

threshold (Goal 1) to absorb energy improvement costs. Furthermore, as outlined in Goal 11, nearly 50% of renters in Kelowna are spending more than 30% of their income (before tax) on rent and utilities. Analyzing these income demographics in context of the goals assists in understanding the needs, and determining the programs and policies most beneficial for all.

In May 2018, a biogas facility was commissioned at the Central Okanagan landfill, converting the gas produced by the decomposing organic waste to renewable natural gas (RNG). Though RNG is a “cleaner” energy source than natural gas, and remains less than the cost of electricity, it is more expensive than natural gas, reducing incentive for building owners to make the shift.<sup>58</sup> The B.C. carbon tax, and newly implemented federal carbon pricing, is designed to, in part, create a price structure to encourage building industry and owners to switch from fossil fuels to cleaner energy sourced technologies. The B.C. carbon tax includes incremental price of fuel increases, up to \$50 per tonne of carbon dioxide equivalent emissions (tCO2e) by 2022, however, in response to COVID-19, rate increases are being put on hold.<sup>59 60</sup> Improving energy efficiencies and access to affordable cleaner energy sources is an important aspect towards achieving affordable and clean energy, yet responsibility also lies with each building owner and occupant to reduce wasteful energy habits.

Goal 7 Interrelations



## 8 DECENT WORK AND ECONOMIC GROWTH



# DECENT WORK AND ECONOMIC GROWTH

### Local Community Indicators:

- **Unemployment Rates.** Unemployment rates
- **Youth NEET.** Population aged 15 to 20 Not In Education, Employment or Training (NEET)

SDG 8 aims to ensure decent work opportunities and economic growth for everyone, regardless of background, race or culture. Access to economic opportunity ensures access to basic necessities, improved life quality and contributes to the eradication of poverty and inequality. There are many predictors of long-term economic outcomes including parents' socioeconomic status and education level (Goal 4). Youth not working or enrolled in school/training can also indicate lower life-time earnings and economic success in the long run, thus organizations like the UN aim to significantly reduce the number of unemployed youth, while increasing the number of those in education or training.<sup>61</sup>

This report provides data on two local community indicators for Goal 8:

- *Unemployment Rates*

- *Population aged 15 to 29 Not in Education, Employment or Training (NEET)*

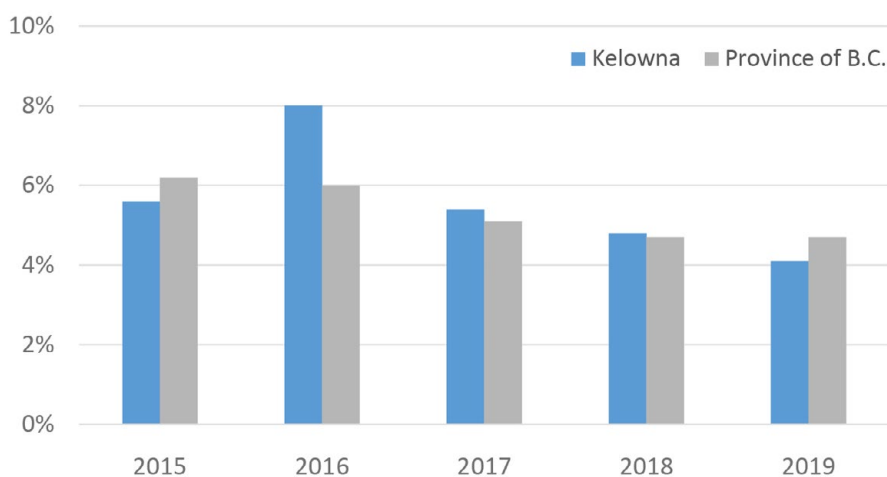
### KELOWNA TRENDS

Figure 8.1 indicates a decreasing trend in Kelowna's unemployment rate, with 2016 as an exception, which was about 2.5 percentage points higher than the previous year and 2 percentage points higher than the provincial rate. In addition to seasonal unemployment shifts, the higher 2016 unemployment rate includes factors such as the downturn in Alberta's energy sector, impacting those who commuted and worked in the province of Alberta.<sup>62</sup> The job force has since rebounded and a positive downward trend has been noted, however the COVID-19 pandemic's effect on the economy is likely to regress some of this progress. Since 2015, Kelowna male unemployment rates have been

higher than females, which is generally consistent with the provincial trends. This does not include the significant employment changes caused by COVID-19, dramatically changing the labour market as female workers nationally have been more likely to lose their jobs since March 2020.<sup>63</sup> This is due to female-dominated industries such as accommodation/ food services and retail being heavily impacted.<sup>64</sup> Additionally, women tend to shoulder the burden of child care and given the uncertainty of schools and child care spaces, more women are "falling out" of the labour force.<sup>65</sup> Parents and guardians who stay at home to care for their children due to reasons such as child care affordability, are not captured under the unemployment rates in Figure 8.1.<sup>66</sup> Whether staying at home is by choice or necessity, affordable child care is an ongoing issue for modest and middle-income families in B.C.<sup>67 68</sup> Analysis of affordable child care in the context of decent work and economic development should be considered in future reporting.

Youth NEET rates help determine long term economic success. Since 2015 Kelowna's NEET rate has been slightly declining, with 2017/18 as an exception. On average, Kelowna's NEET has been performing 1 percentage point better than the provincial rate, with the exception of 2017/2018. Digging deeper, female NEET rates in Kelowna have increased 4.5 percentage points between 2015/2016 and 2017/2018 (data is unavailable for 2018/19). In 2015/2016 and 2017/2018 Kelowna's female NEET rate was about 3.4 and 3.6 percentage points below the respective provincial rate. Overall, the rates are maintaining a downward trend but female youth in Kelowna may need to be focused on.

Figure 8.1: Unemployment Rates

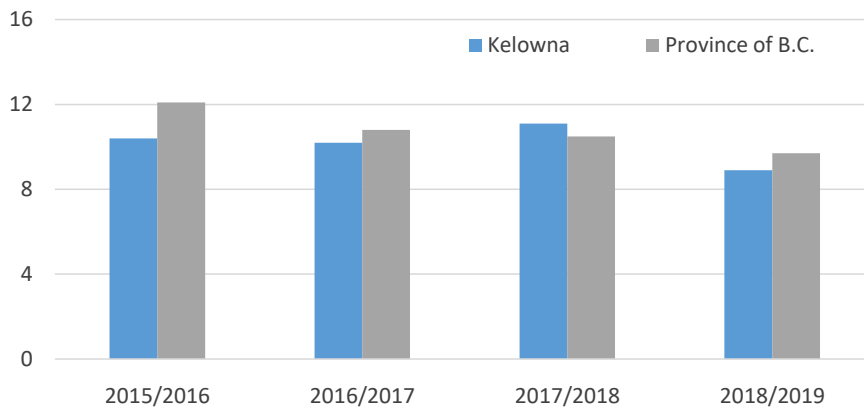


Data level: Kelowna CMA

Source: Statistics Canada. Table 14-10-0096-01 Labour force characteristics by census metropolitan area, annual



Figure 8.2: Population Aged 15 to 29 Not in Education, Employment or Training (NEET)



Data level: Kelowna CMA  
 Source: Statistics Canada -0920\_09 Table 1 - Population aged 15 to 29 Not in Education, Employment or Training (NEET) by age and sex, Canada, British Columbia and Kelowna (CMA), annual average (September to April), 2015/2016 to 2019/20201

## CHALLENGES AND COMMUNITY PROGRESS

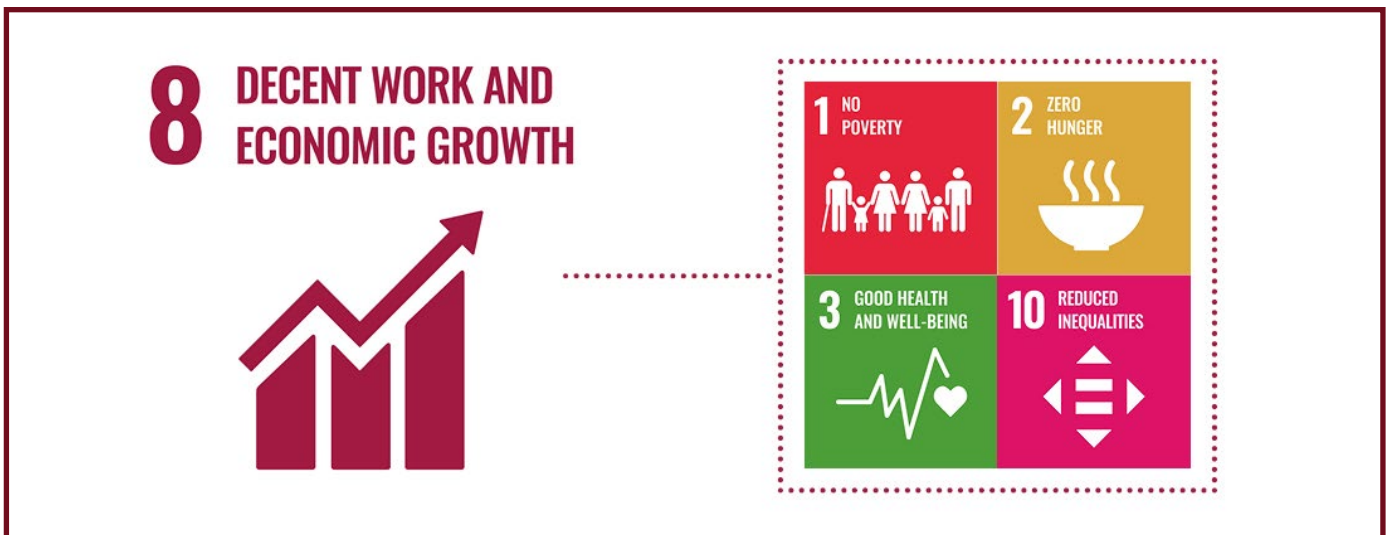
The Kelowna region has a diversified economy, with employment opportunities in areas such as health care, construction, agriculture and tourism. Yet, construction, agriculture and tourism typically offer seasonal employment and given that together account for approximately 23% of Kelowna’s workforce, contribute to overall unemployment rates periodically throughout

the region.<sup>69</sup> Key growth industries for Kelowna include information and high technology, film, viticulture, and wine production. The Canadian Federation of Independent Business (CFIB) ranked Kelowna as Canada’s top “large city” to start a business in 2018. Entrepreneurship has opportunities to prosper and grow employment opportunities, but also carries risk of unemployment. As industries such as high technology continue to grow, so too will employment opportunities, and this sector, which generally has higher wages and can in-

crease average household income (Goal 10), thereby helping to reduce poverty (Goal 1); increase food insecurity (Goal 2); and improve health and well-being (Goal 3).

While this report has not disaggregated unemployment or NEET rates by race it would be beneficial to do so for the development of policy and programs aimed at increasing education, training and employment opportunities for everyone. Canada’s colonial legacy continues to discriminate Indigenous Peoples from employment opportunities while also streamlining Indigenous students at a young age into non-technical classes.<sup>70 71</sup> Throughout the Okanagan Nation, Indigenous Peoples are working together to build up their economies and youth. Furthermore, Ki-Low-Na Friendship Society runs youth work readiness programs and Okanagan Nation Alliance used to run BRIDGES, to support youth in entering the labor market by providing education and training, job shadowing, internships, etc.). More work can be done in Kelowna with CSOs, private institutions and government agencies, working with Ki-Low-Na Friendship Society, Okanagan Nation Alliance and surrounding Nations to understand and help support culturally appropriate services to those not in the labour market.

### Goal 8 Interrelations





# INDUSTRY, INNOVATION AND INFRASTRUCTURE

## Local Community Indicators:

- **Sustainable Transportation.** Main mode of commuting to work
- **EV Stations.** Number of electric vehicle (EV) charging stations around community locations, residential areas and commercial areas

SDG 9 aims to ensure open access routes for the movement of people and goods in a safe and sustainable way. In Kelowna, this can be achieved through investment and development of affordable and efficient multimodal, connected transportation networks throughout the city and surrounding region. Protecting and enhancing air quality and the natural environment and reducing greenhouse gas emissions are important considerations in the development of transportation infrastructure and networks. Shifting to net zero emission vehicles and charging infrastructure will be an important transition towards achieving Goal 9, alongside increases in transit and connected networks of safe and accessible active transportation (e.g. connected walking and protected bicycling systems) throughout the city and region. To measure progress towards Goal 9 for Kelowna, two indicator measures have been identified:

- *Main mode of commuting to work*
- *Number of electric vehicle (EV) charging stations around community locations, residential areas and commercial areas*

## KELOWNA TRENDS

As shown in Figure 9.1, there has been a very slight decline (82% in 2011 to 81% in 2016) in commutes to work by passenger vehicles from 2011 to 2016, for both the province of B.C. and Kelowna. Even so, Kelowna’s commute by cars remains relatively high compared to commuter travel in B.C.

Shifting to net zero emission vehicles and investing in charging infrastructure will be an important transition for the community towards achieving Goal 9.

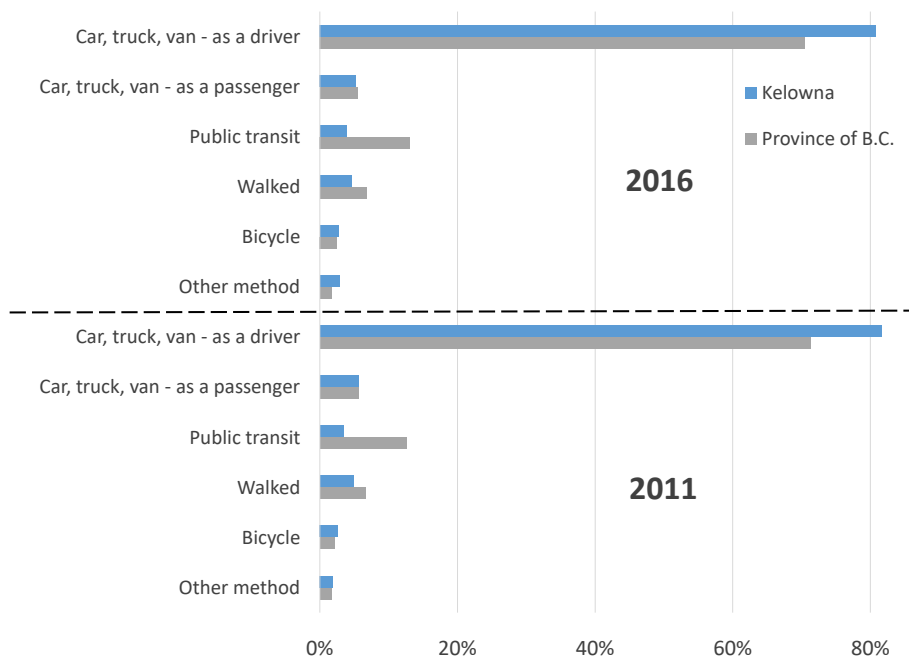
Figure 9.2 illustrates the number of Level 2 and 3 charging stations available in and around Kelowna. At the time of this report, ICBC released EV and hybrid vehicle data for Kelowna, showing almost 800% increase in the number of registered EVs (42 to 369) and 61% increase in hybrid vehicles (849 to 1,363) from 2015 to 2019.<sup>72 73</sup>

## CHALLENGES AND COMMUNITY PROGRESS

Investing in projects and programs that make it easier for residents to walk, ride a bicycle, or use public transit to work will help local residents in shifting their commuting habits away from single occupant vehicle (SOV) commutes. This

in turn will improve air quality (Goal 11) and reduce greenhouse gas emissions (Goal 13) — currently 53% of Kelowna’s GHGs in 2017 were transportation related. Modal shifts from SOVs to transit, bicycling and walking offer more equitable and affordable transportation options for those who cannot afford the expense of owning and maintaining a private vehicle as well as those who make the choice not to own or drive a vehicle for health, environmental and/or other reasons (Goal 1; Goal 3). The City of Kelowna is in the process of updating its Transportation Master Plan.<sup>74</sup> Once complete, this plan will identify strategic, prioritized investments that are needed over the next 20 years to create a safe, cost-effective and sustainable

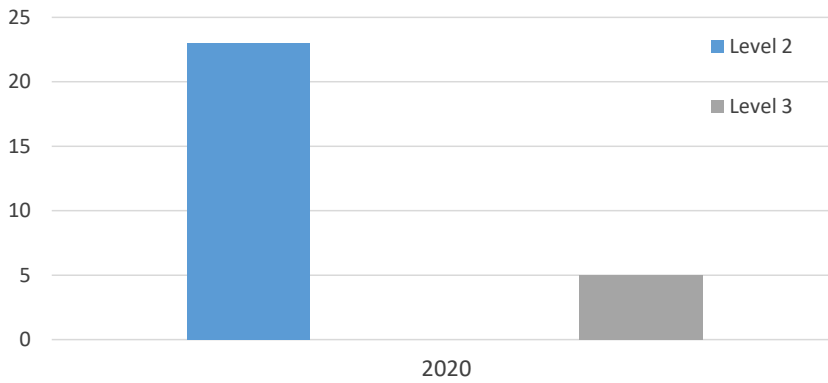
Figure 9.1: Main Mode of Commuting to Work



Data level: Kelowna CMA  
 Source: Statistics Canada, 2016 Census of Population and Statistics Canada and 2011 National Household Survey  
 Note: Other method may include plane, helicopter, snowmobile, ATV, rollerblading, scooter, etc.



Figure 9.2 : Number of Level 2 and Level 3 Electric Vehicle Charging Stations



Data level: Kelowna  
 Source: ChargeHub and Plugshare  
 Note: Chargehub and Plugshare are based on community participation. Number of stations will be updated as individuals identify and upload new stations. Data was obtained in February 2020.

transportation network. Monitoring trends related to the amount of vehicle kilometers travelled (VKT) can also help provide an understanding of progress towards this goal. While mode shift will capture if people switch from driving to biking, for example, tracking VKT can help determine whether people are driving more or less throughout the region. Transit ridership per capita is also an important measure to better understand modal trends in the region and support future modal shifts.

