

City of West Kelowna Climate Action Update – 2019

Climate Action Revenue Incentive Program

This is an update to the 2018 Climate Action Revenue Incentive Program (CARIP) public report. The CARIP report is a requirement of all BC municipalities that have become signatories to the BC Climate Action Charter (the Charter), and provides a means of tracking the progress a municipality has taken in meeting their commitment to reducing their Greenhouse Gas (GHG) emissions, and in adapting to climate change. The CARIP report is also part of a grant program that provides local governments an amount equal to the carbon taxes that the municipality paid directly in support of their operations. To qualify, the local government must be a signatory to the Charter and must meet or be on track to meet the objectives of the Charter.

BC Climate Action Charter: Our Commitment

The BC Climate Action Charter is a voluntary agreement between the B.C. government, the Union of B.C. Municipalities, and each of the local governments that are signatories to the Charter. The Charter was launched in 2007 at the Union of B.C. Municipalities Convention, under Premier Gordon Campbell, and in 2008 the District of West Kelowna signed the Charter. As a signatory of the Charter, it is a requirement to:

1. Become corporate carbon neutral;
2. Measure and report on the community's GHG emissions; and
3. Create complete, compact, and energy-efficient rural and urban communities.

Additionally, as part of the reporting requirements the City is required to report the following:

1. Submit a carbon tax calculation form or signed attestation form;
2. Create and make public a report detailing the initiatives taken by the City (community and corporate), and the emissions released; and
3. Submit the CARIP survey to the Province of British Columbia.

It is also required of each signatory that they share a common understanding of the significance of GHG emissions and climate change, and the current scientific literature. This is to ensure that each signatory is aware of the impacts and potential outcomes of anthropogenic caused climate change, and the reason for meeting the objectives of the Charter.

In addition to our commitment to satisfying the objectives of the Charter, we must also meet the objectives and policies of our Official Community Plan (OCP). The OCP is a blueprint for our community and is responsible for directing land use, growth, and development in our community. A summary of Section 3.7.4 (Energy and Emissions Policies) of the West Kelowna OCP is as follows:

1. Overall targets for **GHG** emissions reduction should reflect provincial targets, and achieve:
 - a. A 33% reduction in GHG emissions by 2020 from 2007 levels; and
 - b. An 80% reduction in GHG emissions by 2050 from 2007 levels.
2. Support and maintain an active staff-based Climate Action Committee.
3. Collaborate with and support partners that raise awareness and provide education on energy and emissions to local businesses, residents and other organizations in the community.
4. Continue to support and participate in a regional air quality program.

5. Incorporate **greenhouse gas** reduction evaluation and pricing criteria in both modelling and procurement for all municipal infrastructure, including infrastructure which relates to waste management.
6. Encourage the investigation and development of renewable energy supply options, such as city energy, **ground source heat pumps**, solar and heat recovery systems, particularly in the Boucherie/Westbank Centres, Corridors and Industrial areas where opportunities might be present.

Climate Change

Our world is changing. As we continue to progress as a society, our demand for resources, products and services also increases, and so too does our impact on the planet. Through the combination of resource extraction and harvesting, terrestrial and marine food production, and transportation and development, we have dramatically changed the earth. While these things are now an essential everyday part of life, these demands have put increased stresses on our planet's environment and ecosystems, and we are reaching a critical point.

In 2018, the Intergovernmental Panel on Climate Change (IPCC) released a document that provided evidence that the earth's global average temperature would rise by 1.5°C, and that if we were to continue as is, that that this would happen within the century. We must now decide how to move forward. While acknowledging that we as society will continue to advance and our technologies will become more environmentally friendly, we must be conscious of the impacts we have on our planet now and into the future. For decades scientists worldwide have warned of the potential impacts that the emission of GHGs could have. Their warning? That if we continue as is, our actions will change the climate of our planet at a rate faster than our planet and its ecosystems can adapt to. The expected outcome? Increased severity and frequency of storm events which will cause droughts and flooding in areas of the world; a general warming of the planet which will cause sea level rise, coastal flooding, and increased stress on terrestrial and marine ecosystems; and impacts to the health and livelihood of the world's vulnerable and at risk population, including those that are very young and old and those that are impoverished.

Weather and Climate: What is the difference?

Climate and weather are two terms that are used commonly and often interchangeably; however, they mean very different things. The term weather is used to define the observation and measurement of the day-to-day state of the atmosphere, and is reported in intervals of minutes, days, and weeks. Weather encompasses temperature, visibility, wind, humidity, and precipitation and is often the focus of attention for our day to day lives. Weather forecasts try to answer questions like, *what is the weather going to be like in West Kelowna tomorrow?*

The term climate is used to define the observation and measurement of weather, but does so at intervals of years, decades, centuries, millennia, and even millions of years. Climate is the measurement of weather in an area over time. Climate science is used to indicate changes in historic weather patterns and in a region, this analysis can provide evidence of changing climactic conditions. Climate predictions try to ask questions like, *will the temperature in the Central Okanagan be warmer in 50 or 100 years time? If so, what impacts will this have?*

History of Climate Action

The earliest efforts to combat anthropogenic climate change, which is the release of GHGs through human activity, began in 1994 when the United Nations Framework Convention on Climate Change (UNFCCC) was announced. At this time, while not well researched and lacking substantive scientific support, it was believed that humans' mass industrialization of food

production, the manufacturing of products, the mass commercialization of services, and our use and dependence on vehicles could be responsible for changes to the earth's climate. In response, the Intergovernmental Panel on Climate Change (IPCC) presented evidence in 2007 that supported this claim, and suggested that the effects of anthropogenic caused climate change, if left unchecked, would have devastating impacts on earth's fragile ecosystems, coastal cities, and vulnerable populations. Following the release of these findings many nations began to take action, to respond to the potential devastating impacts, including British Columbia's premier, Gordon Campbell, who announced the British Columbia Climate Action Charter in 2007 as a means of reducing GHGs and investing in climate change adaptation.

Climate Change: The Root Cause

For the majority of Earth's existence the earth has had an atmosphere, and while the origins of its formation are debated, its importance is not. Without our atmosphere the planet would be an inhospitable place, as it would lack the basics for life including water and oxygen, and we would be defenceless to the hostilities of space¹.

Life is possible on earth because of the atmosphere and its ability to control various cycles on our planet (i.e. the hydrologic cycle), as well as being able to regulate the planets temperature. The atmosphere of our planet allows the visible light from the Sun to pass through and be reflected off the surface of our planet back toward space as heat radiation, this is then absorbed by the different gases in our atmosphere; these gases are known as greenhouse gases². Without this effect, it is believed that the average surface temperature of our planet would be -18°C^2 . So while these gases are vital to life on earth, by changing the amount of these GHGs in our atmosphere, it can have major impacts on our planet.

The primary concern with these gases is that increasing the amount of GHGs in our atmosphere will cause greater heat absorption in our atmosphere, which in turn will cause more heat to be radiated and reflected back to our planet's surface, causing a rise in temperature. While a general warming and cooling of our planet is typical of the planet (Editors of Encyclopaedia Britannica, 2019), the concern that climate scientists have with recent findings in our global average temperature increase is that this increase in GHG and global average temperature is being done faster than any point before, and with a volume of GHGs that is not likely to be to be reduced in the future, which means these temperatures are expected to remain or even increase exponentially in the future.

The 2019 CARIP Report

The purpose of this report is to document the actions taken by the City of West Kelowna that had a direct corporate or community wide benefit in reducing GHG emissions. For the purpose of this report it is important to know that corporate initiatives and actions are those that directly benefit or directly offset GHG emissions from the operations of the City. A community action, while still initiated by the City, has the benefit of reducing emissions in a particular area or neighbourhood in the City or the entirety of the City. In classifying and identifying these actions staff relied on the [CARIP 2019 Program Guide](#).

West Kelowna

Between 2007, the time of the City's incorporation, and 2019, the population has gone from 28,864 to 35,818 people, and between 2011 and 2019 West Kelowna has experienced an

¹ Pielke, R.A. (2020). Atmosphere. Retrieved from: <https://www.britannica.com/science/atmosphere>

² Mann, M.E. (2019). Greenhouse gas. Retrieved from: <http://www.britannica.com/science/greenhouse-gas>

average population increase of 1.7%^{3,4}. This indicates that the City has experienced consistent growth, and is a major factor in the demand for housing in the community.

