Appendix A:

Options to Accelerate Climate Action

1. Overview

The Intergovernmental Panel on Climate Change (IPCC) warns that human-caused greenhouse gas (GHG) emissions need to be reduced 45 per cent below 2010 levels by 2030 in order to limit global warming to 1.5°C by 2030 to reduce the risks of extreme weather, rising sea levels and other impacts.[1] To make significant progress on reducing GHG emissions, it is imperative that everyone – resident's, businesses, industry and government – take action. Local governments, however, are uniquely positioned as they can influence approximately 60 per cent of the nation's overall energy use and 50 per cent of its GHG emissions.[2] The amount of influence a local government has, however, varies over different sources of GHG emissions within their boundaries as shown in Figure 1.

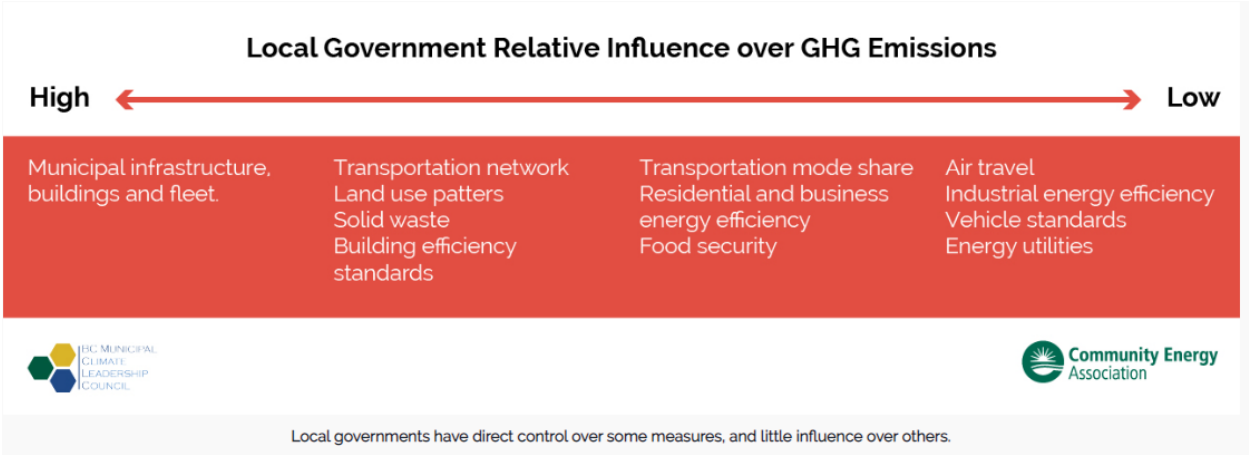

Figure 1: Local government relative influence over GHG Emissions,
Source: Climate Leaders Playbook

Recognizing community GHG emissions are not decreasing in Kelowna, accelerated action is needed to reverse this trend. As outlined in BC's "Climate Leader's Playbook," action, whether big or small, needs to be taken in the six following areas to achieve the GHG emissions reduction needed to achieve the IPCC's recommendations.

1. On Road Transportation
    - Reducing vehicle kilometres traveled by cars[3]
    - Transitioning to zero emission vehicles

2. Buildings
    - Transitioning towards net zero energy ready construction for all new buildings
    - Ensure a large portion of existing homes undergo deep energy retrofits annually

[1] Intergovernmental Panel on Climate Change (IPCC), October 8, 2018. Summary for Policymakers of IPCC Special Report on Global Warming of 1.5°C approved by governments. https://www.ipcc.ch/2018/10/08/summary-for-policymakers-of-ipcc-special-report-on-global-warming-of-1-5c-approved-by-governments/

[2] BC Municipal Climate Leadership Council and the Community Energy Association. The Climate Leaders Playbook. The Facts. https://bcclimateleaders.ca/playbook/the-facts/

[3] Vehicle kilometers traveled can be reduced by shifting as many future trips as possible to sustainable alternatives such as biking walking or transit. VKT can also be reduced through eliminating trips through promotion of work from home and other virtual strategies and/or reducing the distance people need to drive by coordinating land use and transportation planning and limiting development in outlying, car depending areas.

3. Waste
    - Divert organic waste
    - Capture renewable natural gas from waste and biosolids[4]
4. Build complete communities
5. Natural assets and green infrastructure
6. Climate leadership in City operations

Even with these six "big moves", most communities realize that a gap remains to achieve emission reduction targets aligned with the IPCC and changes in technology and/or senior government regulation will be needed to bridge the remaining reduction required.

2. Progressing on Kelowna's Community Climate Action Plan

Kelowna's Community Climate Action Plan (CCAP), endorsed in 2018, is a five-year plan that defines a path to slowly reduce GHG emissions by four per cent below 2007 levels by 2023. While the CCAP also identifies mid and longer-term targets (25 per cent reduction by 2033 and 80 per cent reduction by 2050), actions to reduce GHG emissions were only identified for the first five years.

While GHG emissions vary from year to year, progress on achieving the CCAPs short-term target is questionable at best, let alone being on track to achieve the IPCCs more aggressive goals. Data from 2017 (the most recent available for Kelowna) illustrates that GHG emissions have increased six per cent since 2007. Recently released provincial data for 2018 reinforces this trend, as province-wide GHG emissions increased six per cent over 2007 levels.[5] With the community expected to grow by 50,000 residents by 2040, per capita GHG emissions reductions will have to far outpace the rate of population growth to ensure total GHG emissions decline.

