City of Kelowna

CLIMATE RESILIENT KELOWNA STRATEGY

September 2024

Indigenous Peoples and Land Acknowledgement

We acknowledge that Kelowna is located on the traditional, ancestral, unceded territory of the syilx/Okanagan people. The syilx Nation, including Westbank First Nation and the Okanagan Indian Band, comprises six communities north of what is now the border between Canada and the US and a confederated tribe south of the border. We also respectfully acknowledge the many other Indigenous nations represented among Kelowna's population.

The syilx Nation are "stewards of the land – promoting a healthy economic, social, cultural, and spiritual exchange."[1] Indigenous people and traditional territories, however, are being disproportionately affected by climate change, as the land *(tmxʷulaxʷ)*, waters, natural habitats, ecosystems, and all living things *(tmixʷ)* that have been stewarded by Indigenous people for millennia are being impacted.[2]

Across Turtle Island, Indigenous peoples are taking action. In 2023, the Assembly of First Nations released a *National Climate Strategy* proposing a transition away from the overemphasis on technological solutions and market-based mechanisms towards a framing that emphasizes the centrality of Indigenous knowledge systems, rights, and self-determination.[3] BC First Nation's Leadership Council released its *Climate Strategy and Action Plan* in Spring 2022, seeking to respond to the needs and priorities of Indigenous People in BC.[4] The BC Government has formally acknowledged the importance of collaborating with Indigenous populations on climate initiatives through the *BC Declaration on the Rights of Indigenous Peoples Act Action Plan*.[5]

Locally, the syilx Nation has done extensive work addressing the impacts of climate change in the region. Some highlights include:

- *Re-establishing prescribed fire on the Okanagan landscape.* Climate change and past fire suppression has led to more intense, destructive wildfire seasons and less resilient forest and grassland ecosystems. The syilx Nation are working to re-establish prescribed fire in the region, which traditionally maintained open forest and grassland ecosystems with low intensity, controlled burns, lit and managed by syilx people for the health of *tmixʷ*.
- *Syilx siwɬkʷ (water) Strategy.* This strategy is designed to protect and manage water within syilx territory which has been impacted by a variety of influences, including climate change.
- *kɬúsx̌nítkʷ (Okanagan Lake) Responsibility Planning Initiative.* This initiative is designed to bring syilx and non-syilx partners together to address the cumulative impacts threatening the long-term viability of Okanagan Lake to provide clean drinking water, habitat for fish and wildlife, erosion and flood control, and contribute to climate change mitigation.[6]

The City of Kelowna is committed to establishing and maintaining a mutually respectful relationship with the syilx Nation and other Urban Indigenous people residing in Kelowna. As we move to implementation of the Climate Resilient Kelowna Strategy, we hope to learn from Indigenous Traditional Ecological Knowledge to better inform how we adapt and respond to climate change and be a more resilient community that respects the *tmixʷ*.

1 Westbank First Nation. (2020). Comprehensive Community Plan. Retrieved from: westbank_ccp_web.pdf (wfn.ca).

2 BC First Nation's Leadership Council. (2022). BC First Nations Climate Strategy and Action Plan. Retrieved from: BCFNCSAP Final Draft (22April2022).pdf (bcafn.ca).

3 Assembly of First Nations. (2023). National Climate Strategy. Retrieved from: 2023 Climate Strategy Report (bynder.com).

4 BC First Nation's Leadership Council, 2022. BC First Nations Climate Strategy and Action Plan.

5 BC Ministry of Indigenous Relations and Reconciliation. (2022). Declaration On the Rights of Indigenous Peoples Act Action Plan (Action 2.12). Retrieved from: declaration_act_action_plan.pdf (gov.bc.ca).

6 Okanagan Nation Alliance. Archives: Projects. Projects – Okanagan Nation Alliance (syilx.org)

Acknowledgements

We are grateful to the many people and groups who contributed to the creation of this Strategy. We sincerely value your dedication and effort towards making a Climate Resilient Kelowna.

PUBLIC

- 599 responses over two community surveys
- 131 community members who attended a series of open houses
- Six community members who participated in equity seeking focus groups

CLIMATE ACTION WORKING GROUP

Representatives from:

- Climate & Agriculture Initiative
- University of British Columbia Okanagan
- Okanagan Collaborative Conservation Program
- Okanagan Climate Hub
- Thompson Okanagan Tourism Association
- Accelerate Okanagan
- Okanagan College
- Regional District of Central Okanagan
- Interior Health
- School District 23
- Okanagan Basin Water Board
- Kelowna Climate Coalition
- FortisBC
- Okanagan Sustainable Leadership Council
- Central Okanagan Economic Development Commission
- Canadian Home Builders Association Central Okanagan

CLIMATE ACTION YOUTH WORKING GROUP

Students from:

- Aberdeen Hall Preparatory School
- AS Matheson Elementary School
- Kelowna Secondary School
- KLO Middle School
- Okanagan College
- Okanagan Mission Secondary School
- Rutland Secondary School
- University of British Columbia Okanagan

CONSULTING AND TECHNICAL EXPERTISE

Sustainability Solutions Group

GRAPHIC DESIGN

Kold Design

CITY OF KELOWNA STAFF DEPARTMENTS

- Building Services
- Communications
- Corporate Strategy & Performance
- Cultural Services
- Development Planning
- Development Services
- Emergency Management
- Infrastructure Operations
- Integrated Transportation
- Long Range Planning
- Parks & Buildings Planning
- Risk Management
- Social Development
- Utilities Services

PLAN CONTACT

- Climate Action & Environmental Stewardship Department

CONTENTS

Plan at-a-glance: 10 Key Drivers to Address Climate Change in Kelowna

The climate landscape has changed significantly in recent years, requiring aggressive GHG emissions reduction now in combination with a stronger focus on resilience. The Climate Resilient Kelowna Strategy (CRKS) provides direction to help reduce community GHG emissions (mitigation) while preparing for the impacts of climate change (adaptation). This low-emission resilience approach is essential for addressing the challenges posed by a changing climate and ensuring the long-term sustainability of ecosystems, economies, and society, while maximizing efficiencies and other co-benefits of action.

As a local government, the City of Kelowna (the City) is uniquely positioned to influence how the community grows, commutes, interacts and protects natural ecosystems and how all of this can be done in a low-emission and resilient manner. To become resilient to climate change, collective action by all levels of government, businesses, organizations and the broader community is necessary; however, the CRKS focuses on actions the City can take to influence this shift.

Based on technical analysis, research, and community engagement, there are 10 key drivers where action is needed to make the biggest impact on climate in our community. These drivers of change will help put us on the path to reducing emissions 40 per cent below 2007 levels by 2030 and net zero emissions by 2050, while helping us become more resilient to climate change impacts.

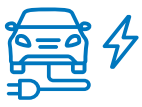
The drivers are broken into 27 strategies, and further into actions the City can take to help create a low carbon resilient community. It should be noted that many actions identified in other plans (e.g., the Transportation Master Plan), are also included in the CRKS as they are critical to helping achieve our goals. The CRKS comes at a critical point in time, as the Intergovernmental Panel on Climate Change recently announced the urgency for climate action on all fronts – a need for "everything, everywhere, all at once" as the world edges closer to the 1.5 degree threshold.[7]

1

Reduce reliance on vehicles

- Create fast and reliable transit
- Enable active modes
- Expand shared mobility options
- Reduce distance driven by vehicles

2



Transition to efficient, low-emission vehicles

- Increase access to EV charging on private property
- Expand the public EV charging network
- Support the transition to efficient and zero-emission commercial vehicles and goods movement
- Support more fuel-efficient, lower emission driving

3

Create low-emission, efficient, resilient buildings

- Support retrofits to create more efficient, low-emission, resilient residential buildings
- Support retrofits to create more efficient, low-emission, resilient non-residential buildings
- Accelerate adoption of low-emission, efficient new buildings
- Increase the resilience of new construction to local climate hazards

7 Bloomberg. (2023). UN Calls for 'Everything, Everywhere, all at Once' Climate Action. Retrieved from: https://www.businessoffashion.com/news/sustainability/warming-above-15c-likely-in-near-term-unless-world-acts-now-un-says/.

4

Support low-emission and resilient energy supply

- Support the transition to a low-emission energy supply
- Advocate for increased resilience of the local energy supply

5

Create complete, compact, resilient communities

- Target growth in climate resilient Urban Centres and Core Areas
- Integrate climate change consideration in land-use planning regulation and development policies

6

Employ nature-based solutions

- Protect and restore natural systems providing ecosystem services to reduce climate hazard risk
- Utilize green infrastructure to improve climate resilience
- Inventory, assess and monitor ecosystems and green infrastructure

7

Reduce emissions from waste

- Reduce waste generation and increase waste diversion

8

Increase the resiliency of infrastructure and assets

- Infrastructure is upgraded or adapted to withstand the impacts of a changing climate

9

Improve climate emergency preparedness

- Enhance climate emergency response planning
- Empower the community to be prepared for climate emergencies

10

Demonstrate municipal corporate climate leadership

- Incorporate Indigenous Knowledge in climate action initiatives
- Incorporate a climate lens into municipal governance and operations
- Decarbonize City assets and operations
- Empower the community to take climate action

A CLIMATE CRISIS, A TIME FOR ACTION

The climate landscape has changed significantly in recent years, demanding aggressive greenhouse gas (GHG) emissions reduction now and a stronger focus on resilience.