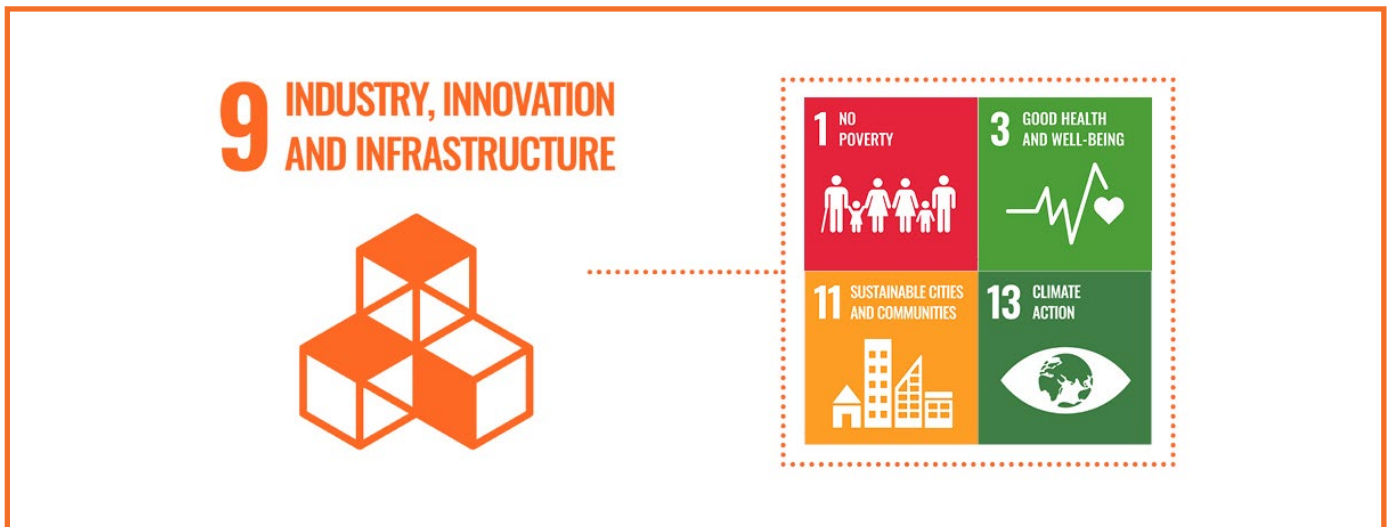
The City also aims to increase safe and accessible bikeways for all ages and abilities throughout various parts of the

city (currently there is approximately 300 km of on street bike lanes) with the plan to design and build more separated, protected bikeways, and shared-use pathways, of which, at the time of this report, about 60 kilometres exist in the city.<sup>75 76</sup> To continue increasing bicycling as a mode of commuting to work complete, safe, accessible (catering to all age groups and abilities) and directly connected routes must be available from home to work. Encouraging bicycling over SOV use as a main mode of transportation in Kelowna offers many benefits including reduced road congestion in the city, improved air quality, and a reduction in the community GHG

emissions. Transit and active transportation networks must be considered in the context of land use planning to ensure systems are connected, affordable, safe and accessible, and distributed equitably throughout Kelowna and the surrounding region.

EV and hybrids remain a very small proportion of total vehicles in Kelowna (i.e. 0.5% and 2% respectively in 2019).<sup>77</sup> To further support EV uptake, the City is developing an Electric Vehicle Strategy that will: examine standards for City capital and development projects to include EV infrastructure; investigate funding opportunities to expand the public EV network; and investigate options for regulations or incentives to expand the private EV network. Though the EV transition will go a long way in assisting Kelowna in meeting its climate reduction targets (Goal 13), strategies to encourage shifts to bicycling, walking and transit will still be critical for reducing greenhouse gas emissions, while meeting other community transportation needs. Such shifts can help limit traffic congestion, support more affordable transportation options, improve public health, and promote long-term financial sustainable transportation for the community.

Goal 9 Interrelations





# REDUCED INEQUALITIES

## Local Community Indicators:

- **Household Income.** Median household income relative to average household income

Kelowna has made promising strides in growing and diversifying the economy with new developments in sectors such as technology.<sup>78</sup> Yet economic growth on a macro scale does not mean income growth for all populations. Wealth increases amongst top percentiles only, means a greater divide between lower income earners and greater inequality throughout the community. Inequality can be symptomatic of other social issues, including health (Goal 3), education (Goal 4) and violence.<sup>79</sup> Achieving and sustaining income growth, particularly for those in the lower percentiles (the UN target states 40%), should be seen as a priority. The indicator being used to measure progress on Goal 10 is:

- *Median household income relative to average household income*

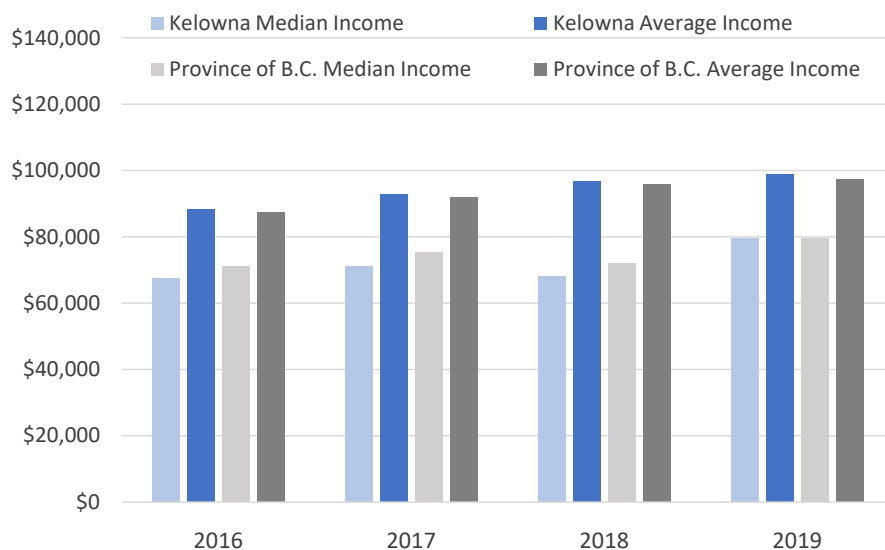
## KELOWNA TRENDS

Average incomes can be easily skewed by income outliers — if there are a few people with extremely high incomes (typically referred to as the top “1%”), the average is pulled to an amount higher than the median, creating a “skew to the right”. Most income distributions worldwide, including Kelowna’s, demonstrate a right skewed trend with average incomes higher than the median. This typically indicates a minority of wealthy individuals at the higher end of the income spectrum, with a majority near or below the median. In theory, equality means the average is equal to the median.

Figure 10.1 indicates that the average-median gap amongst incomes

in Kelowna between 2017 and 2018 increased by 33% (\$7,142.46). Between 2018 and 2019, this gap fell by 33% (\$9,502.72) as the average increased by 2% (\$1,882.61) and the median increased by 17% (\$11,385.33). This is comparable with the broader provincial trend, where the 2017-2018 gap saw a 43% increase (\$7,194.71) and the 2018-2019 gap fell by 26% (\$6,147.27), largely due to a 11% rise in median income (\$7,618.60). Figure 10.1 specifies average and median after-tax income, and does not account for assets or capital gains. These would require measuring wealth inequality, which would likely exhibit an even greater gap between median and average incomes, especially as some low incomes in Kelowna may not correlate with low wealth (e.g. retirees may have low incomes but many assets).

Figure 10.1: Median Household Income Relative to Average Household Income



Data level: Kelowna  
Source: Environics 2020

## CHALLENGES AND COMMUNITY PROGRESS

For Kelowna, the best means to capture inequality is to monitor the relative growth rates between median and average incomes to ensure that median income is growing at a rate faster, or at least similar to the average. As can be seen from Figure 10.1, this data moves substantially between years. A ratio based on a three-year moving average should be developed to account for any major swings in income from external factors. Analyzing equitable income growth also requires demographic data and the breakdown of income brackets by characteristics including gender, race, size of household, immigrants and type of family, to ensure no single group is being left behind. Furthermore, TRC Calls to Actions 7, 9, and 55iii are directly relevant to this indicator as it calls



**Kelowna and West Kelowna as viewed from Lake Country**

*Photo Credits: Adam Ruby Photography*

upon the federal government to eliminate employment gaps and compare income attainment between Indigenous Peoples and non-Indigenous Peoples.

Changes to the average or median income illustrates where the distribution is changing, but does not provide insight into why or where the change is stemming from. Income deciles help pinpoint where changes within the income distri-

bution are occurring. Using this alongside average and median income gives a good sense of where income growth is being accumulated.

The success of Goal 10 is dependent on other SDGs, such as ending poverty (Goal 1), reducing household food insecurity (Goal 2), improving the safety and inclusivity of cities (Goal 11 and 16), access to education (Goal 4) as well as

reduced unemployment and NEET rates (Goal 8). Monitoring the growth rate of the median relative to the average is essential to understanding economic trends with respect to inequality. Minimizing Kelowna’s income equality gap limits the tumultuous nature of economic booms and lows, and everyone can access the benefits of economic growth while remaining stable during periods of uncertainty.

*Goal 10 Interrelations*





# SUSTAINABLE CITIES AND COMMUNITIES

## Local Community Indicators:

- **Vacancy Rates.** Rental vacancy rate
- **Housing Affordability.** Percent of renters spending over 30% and 50% of income on shelter
- **Air Quality (PM 2.5).** Fine particulate matter (PM 2.5) annual, 3-year average
- **Air Quality (O<sub>3</sub>).** Ozone levels annual 4<sup>th</sup> highest daily 8-hour maximum, 3-year average
- **Green Space.** Percent of residents that live within 400m of a park

With more than half of the world’s current population living in cities and 86% of British Columbians living in urban and suburban areas, sustainable cities become increasingly more important in achieving the SDGs for B.C., Canada and the world.<sup>80</sup> From the UN’s perspective, “making cities sustainable means creating career and business opportunities, safe and affordable housing, and building resilient societies and economies”.<sup>81</sup> In addition to investment in public transport (Goal 9), sustainable cities often feature green public spaces, and improved urban planning, housing development and management. An important next step is to tie the indicators for sustainable cities and communities to disaggregated demographic data (e.g. age, race, income, etc.). Unfortunately, such disaggregated data was not readily accessible at the time of this report. For Kelowna, a more sustainable city can be measured through five local community indicators related to affordable housing, air quality and green

public space metrics:

### Affordable Housing

- Rental vacancy rate
- Percent of renters spending over 30% and 50% of income on shelter

### Air Quality

- Fine particulate matter (PM 2.5) Annual, 3-year average
- Ozone levels annual 4<sup>th</sup> highest daily 8-hour maximum, 3-year average

### Green Space

- Percent of residents that live within 400m of a park

## AFFORDABLE HOUSING

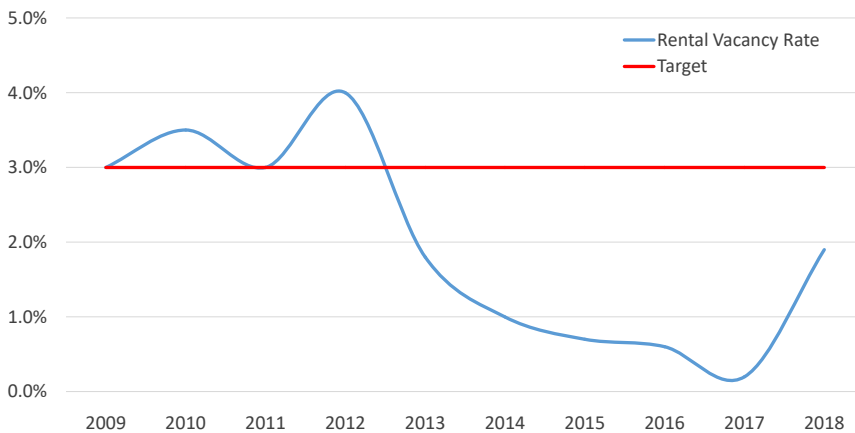
### KELOWNA TRENDS

Many Canadians remain priced out of home ownership, while demand for rental property continues to increase. A healthy rental vacancy rate for a municipality is 3-5%.<sup>82</sup> Since 2013, the vacancy

rate in Kelowna has fallen well below this target, as shown in Figure 11.1. Since 2017 vacancy rates have been on the rise due to a combination of factors including increased rental housing construction alongside commercial real estate investment in rental units.<sup>83</sup> The implementation of the City of Kelowna’s Healthy Housing Strategy (2018) will hope to further increase availability of rental units.

Alongside rental vacancy rates, the availability of affordable housing offers another important metric to measure progress towards Sustainable Cities and Communities. Affordable rental housing is met when a household spends less than 30% of their income (before tax) on rent and utilities; a crisis level of spending occurs when a household is forced to spend more than 50% of their income on rent. As seen in Figure 11.2, almost half of the renters in Kelowna (47%) are lacking affordable housing options, while more than one in five renters (21%) are at crisis level spending, making many susceptible to homelessness (Goal 1).

Figure 11.1: Rental Vacancy Rate



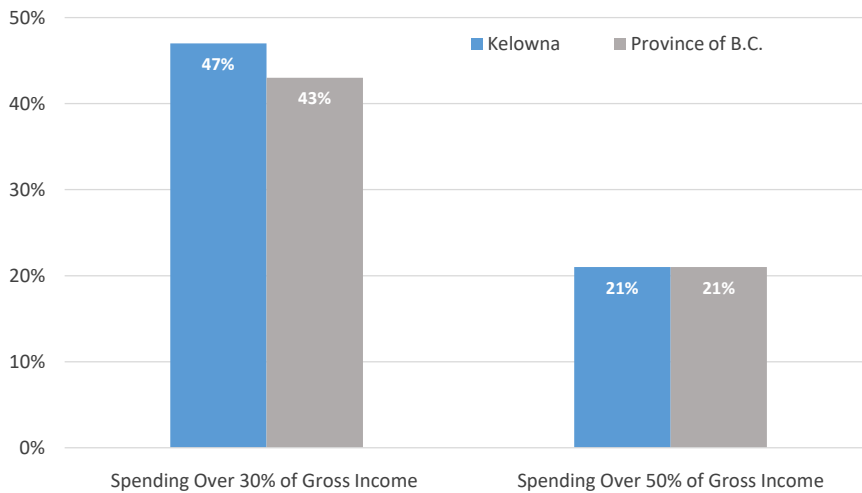
Data level: Kelowna  
Source: CMHC, Housing Market Indicators Kelowna

## CHALLENGES AND COMMUNITY PROGRESS

Rental housing consists of market and non-market rentals. Market rental housing refers to primary market (purpose built rental dedicated for long-term rentals) and secondary market (basement suites, single-detached rental houses, condo units that are in the rental market, etc.); with nearly 70% of Kelowna’s market rental comprised of secondary market units.<sup>84</sup> Secondary units are characterized by greater uncertainty in market availability as they tend to fluctuate in and out of the housing market more so than primary rent.<sup>85</sup> Non-market rental housing,



Figure 11.2: Percent of Renters Spending Over 30% and 50% of Their Income on Shelter, 2016



Data level: Kelowna  
Source: Rental Housing Index

on the other hand, is delivered to the community primarily through non-profit organizations and co-operatives but has limited availability in Kelowna. The availability of long-term, affordable rental housing in Kelowna was declining as investors bought up properties, and a growing number of more profitable short-term vacation rentals (e.g. Airbnb) were replacing longer term tenancy options. Historically, low level vacancy rates are causing market rents to rise, making it even more difficult for renters to secure affordable housing. To help balance the rental housing supply, the City has recently implemented new bylaws that regulate short term rentals in Kelowna.<sup>86</sup>

New purpose built rental construction can improve vacancy rates if enough units are built to meet and exceed community demand. The City's Healthy Housing Strategy (2018) is aiming to balance housing supply with affordability, adequacy (good physical condition) and suitability (fits resident's needs) through initiatives such as:

- Investigating rental only zoning to support more purpose built rental units (market and non-market), while also reducing the cost of de-

veloping these units through grants and revised tax incentives.

- Land use zoning to support "gentle densification" (e.g. duplexes, triplexes, etc.). In 2015, 46% of residential housing was in the form of single, detached dwellings, limiting affordable housing options for median to low income earners.<sup>87</sup>

In the community, Canadian Mental Health Association Kelowna is offering a pilot rent bank program to help increase housing stability for individuals in financial crisis situations. Rent banks enable those at margins unable to acquire loans from conventional financial institutions to obtain a short term loan to cover rent for a specified period of time. The City may consider working further with the community and non-profit sectors to measure, monitor and increase the supply and occupancy of non-market housing units. Increasing the number of non-market housing such as subsidized and cooperative housing units in Kelowna can improve housing stability rates and contribute to reducing poverty and homelessness (Goal 1 and Appendix B), improving financial standing, increasing food security (Goal 2) and general health and well-being (Goal 3) amongst residents.<sup>88</sup>

## AIR QUALITY

Air pollutants are substances emitted into the atmosphere in concentrations considered harmful to the environment, human, animal, and plant health. Those exposed to air pollution can suffer immune suppressed responses and increased sensitivity to respiratory infections (including COVID-19) as well as higher rates of cardiovascular disease and mortality, respiratory disease (Goal 3) and lung cancer.<sup>89</sup> Particulate matter (PM) and ground-level ozone pollutants are the key ingredients of smog and are threats to our health.<sup>90</sup>

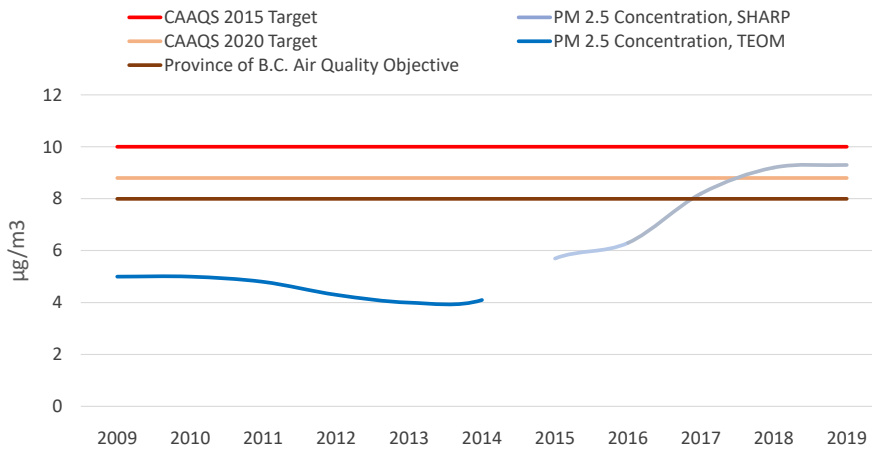
## KELOWNA TRENDS

Nationally, the Canadian Ambient Air Quality Standards (CAAQS) have set targets for 2015 and 2020. To assist in meeting these national air quality standards throughout the province, B.C. has set a voluntary target for PM 2.5 at  $8 \mu\text{g}/\text{m}^3$  (refer to Figure 11.3) and a mandatory target of 62 ppb for ozone levels (refer to Figure 11.4).

In Kelowna, an increase in PM 2.5 has been observed from 2015 onwards (Figure 11.3). Additionally, the years 2018 and 2019 saw the annual PM 2.5 values exceed the 2020 CAAQS targets. In 2014, the Ministry of Environment began using Synchronized Hybrid Ambient Real-time Particulate (SHARP) monitor instead of Tapered Element Oscillating Microbalance (TEOM) to measure PM 2.5 as TEOMs are prone to under-measuring PM contamination in certain conditions (e.g. cold temperatures and woodsmoke-affected areas, both common in many parts of B.C.).<sup>91</sup> This change to SHARP, combined with wildfire impacts, may be responsible for the observed increase in PM from 2015 onwards, as shown in Figure 11.3.