In 2015 the City of West Kelowna was officially incorporated as the 51st City of the Province of BC, and between 2015 and 2019 the City has accomplished many things, that make this community recognized nationally as one of the best places to live. However, there are many things that must be done to continue to make this community a desirable place to live. West Kelowna continues to strive to maintain its rural, agricultural character, while being conscious of the desire to develop. West Kelowna also has, like many Canadian cities, a population that is heavily reliant on private vehicles for transportation, though initiatives are being taken to improve this. Many residents commute to Kelowna for work, and the W.R. Bennett Bridge is a major focus point for traffic congestion in both cities. Data available from the Canadian Census program (2016) indicated that nearly 90% of West Kelowna commuters use vehicles, while only 3.5% use public transit and 3.1% cycle.

Compact, Complete, and Energy Efficient Communities

The consistent growth and development in West Kelowna has required that the City expand at a rapid rate, most of which caters to fee-simple, single-detached dwelling development. While desirable by many residents, this sort of development is not sustainable long-term, and new types of development may be desirable in the future that would encourage a more compact design. When we think of how our community will move forward, we must be conscious to the pressures of land use and development. This balance is indicative in the careful balance between our need to allow development, and the desire to protect our agricultural industry, which is a staple of our community.

In an effort to create more sustainable neighbourhoods, the city has to consider how it may support compact, complete, and energy efficient neighbourhoods through existing policies within the Official Community Plan. In 2019, various developments were approved which support these objectives, and are steps that are essential in moving forward to create a more walkable, livable, and complete community that support the live, work, play model.

1. Council approved the development of three, four storey apartment buildings, totaling 186 units with an attached amenity space in Westbank Centre, in West Kelowna's downtown. The apartment buildings provide a mix of housing, including bachelor, one, and two bedroom apartments, which greatly add to the diversity of housing in the community.
2. Council approved the development of four, three to six storey buildings which will provide a mix of one, two, and three bedroom apartments. The development is in the heart of Westbank Centre, in West Kelowna's downtown, and meets many objectives and policies in the Official Community Plan that focus on pedestrian oriented development, safe communities, and good urban design.
3. Council approved the development of 60 apartment and 109 townhouse units, located on Gellatly Road. The development includes children play areas, indoor amenity space, and rooftop patios. The development also contains pedestrian walkways. The development is adjacent to a collector road, which provides great access to the community, and supports density and a mix of housing options.

³ BC Stats (2020). Municipal and sub-provincial areas population, 2001 – 2011 (XLSX). Retrieved from: www2.gov.bc.ca/gov/content/data/statistics/people-population-community/population/population-estimates

⁴ BC Stats (2020). Municipal and sub-provincial areas population, 2011 – 2019 (XLSX). Retrieved from: www2.gov.bc.ca/gov/content/data/statistics/people-population-community/population/population-estimates

4. Council approved the rezoning of a property in Westbank Centre to allow the development of a three-storey mixed used building. The bottom floor will contain commercial space, and the second and third floor will contain three residential rental apartments. The rezoning allows for infill development opportunities in West Kelowna's downtown, and supports many objectives and policies of the Official Community Plan, including the general concepts of infill, densification, and pedestrian oriented development.
5. The City approved the start of the Official Community Plan Update, starting with a Visioning Project that requires significant consultation and public engagement to help create a vision for West Kelowna's future.

CORPORATE ACTIONS

Building and Lighting

The City of West Kelowna undertook (●) the following Objectives in 2019:

- (●) New or upgraded energy-efficient lighting systems
- (○) New or upgraded energy-efficient heating systems
- (●) New or upgraded building envelope initiatives
- (●) Upgrades to amenities in recreation facilities
- (○) Studies related to building and/or lighting energy efficiency
- (●) Other (See Below)

Table 1 - Corporate Building and Lighting Actions

Completed Actions (2019)	Proposed Actions (2020)
<ol style="list-style-type: none"> 1. <i>Started the detailed design process for the future construction of a Public Works Yard.</i> 2. <i>Council approved an additional \$50,000 be added to the tender package for a new public works yard concept plan.</i> 3. <i>Council agreed to add \$50,000 to an annual budget for development services in the form of an infrastructure fund, which can be used to supplement infrastructure costs.</i> 4. <i>Continued to operate, replace, and maintain lighting with LED lights.</i> 	<ol style="list-style-type: none"> 1. <i>Identify a potential site for a new City Hall, with the aid of consultation, and purchase of said land. This will be the first phase of this process.</i> <ol style="list-style-type: none"> a. Cost: \$2,000,000 2. <i>Complete the conceptual design and drawings of Fire Hall #32.</i> <ol style="list-style-type: none"> a. Cost: \$150,000 (Capital Fund) 3. <i>Repair the roof at the Powers Creek Water Treatment Plant.</i> <ol style="list-style-type: none"> a. Cost: \$20,000 (Powers Creek Fund) 4. <i>Continue with Phase 1 of the Public Works Yard (Design)</i> <ol style="list-style-type: none"> a. Cost: \$5,000,000 (Capital, Gas Tax, Water, Powers Creek, Future Expenditures Funds) 5. <i>Upgrade lighting for West Kelowna Water facilities.</i> <ol style="list-style-type: none"> a. Cost: \$15,000 6. <i>Continue to operate, replace, and maintain lighting LED lights.</i>

Energy Generation

The City of West Kelowna undertook (●) the following Objectives in 2019:

- (○) Solar power projects
- (○) Heat recovery or heat reclamation projects
- (○) Biomass or bio-gas projects
- (○) Geo-exchange or geothermal projects

- (○) Studies related to energy generation
- (●) Other (See below)

Table 2 – Corporate Energy Generation Actions

Completed Actions (2019)	Proposed Actions (2020)
<ol style="list-style-type: none"> 1. Contacted BC Hydro to express disappointment at decision to withdraw plans to build a second, reliable power line between Nicola and Westbank substations. 2. Discussed with BC Hydro the possibility of having a second power line to provide power to the Greater Westside, BC Hydro promised to follow-up with alternative options. 3. Continued to operate and maintain the geothermal energy system at the Royal LePage Place Arena. 4. Continued to operate and maintain the West Kelowna RCMP detachment's solar hot water heating system. 5. Continued to purchase carbon offsets as part of the annual operations at the LEED® Silver Certified West Kelowna RCMP detachment, through Bullfrog Power. 	<ol style="list-style-type: none"> 1. Continue to work with BC Hydro to explore opportunities to provide a second power line to the Greater Westside. 2. Continue to operate and maintain the geothermal energy system at the Royal LePage Place Arena. 3. Continue to operate and maintain the West Kelowna RCMP detachment, a LEED Silver certified building. 4. Continue to purchase carbon offsets as part of the annual operations at the LEED® Silver Certified West Kelowna RCMP detachment, through Bullfrog Power.

Greenspace

The City of West Kelowna undertook (●) the following Objectives in 2019:

- (●) Tree planting
- (●) Greenspace acquisition
- (○) New or upgraded amenities in parks
- (○) Invasive species management
- (●) Plans or strategies related to greenspace
- (●) Other (See below)

Table 3 - Corporate Greenspace Actions

Completed Actions (2019)	Proposed Actions (2020)
<ol style="list-style-type: none"> 1. Completed wildfire fuel treatments in Eain Lamont (Mt. Boucherie), Davidson Creek (Carrot Mountain), Rock Ridge Parks, and on municipal land surrounding the Powers Creek Water Treatment Plant. 2. Council approved an additional \$50,000 be added to the wildfire mitigation management budget for 2019. 3. Secured, through the development process .26 hectares (.65 acres) of park land on Shannon Lake, which includes a fishing dock, picnic area, and trail, that provides access to the park from Shannon Lake Road. 	<ol style="list-style-type: none"> 1. Continue to implement wildfire fuel treatments throughout the community, as required.