Soon after Council's endorsement of the 2018 Community Climate Action Plan, significant changes began happening on the climate front (Figure 1). The Intergovernmental Panel on Climate Change (IPCC) published findings that avoiding the most catastrophic impacts from climate change will require GHG emissions reductions of 40 – 45 per cent by 2030, and reaching net zero by 2050, to limit global warming below 1.5 degrees. Senior levels of government from across the globe responded, including the Province of BC who adopted aggressive GHG emissions reduction targets followed by plans on how to achieve them. The past five years have also seen both the region and most of the Province experience the impacts of a changing climate including flooding, drought, wildfires, heat domes and polar intrusions. In response, the Province has put a stronger emphasis on climate adaptation, exemplified through the Climate Preparedness and Adaptation Strategy.

As local governments control or influence over 50 per cent of Canada's GHG emissions and are on the front lines of many climate impacts, many municipalities in BC have also responded to the call for climate action. On October 16, 2023, Kelowna City Council declared a climate crisis to communicate clearly to the residents of Kelowna the importance of urgent action on a government and community-wide basis in the face of climate change. The declaration acknowledges that:

"...this is an emergency with no foreseeable conclusion and requires immediate and drastic action away from a business as usual approach in order to sustain our quality of life, including our thriving tourism, technology, and agricultural sectors; our citizen health and affordability; and our public infrastructure and celebrated environment." [8]

This new community climate action plan, the Climate Resilient Kelowna Strategy (CRKS), takes a low-emission resilience approach to climate change. Low-emission resilience integrates and coordinates actions that both reduce GHG emissions (mitigation) and adapt to the changes anticipated in the coming decades (adaptation). This new strategy comes at a critical point in time, as the IPCC recently announced the urgency for climate action on all fronts – a need for "everything, everywhere, all at once" as the world edges closer to the 1.5 degree threshold.[9]

Figure 1: Recent events that motivated climate action

8 City of Kelowna. (2023). Council Climate Crisis Declaration: https://kelownapublishing.escribemeetings.com/filestream.ashx?DocumentId=45063.

9 United Nations. (2023). Secretary-General's video message for press conference to launch the Synthesis Report of the Intergovernmental Panel on Climate Change. Retrieved from: https://www.un.org/sg/en/content/sg/statement/2023-03-20/secretary-generals-video-message-for-press-conference-launch-the-synthesis-report-of-the-intergovernmental-panel-climate-change.

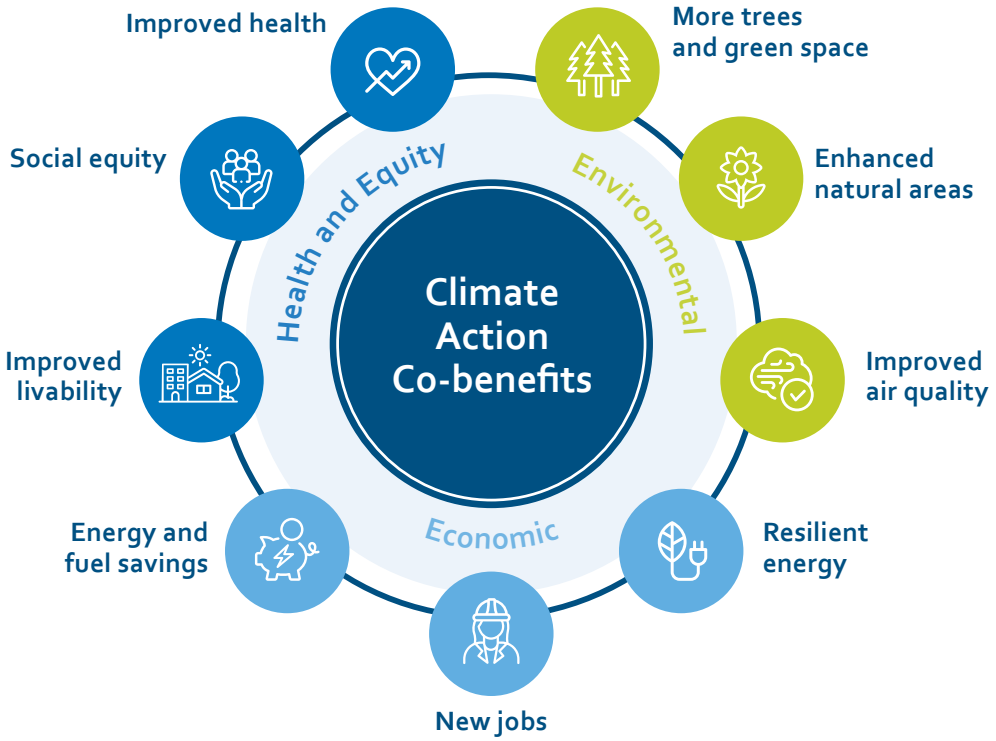
Co-benefits of Climate Action

While the CRKS is focused on GHG emissions reduction and building resilience to climate impacts, there are co-benefits of many actions in this strategy that extend beyond climate. In many cases, actions that reduce GHG emissions correspond or directly overlap with actions that create vibrant and resilient cities, improve public health outcomes, reduce government operating and capital costs, and support innovation—these are no-regrets policies.[10]

One review of more than a dozen studies on GHG mitigation policies found that the co-benefits of reduced air pollution—a single co-benefit—often equaled or exceeded the benefit of the GHG reduction itself.[11]

Implementing the CRKS will result in numerous social, economic and environmental benefits to the community as outlined in Figure 2 and the sections below.