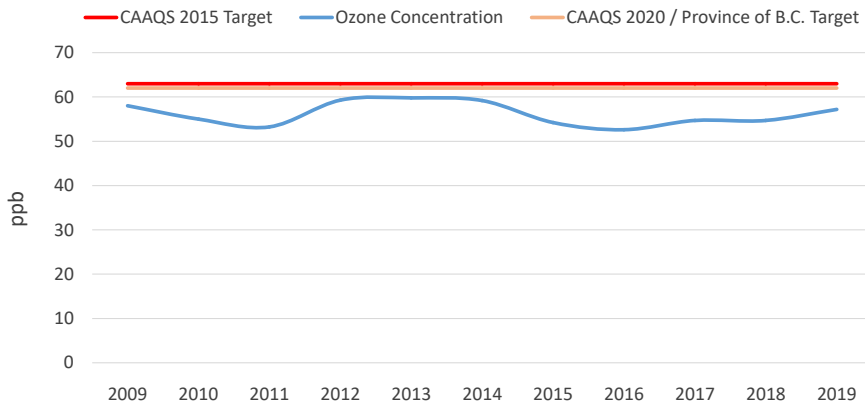
Another pollutant affecting air quality is ground-level ozone ( $\text{O}_3$ ), which is formed from the reaction involving nitrogen oxides ( $\text{NO}_x$ ) and volatile organic compounds (VOC) in the presence of sunlight and warm temperatures. As

**Figure 11.3: Fine Particulate Matter (PM2.5) Annual, 3-Year Average Values Kelowna Trends**



Data level: Kelowna  
 Source: City of Kelowna  
 Note 1: The years 2015 and 2016 contain combined data (TEOM & SHARP).  
 Note 2: Impacts of transboundary flow (TF) and exceptional events (EE) are included.

**Figure 11.4: Ground Level Ozone, Annual 4th Highest Daily 8-Hour Maxima, 3-Year Average Values**



Data level: Kelowna  
 Source: City of Kelowna  
 Note: Impacts of transboundary flow (TF) and exceptional events (EE) are included.

illustrated in Figure 11.4, O<sub>3</sub> levels in Kelowna have remained below the 2015 and 2020 CAAQS targets but have been showing an upward trend since 2017. B.C.’s transportation sector continues to be the major source of both NO<sub>x</sub> and hydrocarbons, which can cause breathing difficulties, as well as aggravation of asthma, other lung diseases and premature death.<sup>92</sup> As the City of Kelowna continues to implement strategies to reduce single occupancy vehicle use and support transition to electric vehicles (Goal 9) air quality improvements will be achieved.

### CHALLENGES AND COMMUNITY PROGRESS

Transboundary flows of air pollution, combined with exceptional events (e.g. wildfires), make regional air quality management complex. B.C.’s wildfire season, which is increasing in duration, frequency and intensity, can cause significant impact to local and regional air quality even if the fires originate in other parts of the province.

The Region’s Clean Air Strategy outlines sixteen strategies aimed at improving air quality in five key areas: sustainable transportation; green industry; clean outdoor activities; green buildings; and better information and awareness on air quality improvements. The district can’t act alone and improvements to Kelowna’s air quality will take time. These strategies must be implemented in the near-term, and across numerous jurisdictional boundaries, to ensure air quality improvement longer term. In 2018, City-led programs reduced levels of pollutants in the air: PM 2.5 by 99.40 tonnes; NO<sub>x</sub> by 3.11 tonnes; and VOCs by 34.17 tonnes.<sup>93</sup> Such programs include:

- Agricultural Wood Waste Chipping;
- Mow-Chip Rent-it Rebate programs; and,
- Burning permits - limiting numbers issued (Goal 12).

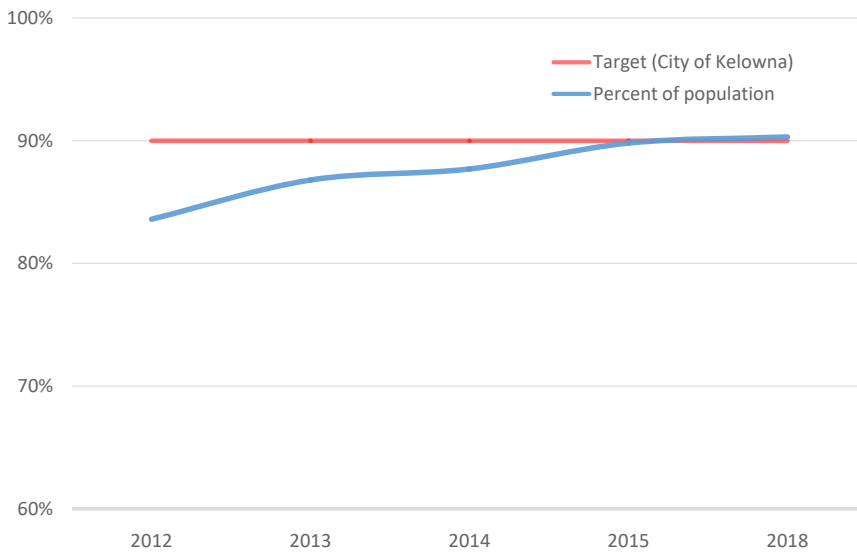
The implementation of greener and more equitable transportation options, such as those that will be outlined in Kelowna’s updated Master Transportation Plan (the City is in the process of updating its 1995 Transportation Master Plan) and the B.C. Government’s Zero Emissions Vehicles Act by 2040 will also serve to improve air quality while reducing transportation-related greenhouse gas emissions throughout the region (as described in Goal 9 and 13).

For the buildings sector, air quality improvements can be achieved through industry participation in voluntary programs, such as:

- mindful MATERIALS free database which supports use of low VOC building materials;
- LEED or Green Globes to promote green new construction; and
- BOMA BEST building maintenance programs for existing buildings.

The construction industry can also implement whole building life cycle assessments to reduce overall waste as well as energy consumption and emissions, and improve air quality (Goal 13 and

Figure 11.5: Percent of Population Living within 400m of a Park



Data level: Kelowna  
Source: City of Kelowna

Appendix F). To accommodate further improvements in Kelowna’s air quality trends, multi-stakeholder partnerships and consultation amongst local and provincial governments, First Nations, health authorities, private sector, CSOs, etc. is required.

## GREEN SPACE

Parks, green space and natural environments play a critical role in supporting community sustainability and in enhancing community quality of life. Parks and green space enable people to pursue active, creative and healthy lifestyles close to where they live and work.

## KELOWNA TRENDS

Figure 11.5 illustrates the percent of residents in Kelowna living within 400m of a park which has been steadily increasing since 2012. The City of Kelowna reached its target of 90% in 2015 and remained as such in 2018.

## CHALLENGES AND COMMUNITY PROGRESS

As Kelowna continues to densify, access to parks becomes increasingly more important especially as more residents

live in multi-family housing. Parks, green space, and natural environments provide a common space for recreation and socializing, enabling residents to get to know their neighbours and develop a strong sense of community. Access to green space increases the likelihood and frequency of physical activity. For instance, seniors living within walking distance to parks take more steps per day than those who don’t and residents are more than twice as likely to use active modes of transport to commute to work if parks are within the vicinity of their homes.<sup>94</sup> Studies also show people do not necessarily have to be physically active within natural spaces to experience mental health benefits.<sup>95</sup> Rather, the nearby proximity of green space and natural environments to one’s home can make a difference in people’s well-being.

Kelowna’s dedicated parks and green space should be considered in the context of larger public open space systems (e.g. regional, provincial and national parks and reserves) as well as transportation corridors to create interconnected systems of green space. Interconnected green networks enhance health and well-being, recreational experiences, and support habitat and ecosystem function throughout the community, region, and even the province. Furthermore, given COVID-19 related work-from-home advisories and physical distancing measures, many Canadians are spending more time at home and relying even more on parks and green space for recreation and exercise, and safe outdoor social interaction.

### Goal 11 Interrelations



**Local Community Indicators:**

- **Waste Generation.** Per capita waste disposal rate
- **Burn Permits.** Number of burning permits issued

As cities grow in size and complexity, so too do opportunities for enhanced urban design and development, local economic activity and social and recreational services, which all, in balance, can enhance quality of life. On the other hand, growing cities, and the buildings, transportation, industrial activities and infrastructure that supports them, impact natural landscapes, habitat and biodiversity. Cities' and regions' activities pollute air, soil and water, and produce significant amounts of waste, in many cases due to over production and consumption of goods and services. Goal 12 aims to achieve a healthy economy and sustainable development of cities and regions across the globe through responsible consumption and production and a minimal ecological footprint. For Kelowna, this report identifies two local indicators for which to measure progress in achieving Goal 12:

- *Per capita waste disposal rate*
- *Number of burning permits issued*

## KELOWNA TRENDS

Solid waste management for Kelowna falls under the jurisdiction of the Regional District of Central Okanagan (RDCO). The RDCO solid waste disposal rate is targeted at 600 kg per person by 2022, while the Province of B.C. has a voluntary target of 350 kg per person.<sup>96,97</sup> Figure 12.1 indicates waste volumes for the RDCO are on an upward trend, moving further from achieving regional and provincial targets. Flood mitigation and clean-up measures in 2017 caused an increase in the Central Okanagan's total waste; this increase was relatively small, accounting for 0.06% of total waste produced in 2017.<sup>98</sup> In 2017, the RDCO ranked 5<sup>th</sup> out of 27 regions in B.C. for highest waste production per capita.<sup>99</sup> RDCO has been in the top half of waste producers in the province since 2012.<sup>100</sup> To reverse this trend, all of society, including public sector organizations and institutions, businesses, and even the behaviours of local residents, must

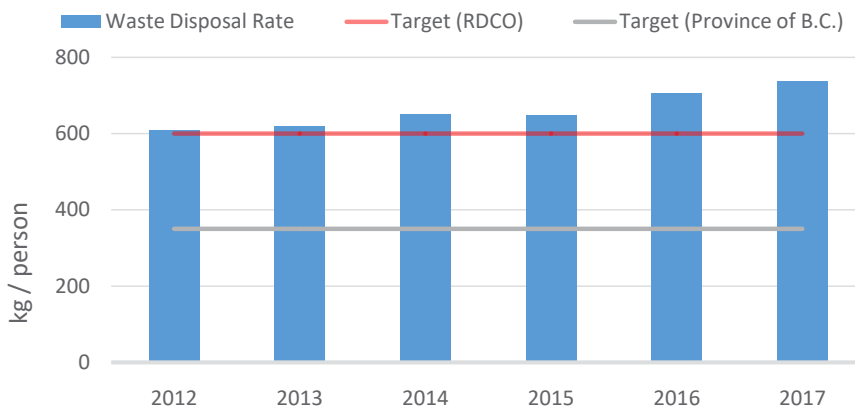
make responsible production and consumption of goods and services a priority.

The City of Kelowna is working to reduce air quality impacts (Goal 11) generated from waste by limiting the number of burn permits issued, especially for agriculture, forestry and land clearing. As shown in Figure 12.2, the number of burning permits issued, have ranged between 661 in 2012 to a low of 424 in 2017. While it is important to see the number of permits issued decrease, it is important to understand this in context of the total volume and type of waste burned.

## CHALLENGES AND COMMUNITY PROGRESS

As economies expand and income levels rise, so too does the trend towards over production, consumption, and increased waste.<sup>101</sup> To help address change to the region's wasteful trend, reduction efforts are required in three sectors: residential; institutional, commercial and light industrial development (IC&I); and construction, demolition and renovation activities (C&D). At the local government level, the RDCO's Solid Waste Management Plan 2020 is aiming to achieve a waste diversion rate of 50% by 2022. Policies and programs to achieve this diversion rate include implementing waste audits in the IC&I sector and increasing knowledge about Extended Producer Responsibility (EPR). EPR policies incentivize product design manufacturers to factor environmental considerations into their products, recognizing they are responsible for end of life management of the products.

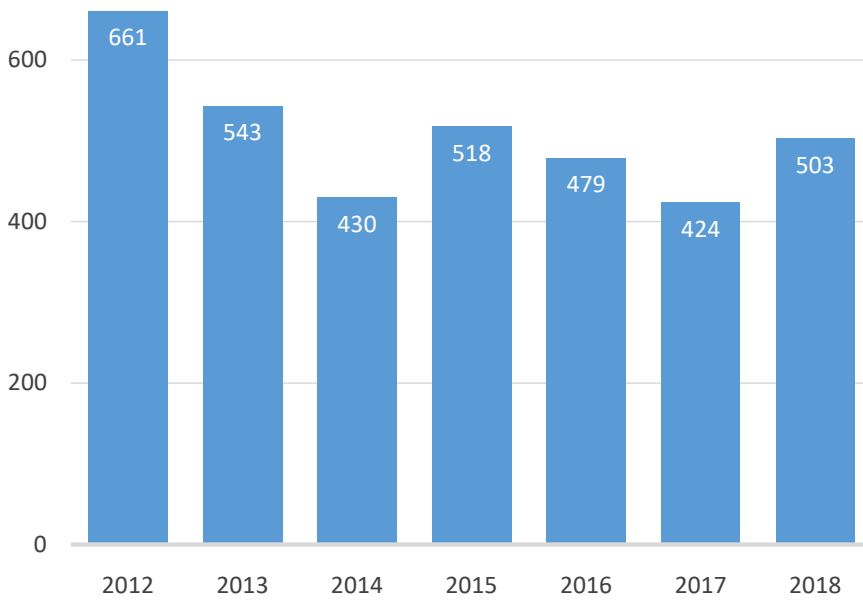
Figure 12.1: Regional District of Central Okanagan Waste Disposal Rates per Person



Data level: Central Okanagan  
 Source: BC Data Catalogue - BC Municipal Solid Waste Disposal  
 Note: Disposal rates do not include agricultural by-product, hazardous, biomedical, motor vehicles or components, contaminated soil or liquid water (biosolids)



Figure 12.1: Number of Burning Permits Issued



Data level: Kelowna  
 Source: City of Kelowna, Regional Air Quality Program

Additionally, through programs the City is implementing, such as Agricultural Wood Waste Chipping and Mow-Chip Rent-it Rebate, orchardists and residents are offered incentive to chip wood waste into mulch instead of burning.<sup>102</sup> Reducing the volume and type of material burned positively impacts air quality (Goal 11). For instance, in 2018 the implementation of City programs reduced pollutants PM 2.5 (99.40 tonnes); CO (403.81 tonnes); NOx (3.11 tonnes); and VOC (34.17 tonnes), from entering the air.<sup>103</sup> For Kelowna, all of society will need to prioritize responsible consumption and production to ensure sustainable urbanization to improve air quality and reduce waste. Further analyses on waste per capita and key waste sectors (residential; IC&I; C&D), alongside recommendations to reduce Kelowna’s growing waste disposal trends, are provided in Appendix E.

Goal 12 Interrelations





# CLIMATE ACTION

## Local Community Indicators:

- **Community Emissions.** Total annual GHG emissions from community activities

The Intergovernmental Panel on Climate Change (IPCC) warns human-caused GHG emissions must be reduced by 45% from 2010 levels by 2030 to limit global warming to and the risks of extreme weather, rising sea levels and other impacts.<sup>104</sup> Unprecedented changes in land use, transportation and buildings are needed to reach this target, and to ensure a healthy and resilient world for our current generation and through the future. Canada has committed to a 30% reduction of 2005 GHG emissions by 2030.<sup>105</sup> To achieve either of these targets, provinces and cities throughout Canada, must also track and take action to reduce emissions. To track the progress on Goal 13 for the community of Kelowna, metrics include:

- *Total annual GHG emissions from community activities*

## KELOWNA TRENDS

Community GHG emissions for Kelowna are estimated through fuel sales and provincial emissions data for energy and waste from three sectors: transportation, buildings, and waste. As shown in Figure 13.1, buildings and transportation emissions are on the rise, while waste emissions remain fairly consistent (with 2014 as an exception as landfill capture data was not included for that year).<sup>106</sup> The City's total emissions from these sectors was 721,037 tCO<sub>2</sub>e in 2017, or about 5.30 tCO<sub>2</sub>e/person.<sup>107</sup>

## CHALLENGES AND COMMUNITY PROGRESS

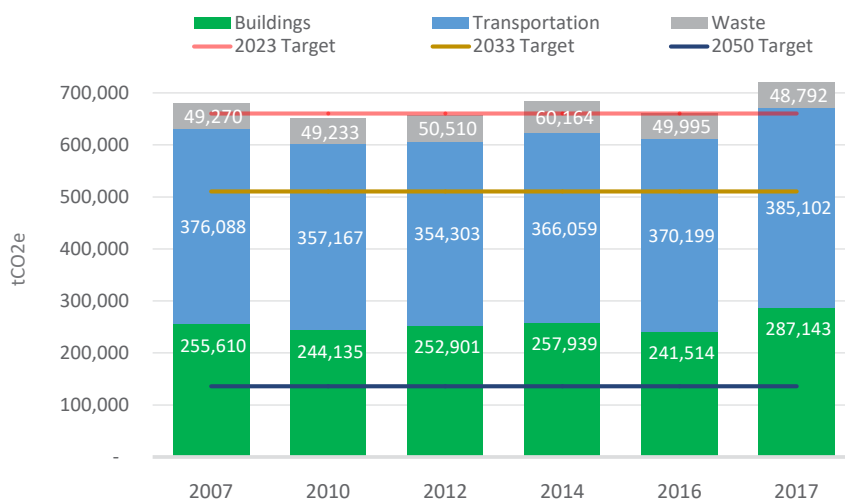
The City's Community Climate Action Plans defines a phased approach with

the goal of reducing GHG emissions to achieve reduction targets — 4% below 2007 levels for 2023; 25% by 2030; and, 80% by 2050, as shown in Figure 13.1. Achieving these targets will require complementary national, provincial, and local regulatory measures, as well as collective and individual commitment and action. Unless transformative action is taken, progress on achieving Kelowna's targets will be very difficult to attain, let alone the IPCC's targets.

Since 2012, transportation emissions in Kelowna have been on an upward trend, accounting for 53% of Kelowna's emissions in 2017.<sup>108</sup> Strategies underway to change this trend include:

- **Shifting transportation modes.** The majority of Kelowna citizens' daily trips (56%) are less than 5km in range.<sup>109</sup> Shifting these trips made by car, to transit, biking, or walking is an important strategy towards reducing transportation-related emissions and can also offer more affordable, healthier transportation options.
- **Updating the Transportation Master Plan.** The City is in the process of updating the 1995 Transportation Master Plan. Once complete, this Plan will identify strategic, prioritized investments that are needed over the next 20 years to create a safe, cost-effective and sustainable transportation network.<sup>110</sup>
- **Transitioning to zero emissions vehicles.** In addition to increasing renewable fuel content in gasoline and diesel, B.C. has legislated all new cars be zero emission by 2040 to assist cities in reducing

Figure 13.1: Total Annual GHG Emissions From Community Activities



Data level: Kelowna

Source: City of Kelowna and B.C. Utilities Energy Data at the Community Level

Note 1: Data only factors in operational emissions.