Planning and Land Use

The City of West Kelowna undertook (●) the following Objectives in 2019:

- (○) Energy/Emissions Management Plan (New or updated)

- (○) Asset Management Plan (New or Updated)
- (○) Corporate Climate Action Plan (New or Updated)
- (●) Strategic Plan (New or Updated)
- (●) Other (See below)

Table 4 - Corporate Planning and Land Use Actions

Completed Actions (2019)	Proposed Actions (2020)
<ol style="list-style-type: none"> 1. <i>Adopted the 2019-2028 Financial Plan, which details budget and spending for the future.</i> 2. <i>Adopted the 2019-2022 Strategic Priorities, which outlines the goals and objectives for 2019 and beyond at the City and in the community.</i> 3. <i>Adopted an updated Community Wildfire Protection Plan for West Kelowna, to aid in fire prevention and treatment of 62 identified wildfire threat areas, including municipal, Crown, regional, Westbank First Nation, and private properties.</i> 	<ol style="list-style-type: none"> 1. <i>Continue to implement the actions identified in the 2019-2028 Financial Plan, and make adjustments as required.</i> 2. <i>Continue to implement the actions identified in the 2019-2022 Strategic Priorities, and make adjustments as required.</i>

Solid Waste

The City of West Kelowna undertook (●) the following Objectives in 2019:

- (○) Introduction, expansion or improvement of recycling initiatives at corporate facilities
- (○) Introduction, expansion or improvement of composting initiatives at corporate facilities
- (○) Communication or education for staff related to corporate solid waste initiatives
- (○) Studies or research related to corporate solid waste initiatives
- (○) Plans or strategies related to corporate solid waste initiatives
- (●) Other (See below)

Table 5 - Corporate Solid Waste Actions

Completed Actions (2019)	Proposed Actions (2020)
<ol style="list-style-type: none"> 1. <i>Continued to participate in the Commercial Waste Diversion Program.</i> 2. <i>Continued active participation in the Solid Waste Technical Advisory Committee (SWTAC).</i> 	<ol style="list-style-type: none"> 1. <i>Continue to participate in the Commercial Waste Diversion Program.</i> 2. <i>Continue active participation in the Solid Waste Technical Advisory Committee (SWTAC).</i>

Transportation

The City of West Kelowna undertook (●) the following Objectives in 2019:

- (●) Fleet replacement or upgrades
- (○) New or improved electric vehicle initiatives
- (●) New or improve active transportation infrastructure for staff
- (●) Communication or outreach for staff related to corporate transportation initiatives
- (○) New or improved public transportation initiatives for staff
- (●) Other (See below)

Table 6 - Corporate Transportation Actions

Completed Actions (2019)	Proposed Actions (2020)
<ol style="list-style-type: none"> 1. Purchased additional vehicles for City staff operations, including <ol style="list-style-type: none"> a. A F550 cab & chassis with dump box, front snow blade, and sanding attachment (Roads). <ol style="list-style-type: none"> i. Cost: \$145,000 (Capital Funds) b. Three ½ ton, 4 x 4 extended cabs & one ½ 4 x 4 quad cab (Utilities). <ol style="list-style-type: none"> i. Cost: \$158,000 (General Equipment Funds) c. Instrumentation Tech Service Truck, ¾ ton 4 x 4, quad cab (Utilities). <ol style="list-style-type: none"> i. Cost: \$52,000 (General Equipment Funds) d. Full size cargo van with interior storage bins (Facilities). <ol style="list-style-type: none"> i. Cost: \$45,000 (General Equipment Funds) e. ½ ton 4 x 4 pickup truck (Parks). <ol style="list-style-type: none"> i. Cost: \$38,000 (General Equipment Funds) f. F550 cab & chassis with dump box (Parks). <ol style="list-style-type: none"> i. Cost: \$75,000 (General Equipment Funds) g. One mid-size SUV (Pool vehicle for Lakeview) <ol style="list-style-type: none"> i. Cost: \$32,000 (General Equipment Funds) h. One mid-size SUV (Bylaw) <ol style="list-style-type: none"> i. Cost: \$35,000 (General Equipment Funds) i. One mid-size 4 x 4 SUV with storage space and safety supplies (Inspections) <ol style="list-style-type: none"> i. Cost: \$32,000 (General Equipment Funds) j. Trackless Sidewalk Plow <ol style="list-style-type: none"> i. Cost: \$175,000 (Capital Funds) k. Fire Utility Vehicle (UTV) <ol style="list-style-type: none"> i. Cost: \$50,000 (General Equipment Fund) l. RCMP Vehicle <ol style="list-style-type: none"> i. Cost: \$92,000 (Policing Fund) 2. City purchased e-bikes to be used by bylaw staff to reduce vehicle trips and GHG emissions. 	<ol style="list-style-type: none"> 1. Purchase a new emergency response vehicle for the fire department, a fire truck with a type II engine. <ol style="list-style-type: none"> a. Cost: \$1,056,000 (General Equipment Fund) 2. Replace an existing command/prevention vehicle in the fire department. <ol style="list-style-type: none"> a. Cost: \$120,000 (General Equipment Fund) 3. Purchase a new vehicle for the RCMP. <ol style="list-style-type: none"> a. Cost: \$46,000 4. Purchase additional vehicles for City staff, required for operations, and regular duties of staff: <ol style="list-style-type: none"> a. Two F150 ½ ton extended cab 4 x 4 <ol style="list-style-type: none"> i. Cost: \$80,000 (Equipment Finance Fund) b. Water Meter Truck <ol style="list-style-type: none"> i. Cost: \$40,000 (Equipment Finance Fund) c. F150 extended cab 8' box (replacement) <ol style="list-style-type: none"> i. Cost: \$40,000 (Equipment Finance Fund) d. Quad cab (crew) 6.6' box trailer towing package (replacement) <ol style="list-style-type: none"> i. Cost: \$45,000 (Equipment Finance Fund) e. F550 4 x 4 extended cab with landscape dump box <ol style="list-style-type: none"> i. Cost: \$85,000 (Equipment Finance Fund)

Water and Wastewater

The City of West Kelowna undertook (●) the following Objectives in 2019:

- (●) New or improved water or wastewater infrastructure
- (●) Studies or research related to water conservation
- (●) Plans or strategies related to water or wastewater
- (●) Water reduction initiative(s)
- (●) Other (See below)

Table 7 – Corporate Water and Wastewater Actions

Completed Actions (2019)	Proposed Actions (2020)
<ol style="list-style-type: none"> 1. Council adopted a new Water Rates Bylaw. The increased costs will help fund the Rose Valley Water Treatment Plant. The new bylaw also fixed existing, non-conforming rates in the community. 2. Completed the Distribution System Online Chlorine & Turbidity Monitoring Instrumentation system. <ol style="list-style-type: none"> a. Cost: \$210,000 (Rose Valley Funds) 3. Replaced domestic water meters in various areas of the community. <ol style="list-style-type: none"> a. Cost: \$254,000 (Water and Rose Valley Fund) 4. Designed improvements for the Paynter Dam, including improving the function of the spillway. <ol style="list-style-type: none"> a. Cost: \$250,000 (Powers Creek Fund) 5. Designed the decommissioning process for Inverness Lift Station. This will provide a gravity connection and reduce the requirement to pump 23 homes. <ol style="list-style-type: none"> a. Cost: \$200,000 (Future Expenditures Sewer Fund) 6. Replaced the Ross Road sanitary sewer. <ol style="list-style-type: none"> a. Cost: \$699,999 (DCC – Sewer, Future Expenditures Sewer, and Sewer Funds) 7. The City developed a drought response plan, which determines how the City's water supply may be preserved in times of increased water use. 8. Continued to operate, replace, and maintain water saving devices – faucets, toilets, showers, etc. 	<ol style="list-style-type: none"> 1. Continue to use and operate the Distribution System Online Chlorine and Turbidity Monitoring Instrumentation system. 2. Continue to work on design for the Paynter Dam, and begin construction. 3. Begin the construction process of the decommissioned Inverness Lift Station. 4. Continue to operate, replace, and maintain water saving devices – faucets, toilets, showers, etc.

Adaptation

The City of West Kelowna undertook the following Objectives in 2019:

Table 8 - Corporate Adaptation Actions

Completed Actions (2019)	Proposed Actions (2020)
<ol style="list-style-type: none"> 1. Hired eight new, full-time, career fire fighters, to address existing staff shortage. 	<ol style="list-style-type: none"> 1. Continue to monitor, and manage through development and land use controls the

<p>2. The City received \$100,000 grant from the Community Resiliency Investment Program to be used for wildfire mitigation efforts throughout the community.</p> <p>3. Trained additional staff to be deployed as members of the Central Okanagan Emergency Operations Centre.</p> <p>4. Continued to monitor, and manage through development and land use controls the natural environment, including riparian, terrestrial, and hillside areas that are susceptible to development pressures and changing climactic conditions.</p>	<p>natural environment, that are susceptible to development pressures, including environmentally sensitive areas, hillsides, and riparian areas.</p>
--	--

COMMUNITY ACTIONS

Building and Lighting

The City of West Kelowna undertook (●) the following Objectives in 2019:

- (○) New or upgraded energy-efficient lighting systems
- (○) New or upgraded energy-efficient heating systems
- (●) BC Energy Step Code related projects
- (○) Incentives/rebate programs related to energy-efficient building or lighting
- (○) Outreach, education or communication related to energy-efficient building or lighting
- (●) Other (See below)