Figure 2: Climate action co-benefits



10 Lamia Kamal-Chaoui and Alexis Robert. (2009). Competitive Cities and Climate Change. Retrieved from: http://www.oecd-ilibrary.org/governance/competitive-cities-and-climate-change_218830433146.

11 Gao, J., Kovats, S., Vardoulakis, S., Wilkinson, P., Woodward, A., Li, J., ... & Liu, Q. (2018). Public health co-benefits of greenhouse gas emissions reduction: A systematic review. *Science of the Total Environment,* 627, 388-402.

Health and Equity Benefits

Kelowna's plan enhances public health through planned initiatives such as promoting active transportation and improving public transit. This includes creating safer and more accessible walking and cycling routes, and enhancing the efficiency and frequency of public transit, which will lead to reduced air pollution and encourage a more active lifestyle among residents. Building retrofits, can significantly enhance indoor air quality, especially during wildfire seasons, by filtering out harmful particulates from smoke. These upgrades also ensure effective temperature regulation inside buildings, offering a refuge from extreme heat. Adding and enhancing green space creates more spaces for people to connect with one another, encouraging social connection and improved health & well-being.

Addressing climate change in Kelowna can also improve social equity, particularly for equity-seeking groups. Implementing climate action strategies with an equity lens ensures that efforts to reduce emissions and adapt to climate impacts also address existing societal inequities. Initiatives like expanding transit pass programs and e-bike incentives make sustainable transportation options more accessible to a broader range of the population. Programs like energy retrofits of residential rental buildings can reduce living costs and improve living conditions for marginalized communities.

Economic Benefits

The CRKS can also contribute to economic prosperity through job creation, energy cost savings, reduced maintenance, and avoided impact costs. For example, modelling some of the GHG emission reduction initiatives found that the implementation of this plan could lead to the creation of an average of 1,200 person years of employment annually, most of which is attributed to the building sector due to retrofits and installation of more efficient heating systems.[12] Additionally, by 2050, there could be over $2 billion in cumulative savings for the community due to energy efficiency savings, less maintenance, and avoided carbon taxes and renewable energy revenues. A large part of these savings would be realized through the transition to electric vehicles, which are nearly five times more energy efficient when compared to gasoline and diesel vehicles.[13] Important energy savings can also be achieved in the buildings sector though energy retrofits, new buildings designed to highest level of energy performance, and the adoption of energy efficient heat pumps.

Environmental Benefits

Implementing the CRKS recommended actions will also enhance our natural environment. Using nature-based solutions such as green roofs will mitigate the effects of heat, flooding and drought while also enhancing biodiversity and habitat for various species. Treating natural areas to reduce wildfire fuels can also restore valuable habitats to pre-settler conditions. Additionally, transitioning to low-emission vehicles and reducing vehicle reliance will decrease air pollutants, improving air quality for people and the wildlife we share this ecosystem with. Ultimately, developing complete, compact communities will lessen the pressure on our surrounding natural environment.

12 1 person year = the amount of work one person performs in one year of regular working hours.

13 Natural Resources Canada. (2024). Buying an electric vehicle. Retrieved from: https://natural-resources.canada.ca/energy-efficiency/transportation-alternative-fuels/personal-vehicles/choosing-right-vehicle/buying-electric-vehicle/21034.

FACTORS FOR CHANGE

Kelowna's Climate Hazards and Risks

Human-caused climate change is already affecting the local climate, causing heat domes, droughts, wildfires, and flooding.

The Climate Projections for the Okanagan Region (2020) report models expected local climate changes in the coming decades, finding:

- Warmer temperatures year-round;
- Summers that are considerably hotter and drier;
- Increased duration of the growing season;
- Warmer winter temperatures;
- Increased precipitation across all seasons except summer; and
- Shifting seasons.[14]

As global GHG emissions increase, and the climate continues to change, the risk of several major climate hazards impacting our community increases as outlined in Table 1.

CLIMATE HAZARDS, RISKS AND VULNERABILITIES

Hazards

Refers to the potential occurrence of climate-related physical events with a potential for causing harm to health, property, environment, and other things of value (e.g., flooding, wildfires, extreme heat).

Risk

Refers to the likelihood that a hazard will occur as well as the severity of the possible impacts.

Vulnerability

Refers to the people, property, infrastructure, industry, resources, or environments that are particularly exposed to the adverse impact from a hazardous event.