Note 2: Buildings data does not include emissions produced from District Energy Systems in the city.

community-wide GHGs.<sup>†††</sup> The City is in the process of developing an Electric Vehicle Strategy that will outline policies and programs to support EV adoption, and is expanding its public charging network to support the transition to EVs (Ref Goal 9).

Options to address emissions from buildings, which accounted for 40% of Kelowna’s GHG emissions in 2017 <sup>111</sup>, include: (Ref Appendix D for further details):

- **Benchmark to monitor and reduce emissions from buildings.** Benchmarking for multi-unit residential buildings (MURBs), industrial and commercial buildings is often done through voluntary programs such as Energy Star and BOMA BEST, and in some cases, such as in Ontario, can be mandated provincially. The City has partnered with OPEN Green Building Society to support large building owners in implementing a benchmarking program.<sup>112</sup>
- **Implement energy reduction strategies through new construction regulation.** The B.C. Energy Step Code aims to ensure all new buildings are “net zero energy ready” by 2032. The City has implemented Step 1 and will

require Step 3 (i.e. 20% more efficient than the current base Code requirements) on June 1, 2021 for Part 9 residential buildings and will be presenting a strategy for larger buildings (Part 3) to Council for consideration in early 2021.<sup>113 114</sup>

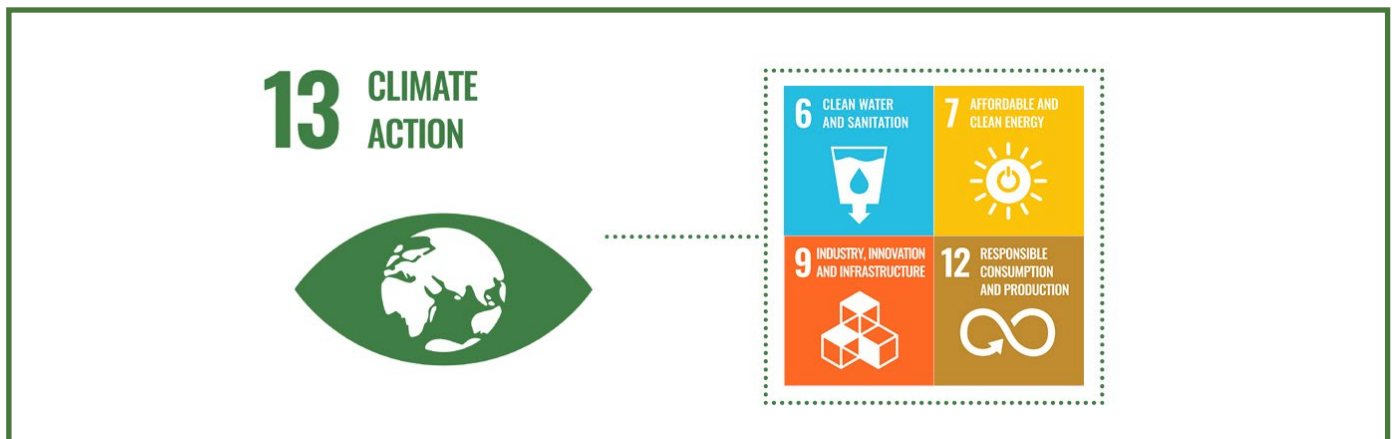
- **Support energy retrofits and fuel switching for all buildings.** Currently, the City provides rebates for Energy Assessments. Various organizations are exploring possible provincial rebates and/or financing programs (e.g. Property Assessment Clean Energy or “pay as you save” programs), to support retrofits, such as fuel switching from natural gas furnaces and/or water boilers to high efficiency electric heat pumps, can further result in significant emission reductions (Ref Goal 7, Figure 7.1). For such rebates, it is important to factor in who pays, and issues on affordability and equity (Goal 1 and 10) with regards to implementing building energy efficiencies and retrofits. Finally, voluntary programs like BOMA BEST, offer larger building owners support to improve building operations, reduce emissions, and save money.

Waste emissions are a result of the City’s consumption and production. Waste remains a relatively small

component (7% in 2017) of emissions the City is tracking.<sup>115</sup> In May 2018, a biogas facility was commissioned at the Central Okanagan landfill converting the gas produced by the decomposing organic waste to renewable natural gas (RNG). While RNG still represents a relatively small percentage of gas usage in Kelowna through the FortisBC network, increasing the RNG supply can substitute and help reduce the expansion of conventional natural gas and associated GHG emissions. Yet, though RNG remains less than the cost of electricity, it is more expensive than conventional natural gas, which reduces incentive for building owners to make the shift.

Addressing climate change on a global scale requires all cities to make transformative change. This will only be achieved through climate action that accounts for not only operational GHG emissions, but also embodied carbon, sustainable consumption and production, and climate justice, including social equity and environmental well-being for all. Appendix F provides further information on issues of embodied carbon, focusing on buildings. Further information on transportation and waste emissions reductions strategies are provided in Goal 7; Goal 9; Goal 11; Goal 12 and Appendix D.

### Goal 13 Interrelations



<sup>†††</sup> It’s important to note that BC’s increase in renewable fuel content in gasoline and diesel (per legislation) will provide downward pressure on GHGs, but won’t reflect a decrease in total GHG consumption for Kelowna due to the methodology of the GHG transportation indicator used at the time of this report.



# LIFE BELOW WATER

## Local Community Indicators:

- **Riparian Area.** Total riparian area permanently protected

SDG 14 is about the conservation and sustainable use of oceans, seas and marine resources for sustainable development. Some of the most productive ecosystems on earth are aquatic areas. In B.C., 25% of vertebrate, invertebrate and vascular plant species rely on aquatic ecosystems.<sup>116</sup> For Kelowna, life below water pertains to the many lakes, rivers, streams and creeks, and wetlands within and surrounding the region. In addition to supporting natural life and ecosystems, these important water bodies offer a wide range of outdoor recreation activities for Kelowna’s residents and visitors, alike. The key indicator for Kelowna to measure progress towards this goal is:

- *Total riparian area permanently protected*

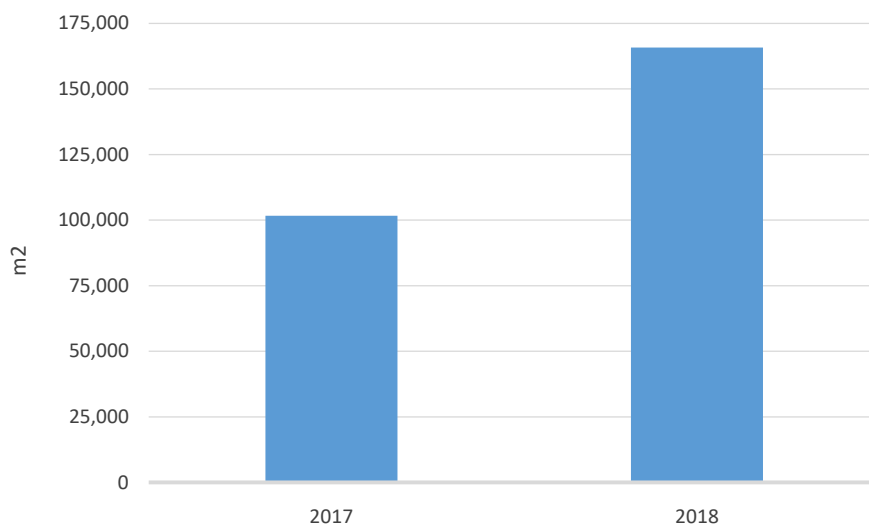
## KELOWNA TRENDS

Since 2017, the City of Kelowna has been increasing the amount of protected riparian areas through the use of “No Disturb Covenants” and park dedications as part of the City’s development process. In 2017, roughly 101,660 m<sup>2</sup> of riparian area was protected through the City’s development process (Figure 14.1). In 2018, an additional 64,128 m<sup>2</sup> of this important zone was added. Unfortunately, the total riparian area protected prior to 2017, and the overall riparian area within the city boundaries remains unknown. Ideally, as new development occurs in these sensitive areas, the City will continue to expand protected riparian areas.

## CHALLENGES AND COMMUNITY PROGRESS

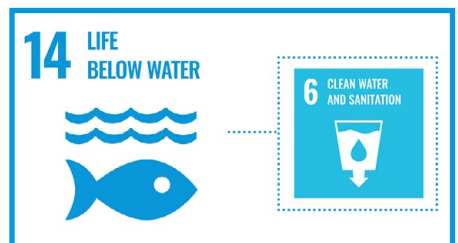
A riparian area is the transition zone between natural bodies of water and the drier upland vegetation. Healthy riparian areas are crucial to healthy aquatic and ground water systems, and to managing and maintaining both water quality and quantity — and to assist in ensuring healthy and plentiful drinking water for the city and region (Goal 6). Riparian areas are critical habitat for many species. They are key to filtering nutrients from water and offer shade for streams from solar heat gain.<sup>117</sup> They can also sequester carbon, offering nature-based mitigation to the changing climate, and effective green infrastructure. The roots of trees and shrubs in riparian zones help build and maintain stream and river banks, store water during high stream levels, and reduce the risk of flood. In 2017 and 2018 throughout the region, increased precipitation and melting snow increased groundwater levels, causing major flood and damage to creeks and the Okanagan Lake foreshore.<sup>118</sup> Maintaining and enhancing riparian areas can help protect against natural hazards and enable a city and its residents to adapt to climate change impacts.

Figure 14.1: Total Riparian Area Protected



Data level: Kelowna  
 Source: City of Kelowna  
 Note 1: Riparian areas protected via "Do No Disturb" Covenants and Park dedications through development process

### Goal 14 Interrelations







# LIFE ON LAND

## Local Community Indicators:

- **Green Space.** Percentage of green space protected from development

Goal 15 aims to conserve natural habitats and biodiversity — the variety of life (plants, animals, fungi and microorganisms) found on Earth. Biodiversity is tied to our most basic needs — food, shelter and clothing, as well as our economies, medical benefits, cultural and aesthetic values.<sup>119</sup> Protection of valuable ecosystems and the biodiversity through the conservation of dedicated parkland, natural habitat and open green space, has far reaching benefits to Kelowna’s land, air, water, wildlife and people. Progress on Goal 15 in Kelowna is measured by:

- *Percentage of green space protected from development*

## KELOWNA TRENDS

As shown in Figure 15.1 Kelowna has seen a slight upward trend of protected

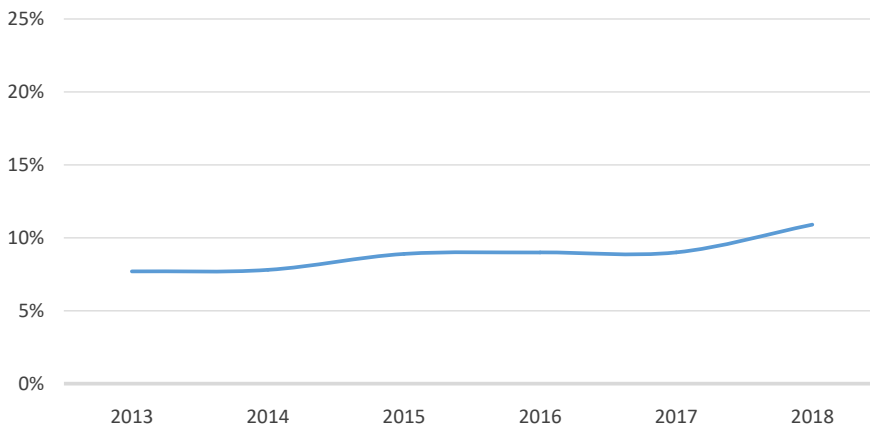
green space in the city, with 2,365 hectares, more than 10% of Kelowna’s total land area, protected as of 2018.<sup>120</sup>

## CHALLENGES AND COMMUNITY PROGRESS

Through its parkland dedication program, the City of Kelowna has acquired an increasing amount of parkland both within and outside Kelowna’s urban centres. Access to green space has been linked to both mental and physical health benefits (Goal 3) and reduced stress.<sup>121</sup> From an Indigenous perspective, traditional territory, which may coincide with dedicated green space and natural habitat and features, is vital to Indigenous Peoples’ connection with nature and to support many other important cultural activities (e.g. the harvesting of traditional foods and medicines), and to healing from the

legacy of colonialism.<sup>122</sup> In addition to social, physical and mental health benefits, many of Kelowna’s dedicated parks and green spaces comprise important riparian zones and corridors (Goal 14); forests and grassland; and natural open space, all serving to offer important habitat; maintain water quality and quantity (Goal 6) as well as air quality (Goal 11); and offer natural flood protection and carbon sinks to help adapt to and mitigate climate change (Goal 13). Certainly, throughout 2020 parks and open green spaces have taken on even greater importance since, as health authorities encourage people to use parks and open space for safe physical and social activities during the COVID-19 pandemic. Now more than ever, multi-modal access to (by walking, biking, and/or transit - Goal 9) and equitable distribution of parks and green space for all, regardless of income, abilities or age is critical.

Figure 15.1: Percentage of Protected Parkland



Data level: Kelowna  
 Source: City of Kelowna  
 Note: Captures properties that are zoned park (city-owned parks, regional, provincial and federal parks, ecological

## Goal 15 Interrelations





# PEACE, JUSTICE AND STRONG INSTITUTIONS

## Local Community Indicators:

- **Crime Rate.** Crime rate per 100,000 population

Just, peaceful, strong institutions, as promoted by Goal 16, are the foundations of sustainable development and a reflection of highly liveable, safe and equitable societies. In many ways, **Goal 16 can be considered an enabling goal for the achievement of the whole of the UN's Agenda 2030.**<sup>123</sup> Progress towards this goal for Kelowna depends, in part, on reducing crime and increasing safety throughout the community, which can directly influence quality of life and personal and community well-being. As a means to measure progress on Goal 16 at the local level, this report provides data on:

- *Crime rate per 100,000 population*

## KELOWNA TRENDS

The rate of crime in Kelowna is higher than that of the Province of B.C., and is continuing to increase, which is in direct contrast to province-wide trends (Figure 16.1). In 2018, both violent and nonviolent crimes increased, with 61% of violations being non-violent property crimes.<sup>124</sup>

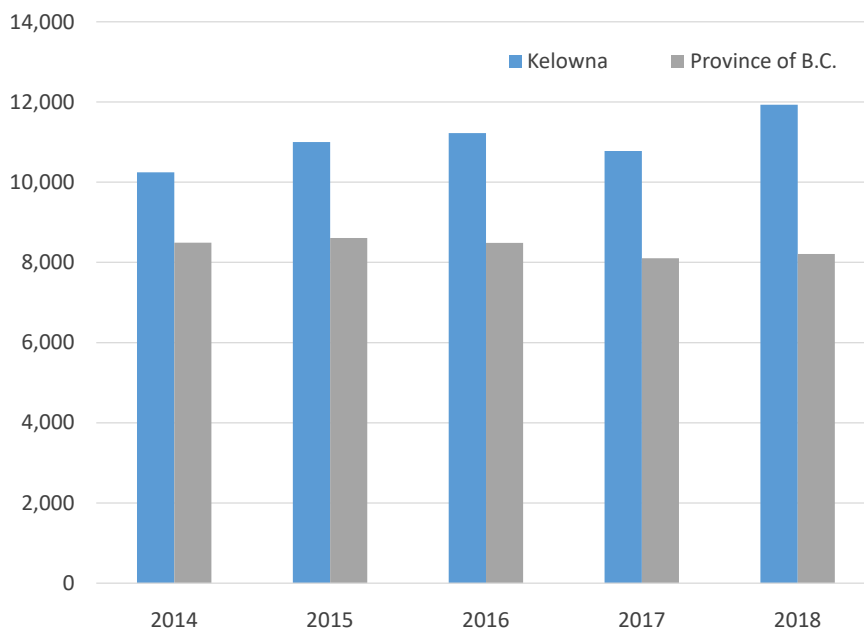
## CHALLENGES AND COMMUNITY PROGRESS

Although not a root cause, experts suggest issues related to housing (lack of affordable housing, homelessness, etc.), substance abuse, and mental health

are contributing factors to Kelowna's increasing property crimes.<sup>125</sup> Supporting programs that address these critical issues, such as the Housing First strategy (Ref Appendix B), increasing the stock of affordable housing (Goal 11) and Kelowna Community Action Team (Goal 3) can help to alleviate severe poverty and those suffering from substance abuse and mental health issues, while also helping to reduce crime rates in the city.

Throughout Canada, Indigenous Peoples are over-represented in the criminal justice system as victims/survivors and accused/convicted;<sup>126</sup> a trend that is even more pronounced among Indigenous women.<sup>127</sup> In 2016/17 Indigenous men comprised 30% of new admissions to adult corrections in B.C., while Indigenous women comprised 47%, despite Indigenous Peoples representing only 5% of the population.<sup>128</sup> Multiple inquiries, commissions, research studies and task forces have linked these excessive admissions to historical and ongoing colonial laws, policies, processes and systems, including systemic discrimination throughout the criminal justice system.<sup>129</sup> Ki-Low-Na Friendship Society has highlighted that Kelowna is not immune to the overrepresentation of Indigenous Peoples in the criminal justice system.<sup>130</sup> Decolonization, supporting culturally relevant correctional programming unique to each First Nation community, and providing more Indigenous representation in the justice system are key to resolving systemic issues, as outlined in the TRC's Calls to Action (numbers 30, 31 and 37).<sup>131</sup> The newly formed B.C. First Nations Justice Council is working to do just this with the creation of 15 justice centres in First Nations communities throughout B.C. Ultimately to help address this issue, more work can

Figure 16.1 : Crime Rates per 100,000 Population



Data level: Kelowna, RCMP municipal (59765)

Source: Statistics Canada. Table 35-10-0184-01 Incident-based crime statistics, by detailed violations, police services in British Columbia

Notes: Kelowna, RCMP rural (59766) has not been included.

be done in collaboration with multiple stakeholders in the community such as Kelowna RCMP, City of Kelowna, Okanagan Nation Alliance, Westbank First Nations, Ki-Low-Na Friendship Society and CSOs.