The CCAP identified 47 actions, three of which have been completed, and 34 are in progress or are ongoing. This level of action is impressive considering that to date there has been no budget directed specifically towards community climate action. Corporate climate action and energy reduction initiatives have been funded in part through the annual Climate Action Revenue Incentive Program (CARIP) grant; however, no such fund has been established for community GHG reduction initiatives. Up to now accomplishments on the community side have been the result of:

- Existing capital plan projects (e.g. for active transportation, transit, and solid waste projects)
- Grants (e.g. FortisBC grants for Community Energy Specialist position, See the Heat Program, and EV public charging station partnerships; Disaster Mitigation and Adaptation Fund and Pacific Institute for Climate Solutions for climate adaptation projects; BikeBC and ICBC Road Improvement Program for active transportation initiatives; and Tree Canada and Shaw partnerships for tree planting initiatives)
- No or low-cost actions (e.g. bylaw updates)

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[4] BC Municipal Climate Leadership Council and the Community Energy Association. The Climate Leaders Playbook. Solutions for a Zero Carbon Community by 2050. https://bcclimateleaders.ca/playbook/the-facts/

[5] Province of BC. Provincial Greenhouse Gas Emissions Inventory. https://www2.gov.bc.ca/gov/content/environment/climate-change/data/provincial-inventory

Acting quickly and effectively to address the climate crisis is challenging and complex and there is no "silver bullet" solution. To accelerate action to achieve the CCAPs GHG emissions reduction targets or to put Kelowna on the path to align with the IPCC targets, will require decisions to:

- Dedicate funds to implement actions identified in the CCAP;
- Re-model and identify actions that would align with IPCC targets; and
- Support policy shifts, that in the near term may be unfavourable by some but are necessary for long term success.

Fortunately, choosing to invest in climate action does not equate to a trade-off with other Council and community priorities. In fact, climate action is about delivering on the diverse goals and principles of *Imagine Kelowna* as illustrated in Figure 2. While often pitted as environment versus economy, climate action has benefits that extend beyond reduced GHG emissions. For example, addressing climate change can improve air quality, reduce noise pollution, provide space for recreation and social interaction, enhance natural habitat and biodiversity, and create connected, vibrant, and healthy communities.[6]

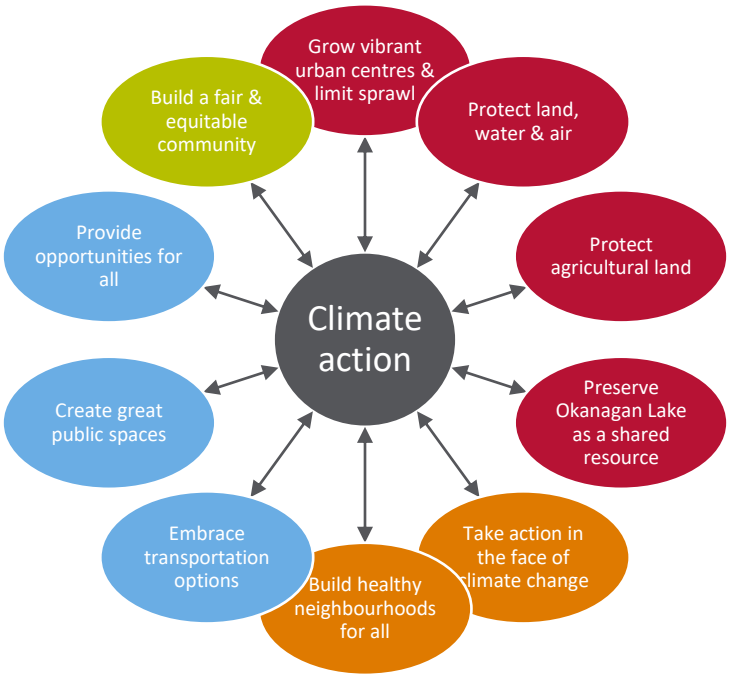


Figure 2: Delivering on Climate Action and Imagine Kelowna Goals

[6] City of Halifax, 2020. HalifACT 2050: Acting on Climate Together. https://www.halifax.ca/sites/default/files/documents/city-hall/regional-council/200623rc916.pdf.

3. Options to Accelerate Climate Action

The following sections provide a suite of actions that can be taken in the short-term (i.e., over the next three years) to accelerate action on climate change. The impact on reducing GHG emissions will be realized more rapidly for some of the actions (i.e., will start to see reductions over the next five to ten years). This includes actions that reduce GHG emissions from new and existing buildings and making progress on transitioning to zero emission vehicles. Equally significant, however, are actions that will result in reductions over a longer trajectory. Actions such as creating complete, compact communities, increasing the mode share of walking, biking and transit, and investing in green infrastructure are essential to lowering emissions, however while these cumulative actions need to be implemented now, their impacts may not be evident until the mid to longer term (i.e. ten to thirty years).[7] In the end, it is vital that all actions are implemented in a timely fashion in order to reach the short and long term targets as illustrated in Figure 3 below.