Table 1: Climate hazards anticipated by the 2080s due to the changing climate in Kelowna[15]

EXTREME HEAT

- 30 more days above 30°C annually
- Hottest summer days that are 7°C hotter

FLOODING

- 19% increase in precipitation in spring and fall
- 15% increase in precipitation in winter
- 18% increase in precipitation on the wettest day

WILDFIRE

- Longer wildfire season
- Drier landscape
- Increased fuel due to heat stressed plants and invasive vegetation

LANDSLIDES

- Increased severe storms with intense precipitation that can increase slope instability
- Drought can compromise vegetation health causing increases to slope instability

INVASIVE SPECIES

- Increased presences of invasive species
- Decreased biodiversity

EXTREME COLD

- Disrupted polar vortex as the polar jet stream shifts further south causing periodic intrusions of cold air

WATER SECURITY

- 20% less precipitation in summer
- Increased average annual temperatures
- Reduced snow pack
- Longer grower season

14 RDCO, RDOS, RDNO. (2020). Climate Projections for the Okanagan Region: https://www.rdco.com/en/environment/resources/Documents/2020---OK_Climate_Projections_Report_Final.pdf.

15 RDCO, RDOS, RDNO. (2020). Climate Projections for the Okanagan Region (data from RDCO valley bottom selected).

CLIMATE CHANGED

The 2023 Forest Fires

2023 is officially the most expensive, most destructive wildfire season on record in BC. The Central Okanagan witnessed that destruction first-hand when the McDougall Creek Wildfire, fueled by dry conditions and winds, spread from West Kelowna and ignited fires in both Kelowna and Lake Country (the three fires are referred to as the Grouse Complex wildfire). At the peak over 10,000 properties were ordered to be evacuated in the region, and over 200 properties were destroyed by the fire. Damages are still being calculated, but the mental health impacts to the community will continue long after the infrastructure is rebuilt.

The 2022 Mission Creek Flooding

In June, 2022, a Local State of Emergency was declared for the City of Kelowna due to flooding along Mission Creek. Higher-than-usual volumes of precipitation in the upper watershed led to flooding downstream, threatening properties, homes, and infrastructure in Kelowna.

Risk is elevated by continued population growth, placing greater numbers of people, buildings, and critical infrastructure in potentially vulnerable areas. Further, climate hazards do not occur in isolation, for example, heat waves and wildfires are often simultaneous, coupled with concerns about water security and drought.

Almost every Kelowna neighbourhood is at risk for at least one climate change threat and many of the most populous neighbourhoods are at risk of multiple hazards. For example, areas of downtown will experience increased flood and heat risk, while suburban and rural areas will primarily experience increased wildfire risk.

Growth and Development

Kelowna is one of the fastest growing communities in Canada. Over the next 20 years, Kelowna's population is projected to continue to grow significantly rreaching over 230,000 people by 2040. To accommodate this growth, it is expected that Kelowna will need 1,870 – 2,650 housing units to be built annually over the next 10 years alone.[16,17]

Growth presents both a challenge and an opportunity from a climate perspective. Even with a denser development pattern, as identified in the 2040 Official Community Plan (OCP), the homes, buildings, infrastructure, businesses, and vehicles required to house, employ, and move more people could result in more GHG emissions if a business-as-usual approach is taken. Further, balancing growth and densification with expanding green space and the urban forest canopy are important considerations.

But growth also provides an opportunity to embed low-emission efficient and resilient buildings at the time of construction. It provides an opportunity to create complete, compact communities, that can reduce emissions from these sectors while also providing myriad other benefits, including improved public mental and physical health outcomes, increased convenience, improved access to amenities, more day-to-day choices for residents, and greatly reduced servicing costs (i.e., energy, water, wastewater, and roadway infrastructure), all of which are priorities for the City of Kelowna.

16 City of Kelowna. (2023). Housing Needs Assessment: https://www.kelowna.ca/sites/files/1/kelowna_housing_needs_assessment_2023.pdf.

17 Modelling for the CRKS used projections based on the 2040 OCP and extrapolated them beyond the 2040 timeline, the analysis done as part of the Housing Needs Assessment, shows that we will meet population projections sooner than those outlined in the 2040 OCP time horizon.

The Inequities of Climate Change

While privileged populations often have resources and capacity to better respond to the impacts of climate change, research shows that this is not the case for equity-seeking groups. These vulnerable populations, who often contribute the least to emissions, are more likely to be exposed to climate hazards, susceptible to their impacts, and less likely to have resources to recover, making climate change an equity issue. Within a Kelowna context, equity-seeking groups may include the following, among others:

- Racialized people (including Black, Indigenous, and People of Colour - BIPOC),
- Lower-income households
- Renters
- Children
- Seniors
- People with physical and/or mental health conditions
- People with disabilities
- People experiencing homelessness
- Those living in single-person households
- Immigrants
- Refugees

Climate events often impact neighbourhoods with a high proportion of equity seeking individuals the most. Equity-seeking groups are more vulnerable to climate events and tend to face heightened risk to their health and overall well-being due to societal discrimination and both historical and current inequities. This causes higher levels of negative health outcomes, displacement, and longer recovery periods for equity-seeking groups living in these areas, exacerbating existing inequities.