Kelowna’s Police and Crisis Team (PACT) can be seen as a response to begin to address institutional challenges. Formed in 2017, PACT is a partnership between Interior Health and the Kelowna RCMP, which supports a specially trained police officer and a mental health nurse to work together to connect people in crisis with the services they need. By first applying de-escalation techniques, programs like PACT prove promising in ensuring vulnerable people are not inappropriately placed in the justice system. Increasing resources would broaden their impact and continue to help reduce stigma towards those suffering from mental health issues within the RCMP. In addition, CSOs, such as the John Howard Society of Okanagan & Kootenay offers restorative justice programs — whereby the victim and of-

fender resolve criminal charges through facilitated community justice forums or conferencing — for non power-based crimes (e.g. shoplifting, mischief and non-domestic assault). These programs assist law enforcement and are cost-effective as compared to the traditional justice system.<sup>132</sup> Additionally, they help strengthen community bonds by allowing victims to have a voice while also encouraging offender accountability. With COVID-19 creating an increase in mental health calls and overdose deaths, intergovernmental support for CSOs such as John Howard Society, and the allocation of adequate resources for programs such as PACT is of even greater importance.

To achieve the whole of Agenda 2030, Kelowna must work towards creating a more peaceful and just society for all. Many goals are directly linked to achieving peace and justice throughout society. For instance, reducing crime is deeply tied to complexities of poverty and homelessness (Goal 1); substance abuse and mental health (Goal 3);

gender equality (Goal 5); decent work and economic growth (Goal 8); equitable incomes (Goal 10); and affordable housing (Goal 11). The community must also work towards eliminating systemic bias and discrimination deeply embedded in our social fabric, including law enforcement and our legal institutions. Partnerships between CSOs, all levels of government and local health authorities are vital, with human and financial resources appropriately allocated to give programs designed to assist law enforcement and reduce discrimination the chance of success. Furthermore, the community, and all of society, needs to commit to taking action to eliminate the overrepresentation of Indigenous Peoples in the criminal justice system throughout the Kelowna region, and beyond. This is best achieved through intergovernmental commitments towards decolonization, as well as continued partnership support amongst First Nations, Indigenous organizations and CSOs on implementing culturally relevant correctional programming.

*Goal 16 Interrelations*





# PARTNERSHIP FOR THE GOALS

## Local Community Indicators:

- **SDG-related Work.** Number of non-profit organizations working on the SDGs in domestic and international frameworks

Goal 17 aims to enhance the partnerships for sustainable development, including multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the SDGs in all countries, regions and subregions. Achieving the UN’s 2030 Agenda requires global citizenship within a global to local context, supported through a network of partnerships. For Kelowna, progress towards Goal 17 is measured by:

- *Number of non-profit organizations working on the SDGs in domestic and international frameworks*

## KELOWNA TRENDS

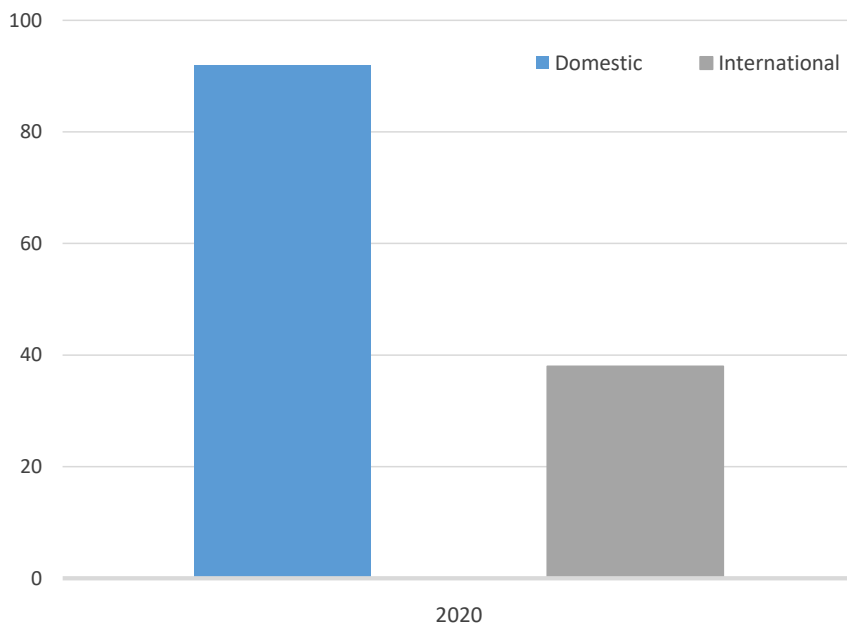
Figure 17.1 illustrates the number of organizations the BCCIC has identified in the Central Okanagan that are working domestically, in Canada (Domestic), and internationally (International) on projects or programs related to the 17 SDGs. These organizations have an online presence that’s tied to SDGs, or have attended one of BCCIC roundtables and self-identified as working on the SDGs. At the time of this report, the data does not include academic institutions, government agencies, or the private sector involved in work that relates to the SDGs and progress towards Agenda 2030.

## CHALLENGES AND COMMUNITY PROGRESS

During a series of provincial roundtables in B.C. from 2015-2017, BCCIC found that there were many organizations and residents working on the SDGs. However, they were not yet collaborating and/or participating in partnership to accomplish the goals. The Movement Map was created to advance their work outside of “silos” and make connections amongst the organizations, and across their communities, the province and Canada. [The Movement Map](#) shows over 11,000 organizations across Canada working directly on the SDGs, many at the community scale, with 1,906 organizations working on the SDGs in B.C., alone. Highlighting these connections and organizations in the Central Okanagan is important. Partnerships amongst the municipal and regional governments, community organizations, academic institutions as well as provincial and federal agencies will be essential to effective measurement and analysis of the SDGs, as well as addressing many other related local community planning and policy issues relevant to the vibrancy of Kelowna and the health and well-being, and quality of life of its citizens.

Within a local context, SDG 17 is crucial for connecting local organizations, governments and citizens who are contributing to sustainable development. Streamlined and collective efforts are key to achieving the SDGs and can be attained through increased localized partnerships and collaborations across sectors. Partnerships facilitate the mobilization and sharing of knowledge, as well

Figure 17.1: Number of Non-Profit Organizations Working on SDG Related Work



Data level: Central Okanagan  
Source: BC Council for International Cooperation, Movement Map





**Kelowna SDG Roundtable, 2016**

*Photo Credits: Kareen Wong*

as expertise, technologies and financial resources. Furthermore, in organizations where trust has been built among marginalized groups, multi-sector partnerships are central to effective and efficient change.

Many successful partnerships are already underway amongst community organizations, government agencies, and Indigenous Peoples, such as the Journey Home Program and Kelowna Community Action Team (Goal 1, Goal

3 and Goal 11). Extensive partnerships are key to connecting with citizens on the UN's 2030 Agenda, and enabling the community of Kelowna to work, collectively in achieving this ambitious program.

*Goal 17 Interrelations*





# CONCLUSION

Progress towards achieving the UN's 2030 Agenda relies heavily on local action with a "whole of government" and "whole of society" partnership approach. This Kelowna VLR outlines 28 measurable, localized to both geographical and cultural context, community-level indicators covering the 17 SDGs. Through this Kelowna VLR process, it became apparent that though there are many government (municipal, provincial and federal) programs and policies underway, the intersectionality of the SDGs are deep-rooted, broad and complex, and many significant barriers and gaps to policy implementation remain. Successful collaborations amongst government, CSOs, Indigenous organizations and the private sector are underway, yet more are needed to highlight barriers and close these gaps. In 2020 two critical events, COVID-19 and the Black Lives Matter movement, amplified the injustice and inequalities experienced by marginalized groups across the globe. Kelowna is not immune to these inequities, and recognizing the intersectionality of the SDGs at the community level is ever more important.

For Kelowna, poverty remains a major challenge in making progress in almost all of the goals. Furthermore, our individual and collective, explicit and implicit stigmas, bias and racist attitudes are significant barriers towards achieving the SDGs as they influence our education, health, political, economic and governance systems. Stigmas, bias and racism is detrimental towards achieving local level progress on the SDGs, as such behaviour can:

- Restrict more equitable policies and programs from being developed and implemented;

- Create barriers for people from accessing the support and treatment required;
- Prohibit funding to organizations that carry out effective work; and,
- Unfairly position and/or leave marginalized groups behind.

Throughout Canada, the BIPOC community, especially Indigenous Peoples remain marginalized and under-represented in social, economic and environmental policy and program decision-making. Understanding Canada's history of colonization and slavery is vital to transitioning to a more equitable, socially prosperous and environmentally resilient community as this history influences how groups of people are being treated today in communities across Canada. A single, localized SDG issue affects racialized groups differently. At the community level, identifying and understanding the demographics of the community (different age groups, income levels, and race) in context of each goal is essential to developing equitable policy and services for different needs. Disaggregated data has been analyzed for some of the indicators in this

report, however further demographic analysis is recommended if the community of Kelowna is to effectively evaluate progress in achieving the global goals and develop inclusive solutions. Careful consideration must be taken to ensure data collection and use does not reinforce stigmatization but rather serves to reduce systemic racism, oppression and achieve equity.<sup>133</sup> Furthermore, crafting inclusive solutions will require community leaders to reflect on personal biases, lack of knowledge and understanding, and to commit to creating an equitable platform amongst all.

In B.C., a number of First Nations organizations such as First Nations Health Authority, First Nations Education Steering Committee and BC First Nations Justice Council are reforming colonial systems forced upon Indigenous Peoples, and working to restore their culture. In the Kelowna area, the Syilx /Okanagan Peoples "... are emerging as a resilient and determined people, working to revitalize [their] communities and uplift [their] people to challenge the barriers [they] face and to restore a high quality of life and self-sufficiency". The Syilx /

## Kelowna Downtown Boardwalk

*Photo Credits: Kolby Milton (Unsplash)*





Okanagan Peoples believe that what they do today “will impact the next seven generations...”<sup>134</sup> There is much that can be learned from Indigenous perspectives; aspects of intergenerational responsibility offer valuable insight about conventional, more immediate approaches to achieving sustainability. These perspectives and success stories should be shared throughout communities across the country. For this report, some of the recommendations in the TRC Calls to Actions have been mapped to Kelowna’s VLR indicators. In Kelowna, more work can be carried out amongst local governments and the Province with First Nations and Indigenous organizations to identify social, environmental and economic needs and provide effective support.

This report was instrumental in defining local level SDG indicators for the

community of Kelowna. An important next step towards successful implementation of the SDGs is to set measurable, community scale targets, such as those developed for Goals 11, 12 and 13.

Quantifiable target setting for each goal will assist the community in evaluating effectiveness of current policy and programs, and inspire new programs and actions, creatively designed to meet the targets. For some SDGs, such as household food insecurity (Goal 2), targets have not yet been defined locally as, nationally, there is a lag in understanding the severity of the issue. Yet, organizations such as PROOF and the health authorities across B.C. are providing valuable information on food insecurity, which could be used to develop suitable targets for the community.

To achieve the SDGs at the local level,

we must, community-wide, commit to identifying, understanding and respecting different needs, and to explore and expand solutions, collaboratively, to support these different needs in different ways. True progress towards achieving many of the goals requires marginalized groups to be thriving, alongside a prosperous majority. Together, the community needs to refine the local level indicators, establish 2030 targets, and continue to measure and monitor progress in achieving the SDGs. Federal and provincial, support and resources for community-level leadership, action, and multi-stakeholder partnerships are critical to local-level progress. Finally, as we aim to achieve Agenda 2030, we must recognize there is no single solution for all; but rather many collaborative and inclusive solutions for everybody.



**Lake Okanagan as Viewed from West Kelowna**

*Photo Credits: Mike Penna*



## APPENDIX A - LOW-INCOME MEASURE OVERVIEW (GOAL 1)

Reducing and eventually eliminating poverty requires actionable measures to be implemented by all levels of government, the private sector and civil society. This appendix offers information on poverty metrics and an overview of some effective poverty reduction strategies: ensuring minimum wage increases match rising costs of living; basic income policies; living wage certifications; and rent banks.

In August 2018, Canada unveiled its first ever poverty reduction strategy with the aim of reducing poverty across the nation by 50% relative to 2015 levels, by the year 2030. Prior to this period Canada did not have a national poverty measure. As a large country with great diversity of industries and economic activity to population densities, the cost of living can dramatically change between provinces and territories, regions, and the cities and communities within.

In Canada, Low Income Cut Off (LICO), Low Income Measure (LIM), and Market-Based Measure (MBM) are used as poverty metric indicators. LICO is only used in Canada, does not offer international comparisons, and has not been adjusted since 1992, and as such, does not offer a useful poverty measure for this report. Although MBM has been adopted as the poverty measure both federally and provincially, it is not recommended for Kelowna due to the limited sample size and data quality, which results in unreliable and volatile data that can't be disaggregated. Comparatively, LIM allows for micro-level analysis, demographic breakdowns, and international comparisons, and is applicable and accessible to the Kelowna CMA. As such, LIM is the recommended measure in evaluating poverty. LIM

establishes the poverty threshold as those making less than half the median income in Canada, or in other words, those within Canada's 25th percentile of income.

Typically, LIM data in Canada is divided into three age groups: 0-17, 18-64, and 65+. For purposes of this report, its recommended LIM be further divided into age groups such as: 0-24, 25-64 and 65+, to differentiate the unique financial needs of these different demographics. For instance, people falling under the age of 17 typically do not require a living wage, as they are likely to be living in a household with an adult and do not have a family to sustain. Furthermore, young adults (16-24) who are of a working age are usually completing high school, in post secondary education, or starting their career. If workers of this age group are temporarily within the LIM category, but are then readily able to find financially stable employment, poverty related solutions may not be required. At the time of this report, specific demographic datasets were not obtained and analyzed. A key action item for Kelowna is to obtain, analyze and use disaggregated data so that important demographic information such as household size; immigration status; type of employment; level of education can be analyzed in context of low income status to better understand drivers of poverty and design solutions to address them.

The Province of B.C. is in the process of rolling out a phased approach to increasing minimum wage to \$15.21 CAD by 2021.<sup>135</sup> Adjusting minimum wage is key to ensuring wages keep up with rising prices and that a price floor (base-line amount) exists for low-skill workers.

Yet, there are inherent complexities of increasing minimum wage, which can in turn, inflate overall prices. For example, wage increases for a restaurant may result in increases to menu prices, potentially resulting in lower revenue. Alternatively, the restaurant may hire fewer workers, resulting in less job opportunity for inexperienced workers. Significant increases to minimum wage may result in increases in automation, overall higher consumer pricing and detrimental economic consequences to young and inexperienced workers, such as fewer job opportunities, reduced working hours, and reduced benefits. These can result in disproportionate impacts for low-income individuals.<sup>136</sup> Marginal minimum wage increases, where the hike is about 40-60% of the median wage, can reduce such negative economic consequences.<sup>137</sup> For example, if the median wage is \$30, then arguably the minimum wage could increase to around \$15 (50% of \$30.00). Ideally, minimum wage increases consistently and relatively to overall income increases in the country. Marginal minimum wage increases are an effective way of reducing extreme poverty.

Living Wage Canada offers another strategy aimed at reducing poverty by encouraging industry and companies to participate in employee pay programs that reflect actual cost of living in the community. While minimum wage is the legal minimum all employers are required to pay employees, Living Wage Certification works to ensure employees are provided a wage reflective of what earners need to adequately care for their family in their specific community. Living Wage Canada provides the framework for calculating a living wage for various regions throughout Canada. The



Central Okanagan (Kelowna CMA) living wage is listed at \$15.93.<sup>138</sup> A living wage can assist in supporting individuals and families out of severe financial stress by providing a basic level of economic security. Living wage enables families to live on a modest budget, covering: rent; food; transportation; clothing; child-care; medical expenses; and other basic living costs, with very limited spending on non-necessities. Living wage does not provide for retirement or education savings, homeownership or anything beyond basic recreation and holidays. Living wage engages employers in paying salaries and wages that are sufficient to provide the basics to families with children.<sup>139</sup>

At the federal and provincial level, Basic Income (BI) can also be implemented to help alleviate poverty. In theory, BI is a government guarantee that a minimum income is received by all citizens. The three defining features of a BI are (i) the income is universal, meaning that everyone receives it, (ii) it is unconditional, meaning there are no conditions needed to be met to receive it, and (iii) it is paid directly to individuals.<sup>140</sup> In Canada, BI was explored through initiatives such as the Mincome Experiment in Dauphin, Manitoba in the 1970s, and the 2016 Ontario Basic Income Pilot. Following a change in government (federal and provincial respectively), both of these experiments were unable to run

to completion, however preliminary evidence indicates an increase in well-being amongst individuals, with an ability to invest in other aspects of life (e.g. running a small business, ability to stay home with kids, or go back to school). Additionally, BI programs can support equity across a community, offering access, choice, and “purchasing power” of the services and goods individuals require. Finally, BI can strengthen a households’ ability to contribute to the economy through budget shocks or unexpected events that impact economic well-being. As CERB (Canadian Emergency Response Benefit) has responded to the COVID-19 pandemic, BI too can serve as a tool to reduce economically turbulent times, and support continued quality of life and well-being during uncertainties in life. A final report of the British Columbia Expert Panel on Basic Income was released in January 2021. The report provides an in depth analysis of basic income for B.C. and 65 recommendations for reforming B.C.’s income and social support system.

According to the Point in Time Counts, the majority of homeless people in Kelowna cited an inability to pay their rent or mortgage as the primary cause for their homeless state.<sup>141</sup> With the rising cost of living and housing, people falling under LIM are more susceptible to homelessness. Disaggregated demographic data on those falling under LIM,

as well as those spending more than 30% and 50% of income on rent (Goal 11) is important to gain insight into the susceptibility of homelessness within a community. Numerous communities within B.C. (e.g. Vancouver in 2008 and Kamloops in 2013) have implemented Rent Banks as an immediate, short-term solution for people in crisis.<sup>142 143</sup> At the time of this report, the CMHA Kelowna was piloting a rent bank program for the Central Okanagan.<sup>144</sup> Rent banks enable those at the margins unable to borrow or acquire loans from conventional financial institutions to obtain short term loans at a reasonable interest rate to allow them ability to cover rent for a specified period of time.

People in LIM may be more susceptible to household food insecurity (Goal 2), have a higher risk of becoming homeless (Goal 1), and have compromised health (Goal 3). Maintaining the status quo of poverty is expensive, costing B.C. \$8.1 to \$9.2 billion per year.<sup>145</sup> For Kelowna, disaggregated demographic data is required to better understand the causes and characteristics of poverty across the community, and to determine and develop effective solutions, such as minimum wage, living wage certifications, basic income, rent banks (as discussed above) and/or other prevention and alleviating measures.

## Kelowna

*Photo Credits: Adam Ruby Photography*





## APPENDIX B - HOMELESSNESS OVERVIEW (GOAL 1)

Kelowna is recognized as a desirable place to live and a great place to establish a home. While the city offers economic and social well-being for many able to live in the comfort of quality homes, many people in the community live precariously with limited income (Goal 1 and 10) and significant challenges securing affordable housing (Goal 11). And at the extreme, too many people in the city and surrounding region experience homelessness or are vulnerable to it. This Appendix focuses on some of the main reasons for homelessness in Kelowna, solutions currently underway in the community, as well as recommendations to address it.