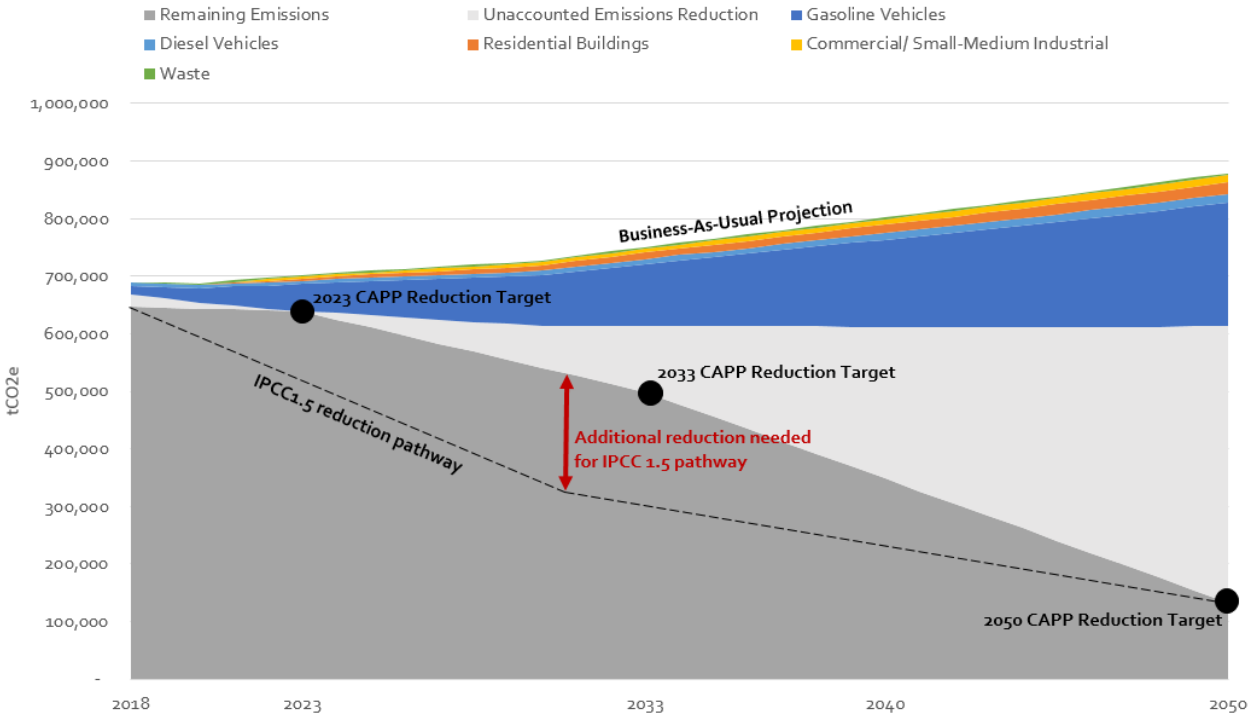


Figure 3: CCAP GHG Emissions Reduction Pathway, for illustration purposes only.

A variety of tools can be utilized by local governments to lay the foundation to enable residents and businesses to reduce emissions including:

- Infrastructure decisions (e.g., providing more active transportation corridors making it easier for residents to walk or cycle);
- Policy and regulation (e.g., requiring all new buildings to achieve a certain level of the Energy Step Code to reduce energy and GHG emissions);
- Outreach and capacity building (e.g., workshops on the benefits of deep energy retrofits);

[7] City of Richmond, November 29, 2019. Community Energy and Emissions Plan 2020-2050 Directions. January 20 2020 Council Report.

- Incentives (e.g., financial incentives for e-bikes);
- Collaboration and partnerships (e.g., working with local organizations for education and awareness); and
- Advocacy (e.g., encourage the Province to adopt a home energy labelling program).[8]

The actions outlined below include the following:

- **GHG reduction estimates (when available).** These estimates are based on the modelling completed during the CCAP's development. As with all models, the estimates are based on several assumptions, and it is imperative to note that these reduction estimates were based on early implementation and only for the life of the Plan (i.e., 2018 to 2023). Not all actions, however, have reduction estimates due to limitations with the model.
- **High level cost estimates.** Where available this includes total project costs and a separate column for the expected cost to the City. It is anticipated that several of the projects will have supporting partnerships or grants to implement. The estimated City costs do not include the staff resources that are needed to coordinate and implement specific initiatives. Some of the actions have no costs associated with them as they are policy changes, or strategy development that will be completed with City staff resources only.

3.1. On Road Transportation

Transportation accounts for 53 per cent of community GHGs in Kelowna, so meeting the City's GHG emissions reduction targets requires major changes in this sector. A low-carbon transportation system begins by reducing the need for travel, achieved through policies such as work from home programs. Next, reducing the need to drive and the distance people drive can be achieved through compact land use and complete communities. This is supplemented by actions to get people out of the single-occupancy vehicle, achieved through mode shifts to cycling, walking, public transit, car sharing, ride sharing, and ride hailing opportunities. Reducing trips and distances travelled and supporting alternative transportation modes are critical because they have benefits that extend beyond GHG emissions reduction, such as reducing traffic congestion. However, people will continue to rely on the automobile for years to come; therefore, GHG emissions from remaining single-occupancy trips can be effectively reduced by improving vehicle efficiency (Provincial and Federal Government jurisdiction) and switching to low carbon vehicles (e.g. electric vehicles (EVs)) (Figure 4).

[8] City of Richmond, November 29, 2019. Community Energy and Emissions Plan 2020-2050 Directions. January 20 2020 Council Report