Achieving a decarbonized and climate-resilient future hinges on swift emissions reduction and adept adaptation to climate impacts. Achieving this while alleviating disparities requires a just and sustainable transition. Amidst resource constraints, prioritizing the most vulnerable community members is imperative, especially those facing concurrent social and economic difficulties. Social equity must guide decisions, program creation, and implementation across all tiers of action.

As part of developing the CRKS, a Climate Vulnerability and Risk Assessment was completed to help identify these equity-seeking groups that may be more vulnerable to climate hazards. Further consideration has been given to how equity can be considered in the implementation of each of the strategies.

CLIMATE CHANGED

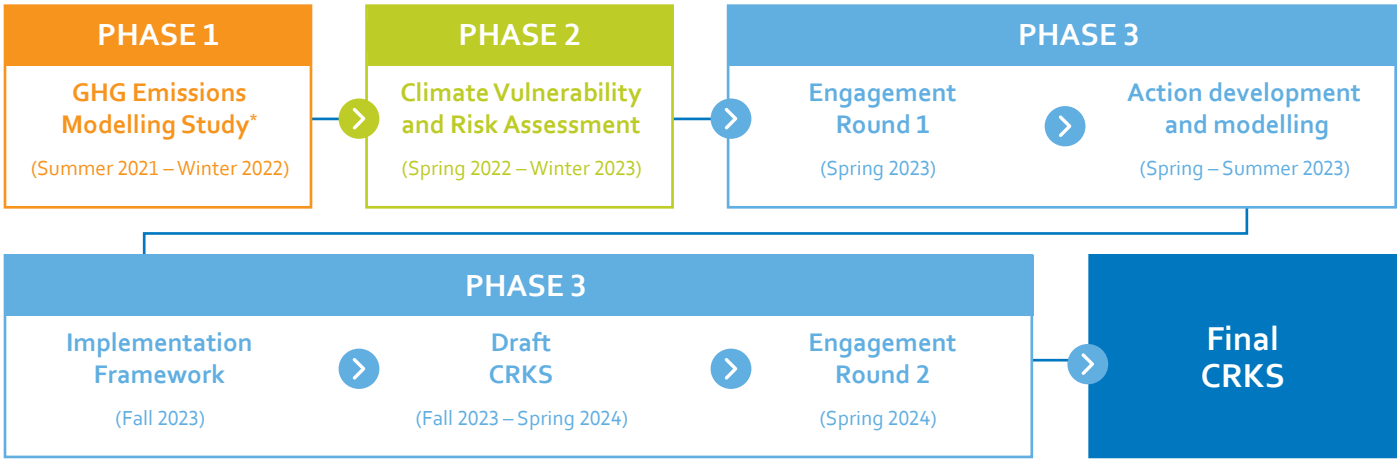
The 2021 Heat Dome

In late June, 2021, a mass of hot, compressed air settled over the Pacific Coast and Interior areas of Oregon, Washington, and BC. This 'heat dome' created unprecedented high temperatures in the area, breaking dozens of records, including in Kelowna where the high reached 45.7°C. 526 deaths were attributed to the heat dome in BC, 12 of which were in Kelowna. Scientists studying the event determined through historical observations and modelling that such high temperatures would be virtually impossible without climate change effects. They estimate that what used to be a 1 in 1,000 year event will become a standard 1 in 5 or 10 year event by 2040.

DEVELOPING THE STRATEGY

The process of developing the Climate Resilient Kelowna Strategy began in 2021 to model Kelowna's community GHG emissions and to understand the degree of action that would be needed to align with provincial and international targets. Following this technical analysis, Council provided the direction to use new targets: 40 per cent below 2007 levels by 2030 and achieve net zero by 2050 in the development of the CRKS. Further technical analysis was completed throughout 2022 and 2023 to examine the vulnerabilities and risks our community is exposed to due to the changing climate. These two analyses, together with the input from the community informed the series of recommended actions of how our community can become resilient by reducing GHG emissions and preparing for the impacts of climate change (see the *A Path Forward* section).

Figure 3: Strategy Development Process



* On June 22, 2022, City Council directed staff to update the 2040 OCP with new GHG reduction targets (40 per cent below 2007 by 2030 and net-zero by 2050) and use these new targets as a basis fro developing the CRKS.