There are many interrelated factors that can result in homelessness, such as “systemic or societal barriers, a lack of affordable and appropriate housing, the individual/ household’s financial, mental, cognitive, behavioural or physical challenges, and/or racism and discrimination.”<sup>146</sup> Homelessness is almost never by choice; experiencing homelessness can be “negative, unpleasant, unhealthy, unsafe, stressful and distressing”.<sup>147</sup> When you are homeless, you lose all sense of security and privacy; your life becomes gravely exposed, traumatic and even criminal-

ized. Homelessness, and even supportive housing is too often stigmatized in our communities.

Breaking down stigmas and misconceptions around homelessness is an important step in developing just and lasting solutions to the complexity of the issue. Misconceptions, such as the belief that people experiencing homelessness should just “find a job,” can be misleading. In fact, some people experiencing homelessness are fully employed. Others indicate, through experience, that once you become homeless, circumstances become an impossible cycle that makes it increasingly difficult to obtain employment. Lack of a permanent address, limited to no access to facilities for hygiene and self-care; barriers to transportation; other compounding challenges further add to stress one’s mental health and well-being, making employment unattainable.<sup>148</sup>

According to the Kelowna (2018) Point in Time Counts, the top five reasons for housing loss in Kelowna are:

1. Unable to Pay Rent or Mortgage
2. Household Conflict
3. Addiction or Substance Abuse

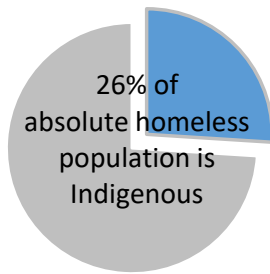
4. Job Loss
5. Illness or Medical Condition

Across Canada, housing has turned into a commodity. The lack of affordable housing and historically low vacancy rates (Goal 11), combined with the stagnation of incomes can make it difficult to make ends meet. The line between being homeless and not being homeless is quite fluid. For many, their situation can change rapidly — one injury, an illness, choosing to care for a loved one, or the impact of a natural disaster (e.g. flooding) can result in homelessness. Prior to the COVID-19 pandemic, 43% of Canadians were living paycheque to paycheque.<sup>149</sup> The current economic downturn could result in more individuals becoming homeless, as has been seen in Toronto due to a loss in jobs combined with higher living costs.<sup>150</sup> Additionally, some Canadians are currently remaining housed as a result of temporary supports from the federal and provincial governments, such as CERB (Canadian Emergency Response Benefit) and eviction freezes in B.C. Once these temporary supports end, the backlog of rent required to pay, coupled with potentially limited job opportunities, may result in a spike of new homeless cases. Existing prevention systems must be modified in the near term to avoid such an outcome, or at very least minimize the number of cases. More information regarding poverty-reduction and homelessness risks are discussed in Appendix A.

In Kelowna, Indigenous Peoples make up 4.4% of Kelowna’s population.<sup>151</sup> Yet, strikingly, they make up a quarter (26%) of the homeless population as illustrated in Figure B.1.<sup>152</sup> Through reconciliation, the Canadian government is only

**Indigenous homelessness** is a human condition that describes First Nations, Métis and Inuit individuals, families or communities lacking stable, permanent, appropriate housing, or the immediate prospect, means or ability to acquire such housing. Unlike the common colonialist definition of homelessness, Indigenous homelessness is not defined as lacking a structure of habitation; rather, it is more fully described and understood through a composite lens of Indigenous worldviews. These include: individuals, families and communities isolated from their relationships to land, water, place, family, kin, each other, animals, cultures, languages and identities. Importantly, Indigenous people experiencing these kinds of homelessness cannot culturally, spiritually, emotionally or physically reconnect with their Indigeneity or lost relationships (Aboriginal Standing Committee on Housing and Homelessness, 2012).<sup>162</sup>

Figure B.1: Percentage of Homeless Population in Kelowna Identifying as Indigenous (2018)



Data level: Kelowna  
Source: Central Okanagan Foundation, Point in Time Counts

just beginning to formally recognize the legacy of harm and intergenerational trauma colonialism has caused Indigenous Peoples. These impacts have placed Indigenous populations at a greater risk for homelessness throughout Canadian cities. To address this risk, historical trauma, colonization, racism and oppression experienced by Indigenous Peoples needs to be recognized and acknowledged, and carefully considered in developing solutions.<sup>153 154</sup> Incorporating culturally appropriate programs and services that reflect Indigenous values, such as the medicine wheel, which emphasize the need for balance in the emotional, mental, physical, and spiritual realms is essential to improving programming. Ensuring housing and services can accommodate and reflect traditional culture and practices, such as smudging and collective and communal living, is also important. Finally, employment programs designed for Indigenous Peoples suffering homelessness is a critical step towards acquiring and retaining needed housing.

Our current means to address homelessness in Canada relies heavily on investing in crisis response around emergency services such as building shelters, day programs and drop-ins (places that help address basic needs such as food, hygiene, clothing and higher level needs such as health care). Yet this can be seen as an expensive way of responding to the problem, costing \$7 billion annually.<sup>155</sup> A 2008 study in British Columbia indicates it costs, on average, \$55,000 annually to support a homeless

person with addictions and/or mental illness.<sup>156</sup> These costs traverse numerous sectors (e.g. healthcare, criminal system, housing, etc.). Ending the cycle of homelessness requires providing comprehensive support systems be put in place, with a key focus on prevention. The Housing First strategy is an example of a program providing both short term support systems, alongside longer term housing solutions, which can reduce overall costs to the system. Housing First centres on providing immediate access to housing to those in need, alongside support to enhance recovery and community engagement. Contrary to the traditional approach of “treatment first”, housing is not conditional on sobriety or abstinence, as being homeless can exacerbate situations of mental health and substance abuse. The Housing First model has proven to be cost effective, leads to improved health and well-being, and increases social integration, which benefits the individual and the community. Kelowna is benefiting from and building on the success of this model.<sup>157 158 159</sup>

In 2017, the City of Kelowna took a leadership role on the Journey Home Strategy, a 5-year plan to address homelessness with the goal of applying a systems approach for the design, delivery, and coordination of services to those who have lost or are at risk of losing their home. Organizations representing healthcare, law enforcement, Indigenous Peoples, housing, and poverty reduction — as well as members with lived experience of homelessness — were all part of the task force. A major focus of the strategy was to include the voices of those with lived experiences to inform and guide decisions, implement a Housing First approach, as well embed prevention principles. The City recognizes that implementing the new Journey Home Strategy, as opposed to a status quo, or short term emergency response approach, will help remove people from the cycle of poverty while offering social and financial benefits to the community as a whole.<sup>160</sup>

The Homeless Hub, a central knowl-

edge hub that provides information on homelessness (with the largest homeless research library in the world) has identified five prevention categories. All five categories require efforts and coordination among all levels of government, institutions, and community organizations, and include:

**1) Structural Prevention** - Legislation, policy, and investment that builds assets, and increases social inclusion and equality

- Examples: Increase the affordable housing stock, anti-discrimination policy, practice, and training, poverty reduction strategies, and income supports.

**2) Systems Prevention** - Addressing institutional and systems failures that contribute to the risk of homelessness.

- Examples: Barriers to accessing supports, such as transportation challenges, disability, linguistic barriers, cost, citizenship requirements, difficulty with system navigation, etc.

**3) Early Intervention** - Addressing institutional and systems failures that contribute to the risk of homelessness.

- Examples: Family mediation, shelter diversion, case management.

**4) Evictions Preventions** - Programs and strategies designed to keep people at risk of eviction in their home and avoid homelessness.

- Examples: Rent supplements, emergency funds, landlord/tenant legislation, legal advice and representation.

**5) Housing Stability** - Initiatives and support for people who have experienced homelessness that allows them to exit homelessness quickly and never experience it again.

- Examples: Housing First, help obtaining and retaining housing,



supports for health and well-being, education and employment, and enhancing social inclusion.

As Kelowna’s Journey Home continues rolling out and implementing homelessness strategies, it will be important to align them with the Hub’s five prevention strategies. Community progress can be measured through indicators such as:

**Journey Home Structural Prevention Strategy** explores policy shifts at the municipal level to promote affordable housing across neighbourhoods through bylaw changes, zoning, and grants.

- Potential Indicator: Number of affordable homes (non-market affordable housing units) built and occupancy rates.

**Journey Home Evictions Prevention Strategy**, programs to support people to stay in housing where possible. These should be targeted to those at highest imminent risk for homelessness.

- Potential Indicator: Number of rent banks/emergency fund users.

Through the Journey Home Society (JHS) and the Healthy Housing Strategy (Goal 11), the City is contributing to providing resources and strategies to help people exit homelessness, while also working on preventative methods. The JHS confirms that addressing homelessness requires intentional ongoing collaboration and partnership commitment across all levels of government. A memorandum of understanding between the City and the JHS outlines the City’s critical role: to focus on coalescing

senior government commitment and investment to assist in addressing homelessness. In this capacity, the City advocates for:

- Federal leadership and investment through the National Housing Strategy
- Provincial leadership, investment, and coordination across ministries
- Municipal collaboration across regions <sup>161</sup>

As noted above, the Government of Canada has committed to a National Housing Strategy, which helps support municipalities in developing local-level housing initiatives, including assistance towards providing affordable housing. The B.C. Government has developed the B.C. Homelessness Plan; is increasing minimum wage; and explored basic income strategies in the January 2021 report, which outlines 65 recommendations on poverty reduction for B.C. While at the regional level, local governments in the Central Okanagan are partnering on a Poverty Reduction Strategy. To complement these programs, the Canadian Mental Health Association Kelowna is piloting a Rent Bank program. Amongst the private sector, local companies could implement Living Wage certifications, as suggested in Appendix A. Engaging multi stakeholder partnerships with all levels of government, civil society and private sectors is key to ending homelessness and poverty.

Figure B.2 Cost to Maintain Status Quo vs Journey Home Strategy <sup>163</sup>







# APPENDIX C - HOUSEHOLD FOOD INSECURITY OVERVIEW (GOAL 2)

Addressing zero hunger is tied to ensuring food security for all people around the world. There are many ways in which to define food security. The UN Food and Agricultural Organization outlines four dimensions to food security: availability, access, utilization and stability. In Canada, an important aspect of food security from Indigenous perspectives is Indigenous food sovereignty. While approaches to food sovereignty are diverse due to the diversity among Indigenous Peoples, food sovereignty addresses Indigenous communities' ability to respond to their own needs for healthy, culturally adapted Indigenous foods.<sup>164</sup>

Achieving food security is also about understanding food insecurity. Food insecurity at an individual or household level is defined as the "inadequate or insecure access to food due to financial constraints".<sup>165</sup> Household food insecurity means people either compromise on:

1. Quality of food (decreasing nutritious value);
2. Quantity of food (reducing intake or skipping meals) they consume; or
3. Having increasing stress levels as they worry about how to feed themselves and their family.

### FOOD INSECURITY DEFINITIONS <sup>166</sup>

**MARGINAL:** Worry about running out of food and/or limit food selection because of lack of money for food.

**MODERATE:** Compromise in quality and/or quantity of food due to a lack of money for food.

**SEVERE:** Miss meals, reduce food intake, and at the most extreme go day(s) without food.

Research shows that people who experience food insecurity tend to report poorer physical, mental and social outcomes—all factors which lead to increased costs to the healthcare system. The physical effects on humans include: higher rates of chronic diseases, including heart disease, diabetes and cancer when compared to food secure/higher income earners (Goal 3).<sup>167</sup> The obesity rates are also higher as compared to food secure individuals.<sup>168</sup> The prevalence of experiencing mental health outcomes such as anxiety, major depression and suicidal thoughts increase as food insecurity increases, as depicted in Figure C.1. Children exposed to severe food insecurity are at greater risks for conditions like asthma, depression, and

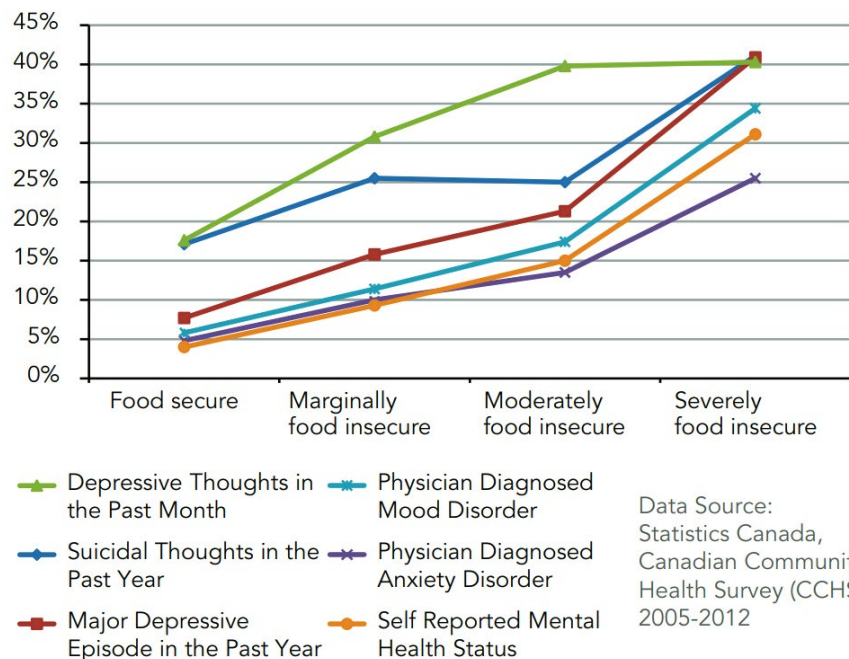
suicidal thoughts in adolescent and early adulthood.<sup>169</sup>

Food insecurity impacts the health and well-being of families and individuals. As Figure C.2 illustrates, the associated health care costs of food insecure households are two times higher compared to those who are food secure. PROOF conducted an analysis for the province of Ontario on food insecurity and related healthcare costs shown in Figure C.2, highlighting that reducing food insecurity can reduce associated health care costs.

When looking at the composition of food insecure households in B.C., unattached individuals made up the largest

Figure C.1: Mental Health Outcomes by Food Insecurity Status<sup>185</sup>

### Adverse mental health outcomes reported by Canadian adults (18-64 years of age), by household food insecurity status<sup>2</sup>



portion at 42.9% in 2011-2012.<sup>170</sup> Female lone parents with children under 18 years of age experienced the highest prevalence rates with 34.2% of female lone parent households experiencing food insecurity in 2011-2012.<sup>171</sup> It's important to note that these food insecure households (majority being those living alone), are working households, identifying wages, salaries, or self-employment as a source of income. Food insecurity is tied to extreme levels of poverty, as well as those simply dealing with higher costs of living. Understanding the demographics of the population in need allows for more targeted and effective solutions. A group that suffers from food insecurity will likely overlap with a group under LIM (Goal 1), so there are multiple benefits to understanding the demographics of this population more specifically. For example, a single mother has different needs than an at-risk youth, and the likelihood of them accessing emergency solutions, such as food banks or catered baskets, can also differ substantially.

The cost of food is rising in B.C. In 2017, the average monthly cost of a healthy diet for a family of four in B.C. increased to \$1,019 (\$1,020 for the Okanagan).<sup>172</sup> Households in Kelowna earning a median wage (\$71,038 – 2017) will require approximately 17% of their gross household income to purchase a basic nutritious diet to feed their family of four. Households earning less than a median wage, will require a higher portion of their income to access a similar diet. According to the latest evidence, the primary cause of food insecurity isn't the price of food—it's limited household income and poverty.<sup>173 174</sup> Wages earned are not keeping up with the rising costs of living as explained in the indicators chosen for Goal 10 and Goal 11. This suggests that in B.C., it may be increasingly difficult to sustain a living on a typical single income.<sup>175</sup>

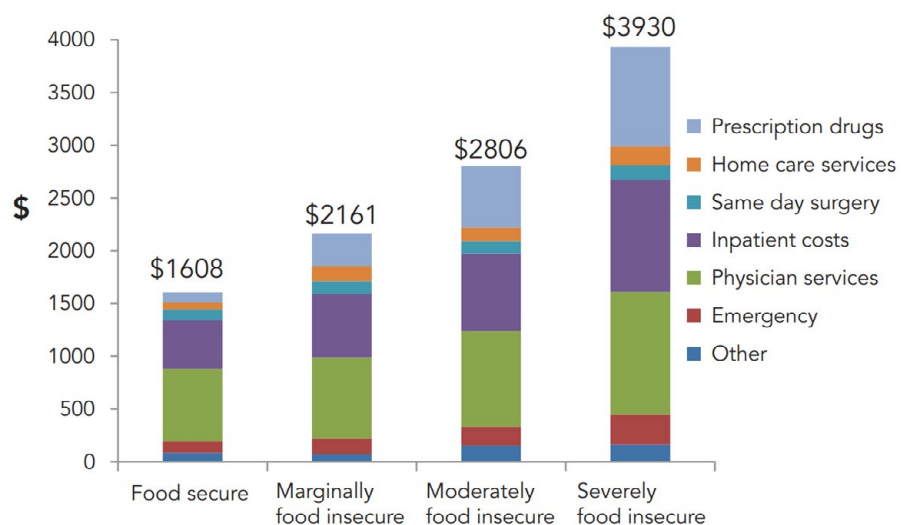
Historically, policy responses and recommendations in Canada have largely focused on food based approaches such as food banks and community gardens. Initiatives such as food banks, soup

kitchens and food programs for children are important and needed in helping as short-term or relief strategies for those most food insecure. Land based activities such as gardening can support linkages between food, identity, language, intergenerational knowledge sharing, and cultural continuity. Community gardens can also support important goals like social connectedness, can provide varieties of fresh foods of choice and a more sustainable food system. Still, food bank usage underestimates the prevalence of food insecurity in a community, as depicted in Figure C.3. Evidence does not indicate that initiatives such as community gardens and food banks are able to address household food insecurity. In fact, research shows less than 20% of food insecure individuals in B.C. use food banks.<sup>176</sup> At its core, food insecurity is largely an income issue, with poverty reduction programs and initiatives key to resolving food insecurity for the community of Kelowna and across the province. Additionally, ensuring access to traditional foods is an important aspect of food security, health and wellness for Indigenous Peoples.