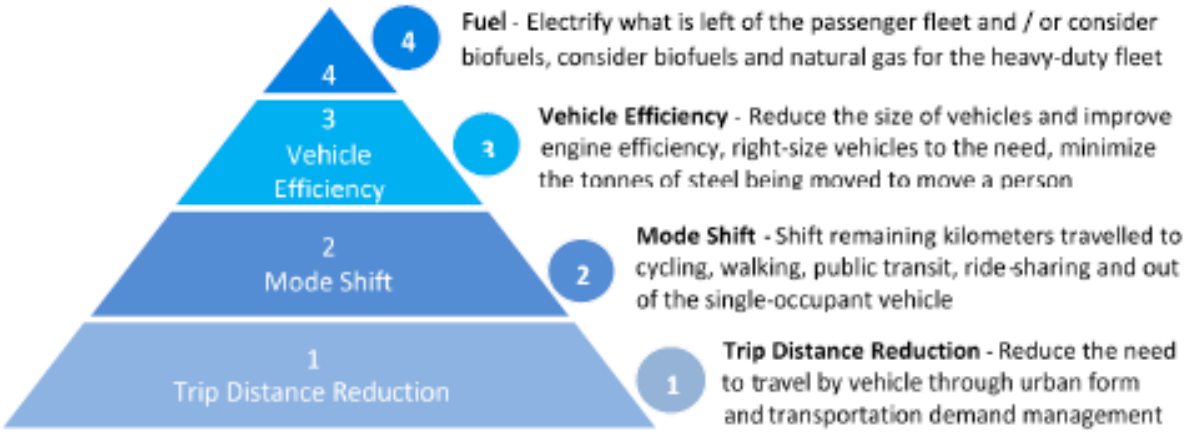


Figure 4: Sustainable Transportation Priorities

It is estimated that daily global GHG emissions decreased by 17 per cent in the peak of the COVID-19 pandemic restrictions in April 2020 compared with mean 2019 levels, mainly due to less travel during quarantine measures.[9] While the circumstances of these reductions are not ideal, the observed GHG emissions reduction suggests that on-going policies and programs to support working from home would be a cost-effective approach to climate mitigation efforts.

Accelerated Action - Creating a Low-Carbon Transportation System

0.5 % increase in active transportation and transit mode split per year			CCAP Reduction Estimate 17,800 tCO2e	
	Action	**Year**	**Total Cost**	**City Cost**
	Develop and adopt Transportation Master Plan Adoption	2020 - 2021 (in progress)	-	Existing budget
	Develop and adopt an anti-idling bylaw	2021 (in progress)	-	-
	Neighbourhood Bikeway Program	2021 - 2023	$300,000	$300,000
	Major Employer Trip Reduction & Flexible Workplace Policy	2021 - 2023*	$50,000	$50,000
	Transportation Safety Strategy	2022	$75,000	$75,000
	Pedestrian and Bicycle Master Plan Update	2022 - 2023	$25,000	$25,000
	Pandosy / Richter Transit Corridor Study	2021 - 2022	$100,000	$100,000
	Bike Lane Snow Clearing Study	2021	-	-
	Transit Travel Training Program	2022 - 2023	$100,000	$75,000
	Transportation Education & Awareness Program	2021 - 2023*	$20,000	$20,000
	Income qualified E-bike incentive pilot	2021	$25,000	$25,000
	Corporate E-bike / bike purchase program (a revolving loan fund)	2022 – 2023	$50,000	$50,000
	Adult & Student Bicycle Skills Training	2022 - 2023	$90,000	$90,000
	Bike and Ped Individualized Educations and Marketing Program	2022 - 2023	$100,000	$100,000

[9] Le Quéré, C., Jackson, R.B., Jones, M.W. et al. (2020). Temporary reduction in daily global CO_2 emissions during the COVID-19 forced confinement. Nat. Clim. Chang. (2020). https://doi.org/10.1038/s41558-020-0797-x.

	Safe Routes to School Program Expansion	2022 - 2023	$200,000	-
	Winter Active Transportation Maintenance	2022 - 2023	$500,000	$500,000
	Advocate for CleanBC goals and priorities to be reflected in provincial planning and capital investments, including the Central Okanagan Planning Study and increasing funding to enable more students to take school busing.	2021	-	-
	Advocate to the provincial government for "pay as you drive" insurance (i.e. consider structuring ICBC premiums to charge per kilometer).	2022 – 2023	-	-
	Coordinate with MoTI to consider congestion pricing for dynamic time of day pricing at congested bottlenecks.	2022 – 2023	-	-
Increase use of electric vehicles			CCAP Reduction Estimate 12,400 tCO2e	
	Develop and implement a Community Electric Vehicle Strategy	2020-2021 In progress	$22,500	-[a]
	Expand Level 2 chargers[b]	2020-2023 In progress	$555,000	$270,000
	100% EV Readiness Policy – new residential developments	2021	-	-
	EV Readiness Policy – new commercial developments	2021	-	-
	EV Streetlamp Pilot[c]	2021	$100,000	$75,000
	Add Level 3 charger at Museum Parking Lot[d]	2021	$75,000	-
	EV charger top up	2021	$120,000	$60,000
	EV Promotion workshops and training	2021-2023	$30,000	$30,000[e]
	Advocate to the provincial government to support the transition to electric vehicles with funding to expand the public EV charging network, incentives for workplace/at home charging, incentives for electric vehicles (including electric bikes) and streamlined standards for EV requirements in buildings.	2021	-	-

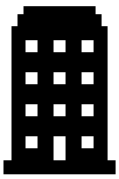
[a] *Project cost already accounted for in existing budgets*
[b] *A grant application was submitted to Natural Resources Canada for $150,000 to expand the network, $135,000 already approved in existing budget*
[c] *FortisBC has indicated they would partner on the initiative up to $25,000*
[d] *FortisBC is investigating options to expand level 3 charging at the Museum Lot*
[e] *Opportunities for partnerships will be investigated to reduce this cost*
** Potential to become an on-going annual program.*

3.2. Buildings

Buildings account for 40 per cent of Kelowna's community greenhouse gas (GHG) emissions and will be a key part of meeting the City's GHG emissions reduction targets. The Provincial Energy Step Code has set the course for improving energy efficiency in new construction and will help achieve energy and GHG emissions reductions from the building sector. Accelerating local endorsement and implementation of mid to upper steps for both Part 9 and Part 3 buildings is the "low hanging fruit" of GHG emissions reduction in the sector. This can be supported by including GHG metrics or low carbon energy system options in the Step Code framework.