Strategy Inputs

The CRKS was developed based on a variety of inputs. These included:

- **Technical analysis:** The GHG Emissions Modelling Study, Climate Vulnerability and Risk Assessment, and Adaptation Modelling, were all key technical inputs to identifying actions and their impacts on helping reduce GHG emissions and being better prepared for the impacts of climate change.
- **Existing plans and strategies:** The City isn't starting from scratch. A lot of existing plans and strategies that are currently in progress will help the City reach our climate goals. The CRKS reinforces the importance of continuing to implement these plans and strategies as per their identified timeline including:
  - 2040 Official Community Plan
  - 2040 Transportation Master Plan
  - Electric Vehicle & E-Bike Strategy
  - Pedestrian & Bicycle Master Plan
  - Agriculture Plan
  - Sustainable Urban Forest Strategy
  - Community Wildfire Resiliency Plan
  - Central Okanagan Regional Emergency Plan
  - Regional Solid Waste Management Plan
  - Regional Transportation Plan
  - Regional Goods Movement Strategy
  - Regional Bicycling and Trails Master Plan
  - Regional Clean Air Strategy
  - Water Security and Responsibility Plan
  - Other plans under development will also have a relationship to the CRKS moving forward. This includes urban centre and neighbourhood plans, and infrastructure plans.
- **Senior government plans and policies:** Canada's 2030 Emissions Reduction Plan, National Adaptation Strategy, CleanBC Roadmap to 2030, and BC's Climate Preparedness and Adaptation Strategy provide a pathway and synergies for the City to reach our goals.
- **Council and corporate priorities:** Council's 2023 – 2026 priorities identify Climate & Environment as one of their six priority areas. Some of Council's other priority areas, such as Transportation, Agriculture and Affordable Housing also have a direct link to becoming a more climate resilient community.

- **Staff input:** Multiple departments across the organization will be responsible for leading the input of the CRKS actions and have provided input on how they can be integrated with other City of Kelowna priorities.
- **Community input:** Community input was gathered through several different tactics as summarized in the *What We Heard* section below.
- **Municipal tools:** The City has six main tools at its disposal to help create change: Policy & Regulation, Infrastructure, Incentives, Partnerships, Education & Awareness, and Advocacy. All of these tools were considered when developing the actions in Appendix A.

Figure 4: Summary of community engagement

PARTICIPATION AT A GLANCE

9,743
engagement site visits

131
open house participants

599
survey submissions

22
youth participated in Youth Working Group, from 8 different local schools

6
equity seeking focus group participants

16
different Invested Organizations participated in working groups

What We Heard

Engagement for the CRKS occurred in two phases:

- Phase 1 of public engagement occurred in 2022 and 2023. The purpose of this round of engagement was to inform and consult with the community and various interest holders about the CRKS and to seek input on key priorities and actions.
- Phase 2 of public engagement occurred in the Spring of 2024 with the primary purpose of giving the community an opportunity to review the draft CRKS, gauging level of support for the key drivers and strategies and understanding some of the community's priorities.

Most participants across the various engagement tactics used reinforced the importance of taking action on climate. In fact, **nearly 80 per cent of survey respondents felt the City's current GHG emissions reduction target (25 per cent reduction below 2007 levels by 2033 and 80 per cent reduction by 2050) should be revised to align with or be more ambitious than the provincial target (40 per cent reduction below 2007 levels by 2030 and achieve net-zero emissions by 2050).**

Participants recognized that it won't be an easy feat to achieve these targets as they had concerns with the lack of local infrastructure to make change, the community's dependence on fossil fuels, as well as concerns that there is a lack of community motivation for behavioral change.

Participants also stressed the importance of climate equity and justice. Many expressed the need to continue to engage Indigenous and vulnerable community members in both the creation and implementation of the CRKS.

It should be noted that despite the overwhelming direction to take action, there were a few engagement participants who conveyed their distrust in climate change, some who felt it is a natural phenomenon, and others who felt that addressing climate change is outside of municipal jurisdiction.

For a complete summary of the input received in the development of the CRKS see the Climate Resilient Kelowna Strategy Engagement Summaries.[18]

18 City of Kelowna. (2023). Climate Resilient Kelowna Strategy Engagement Summary: https://kelownapublishing.escribemeetings.com/filestream.ashx?DocumentId=45716

Figure 5A: Key themes from community engagement Round 1

Key themes that emerged from the engagement on how the City could support climate action:

KEY THEMES	SUGGESTED SOLUTIONS FROM COMMUNITY MEMBERS
Development and land use planning	More compact communities created through urban centres or land use plans
Municipal regulations, policies and standards	Early adoption of Energy Step Code and/or Zero Carbon Step Code
Rebates and incentives	Incentives or rebates to retrofit existing buildings for both homeowners and landlords
Infrastructure	Expanded, safer bike lanes, increased transit frequency, more public EV charging
Nature-based solutions	Create more parks in urban heat island areas, require more trees
Education and information	Information on how to make energy upgrades or assistance with finding contractors
Demonstrate leadership	Right size municipal fleet vehicles

Figure 5B: Climate action priorities from community engagement Round 2

Most supported strategies across the CRKS 10 key drivers:	Key drivers survey participants felt they could address in their own lives over the next five years:
Protect and restore natural systems providing ecosystem services to reduce climate hazard risk	Employ nature-based solutions
Create comfortable walking and bicycling routes	Reduce reliance on vehicles
Reduce waste generation and increase waste diversion	Reduce emissions from waste

GHG EMISSIONS INVENTORY AND TARGETS

Where We Are Now

As of 2021, Kelowna's community GHG emissions were 767,132 tonnes (approximately 5.1 tonnes per capita). While emissions have fluctuated from year to year since the 2007 baseline year, the main sources remain relatively consistent: the bulk of emissions are due to transportation, followed by buildings and waste.