Colonization and its legacy in Canada have shown a disregard for traditional Indigenous knowledge and practices and has had a profound and negative impact on traditional ways of life, including food systems. From an Indige-

nous perspective, traditional foods have socio-cultural, economic and spiritual importance and are a key part of the food security equation. For instance, First Nations Information Governance Centre's (FNIGC) First Nations Regional Health Survey results show an association between the amount of traditional foods shared within a household and a higher measure of food security.<sup>177</sup> The survey results also find the sharing of traditional foods can increase access for those unable to harvest themselves, offering additional food security at the household and community level. The Ki-Low-Na Friendship Society is actively working to rebuild their relationship to traditional foods and assist households that are food insecure by delivering Indigenous community meals each week. To meet demand, more support is needed from stakeholders in the community, including Food Banks and childcare programs that serve meals.<sup>178</sup> In addition, more work with Indigenous communities and organizations to overcome regulatory barriers to accessing traditional foods including regulation of hunting, fishing, trapping is required. Additional barriers include land and water ownership and access, and the loss of traditional knowledge. Some initial recommendations include food safety exemptions to allow the use of traditional foods; guidelines for donations of wild game to food banks;

Figure C.2: Cost to Health Care System by Food Insecurity Status <sup>186</sup>



opportunities for relationship building among those involved at all stages in the traditional and conventional food chain; and, strengthening environmental monitoring of ocean conditions and wildlife health to ensure safe consumption for Indigenous groups.<sup>179</sup> FNHA is currently working to identify barriers to accessing traditional foods through

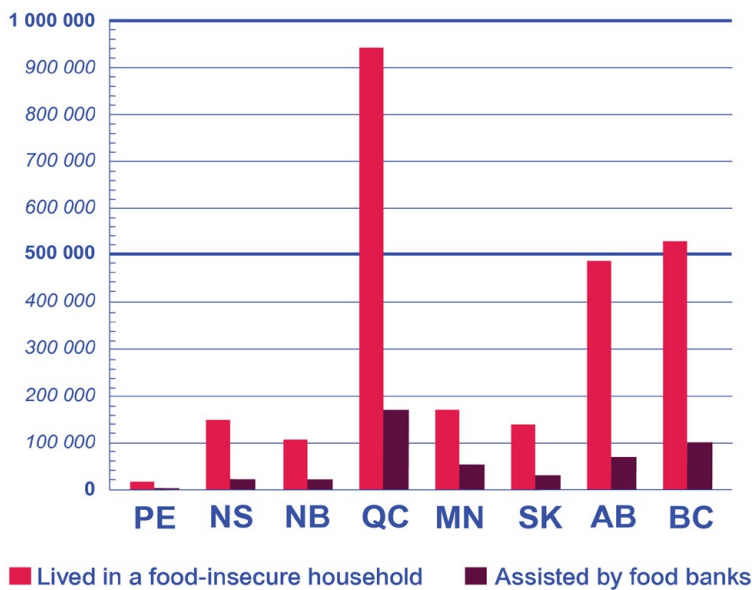
focus groups with Indigenous leaders and First Nations, alongside some training for the regulators on culturally safe traditional food practices.<sup>180</sup> Integrating local Indigenous perspectives and knowledge around food security is vital to creating food security for all. There is evidence that improving access to traditional foods is an effective way to

improve severe food insecurity for Indigenous Peoples.<sup>181</sup> Through collaboration between local food banks, local governments, and organizations such as the FNHA, greater access to more culturally appropriate food throughout Kelowna can be created and supported.

A key component of household food insecurity is inadequate household income. Low-wage jobs and precarious work puts people more at risk of food insecurity, and there is little evidence that food charity can move households out of food insecurity long term.<sup>182</sup> Rather, research indicates policies that improve household income, such as basic income guarantee, are effective at increasing food security.<sup>183 184</sup> For further details on household income policies, refer to Appendix A. Finally, collaboration and inclusion of Indigenous leadership at the decision-making level is vital towards achieving meaningful and impactful government policies and actions. Kelowna's homelessness plan offers an example of the type of collaboration and partnership required to support successful food security programs. Ultimately, additional partnerships and Indigenous engagement in broad initiatives like these will be required to address overall systems change needed to improve food insecurity and ensure zero hunger for all.

Figure C.3: Number of Food Insecure Households and People Assisted by Food Banks <sup>187</sup>

**Number of individuals living in food-insecure households and number of individuals assisted by food banks, 2015-16**





# APPENDIX D - HOUSEHOLD ENERGY USE OVERVIEW (GOAL 7)

Energy efficiency standards have improved over the decades while the Canadian population and the average home size has steadily grown. Changes in living space and occupancy, combined with continued population growth, has resulted in a trend towards ever growing urban development and greater energy consumption in cities, regions and province-wide. This Appendix discusses household and building energy use programs underway in Kelowna, the Province of B.C., Ontario, and US cities.

The Province of B.C.'s goal is to ensure all new buildings are Net Zero Ready by 2032, translating to new buildings being 80% more energy efficient compared to the current base B.C. Building Code. The B.C. Energy Step Code, originally developed as an optional compliance path to the B.C. Building Code, allows local governments to require a level of energy efficiency in new construction. The Step Code consists of a series of 3 to 5 energy efficiency steps (depending on the building type). As of 2021, the Province intends to increase the energy efficiency requirements in the BC Building Code in each of the next three editions:

- 20% more energy efficient by 2022;
- 40% more energy efficient by 2027; and
- 80% more energy efficient by 2032 (Net Zero Energy Ready).<sup>188 189</sup>

All steps require an energy model assessment prior to construction, and an air tightness test to demonstrate efficiency requirements are met. For Part 9 residential buildings, Steps 1-3 provide modest gains in energy efficiency. When the highest step is achieved, the building meets Net Zero Energy Ready standards. The Step Code sets energy

performance requirements and seeks to improve energy efficiency of a building, focusing on the building envelope and the equipment and systems within it. It's important to note the Step Code does not mandate or assess the energy source (solar, natural gas, district energy systems, etc.). The City of Kelowna's Step Code implementation dates are provided in Table D.1. As indicated in Table D.1, Kelowna's larger, more complex multi-unit residential buildings (MURBs), commercial or industrial buildings (Part 3 buildings as defined in the code) are not yet mandated to follow the Step Code. Furthermore, at the time of this report, the B.C. Energy Step Code did not account for embodied carbon emissions in buildings (for

further details on embodied carbon, refer to Appendix F).

Figure D.1 illustrates the energy use breakdown for households in B.C.; water and space heating account for 76% of energy use. Improving efficiencies in these areas can reduce energy consumption trends. While the Step Code focuses on improving operational efficiencies for new construction, the City of Kelowna can further contribute to substantial energy consumption and emissions reductions in existing buildings through support for high efficiency heat pumps or other forms of low carbon heating. For example, a number of local governments in B.C., such as Burnaby, Richmond, Surrey and Vancouver, are implementing options that allow developers to meet a lower Step Code if they demonstrate the proposed building will emit less carbon through low carbon heating technologies.<sup>190</sup> Other incentives available include the B.C., and the Government of Canada "CleanBC Better Homes" campaign, which offers rebates to help residential households with costs of these types of conversions.<sup>191</sup> Additionally, Fortis BC, the regulated energy provider in Kelowna, offers rebates for heat and hot water conversions for commercial

### NET-ZERO ENERGY DEFINITIONS

**Net-Zero Energy** is a building that uses an enhanced building envelope, solar orientation and high-efficiency equipment to produce as much clean energy as it uses over the course of a year.<sup>196</sup>

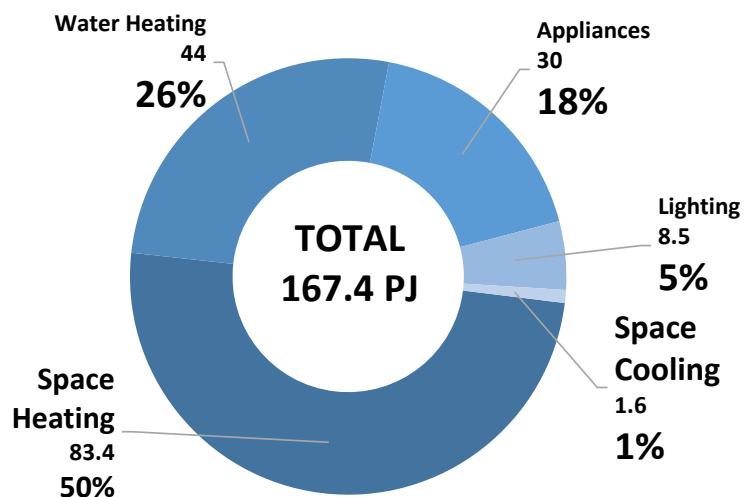
**Net-Zero Energy Ready** is a highly energy efficient building that minimizes energy use such that on-site or community renewables or energy from a clean grid can be used to reach Net-Zero Energy.<sup>197</sup>

Table D.1: Step Code Dates Mandated by the City of Kelowna:

BUILDING TYPE	IMPLEMENTATION DATE	ENERGY STEP
Part 9 - residential buildings 3 stories and less, and under 600m <sup>2</sup>	December 1, 2019	Step 1
	June 1, 2021	Step 3 (20% Energy Efficiency)
Part 3 - large and/or complex buildings such as large multi-family, commercial, and industrial buildings	Under development by City of Kelowna	



Figure D.1: Annual Residential Appliance Energy Use



Data level: Province of B.C.  
 Source: Natural Resources Canada, Comprehensive Energy Use Database, Residential sector - BC

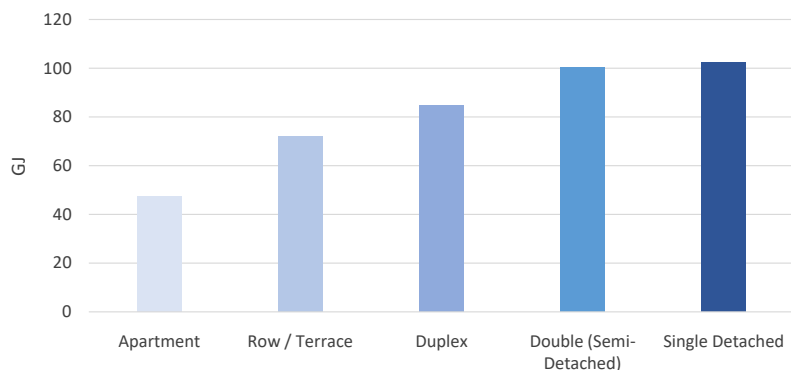
and MURB owners, as well as an Energy Conservation Assistance Program for eligible homeowners.<sup>192 193 194</sup> Currently the City offers rebates for energuide assessments. The City is also in the process of developing a Community Energy Retrofit Strategy to help guide policies and programs to further reduce energy and GHG emissions in existing residential and commercial buildings. Kelowna has partnered with Fortis BC on a FLIR (forward looking infrared) camera project, whereby residents can borrow a FLIR camera from the local library and

take thermal images of their homes to identify air leaks.<sup>195</sup> Such leakage can result in mold growth, increased air contaminants (especially during wildfire season) and fluctuations in the internal air temperature, all which can lead to less comfortable living conditions. Sealing the building envelope where these losses are occurring can improve the overall comfort and health of the occupants, while improving energy consumption in homes and saving residents money.

Beyond the residential building sector, which is the focus of Goal 7's indicator, Kelowna's building industry can work to achieve even further energy efficiency gains by implementing volunteer energy and water reporting programs and benchmarking for MURBs, industry and commercial buildings. For instance, Ontario has implemented benchmarking province-wide for large buildings in the residential and commercial sector, as have cities such as New York and San Francisco. Benchmarking can be done with free software approved by Natural Resources Canada, such as Energy Star Portfolio Manager. Disclosing benchmarking data builds natural competition among building owners, further encouraging energy efficiency throughout the building sector.

In addition to these building sector energy efficiency strategies, the City can also focus on land use planning and urban form to reduce emissions and support efficient energy systems city-wide. For instance, implementing urban design and land use planning that accommodates very liveable, mixed use and higher density multi-unit residential buildings served by transit and accessible active transportation corridors, offers more affordable housing options than single family oriented suburban forms, as well as energy efficiencies (as outlined in Figure D.2) and emissions reductions, city-wide.

Figure D.2: Average Energy Consumption (GJ) by Dwelling Type, British Columbia, 2015



Data level: Province of B.C.  
 Source: Statistics Canada, Table 25-10-0061-01 Household energy consumption, by type of dwelling, Canada and provinces and Martineau, Patrice, personal communication, May 5, 2020  
 Note: *Duplex* - One of two dwellings, located one above the other, may or may not be attached to other dwellings or buildings.  
*Double* - One of two dwellings attached side by side (or back to back) to each other, but not attached to any other dwelling or structure (except its own garage or shed). A semi-detached dwelling has no dwellings either above it or below it, and the two units together have open space on all sides.



## APPENDIX E - WASTE PER CAPITA OVERVIEW (GOAL 12)

Solid waste management for Kelowna falls under the jurisdiction of the RDCO and is broken down into three main sectors: residential; institutional, commercial and industrial (IC&I); and construction, demolition and renovation activities (C&D). Reducing waste means moving away from being a “disposable society”, and requires changing mindsets, values and behaviours of residents and businesses towards more responsible consumption and waste management. This appendix discusses some of the trends in the key waste sectors, alongside recommendations to reduce Kelowna’s growing waste disposal trend.

The IC&I waste sector accounts for the largest portion of waste produced, at 38%, followed by C&D at 36% (Figure

E.1). Waste reduction in these two key sectors is encouraged through tipping fees. Additionally, the region’s landfill has a list of mandatory recyclables and material that can be reused (e.g. concrete and asphalt) and some that must be kept out of the waste stream. Even so, between 2012 to 2017, the RDCO waste disposal rates have increased, especially within IC&I and C&D, with C&D waste almost doubling in this time period.<sup>198</sup>

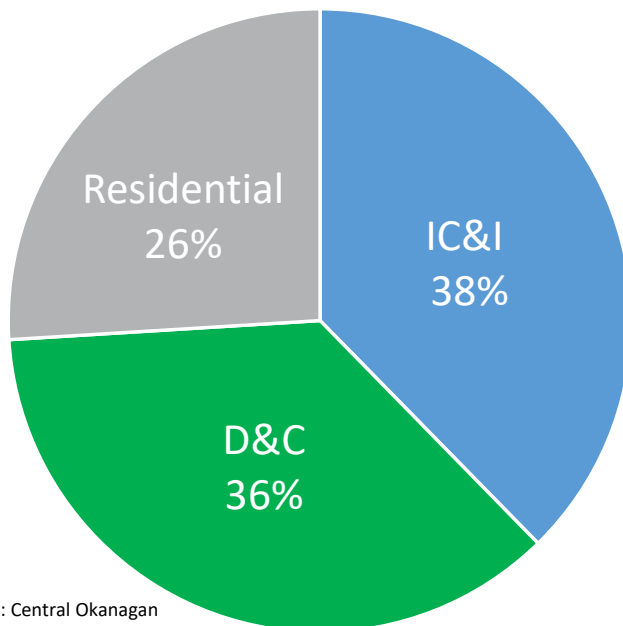
The regional Solid Waste Management Plan (2020) outlines a series of 26 new strategies to address waste in the region, targeting a 50% waste diversion rate by 2022. Some strategies include, existing approaches such as a variable tipping fee method to encourage more recycling to new awareness

campaigns aimed at shifting residents’ behaviour to become more engaged in the waste management hierarchy (i.e. reduce before recycling). To make municipal waste targets achievable, additional voluntary strategies must be implemented throughout the C&D and IC&I sectors. A number of voluntary programs exist. For instance, implementing green building certifications such as Green Globes and LEED promote waste reduction for commercial, office and industrial construction through the development of a project Waste Management Plan, which outline targets and procedures to divert waste away from landfills. By participating in TRUE Zero Waste and BOMA BEST certification programs, the IC&I sector can develop policies to prioritize waste reduction, become more resource efficient, and overall, save money.

In British Columbia, 40% of material sent to landfills is organic waste, which when left to decompose, produces the greenhouse gas, methane (CH<sub>4</sub>).<sup>199</sup> Organic waste is biodegradable, and includes compostable yard and food waste, as well as food-soiled paper products and biosolids from residential homes, businesses and industrial sources.<sup>200</sup> In 2012, the RDCO conducted a Life Cycle Assessment of Organic Waste Management Options (OWMO), revealing the three highest components of organic waste produced in the region are yard waste; biosolids; and food waste, as shown in Table E.1.

The City of Kelowna has a residential organic yard waste program, which includes pick-up and industrial

Figure E.1: IC&I, C&D and Residential Waste Breakdown, 2017



Data level: Central Okanagan  
Source: RDCO

composting of yard waste, which is used to develop GlenGrow and OgoGrow, two compost products available for purchase.<sup>201</sup> All biosolid material is recovered through land-spreading management. Food waste remains the third highest type of organic waste produced. While the OWMO plan considers segregated and non-segregated food waste options, at the time of this report there is no segregated food waste collection in Kelowna. The OWMO concludes the City maintains curbside collection of yard waste, recycle paper products, compost biosolids, and continue to dispose of food waste in the landfill, while recommending residential backyard composting where feasible.

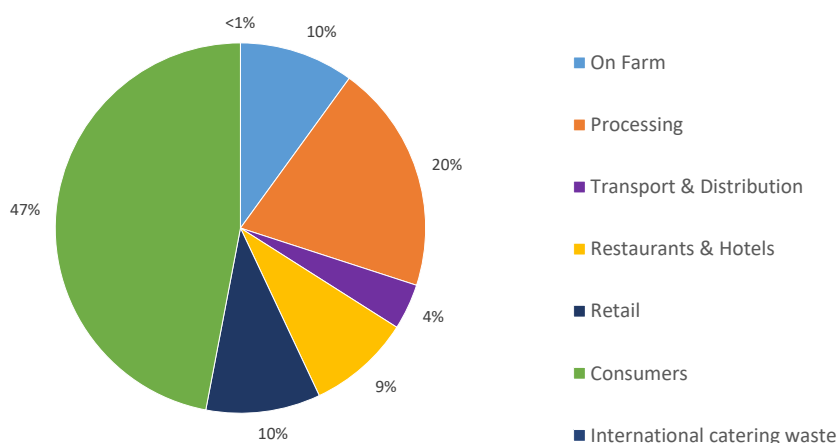
Table E.1: Organic Waste Total for Central Okanagan, 2010

Component	Tonnes per Annum
Yard and Garden Waste	43,000
Biosolids	24,000
Food Waste	19,500

In May 2018, a biogas plant was commissioned and began operations at the RDCO landfill.<sup>202</sup> The plant reduces waste-related GHG emissions through the capture of methane produced by the decomposing organic waste to produce renewable natural gas (RNG), which is then used as an energy source for local residents and businesses (Goal 13). Though the facility captures methane and can offer climate change mitigation benefits, it does not assist in addressing the trend of RDCO’s growing waste disposal rate.