Table 9 - Community Building and Lighting Actions

Completed Actions (2019)	Proposed Actions (2020)
<p>1. Constructed a new multi-sport dome for West Kelowna, which allows for indoor practices and games in fall and winter.</p> <p>2. Continued the process of incorporating BC's Energy Step Code requirements into the Building Regulations Bylaw.</p> <p>3. Council continued to support the construction of an urgent health centre in West Kelowna.</p>	<p>1. Continue the process of incorporating BC's Energy Step Code requirements into the Building Regulations Bylaw.</p> <p>2. Continue to support the construction of an urgent health centre in West Kelowna, which would reduce stress on Kelowna General Hospital and congestion on Highway 97, which would reduce vehicle emissions.</p>

Energy Generation

The City of West Kelowna undertook (●) the following Objectives in 2019:

- (○) Solar power projects
- (○) Heat recovery or heat reclamation projects
- (○) Landfill gas capture/utilization projects
- (○) Micro-hydro projects
- (○) Studies or research related to energy generation
- (○) Other (See below)

Table 10 - Community Energy Generation Actions

Completed Actions (2019)	Proposed Actions (2020)
N/A	N/A

Greenspace

The City of West Kelowna undertook (●) the following Objectives in 2019:

- (●) Tree planting
- (●) Greenspace restoration or maintenance
- (●) Greenspace acquisition
- (○) Invasive species management
- (○) Plans or strategies related to greenspace
- (●) Other (See below)

Completed Actions (2019)	Proposed Actions (2020)
<ol style="list-style-type: none"> 1. <i>Upgraded the Willow Beach Volleyball Court.</i> <ol style="list-style-type: none"> i. Cost: \$10,000 (Capital – Parks Fund) 2. <i>Provided new equipment for Anders Park, including improvements to the playground and a parking lot landscape design).</i> <ol style="list-style-type: none"> i. Cost: \$50,000 (Capital – Parks and Playground Equipment Funds) 3. <i>Made improvements to Anders Park Pickleball Courts.</i> <ol style="list-style-type: none"> i. Cost: \$15,000 (Capital Funds) 4. <i>West Kelowna Fire Rescue established innovative actions to encourage private property owners to do work to improve the survivability of their homes in case of a wildfire, which resulted in:</i> <ol style="list-style-type: none"> i. <i>FireSmart Mitigation Grants that were provided to 23 individuals who undertook a wide variety of activities to mitigate the threat of wildfire on their properties.</i> <ol style="list-style-type: none"> i. Cost: \$5,850 ii. <i>Funding for dumpster bin rentals for neighbourhoods to load with wood debris and taken to the regional landfill at no cost to the property owners, a total of 36 loads of wood debris were taken.</i> <ol style="list-style-type: none"> i. Cost: \$534 	<ol style="list-style-type: none"> 1. <i>Develop Carate Park as a Neighbourhood Park, as identified in the West Kelowna Parks Master Plan.</i> <ol style="list-style-type: none"> i. Cost: \$50,000 (Capital and Capital-Parks Funds) 2. <i>Make improvements to the Gellatly boat launch, as identified by the Parks Master Plan.</i> <ol style="list-style-type: none"> i. Cost: \$60,000 (Capital-Park Funds) 3. <i>Construct Memorial Park Bike Skills Park, as identified by the Parks Master Plan.</i> <ol style="list-style-type: none"> i. Cost: \$67,001 4. <i>City to implement the Urban Re-Leaf Program, which will allow home owners to purchased subsidized trees, to be planted on their property or in the community.</i> 5. <i>Expand and add to Mt. Boucherie, pickleball courts.</i> <ol style="list-style-type: none"> i. Cost: \$ 52,900 (Recreation Reserve Fund) 6. <i>Continue to upgrade and make improvements to volleyball courts.</i> <ol style="list-style-type: none"> i. Cost: \$ 34,000 (Recreation Reserve Fund) 7. <i>Promote the Westside as a destination for hiking and mountain biking for visitors and residents.</i> <ol style="list-style-type: none"> i. Cost: \$6,500 (Corporate Initiatives Fund) 8. <i>Playground equipment replacement.</i> <ol style="list-style-type: none"> i. Cost: \$125,000 (Capital – Parks Fund) 9. <i>Continue to fund the West Kelowna Fire Rescue FireSmart program, which will include:</i>

	<ul style="list-style-type: none"> i. <i>The offset of tipping fees at the Westside Transfer Station for property owners who have completed mitigation works as per the FireSmart guidelines.</i> <ul style="list-style-type: none"> i. <i>Cost: \$2,000</i> ii. <i>Provide collection bins or chipping services for neighbourhoods so that residents may deposit materials from their wildfire mitigation activities.</i> <ul style="list-style-type: none"> i. <i>Cost: \$3,000</i> iii. <i>Provide thirty grants of \$500 to private property owners who undertake large scale mitigation and prevention activities and initiatives to improve and protect their properties from wildfire, as per the FireSmart Guidelines.</i> <ul style="list-style-type: none"> i. <i>Cost: \$15,000</i> iv. <i>Provide promotional and educational materials to the public, to ensure people are aware of the importance and impact wildfire mitigation and management control can have in preventing wildfires.</i> <ul style="list-style-type: none"> i. <i>Cost: \$6,000</i>
--	--

Planning and Land Use

The City of West Kelowna undertook (●) the following Objectives in 2019:

- (●) Official Community Plan (New or Updated)
- (○) Climate Action Plan (New or Updated)
- (○) Regional Growth Strategy (New or Updated)
- (●) New or updated bylaw(s) or zoning addressing climate issues
- (●) Other (See below)

Completed Actions (2019)	Proposed Actions (2020)
<ul style="list-style-type: none"> 1. <i>Council agreed to begin the Community Visioning process, which is largely based on public engagement, and makes up a significant component of the Official Community Plan review.</i> <ul style="list-style-type: none"> i. <i>Cost: \$100,000 (Capital Funds)</i> 2. <i>Adopt 2019-2022 Strategic Priorities, which outlines the goals and objectives for the City with respect to community safety, health, housing, community visioning and development, and economic growth.</i> 3. <i>Continued with Zoning Bylaw amendments, started in 2017 as a City staff lead initiative.</i> 4. <i>Began updating the Works and Services Bylaw, to strengthen engineering and infrastructure requirements for new developments.</i> 	<ul style="list-style-type: none"> 1. <i>Complete community visioning and public engagement for Official Community Plan review.</i> 2. <i>Begin phase 2 of the Official Community Plan review.</i> 3. <i>Complete 2017 Zoning Bylaw amendments.</i> 4. <i>Complete the Works and Services Bylaw.</i> 5. <i>Complete the Recreation Programming and Facilities Masterplan.</i> 6. <i>Begin the West Kelowna Business Area Plan, as identified by Council as a strategic priority.</i> <ul style="list-style-type: none"> i. <i>Cost: \$50,000 (Future Expenditures Fund)</i> 7. <i>Begin the Master Transportation Plan update.</i> <ul style="list-style-type: none"> i. <i>Cost: \$250,000 (Future Expenditures Fund)</i>

5. Council provided support for the Okanagan Lake Protection Strategy being developed by the Okanagan Collaborate Conservation Program, which will address challenges in shoreline management. 6. Council agreed to partner with Interior Health to improve community health and wellness through city planning, policies, initiatives, and programs that would support the community. 7. Began work on the Recreation Programming and Facilities Masterplan. i. Cost: \$90,000 (Capital Fund)	8. Work with Westbank First Nations on community sustainability initiatives.
---	--

Solid Waste

The City of West Kelowna undertook (●) the following Objectives in 2019:

- (●) Introduction, expansion or improvement of recycling initiatives
- (●) Introduction, expansion or improvement of composting initiatives
- (●) Community clean-up initiatives
- (●) General waste reduction initiative (including landfill diversion strategies)
- (○) Outreach, education or communication related to solid waste
- (●) Other (See below)

Completed Actions (2019)	Proposed Actions (2020)
1. Continued to work with the Regional Waste Reduction Office in reduction, reuse, and recycling programs and incentives. 2. Secured a new 10-year contract, with the assistance of our regional partners, to continue to provide curbside collection of waste, recycling, and yard waste. Equipment operates with the use of natural gas. 3. Co-hosted the Volunteer Community Clean Up in May. 4. Continued active participation in the Solid Waste Technical Advisory Committee (SWTAC).	1. Complete replacement and construction of the new Gellatly Bridge in May 2020. 2. Construct road improvements on Glenrosa, between Glen Abbey and McGinnis. i. Cost: \$6,500,000 (Capital and DCC-Road Funds) 3. Replace the pavement of the roads in the Road Rehab Program. i. Cost: \$1,450,000 (Capital Funds, Future Expenditures, and Carry Forward Funds).