While new construction is important, it is estimated that by 2040, 70 per cent of residential units will have been built before 2018, suggesting that most of the energy and GHG emissions reductions from the building sector over the next several decades will be generated from retrofits to existing buildings. Therefore policies, financing opportunities, industry support, and advocacy for provincial and federal government programs present a major challenge and opportunity in the building sector.

Accelerated Action: Creating low-carbon and energy efficient buildings

Accelerate Energy Step Code Implementation			CCAP Reduction Estimate 1,300 tonnes reduction[a]	
	Action	**Year**	**Total Cost**	**City Cost**
	Part 3 Buildings: Develop and adopt an Energy Step Code Strategy	2020 - 2021 In progress	-	-
	Part 3 Buildings: Energy Step Code – Revitalization Tax Exemption for highest step	2021	-	-
	Part 3 Buildings: Implement upper steps	2023	-	-
	Part 3 Buildings: Enforce high performance section of OCP Form & Character Guidelines	2022 - 2023	-	-
	Part 9 Buildings: Develop and implement an Audit Program	2021 - 2023	$30,000	$30,000
	Part 3 & 9 Buildings: Promotion, workshops and training	2021 - 2022	$20,000	$20,000[b]
	Part 3 & 9 Buildings: Advocate for GHG metrics or a low-carbon energy system option in the Step Code Framework, and to apply Energy Step Code consistently across the province instead of each jurisdiction on their own	2021 - 2023	-	-
Retrofit 1% homes annually, achieving 30% reduction			CCAP Reduction Estimate 3,750 tonnes	
	Residential: Complete Community Energy Retrofit Strategy	2020 - 2021 In progress	-	-
	Residential: NRCan Canadian Energy End Use (CEE) Map Prototype Project	2020 - 2022 In progress	$800,000[c]	-
	Residential: Municipal top ups – EnerGuide Assessment and Heat Pumps	2021 - 2023	$228,000[d]	$89,000
	Residential: Heritage Energy Grant Pilot	2021 - 2023	$80,000[e]	$45,000
	Residential: GMF CEF Feasibility and Program Design	2020 - 2021	$175,000[f]	$35,000
	Residential: GMF CEF Program Launch	2022	$140,000[g]	$35,000
	Residential: Advocate for PACE-enabling legislation, home-energy labelling requirements	2021-2023	-	-
	Industrial and Commercial: Building Benchmarking BC Program	2021-2023 In progress	$30,000	$20,000[h]
	Residential, Industrial and Commercial: Promotions, workshops and training	2021-2023	$30,000	$30,000[b]
	Advocate to the provincial government to implement a retrofit code; continue and expand incentives for residential, commercial, and industrial retrofits; and for education and promotion to public.	2022 – 2023	-	-

[a] GHG reductions from new buildings may be low, but the impact of implementing policies to improve efficiency of buildings will impact emissions for decades.
[b] Opportunities for partnerships will be investigated to reduce this cost.
[c] Grant and in kind partnership confirmed by Natural Resources Canada
[d] Betterhomes BC offers $300 rebate an EnerGuide energy assessment and up to $3,000 incentive for heat pump
[e] FortisBC has expressed interest in joint pilot
[f] Would apply for a Green Municipal Fund Community Efficiency Financing grant for the project
[g] Project funds covered in 2021 through pilot opportunity
[h] Received approval to participate in 2020/2021 pilot at no charge.

3.3. Waste

The City's solid waste production results in 9 per cent of Kelowna's GHG footprint. Actions to reduce GHG emissions from this source result in other benefits including prolonging the lifespan of the Glenmore Landfill, and the creation of useful by-products such as compost and fertilizer, and the capture of biogas and methane to produce natural gas. Similar to the transportation and building sectors, the best way to reduce GHG emissions is to focus on reducing energy demand, which equates to reducing waste through reducing, reusing, and recycling. Because waste management is under regional jurisdiction, the City will need to work with the Regional District of Central Okanagan to develop new programs to accelerate implementation of the Solid Waste Management Plan.

Opportunities are available to reduce GHG emissions once waste reaches a landfill or treatment site. Organic matter decomposes to release methane gas; so capturing, upgrading, and reusing this gas can provide significant GHG emissions reduction. The Glenmore Landfill is one of only two FortisBC landfill gas capture sites in BC, and the City invests around $450,000 annually to maintain the system. After gas upgrading, around 65,000 GJ[10] worth of renewable natural gas (RNG) is injected into FortisBC's distribution system annually. The City is looking at other RNG projects including an anaerobic digester and associated RNG capture from biosolids produced from the wastewater treatment facility.

Accelerated Action: Investigate opportunities to reduce waste and increase the supply of renewable natural gas

Reduce solid waste 12% and implement new processes to capture renewable natural gas.			CCAP Reduction Estimate 4,300	
	Action	**Year**	**Total Cost**	**City Cost**
	Incorporate new programs to accelerate implementation of the Solid Waste Management Plan to reduce per capita disposal 12% by 2022	2020-2022	This is a regional program	
	Develop and implement a business plan for the extent of anaerobic digestion necessary for biosolids and the production of renewable natural gas	2021 - 2022	$1.0 M	To be determined

[10] One gigajoule of natural gas is approximately equivalent to 27 litres of fuel oil, 39 litres of propane, 26 litres of gasoline or 277 kilowatt hours of electricity.

3.4. Complete Communities

Land use planning plays a critical role in designing and building communities that can mitigate and adapt to climate change.

As previously mentioned, transportation is the biggest source of Kelowna's community GHG emissions. The way a community is designed will determine travel distances between the places where residents live, work, and play. Further, street design combined with investments in transit and active transportation infrastructure will influence people's transportation choices.[11] Creating a complete, compact community is the most influential way local government can reduce reliance on personal automobiles.