Overall, composting food is much better than sending it to the landfill, yet the very best tactic is to prevent food from being wasted in the first place.<sup>203</sup> Food waste is a problem nationally with \$31 billion of food being wasted each year in Canada. Figure E.2 provides a breakdown of food waste losses occurring in the value chain. It shows 47% of food waste occurs directly at

Figure E.2: Food Waste in Canada’s Food Value Chain (% Distribution)<sup>208</sup>



the consumer purchase point, while retail stores and farms, combined, produce 20% of food waste — less than half the waste produced by consumers.<sup>204</sup> Consumers often expect “perfect” food; the average consumer will not purchase food that is over-ripe, discoloured or has blemishes. A slight imperfection in produce colour or shape deems it unfit to sell, with retailers and farmers readily discarding imperfect products. Yet, “ugly” food can be just as nutritional and taste just as good. As consumers, we can drastically reduce food waste by adjusting our purchasing bias against “ugly” fruit and vegetables, and learn to accommodate imperfections and blemishes in our food. In B.C., the Code of Practice for Agricultural Environmental Management does not allow agricultural by-product to enter the landfills. Farms typically compost waste but valuable resources such as water and energy go into producing wasted products. It is important to reduce food waste overall, at every stage of the value chain, and especially at the consumer-level.

Beyond consumer behaviour, retailers, restaurants, and hotels can also change practice and reduce food waste through donating unsold, edible products. A prevalent myth in Canada is that donors can be sued if there is a problem with the food. Yet liability laws, such as B.C. Food Donor Encouragement Act, exist in every province, protecting organizations should they distribute or donate food.<sup>205</sup>

The BC Center for Disease Control and the National Zero Waste Council lay out the food donation guidelines. While food donations can support organizations in emergency and immediate relief programs for the most severely food insecure populations (Goals 1 and 2), food donations, alone, will not solve the fundamental issues associated with poverty (refer to Goal 2 and Appendix C for further details). Food donations can divert waste entering the municipal landfill, providing environmental benefit while also offering organizations financial and social gains, such as tax savings and reduced disposal costs, and improved public relations through better social and corporate action.<sup>206</sup>

The City and regional district have set waste reduction requirements. Yet, to redirect Kelowna’s growing waste trends, all of society will need to go beyond what’s required: companies will need to voluntarily participate in waste reduction certifications and food donation programs, while residents will need to continue to learn more about food waste and adjust their consumer and waste generating behaviours accordingly. Additionally, the City may consider incorporating innovative tools to measure and address consumption and waste. For instance, the [ecoCity Footprint](#) tool being piloted in 10 B.C. cities helps communities evaluate GHG emissions (Goal 13); assess overconsumption and waste patterns; and develop priorities towards Goal 12.<sup>207</sup>



## APPENDIX F - CLIMATE ACTION OVERVIEW (GOAL 13)

The IPCC warns that global warming needs to be limited to 1.5°C by 2030 to reduce the risks of extreme weather, rising sea levels and other impacts.<sup>209</sup> World leaders have taken note, adopting the Paris Agreement in 2016. IPCC underscores unprecedented changes in land use, transportation and buildings are needed to reduce human-caused GHG emissions by 45% from 2010 levels by 2030.<sup>210</sup> All countries, regions and cities have a role to play in acting on climate change. When implementing GHG reduction strategies, both operational and embodied reductions (those emissions from extracting, processing, transporting, and disposing of materials) should be accounted for to avoid transferring emissions to another community/country, or simply delay in addressing the problem. While this appendix focuses on embodied

carbon tools and policies related to the buildings sector, it is recommended embodied carbon for the transportation and waste sector also be considered in future reporting.

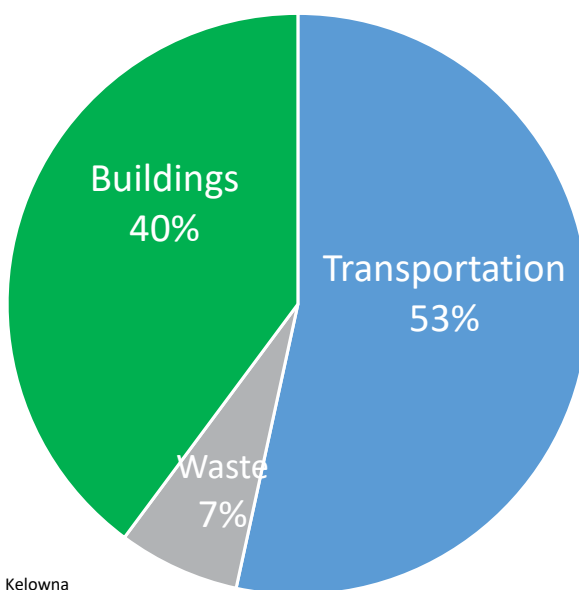
Community GHG emissions for Kelowna include operational emissions produced from transportation, buildings and waste. Transportation and buildings account for over 90% of emissions (2017), yet, these sectoral GHG emissions calculations, to date, fail to account for embodied carbon.<sup>211</sup> Standard emissions accounting typically focuses on operations-related GHGs only as they are generally better understood, easier to measure and, in turn, more feasible to reduce.

Embodied carbon for the building sector refers to the emissions produced in

all phases other than operational. As shown in Figure F.2, embodied carbon includes the material extraction, manufacturing, and transportation to site, on-site construction processes, as well as building maintenance, repair, refurbishment, and decommissioning (end-of-life including demolition, recycling, and landfill). While operational emissions can be reduced over time with energy efficiency renovations or by transitioning to renewable energy, embodied carbon is “set in stone” as soon as the product is built or manufactured.<sup>212</sup> The building sectors’ embodied carbon accounts for 11% of global carbon emissions, and will further increase as cities continue to urbanize.<sup>213</sup>

Common blind spots in the industry are generally around the embodied carbon in insulation, refrigerants, interiors, and growth in floor area. British Columbia’s goal is to ensure all new buildings are Net Zero Energy Ready by 2032 and this will aid in significant reductions of building operational emissions. Yet in the process of building operationally efficient buildings, many questions remain: How many embodied carbon emissions are being produced which cannot be removed? Which of the blind spots are not being accounted for? Embodied emissions account for about 25% of overall GHG emissions over the entire life cycle of conventional buildings; in newly constructed, high efficiency buildings, the share of embodied emissions can be upwards of 50%.<sup>214</sup> As British Columbia and municipalities continue to build more high efficiency buildings, it is vital to start considering embodied carbon.

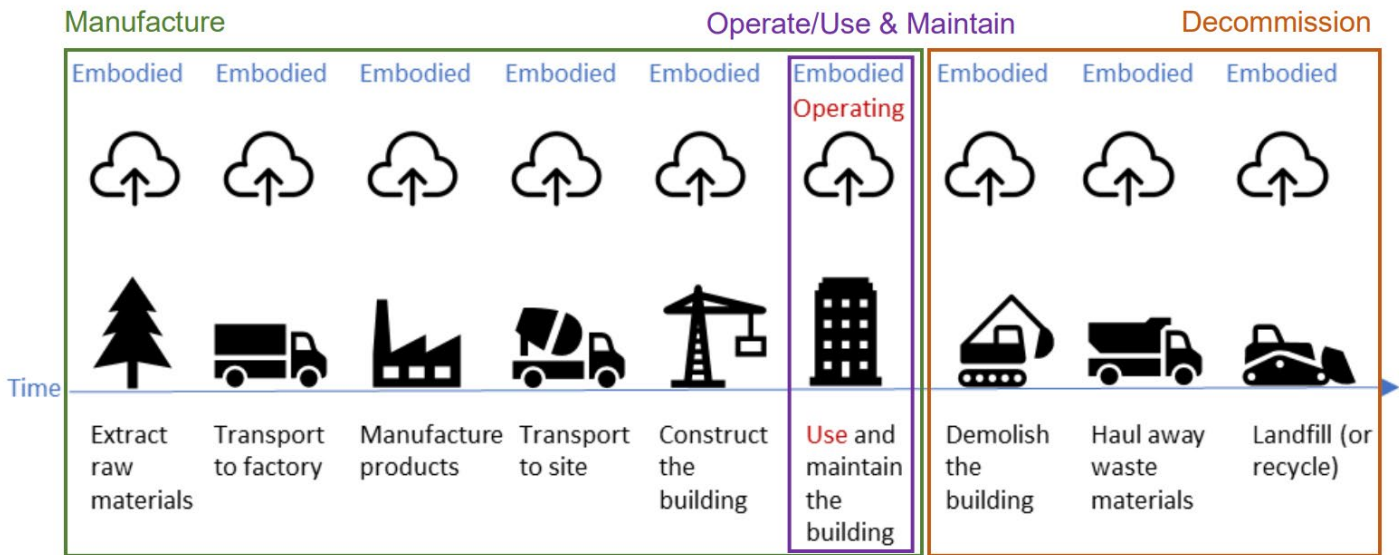
Figure F.1: Kelowna GHG Emissions Breakdown by Category, 2017



Data level: Kelowna  
Source: City of Kelowna



Figure F.2: Life Cycle GHG Emissions From Various Building Life Cycle Stages<sup>215</sup>



Embodied carbon can be calculated through a life cycle assessment (LCA). An LCA is a method of assessing the environmental impacts and human health consequences associated to all stages of a product's or building's life, from raw material extraction to its processing, manufacture, distribution, use, repair, maintenance, and end of life treatment.<sup>216</sup> Additionally, an LCA will help assess how the building products affect operational energy, water use, global warming potential, acidification, eutrophication, ozone depletion, and smog potential —environmental considerations that tie to other goals (e.g. Goal 6; Goal 9; Goal 11). Building professionals and designers have access to a number of whole building LCA design tools (tailored for Canada) to estimate a building's life cycle impacts:

- Commercial and industrial buildings: Impact Estimator by Athena, EC3 (Embodied Carbon Construction Calculator) by Building Transparency.
- Residential buildings: Builders For Climate Action releasing Beta version of building embodied carbon calculator for residential buildings.

Some product manufacturers use LCAs to measure and reduce the overall environmental impacts of products, and publicly disclose the information in an environmental product declaration (EPD). Instead of conducting a whole building LCA, organizations can develop procurement strategies and select products based on these product-level EPDs, such as low carbon concrete (contains fly ash or supplementary cementitious material). Free platforms such as mindful MATERIALS aggregate material data sheets, which quantify the product's environmental and human health impacts, making it easier for building professionals in selecting low carbon materials from leading manufacturers. Simple guidelines to ensure environmental impacts are minimized through embodied carbon material performance selection include:

- Selecting materials with more efficient manufacturing processes;
- Minimizing transportation impacts through use of local materials;
- Using robust materials that require less maintenance, repair, and refurbishment; and
- Choosing materials that can be reused or recycled instead of landfilled.

The Government of Canada has launched an initiative, [LCA<sup>2</sup>](#) (low-carbon assets through life cycle assessment) to develop a centralized, Canadian specific life cycle inventory (LCI) database, as well as LCA guidelines, benchmarks and tools to enable the public and private sector to incorporate the quantification of life cycle carbon into procurement processes much easier. Whole building LCA is the ideal, but a material specific LCA approach is simpler and provides quicker gains.

LCA<sup>2</sup> is prioritizing datasets focusing on:

1. Cement and concrete products
2. Aluminum products
3. Steel
4. Wood
5. Gypsum
6. Insulation
7. Glazing
8. Window and door frames
9. Roofing
10. Exterior finishes
11. Interior finishes

Embodied emissions policy typically falls under two categories: material performance and circular economy. Material performance provides reductions in emissions through technical solutions such as reducing the

carbon footprint of concrete. Circular economy strategies avoid emissions through material reuse such as waste diversion strategies, as mentioned in Appendix E. Voluntary green building certifications such as LEED, Green Globes, CaGBC's Zero Carbon Building and ILFI's Living Building Challenge factor both circular economy and material performance strategies. If

cost is a prohibiting factor, builders can choose to voluntarily carry out whole building LCAs or simply procure building material based on EPDs and/or lower carbon content. Carbon Neutral Cities Alliance and One Click LCA have developed a framework to help cities and policy makers create strategies and policies that incentivize industry to factor embodied carbon to ensure

GHG emissions reductions. Table F.1 provides a sample of embodied carbon emission policy options for municipal governments. For full details of these and other related policies, including example policy language, visit [www.embodiedcarbonpolicies.com/](http://www.embodiedcarbonpolicies.com/). It should be noted that some of the sample policies may not be applicable to B.C.'s regulatory environment.

Table F.1: Life Cycle GHG Emissions From Various Building Life Cycle Stages

POLICY TYPE	POLICY NAME	SUMMARY	EXAMPLES PROVIDED
<b>Zoning and Land Use Policies</b>	Embodied Carbon Targets for Zoning Process	Zoning new areas or rezoning existing areas can be implemented using carbon evaluation or early phase carbon intensity metrics. From choosing the land to zone and to build on, to determining constraints for density, massing and height. For example, identifying areas where soil is unstable, or is soft and deep (requiring costly and carbon intensive stabilization and foundations) and avoiding zoning and permitting buildings on such land.	Norway, UK, Finland
<b>Building Regulation and Supervision</b>	Life Cycle Carbon Limits for New Buildings	Set limits on the maximum life-cycle carbon that new buildings can emit during their defined lifetime. This can be for whole life-cycle carbon (including operational carbon) or embodied carbon.	Vincent (Australia), Douro-Dummer (Canada), London (UK)
<b>Building Regulation and Supervision</b>	Low Carbon Cement and Concrete Policy	Implement a comprehensive low carbon cement and concrete policy that shall: <ul style="list-style-type: none"> <li>• Permit performance-based concrete requirements to be always used;</li> <li>• Replace water to cement ratios with durability and shrinkage requirements, eliminating non-performance-based requirements that lead to increased use of cement;</li> </ul> Encourage applying strength evaluation time at 90d not 28d to enable broader use of secondary binders (e.g. fly ash or blast furnace slag).	Singapore, Norway, Portland (USA), Dubai
<b>Procurement</b>	Circular Materials Purchasing Strategy	Implement a strategy to define procurement in a manner which ensures that the market will either certainly or very likely deliver a circular solution in response. Procurement can be designed to focus on materials efficiency, circularity, maintainability, repairability and end of life opportunities.	Rotterdam (Netherlands)

POLICY TYPE	POLICY NAME	SUMMARY	EXAMPLES PROVIDED
<b>Financial Policies</b>	Tax Rebates for Low Carbon Developments	Offer an annual property tax rebate for a set number of years to property owners who build new projects that meet specified embodied carbon criteria or owners who opt for low-carbon reuse/renovation rather than new construction. The amount of the rebate can be based on a quantification of the embodied carbon reduction (i.e. projects with greater relative carbon reductions are eligible for larger rebates).	Milford (USA), Netherlands, Romania
<b>Financial Policies</b>	Include Embodied Carbon in Climate Action Plan	Require all future climate action plans or updates to include an assessment of embodied carbon emissions from building and infrastructure construction, transportation, and land use. Include a timeline and strategies for meeting reduction targets for embodied carbon in conjunction with timelines for reducing operational emissions.	San Francisco (USA) Boston (USA)
<b>Waste</b>	Mandatory Construction and Demolition Waste Landfill Diversion	A mandatory landfill diversion rate for construction and demolition waste creates a recycling business model that increases waste separation and lower the costs of processing.	San Francisco (USA), Trondheim (Norway)



## APPENDIX G - KELOWNA VLR METHODOLOGY

The Kelowna VLR started with extensive research and review of existing projects localizing SDGs in North America and internationally. With this foundation, two approaches were undertaken simultaneously to develop a proposed set of local level indicators for the community of Kelowna. The first approach built on the sustainability agenda already underway in the city; while the second started with comprehensive review of the global SDGs, their targets and indicators, and available subnational data. Through the first approach, the team conducted a qualitative assessment of four local level municipal reports (2016 Official Community Plan Indicators Report; 2018 Community Climate Action Plan; 2018 Healthy City Strategy; and, the 2015 Central Okanagan Clean Air Strategy) to document existing objectives, targets and indicators that align with the SDGs. A single, comprehensive table, outlining all the metrics currently being measured by the City that lend to alignment with the SDGs was created, with the team further working to identify gaps in SDG-related indicators.

In the second approach, the team identified Canadian organizations collecting data for the indicators and determined whether established Canadian targets existed. If data was not available, experts in the field were consulted and proxy indicators were developed. This approach also reviewed and aligned the Truth and Reconciliation Commission's (TRC) Calls to Action with the SDGs. The release of the TRC's calls to actions in 2015 coincided with the year the SDGs came into effect. The TRC documents the history and impacts of Canada's residential school system, and

outlines a path towards reconciliation. While a number of the calls to action align with the SDGs, data for the indicators is difficult to obtain. The team consulted Indigenous organizations in an attempt to gain insight on how to incorporate meaningful change at the community scale in the context of each goal. It is important to note that the past 30 years have witnessed other inquiries and commissions with over 1,000 recommendations examining the legacy of colonialism in Canada.<sup>217</sup> Although our project focused on the TRC Calls to Action, there is opportunity for reconciliation if future VLRs align and implement many more of these valuable recommendations.

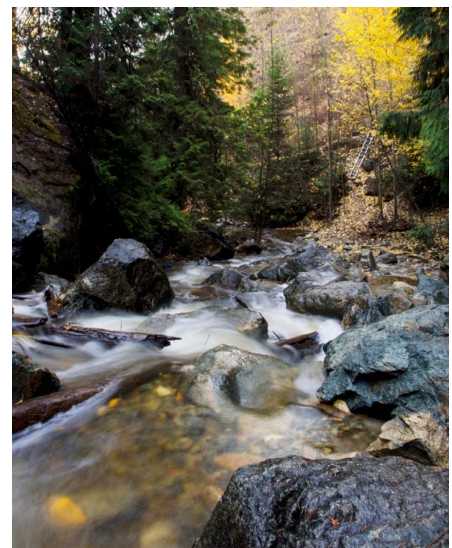
The final set of indicators were determined by working closely with the City of Kelowna. The team reviewed the indicators from the two approaches, narrowing them down to a set of city-level indicators for all 17 SDGs. The proposed indicators were reviewed through an iterative process, with staff providing knowledge, insight and data on each metric where available, as well as direction on other reports and research to review and agencies/organizations to connect with to gather data required. Through this consultative process and with extensive research, City staff and the project team worked together to shortlist a set of 28 city-level indicators, whereby:

- Existing local level planning objectives/policies and targets are reflected;
- The indicator aligns with the SDG while representing local and/or regional priorities;
- Data for the indicator can be

measured over time; and,

- Data for the indicator is accessible and actionable, from credible sources: the City, Statistics Canada, Interior Health Authority, etc.

As this process evolved, it became evident that a number of local level indicators spanned beyond the city limits, both geographically and jurisdictionally. Despite this, the city remains foundational in solutions to these multijurisdictional issues, and plays a critical leadership and partnership role in helping to implement, measure and report on progress being achieved. The fact that addressing these issues spans boundaries and borders reflects the complexity of urban and regional sustainability planning, and the multitude of stakeholders—and necessary partnerships—involved in achieving the SDGs at the local level, and globally.



**Crawford Falls in Kelowna**

*Photo Credits: Adam Ruby Photography*





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