Transportation

The City of West Kelowna undertook (●) the following Objectives in 2019:

- (●) New or improve active transportation infrastructure
- (●) New or improved public transportation initiatives
- (○) Outreach, education or communication related to transportation
- (○) Plans or strategies related to transportation
- (●) Other (See below)

Completed Actions (2019)	Proposed Actions (2020)
1. Provided a weekday public transit service along Shannon Lake Road. i. Cost: \$178,000 2. Finished design and began construction on Gellatly Bridge, over Powers Creek, to replace bridge and raise it above flood levels.	1. Complete replacement and construction of the new Gellatly Bridge in May 2020. 2. Construct road improvements on Glenrosa, between Glen Abbey and McGinnis. i. Cost: \$6,500,000 (Capital and DCC-Road Funds)

<ul style="list-style-type: none"> i. Cost: \$ 2,000,000 (Gas Tax, Future Expenditures, Capital Renewal, and Capital Funds) 	<ul style="list-style-type: none"> 3. Replace the pavement of the roads in the Road Rehab Program. <ul style="list-style-type: none"> i. Cost: \$1,450,000 (Capital Funds, Future Expenditures, and Carry Forward Funds).
<ul style="list-style-type: none"> 3. Provided a design for the Glenrosa and Gellatly Road (Phase IV) upgrade project, and initiated the project. <ul style="list-style-type: none"> i. Cost: \$100,000 (Future Expenditures) 	<ul style="list-style-type: none"> 4. Construct the McIver Road sidewalks and design 350 m of sidewalk on Westlake Road, through the Pedestrian Improvement Program (Sidewalks). <ul style="list-style-type: none"> i. Cost: \$1,200,000 (Gas Tax Funds)
<ul style="list-style-type: none"> 4. Continued to provide upgrades to roads and infrastructure throughout the community as part of the Road Rehab Program. <ul style="list-style-type: none"> i. Cost: \$800,000 (Capital Funds) 	<ul style="list-style-type: none"> 5. Construct road improvements on Glenrosa Road, between Glen Abbey Place and McGinnis Road. <ul style="list-style-type: none"> i. Cost: \$6,500,000
<ul style="list-style-type: none"> 5. Continued to support the Pedestrian Improvement Program in West Kelowna (Sidewalks). <ul style="list-style-type: none"> i. Cost: \$1,100,000 (Capital, Future Expenditures, and Gas Tax Funds) 	<ul style="list-style-type: none"> 6. Continue to support bridge maintenance and repair. <ul style="list-style-type: none"> i. Cost: \$103,350
<ul style="list-style-type: none"> 6. Constructed 650 m of sidewalk on Ross Road, between Brentwood Road and Rifington Place. <ul style="list-style-type: none"> i. Cost: \$1,200,000 	<ul style="list-style-type: none"> 7. Construct sidewalk on Glenrosa Road from Trails Development, to Glen Abbey Place. <ul style="list-style-type: none"> i. Cost: \$600,000
<ul style="list-style-type: none"> 7. Continued to operate a BC Hydro Electric Vehicle Fast Charging Station at Lions Hall, on Brown Road. 	<ul style="list-style-type: none"> 8. Continue to operate a BC Hydro Electric Vehicle Fast Charging Station at Lions Hall, on Brown Road.
<ul style="list-style-type: none"> 8. An update on the Regional Transportation Plan was provided. The plan is proceeding and a formal plan will be made available in 2020. The plan is being completed by the Sustainable Transportation Partnership of Central Okanagan. 	<ul style="list-style-type: none"> 9. Continue to work with and support the development of the Regional Transportation Plan.

Water and Wastewater

The City of West Kelowna undertook (●) the following Objectives in 2019:

- (●) Water restrictions
- (○) Incentives/rebate programs related to water or wastewater
- (○) Outreach, education or communication related to water or wastewater
- (●) Studies or research related to water or wastewater
- (●) Plans or strategies related to water or wastewater
- (●) Other (See below)

Completed Actions (2019)	Proposed Actions (2020)
<ul style="list-style-type: none"> 1. Implemented an additional water rate increase (2 of 4) 2. Completed the design of the expanded Glenrosa reservoir storage capacity. <ul style="list-style-type: none"> i. Design and Construction Cost: \$3,400,000 (Water Debt, Powers Creek, Developer and DCC Water Funding) 3. Created and implemented an online distribution chlorine and turbidity monitoring instrumentation monitoring system. <ul style="list-style-type: none"> i. Cost: \$210,000 (Rose Valley Fund) 	<ul style="list-style-type: none"> 1. Begin a multi-year conversion program for water treatment, from chlorine gas to chlorine liquid for the Rose Valley Dam, West Kelowna Estates Intake, and Sunnyside Intake. <ul style="list-style-type: none"> a. Cost: \$130,000 2. Begin the design work for the Rose Valley Water Treatment Plant mains. <ul style="list-style-type: none"> i. Cost: \$200,000 (Rose Valley Fund) 3. Inspect the Rose Valley Dam to McDougall Transmission Main <ul style="list-style-type: none"> ii. Cost: \$75,000 (Rose Valley Fund) 4. Renew the water main for McIver Road and Gorman Road

<p>4. Purchased and installed water quality analyzing devices and sample stations, to test water throughout the community.</p> <p>i. Cost: \$18,000 (Water – City of West Kelowna Fund)</p> <p>5. Continued to complete duties and tasks as required by the Leak Detection Program throughout the community.</p> <p>6. The City developed a drought and water conservation response, which helped preserve the reservoirs supply and directed residents to limit water use.</p> <p>7. Replaced domestic water metres throughout the community.</p> <p>i. Cost: \$254,000 (Rose Valley and City West Kelowna Water Funds)</p> <p>8. Replaced the Westlake to McDougall Soccer Dome watermain.</p> <p>i. Cost: \$1,080,000 (Rose Valley Fund)</p> <p>9. Completed the design of the Paynter Dam spillway improvements.</p> <p>i. Cost: \$250,000</p> <p>10. Completed the design of the Inverness Lift Station, and converted the lift station to gravity flow.</p> <p>i. Cost: \$200,000 (Sewer Fund)</p>	<p>iii. Cost: \$250,000 (Powers Creek Fund)</p> <p>5. Decommission the Ensign Lift Station</p> <p>iv. Cost: \$350,000 (Future Expenditures Sewer)</p> <p>6. Decommission the Inverness Lift Station.</p> <p>v. Cost: \$200,000 (Future Expenditures Sewer)</p> <p>7. Begin the design for the Stevens Lift Station</p> <p>vi. Cost: \$100,000 (Futures Expenditures Sewer)</p> <p>8. Provide lift stations with generators and mobile generator power connections throughout the community.</p> <p>vii. Cost: \$314,600</p> <p>9. Install emergency back-up generators and mobile generator connections, throughout the community.</p> <p>viii. Cost: \$155,200</p>
--	---

Adaptation

The City of West Kelowna undertook the following Objectives:

Completed Actions (2019)	Proposed Actions (2020)
<p>1. Purchased C-Can storage unit for the storage of flood response sand bags.</p> <p>i. Cost: \$5,500 (Capital – Parks Fund)</p> <p>2. Continued to monitor, and manage through development and land use controls the natural environment, including riparian, terrestrial, and hillside areas that are susceptible to development pressures and changing climactic conditions.</p> <p>3. Maintained fire weather station in Rose Valley and provided data to BC Wildfire Service.</p>	<p>1. Conduct slope improvement work in Shannon View.</p> <p>i. Cost: \$100,000 (Capital Funds)</p> <p>2. Continue to monitor, and manage through development and land use controls the natural environment, that are susceptible to development pressures, including environmentally sensitive areas, hillsides, and riparian areas.</p> <p>3. Continue to maintain fire weather station in Rose Valley and provide data to BC Wildfire Service.</p>

Climate Action Leadership

The following projects display how the City of West Kelowna has demonstrated leadership and undertaken innovative approaches to meet the BC Climate Action Charter commitments and to reduce both corporate and community GHG emissions.