Energy use can also be lowered by shifting from larger single-family homes to multi-family dwellings, where the energy demand per unit can be much lower. Additionally, higher densities increase the potential for efficient energy systems such as district heating systems and combined heat and power.

Land use strategies that emphasize green spaces, urban forests, and community spaces will help mitigate climate change by sequestering carbon. But these spaces will also help adapt to a changing climate by reducing the urban heat island effect and capturing and storing storm water. [12]

Accelerated Action: Complete communities

By 2040 target 67% of all new housing units in the Core Area. By 2040 target 75% of all new units to be multi-family.[13]			CCAP Reduction Estimate N/A	
	**Action**	**Year**	**Total Cost**	**City Cost**
	2040 Official Community Plan	2020-2021 In progress	-	-[a]
	Implementation of 2040 OCP	2021 – 2023	To be determined	

[a] *project cost already accounted for in existing budgets*

3.5. Enhance Green Infrastructure

Natural assets refer to a community's stock of natural resources and ecosystems that provides benefits to people, and can include lakes, creeks, wetlands, forests and natural areas.[14] Green infrastructure, a broader term, includes natural assets as well as designed and engineered elements that have been created to mimic natural functions.[15] Communities are finding ways to use these natural solutions because they are more adaptable and resilient to climate change and can be multi-functional when compared to traditional engineered solutions.[16] For example, a created stormwater pond, much like a

[11] Federation of Canadian Municipalities, 2019. Sustainable Land Use Practices in Canadian Municipalities: A Snapshot. https://data.fcm.ca/documents/reports/GMF/2020/sustainable-land-use-practices-in-canadian-municipalities.pdf

[12] City of Halifax, 2020. HalifACT 2050: Acting on Climate Together. https://www.halifax.ca/sites/default/files/documents/city-hall/regional-council/200623rc916.pdf

[13] City of Kelowna. Official Community Plan 2040 Growth Scenario Overview. https://www.kelowna.ca/sites/files/1/docs/growth_scenario_overview_ocp_tmp_2019.pdf

[14] Brooke, R., Cairns, S., et al., 2017. Municipal Natural Asset Management as a Sustainable Infrastructure Strategy: the Emergency Evidence. https://www.greengrowthknowledge.org/resource/municipal-natural-asset-management-sustainable-infrastructure-strategy-emerging-evidence

[15] Primer on Natural Asset Management for FCM's 2018 Sustainable Communities Conference. https://www.civicinfo.bc.ca/planning-guides?toolkitid=868

[16] Brooke, R., Cairns, S., et al., 2017. Municipal Natural Asset Management as a Sustainable Infrastructure Strategy: the Emergency Evidence. https://www.greengrowthknowledge.org/resource/municipal-natural-asset-management-sustainable-infrastructure-strategy-emerging-evidence

natural wetland, can help attenuate water to reduce downstream flooding impacts during intense storms, which are anticipated to increase with a changing climate. The storm water pond can also act as a carbon sink to help with climate mitigation efforts.

Kelowna's urban forests will play a key role in climate change solutions, sequestering carbon, reducing the urban heat island effect, improving air quality, and buffering winds from storms. These urban forests are also crucial in creating a more livable, healthy, and economically vibrant community.[17]

Accelerated Action: Enhance Green Infrastructure

Enhance green infrastructure			CCAP Reduction Estimate N/A	
	**Action**	**Year**	**Total Cost**	**City Cost**
	Tree Protection Bylaw	2022	-	-
	Amend Bylaw 7900: Subdivision, Development and Servicing Bylaw to account for climate change	2020 – 2021 In progress	$15,000[a]	-
	Update the Urban Forestry Strategy	2022	$60,000	$60,000[b]
	Improve landscape standards (e.g. Landscape standards and maintenance bylaw or updates to Zoning/ Subdivision Servicing Bylaws	2022	-	-
	Natural asset inventory	2022	$60,000	$60,000

[a] *$12,000 grant received from Pacific Institute for Climate Solutions to hire a Climate Adaptation Intern to review and make recommendations to green Bylaw 7900. Remaining $3,000 will be funded through existing budgets.*
[b] *Opportunities for grants to reduce project costs will be investigated.*

3.6. Climate leadership in City operations

The City's corporate GHG emissions are only a very small percentage (approximately one per cent) of Kelowna's total community GHG emissions. Local government leadership, however, plays a vital role in building knowledge in the community that can lead to further GHG emissions reductions.[18] When local government works to reduce GHG emissions in their own corporate operations, they lead by example and set the stage for citizens, business, and industry to take action and help move whole communities towards greater energy efficiency and sustainability.[19]

Taking action to reduce corporate GHG emissions can improve energy efficiency, optimize systems, strengthen performance, and reduce long term operating costs. For over a decade, the City has been working diligently to lower its energy and emissions for corporate operations. This has involved major projects such as LED Streetlighting upgrades, and multitudes of smaller projects focused on making municipal facilities more energy efficient and the corporate fleet more fuel efficient (which was recently recognized as one of the top 50 fleets in North America[20]).

As reported previously, recent changes in utility billing revealed some of the City's electricity and natural gas accounts were not included in the utility usage reports, resulting in corporate GHG emissions being

[17] BC Climate Action Toolkit. Urban Forests. https://www.toolkit.bc.ca/Plan-Do/Urban-Forests
[18] BC Climate Action Toolkit. Taking Action in Government Operations. https://toolkit.bc.ca/taking-action/Operations
[19] Province of BC. Local Government Climate Change Mitigation. https://www2.gov.bc.ca/gov/content/governments/local-governments/climate-action/climate-change-mitigation
[20] Government Fleet, March 24, 2020. Announcing the 2020 Leading Fleets. https://www.government-fleet.com/353875/announcing-the-2020-leading-fleets

underreported. Reconciling this historical data is the first step to determine how the City is progressing on its corporate GHG emissions target (12 per cent below 2007 levels by 2022) and must be completed prior to identifying and building business cases for new actions to go beyond 2022.