Corporate	Community
<p>1. Started the detailed design process for the future construction of a Public Works Yard.</p> <p><u>Rationale:</u> Creating a single, new, centralized Public Works Yard will reduce the number of</p>	<p>1. Began the Community Visioning process, which is largely based on public engagement, and makes up a significant component of the Official Community Plan.</p>

trips by employees that would otherwise be required between different offices and work sites, it will also theoretically reduce the overall distance travelled if centrally located. A single station will also increase operational efficiency, and the construction of a new facility will allow for more sustainable building and construction practices.	<u>Rationale:</u> The Visioning process in an OCP review provides direction and informs policy decisions for the community for the future. Undertaking a Community Visioning project as part of the OCP update will ensure that the objectives of the community are up-to-date, and bring to light new goals that we may have moving forward. Understanding how climate change will fit into this community document will be incorporated.
2. Council adopted a new Water Rates Bylaw. The increased costs will help fund the Rose Valley Water Treatment Plant. The new bylaw also fixed existing, non-conforming rates in the community. <u>Rationale:</u> The Water Rate Bylaw will provide funding for the Rose Valley Water Treatment Plant, which has been identified to be an essential piece of infrastructure, and basic service for residents. The new water treatment plant is expected to reduce local emissions and the purchase of bottled water, as residents are required to go on boil water advisories. Creating a new system would also significantly improve the efficiency and operations of staff.	2. Adopted an updated Community Wildfire Protection Plan for West Kelowna, to aid in fire prevention and treatment of 62 identified wildfire threat areas, including municipal, Crown, regional, Westbank First Nation, and private properties. <u>Rationale:</u> The Community Wildfire Protection Plan protects corporate and community interests. This Plan allows the City and community to be proactive in reducing fire risk. Wildfires are a major source of emissions, and of City and private (resident) costs.
3. The City developed a drought response plan, which determines how the City's water supply may be preserved in times of increased water use and dry periods. <u>Rationale:</u> West Kelowna experiences long, hot summers, and periods of limited precipitation. Managing our water is of the utmost importance during these times, because water plays a vital role in our lives, our health, and in our community.	3. Provided a weekday public transit service along Shannon Lake Road. <u>Rationale:</u> Increasing our public transit service network will provide opportunities for residents to use public transportation and reduce our dependency on private vehicles.

In addition to displaying leadership in undertaking innovative approaches to meet the BC Climate Action Charter commitments, the City has demonstrated ability in pursuing innovative approaches for adaptation through the following initiatives:

1. Adopted an updated Community Wildfire Protection Plan for West Kelowna, to aid in fire prevention and treatment of 62 identified wildfire threat areas, including municipal, Crown, regional, Westbank First Nation, and private properties.
2. The City purchased e-bikes to be used by bylaw staff to reduce vehicle trips and GHG emissions that would be emitted by vehicles used for site visits and inspections.
3. The City developed a drought and water conservation response plan, which will help preserve the City's reservoir supply, by directing residents on the amount of water they may use during periods where there is a shortage of water. Water plays a vital role in West Kelowna's economy, as many agricultural practices require a water supply to sustain their crops.

Climate Change in West Kelowna

West Kelowna has in recent years experienced the damaging effects of wildfire and flooding, a likely result of increased storm severity which has caused irregularities in our weather. These irregularities, a cause of climate change, have also changed how we think about our resources. In 2019, the City had to create a drought and water response plan to ensure that residents would manage our water supply during periods where there was little precipitation. In addition, the City has been taking steps to think how climate change may impact our community in the long term. In 2019, Mayor and Council approved the 2019-2028 Financial Plan, which sets the framework for a spending plan for the City and lays out what projects are to be completed in the future. As part of this plan the City wishes to complete a new Official Community Plan, Asset Management Plan, and Transportation Plan, all of which will be crucial to the long-range development and growth of our community. The City also completed short-term projects that would have long-term benefits in reducing GHG emissions and reducing the impacts of climate change on our community, including: wildfire mitigation work throughout the community; the approval of and the start of upgrading the Gelatly Bridge; and, the approval of e-bikes for City staff to be used during working hours for site inspections instead of traditional vehicles. Residents also had an opportunity to reduce their potential impact by participating in voluntary wildfire clean-ups, which provided them with the opportunity to receive grants, and best practices in managing their properties from wildfire risks.

Community Partnerships

In order to satisfy the objectives of the Charter, local governments are often required to partner with local organization or other local governments to complete different projects or initiate actions. The City of West Kelowna forms new partnerships, and honours existing partnerships every year. In 2019, some of the partnerships that West Kelowna formed to reduce emissions and continue to make the community a compact, sustainable, and efficient City were as follows:

1. Interior Health - Partnership agreement to collaborate on opportunities to improve community health and wellness, including working on city plans, policies, and initiatives.
2. Okanagan Basin Water Board (Waterwise Initiative) - City is a member of the OBWB, which helps promote water conservation. City completed a drought response plan.
3. FireSmart Canada Community Recognition Program - Huntsfield Green in West Kelowna Estates neighbourhood will be first recognized FireSmart Canada Community in West Kelowna.
4. Emergency Management BC - worked with EMBC to provide aid to community during times of emergency aid (i.e. flooding and wildfire).
5. Sustainable Transportation Partnership of the Central Okanagan - worked together to provide a Regional Transportation Plan.

Emissions Reporting

As required by the Charter, the City of West Kelowna must report annually their corporate carbon emissions. In 2019, the City had a surplus of 2225 tonnes of CO₂ e (equivalent), which does not meet the Charter's requirement in being corporate carbon neutral. The total corporate GHG emissions are as follows:

Service Delivery Type	2019 Corporate GHG Emissions CO ₂ e
Services Delivered Directly by your Local Government	1767
Contracted Services	458
Total Emissions (Direct + Contracted)	2225

Total Reductions	1.4
------------------	-----

The City has minimal reductions, 1.4 CO₂ e, which comes through the operation of the RCMP detachment located in Westbank Centre. The operation of the detachment's solar panels accounts for this reduction. The City does not invest in any carbon offsets at this time; however, the city receives funds through a gas tax fund and the carbon tax fund. This money is used for capital projects in the City, including road and pedestrian upgrades, but there remains to be a formal long-term investment strategy that thinks how these funds may be used in the future (i.e. 10, 20 and 30 years from now).

The joint Provincial-Union of British Columbia Municipalities Committee recognizes 4 levels of actions with respect to meeting the objectives of the charter, a guide to this ranking system can be found in the [CARIP Program Guide – 2019](#). In summary, the City of West Kelowna is currently at **Level 3 – Accelerating Progress on Charter Commitments**. The City has achieved this status as a result of its actions and initiatives corporately and community-wide, which includes the following:

1. The City has taken initiatives to create compact, complete communities, but these are limited, and the majority of development in the community is fee-simple, single detached dwellings, which significantly increases the demand for cars.
2. The City has started on various projects, including a new OCP Plan Update, which will greatly improve the vision and objectives of our community moving forward; however, this is already a requirement of the Local Government Act, and is required by the Province to be completed on a regular basis.
3. The City initiated the design process for a new Public Works Yard. Creating a single, new centralized Public Works Yard will potentially reduce corporate emissions, because the City will no longer be required to operate multiple sites.
4. Adopted an updated Community Wildfire Protection Plan for West Kelowna, to aid in fire prevention and treatment of 62 identified wildfire threat areas, including municipal, Crown, regional, Westbank First Nation, and private properties.
5. The City has yet to establish a long-term plan with respect to Climate Action, because of this there are no clear goals, or objectives that the City has to accomplish year to year; however steps are being taken to become more sustainable.
6. Council adopted a new Water Rates Bylaw. The increased costs will help fund the Rose Valley Water Treatment Plant. The Rose Valley Water Treatment Plant, will provide a basic service to residents and will reduce emissions and waste. Currently, residents are required to purchase bottled water or use a City filling station to access clean drinking water. The provision of the water treatment plant is expected to reduce local emissions and significantly improve the efficiency and operations of staff.
7. The City has yet to establish a long-term plan with respect to gas-tax funds and carbon tax credits received; however, these funds are used for various capital projects like road and pedestrian infrastructure improvements that can help reduce traffic congestion, and encourage alternative methods of transportation. To improve further, an investment strategy would bridge the gap in the lack of a long-range investment strategy which could establish capital projects and phased investments.

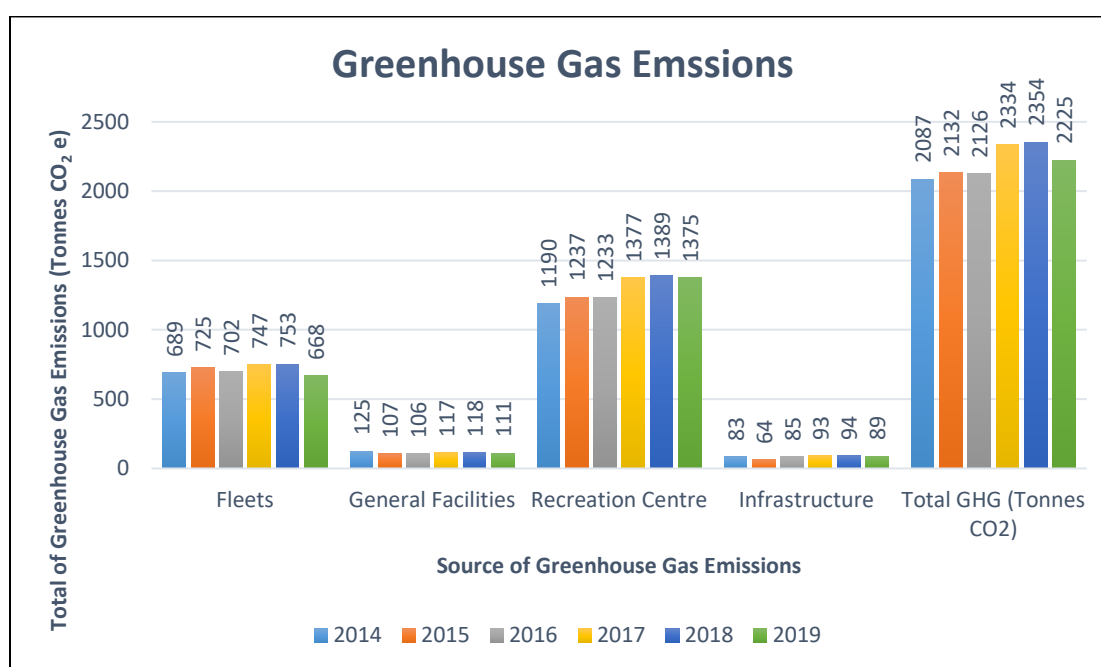
Greenhouse Gas Emissions

The total (corporate and contracted) GHG emissions for West Kelowna between 2014 and 2019 is summarized below – see Table 11. In 2019, the total emissions decreased from the previous year. While beneficial, the City will need to continue to decrease their emissions year over year in order to reach the corporate carbon neutral target. The root cause(s) for the reduction are

multifold, but the most significant factor was in the reduction of diesel fuel consumption and the increase in use of liquid natural gas (LNG). This is the result of a change in vehicles by the contracted service provider used for curb side pickup and a reduction in our fleet use – See Table 12. The decrease could also have to do with facility use and scheduling, and changes in weather, which can require more energy to be used to either heat or cool our facilities. The decrease could also be explained by the reduction in energy consumption by our infrastructure operations – See Table 13.

The total expense for our emissions decreased this year as well – see table 14; however, this is not surprising because the total emission also declined. What is important to note is that despite the decrease in emissions the cost remained relatively high. This is also not too surprising as the cost for energy production, including fossil fuels, is generally increasing.

Table 11 - Greenhouse Gas Emissions



Energy and Emissions Comparison

To quantify the energy consumed by the City and to be comparable to the emissions of fuels, the units of these two different sources have been converted. The City's energy consumption has been converted to gigajoules (GJs), which is a measure of energy. One GJ is equivalent to 25-30 litres of diesel or gasoline, or the electricity that would be required to operate a house for 10 days. A tonne of GHGs is the amount created when we consume 385 litres of gasoline, or the equivalent of operating 3 homes for a year. This can explain why the reduction in diesel use in substitution for LNG can explain a reduction in emissions, as LNG is a 'cleaner' energy source when compared to traditional fuels. A summary of the City's energy consumption by fuel type and GHG (tonnes of CO₂ e) emissions by fuel type are listed below.

Table 12 - Total Corporate and Contracted Emissions

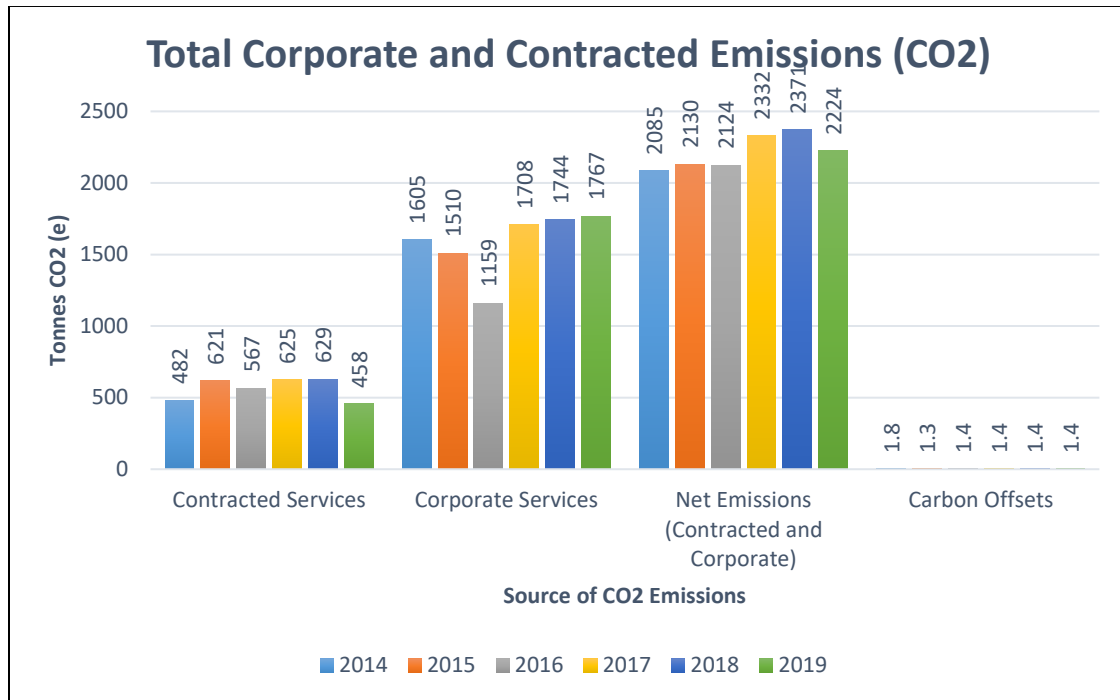


Table 13 - Total Energy Consumption

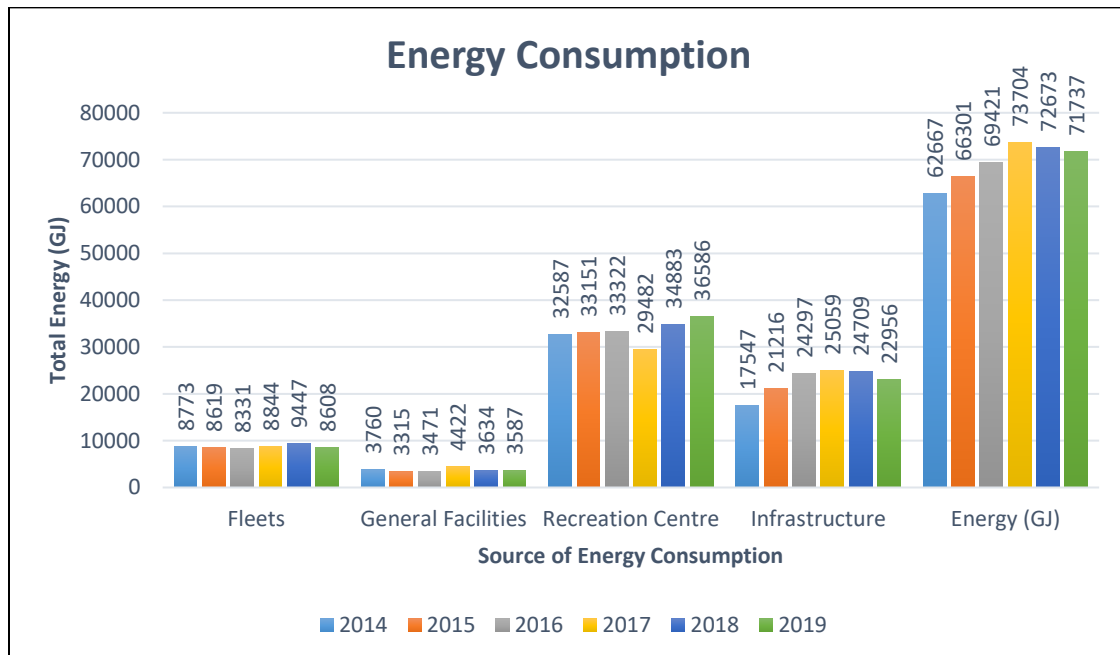
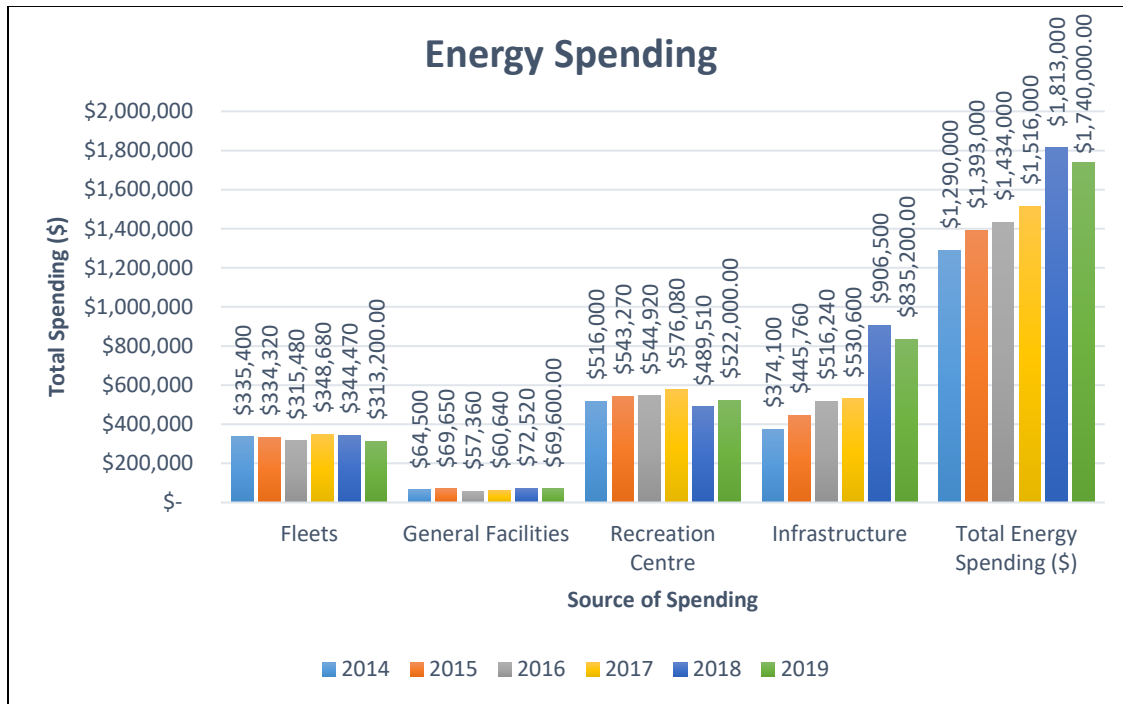