Accelerated Action: Climate leadership in City operations

			CCAP Reduction Estimate N/A	
	**Action**	**Year**	**Total Cost**	**City Cost**
	Update historical corporate emissions inventory	2020-2021	-	-
	Establish policy for Energy Committee guidance on energy and GHG reduction opportunities on purchase, renewal and operation of energy consuming assets.	2021	-	-
	Identify and implement comprehensive, facility wide energy and GHG reduction projects[a]	2020-2023	$5M - $10M	$5M - $10M[b]
	Develop sustainability standards for new construction	2022	$50,000	$50,000

[a] the high return investment opportunities have already been completed so there will be a growing cost to reducing corporate GHG emissions moving forward.

[b] 2020 and 2021 would focus on project identification, there may be opportunities for grants and rebates to reduce the City's costs when projects are implemented

4. Future Steps

As the CCAP was developed prior to the release of the both the IPCC recommendations and the release of the provincial CleanBC plan, it does not align with these more ambitious targets. Further, the CCAP only recommends actions until 2023. This presents an opportunity to develop and model actions for a more aggressive GHG reduction target while at the same time incorporating a resiliency lens to address the changes in climate that Kelowna is already beginning to experience (hotter drier summers; warmer winters; increased precipitation in all seasons except summer and a shifting of the seasons.)[21] To maximize efficiencies, it is recommended that once modelling has been completed, a prioritized list and corresponding action and business plan is reported to Council to determine accelerated actions that can be implemented over the following three years (i.e. 2022-2024).

Accelerated Action: Modelling and actions to achieve more aggressive reduction targets

	**Action**	**Year**	**Total Cost**	**City Cost**
	Re-model GHG Emissions reductions in line with more aggressive targets	2021	$70,000	$70,000
	Update CCAP to a Climate Resiliency Plan including actions beyond 2023	2022	$100,000	$100,000

While not necessarily the impetus, capital investments in active transportation, transit, waste services, and parks all contribute to the reduction of GHG emissions. Further, to date Kelowna has been very

[21] RDCO, RDNO, RDOS, Pinna Sustainability, February 2020. Climate Projections for the Okanagan Region. https://www.regionaldistrict.com/media/279459/OK_Climate_Projections_Report_Final.pdf

fortunate to receive grants for staff resources and projects to further work on energy and GHG emissions reductions. However, to accelerate action, additional resources, both financial and staff will be required. With the completion of modeling, actions identified will require an ongoing financial commitment to implement. Further, many these costs do not account for the extra staff resources that may be required to address the extra workload associated with taking on these projects. This may include expanding staff resources to include a climate action program coordinator or climate adaptation planner or developing a climate action advisory committee.

5. Recommended approach for Kelowna for 2020 and 2021

During the last several months, COVID-19 has brought unprecedented changes to our community. While most of the changes have upheaved the systems and processes that serve us, the response to the pandemic has impacted climate efforts positively and provides a glimpse of what could be achieved if aggressive action continues. COVID19 provides an opportunity to "build back better" in a way that addresses the climate crisis. The community has demonstrated the ability to take swift, deliberate action in the face of a global threat. Instead of "returning to normal" after the pandemic, Kelowna can build on the significant changes already made (e.g. remote working), to reduce emissions significantly over the next ten years to avoid catastrophic impacts.

Funding climate action will continue to be challenging as the City will have to adjust to new financial circumstances caused by the pandemic. Understanding that community climate action initiatives currently do not have a dedicated funding source, to implement the recommended actions additional financial support is needed. Without an approved funding source, these recommended actions are financially constrained to be implemented and progress towards the 2023 GHG emissions reduction target will likely stall. Recognizing the challenges of resourcing climate initiatives in a COVID world, it is recommended the actions are resourced by the following:

- Grants and partnerships (some already approved, others will be applied for);
- Existing budgets;
- Climate Action Reserve; and
- Operating and Capital budget requests.

The tables below provide a realistic, but progressive list of recommended actions that could be achieved with modest investment in 2020 and 2021 using the tools available to the City. Actions were selected based on the following considerations:

1. Opportunities for grants or partnerships;
2. Balancing limited resources;
3. Providing resource efficiencies;
4. Action is necessary for future work; and
5. Actions that could also help stimulate economic recovery from the COVID pandemic (these actions have been identified with a blue [CR]).

As 2020 winds down, progress continues to be made on the projects outlined above. Support, however, is needed for one new project: Home Energy Retrofit Financing Program Feasibility Study to build off the CEE Map Prototype Project, as outlined in Appendix B. While this project would not begin until 2021, matching funds need to be secured to apply for a grant from Federation of Canadian Municipalities (FCM) Community Efficiency Financing program.

Recommended Accelerated Climate Actions for 2020

	Action	Budget Required	Potential Budget Source	Grant / partnership contribution
 Retrofit existing buildings	Residential: GMF CEF Home Energy Retrofit Financing Program Feasibility Study	up to $30,000	Climate Action Reserve	up to $120,000

Understanding the financial constraints created by the COVID pandemic, the recommended actions for 2021 are based on maximizing limited budgets through grants, and/or actions that could be achieved without investing in additional staff resources. Further, many of the actions identified are crucial not only to reducing GHG emissions but in order to deliver on multiple City priorities, projects or plans. While the list appears comprehensive, there is a lot more that could be done to accelerate action more quickly if abundant staff and financial resources were available.