Table 14 - Total Energy Spending



The Future of Climate Action

Since the release of 2018 IPCC report many nations have taken more aggressive actions and set concrete deadlines to reduce their emissions. In the same year B.C. released the *Clean BC* report, which commits the Province to increasing the price of carbon to \$50 a tonne by 2021. This increase is intended to be used to offset the rising cost of living and will also be used to reduce community based GHG emissions, as the funds will be directed to community invest. In 2018 the Province also released the *Climate Change Accountability Act*. Which require BC to meet the following GHG emissions target levels:

- By 2030 and for each subsequent year, BC GHG emissions will be at least 40% less than the level of those emissions in 2007;
- By 2040 and for each subsequent year, BC GHG emissions will be at least 60% less than the level of those emissions in 2007; and
- By 2050 and for each subsequent year, BC GHG emissions will be at least 80% less than the level of those emissions in 2007.

Most recently, in 2019 the Province of B.C. released another piece of climate legislation, the *Zero-Emission Vehicles (AEV) Act*. The Act was created to ensure that there are more zero-emissions vehicles available for sale, and that the salve of these vehicles will be more affordable for the general public. The Act also sets concrete targets for the Province with respect to the vehicles to be sold, where:

- By 2025 10% of the total vehicles sold will be a ZEV;
- By 2030 30% of the total vehicles sold will be a ZEV; and
- By 2040 100% of the total vehicles sold will be ZEV.

These aggressive targets set through these Acts provide many objectives for the Province, and its municipalities in the years to come.

West Kelowna: 2020 and Beyond

When we think of what our community could look like in the future we must consider how we can get there, the goals we might establish for ourselves, and the process for how we may complete them. In thinking of West Kelowna's future with respect to climate change, it is evident that we must satisfy the commitment we made as a signatory to the B.C. Climate Action Charter, beyond this, we must think of what we can do to ensure our community may continue to prosper. Below are some things we may consider to ensure that we may continue to grow in a sustainable, fiscally responsible, and desirable way.

Collaboration and Joint Action

We may consider how our goals are common amongst our neighbours; Westbank First Nation, the District of Peachland, and the City of Kelowna play how they all play a vital role in the development of the west side, and are integral to the function of our community. We share businesses, facilities, natural areas, and common resources. Together we may think about how we can move forward together to adapt to and mitigate the effects of climate change.

Some initial steps may involve information and knowledge sharing. In recognition that we all share the same outcomes of climate change, we must put our collective knowledge together to work towards the same goal, and sharing information is a great way to get there. We may start to think of ways how we can work together to plan our communities, as well as how we may best utilize the facilities and infrastructure we have to meet the demands of our residents' needs. While it is important to note that there are opportunities for collaboration, Westbank First Nation has not agreed to the conditions of the Charter.

Climate Action Plan

A Climate Action Plan is essential to establishing, monitoring, and implementing objectives related to climate change. West Kelowna may adopt a Climate Action Plan to establish goals and policies to reach achieve our Charter commitments, and may do so by identifying projects for the future. For inspiration, West Kelowna may look to the City of Kelowna Climate Action Plan. Though it is advisable that the plan include both community and corporate actions to ensure the Charter commitments could be met.

While we are progressing towards corporate carbon neutrality and making our community more compact and sustainable, clear objectives would help establish a work plan moving forward. Furthermore, the establishment of goals in this document could be updated on a regular basis to ensure that they are still relevant as projects are completed, new issues arise, and new technologies are created.

District Energy Station

The City of West Kelowna currently operates a geothermal energy heater, which is used at the Royal LePage Place and Jim Lind Arenas. To date, the use of this renewable energy source has not been used to its maximum capability or efficiency, and there is a possibility to make better use of this energy source in the future, pending interest and funding. One possibility is to positively leverage the existing geothermal energy to allow for future operations as it is an energy source that is low impact and has low emissions. This may be done through a district energy station and may serve a greater purpose than it is currently being used for. The incorporation of such a system would also reduce West Kelowna's corporate carbon emissions.

Reserve Fund

To support the creation of the Climate Action Plan, we may also consider adopting a Climate Action Reserve Fund, which may make use of our Gas Tax Fund and Carbon Tax Credits, which are received annually. Currently the City lacks a long-range investment and project plan for these funds, and they are treated as general revenue for the City and used in capital projects. While beneficial, the City may be losing opportunities to invest this money in long-term capital projects that the City has difficulty raising funds for, or the City may save the funds to fund adaptation projects in the community as needed. If the Climate Action Reserve Fund was used in conjunction with the Climate Action Plan there would be a very clear and viable plan for the future.

Land Use and Community Design

In considering how West Kelowna is to continue to grow and develop our community must begin to think how our built, physical environment influences our community emissions, and the decisions we make or are forced to make based on what is available to us. With respect to transportation, we must make decisions like: *Do we take the car, or are we able to take public transportation? Are we able to walk or take our bikes?* Having the infrastructure that is capable of supporting these alternative options allows us to make alternative decisions. While infrastructure is important, we may also think about how our development pattern, including residential and road designs, have determined how we move and how we live. Looking at possibilities of encouraging more compact, dense residential design reduces sprawl, improves resource and energy efficiency, and enables the possibility of transportation oriented design which maximizes the density of residential and commercial space with the provision of pedestrian infrastructure and public transportation. In recognition of the new Community Visioning project that will be taking place between 2019 and 2020, the City is uniquely positioned to capitalize on reviewing its design objectives for the future.

Carbon Offsets

A traditional method for many corporations, including municipalities, is to offset their emissions and to invest in carbon offsets. The attraction is that this option provides an easy, accessible option that allows corporations to offset their emissions. However, it is important to note that the activity itself does not stop the emissions, and that as emissions increase, the amount of offsets purchased will also need to increase.

In the past many offset programs were allocated to planting trees, more recently these programs have shifted to investing in renewable energies; however, the funds typically do not stay in the community. This can raise questions of measurement and success, and whether or not the investment is worthwhile. To avoid these complications offsets in their traditional sense may be avoided, but the City could consider investing within the community projects that would otherwise reduce emissions.

Published May 29, 2020