Recommended Accelerated Climate Actions for 2021 (note: some of these actions will continue beyond 2021)

	Action	City Investment type	2021 Capital or Operating Request	2021 Climate Reserve Request	Grant / partnership contribution	2021 Total Cost
Modelling & new actions	Re-model GHG emissions to a target more closely aligned with IPCC	One time	-	$70,000	-	$70,000
Low carbon transportation: reducing VKT	Neighborhood Bikeway Program	Annual	-	$50,000	-	$50,000
	Major Employer Trip Reduction & Flexible Workplace Policy	Annual	$50,000	-	-	$50,000
	Pandosy / Richter Transit Corridor Study	One-time	$100,000	-	-	$100,000
	Bike Lane Snow Clearing Study	One-time	-	-	-	-
	Transportation Education & Awareness Program	Annual	$20,000	-	-	$20,000
	Advocate for CleanBC goals and priorities to be reflected in provincial planning and capital investments, including the Central Okanagan Planning Study and increasing funding to enable more students to take school busing.	One-time	-	-	-	-
Low carbon transportation: Electrification	Income qualified E-bike incentive pilot	One-time	-	$25,000	-	$25,000
	100% EV Readiness Policy – new residential developments	One-time	-	-	-	-
	EV Readiness Policy – new commercial developments	One-time	-	-	-	-
	EV Streetlamp Pilot	One-time	-	$25,000	$25,000 [a]	$50,000
	Add Level 3 charger at Museum Parking Lot	One-time	-	-	$75,000 [b]	$75,000
	EV charger top up	Annual	-	$20,000	$20,000 [c]	$40,000
	EV promotion, workshops and training	Annual	-	$10,000 [d]	-	$10,000
	Advocate to the provincial government to support the transition to electric vehicles with funding to expand the public EV charging network, incentives for workplace/at home charging, incentives for electric vehicles (including electric bikes) and streamlined standards for EV requirements in buildings.	One-time	-	-	-	-
Low carbon new buildings	Part 9 Buildings: Develop and implement an Audit Program	Annual	-	$10,000	-	$10,000
	Part 3 Buildings: Energy Step Code – Investigate Revitalization Tax Exemption for highest step	One-time	-	-	-	-
	Part 3 & 9 Buildings: Promotion, workshops and training for Energy Step Code	Annual	-	$10,000 [d]	-	$10,000
	Part 3 & 9 Buildings: Advocate for GHG metrics or a low-carbon energy system option in the Step Code Framework.	-	-	-	-	-
Energy Retrofits	Residential: Heritage Energy Grant Pilot [CR]	Annual	-	$15,000	$15,000 [e]	$30,000
	Residential: Municipal top up – for CleanBC Better Homes Program [CR]	Annual	-	$20,000	$25,000 [c]	$45,000
	Residential, Commercial, and Industrial: Promotions, workshops and training	Annual	-	$5,000 [d]	-	$5,000
	Residential, Commercial, and Industrial: Advocate for PACE-enabling legislation, home-energy labelling requirements [CR]	Annual	-	-	-	-
Waste and RNG	Develop business plan and regional extent of digestion inputs and post-processing [CR]	One-time	$400,000	-	-	$400,000
City operations	Establish policy for Energy Committee guidance on energy and GHG reduction opportunities for energy consuming assets.	-	-	-	-	-
	Identify comprehensive, facility wide energy and GHG reduction projects. [m] [CR]	-	-	-	-	-
	TOTAL COST		$570,000	$260,000	$160,000	$990,000

[a] *Grant unconfirmed - FortisBC has indicated they would like to partner on the initiative up to $25,000*
[b] *Grant unconfirmed - FortisBC is investigating options to expand level 3 charging at the Museum Parking Lot.*
[c] *Confirmed incentive through Province of BC.*
[d] *Opportunities for partnerships will be investigated to reduce this cost.*
[e] *Grant unconfirmed - FortisBC has expressed interest in joint pilot..*

6. Conclusion

Despite the many challenges and competing priorities, taking action to reduce GHG emissions and create a low carbon future is an urgent matter that Council has recognized as a priority.

Accelerating climate action to ensure GHG emissions are decreasing requires ongoing efforts that are backed by staff and financial resources. There is a large global movement to "build back better" from the COVID pandemic in a way that addresses the climate crisis,[22] and while local governments cannot solve the climate crisis on their own, their role is crucial to direct and influence change in the community.

Choosing to accelerate climate action in Kelowna will provide benefits that reach far beyond lowering GHG emissions. These include creating healthier and more livable communities for people of all ages and abilities; greater community resilience; and reduced costs.[23] Further, some of the actions will stimulate economic recovery from the COVID pandemic. Thus, while climate action requires an immediate injection of resources to make a meaningful impact, it is an investment that will contribute to the community's well-being and long-term sustainability.

There is no single solution that will solve the crisis. All actions, big and small, will be needed to begin the transition to a thriving, low carbon community. The transition will take time and be challenging, but the actions provide "win-win" solutions that will also help achieve Imagine Kelowna and improve quality of life, all while contributing to a climate-safe future.

[22] BBC, June 24, 2020. Has the pandemic helped individuals and leaders get any closer to tackling the environmental crisis? https://www.bbc.com/future/article/20200624-has-covid-19-brought-us-closer-to-stopping-climate-change

[23] BC Municipal Climate Leadership Council and the Community Energy Association. The Climate Leaders Playbook. The Facts. https://bcclimateleaders.ca/playbook/the-facts/