- **Transportation (54 per cent):** the fuel required to move people and goods around and through our community is the biggest source of GHG emissions. Most of these emissions can be credited to light-duty passenger vehicles using an internal combustion engine, accounting for approximately 70 per cent of emissions from transportation locally. As the biggest source of community emissions, transportation is also a key driver for emissions reduction actions, as discussed in the *A Path Forward* section.
- **Buildings (38 per cent):** Emissions generated from heating and powering our buildings is the second highest source of total community emissions. Over 95 per cent of building emissions can be attributed to natural gas used for space and water heating.
- **Waste (8 per cent):** Emissions from waste are due to methane and carbon dioxide that is produced as waste decomposes at the Glenmore Landfill.

Community GHG emissions have fluctuated over time due to a variety of factors including weather, fuel prices and population growth (Figure 7). For the year 2021, absolute GHG emissions rose 4.4 per cent compared to 2007.While absolute GHG emissions reduction is key, it is noted that progress is being made on a per capita basis (declining 22 per cent since 2007). However, this is not enough to keep pace with Kelowna's rapid growing population to make a reduction in overall community GHG emissions.

The City also generates GHG emissions from its own operations, such as corporate fleet vehicles and city-owned buildings. Corporate emissions amount to less than one per cent of community emissions, but emissions reduction from this sector is an important component of demonstrating climate leadership. Corporate emissions reduction strategies are not addressed in detail in the CRKS, as the City has a separate Strategic Energy Management Plan and Green Fleet Strategy that together outline strategies to reduce corporate emissions from city-owned facilities and fleet vehicles (with targets that generally align with this strategy).

Figure 6: 2021 Kelowna community GHG emissions inventory

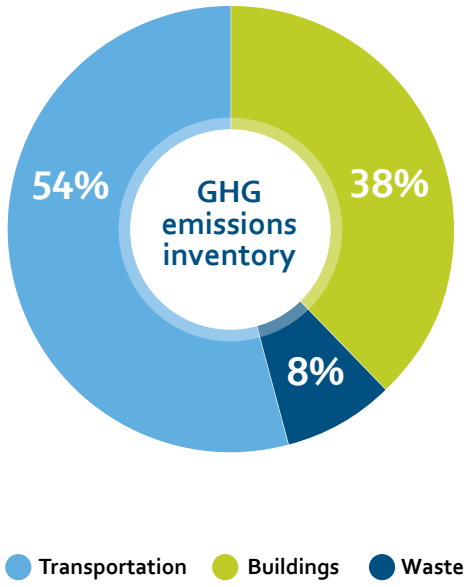
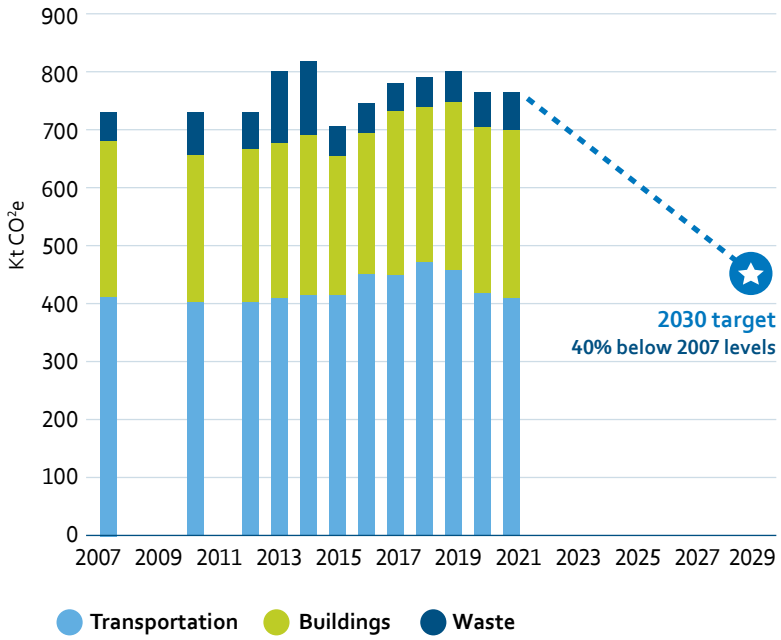


Figure 7: Kelowna community GHG emissions reduction progress

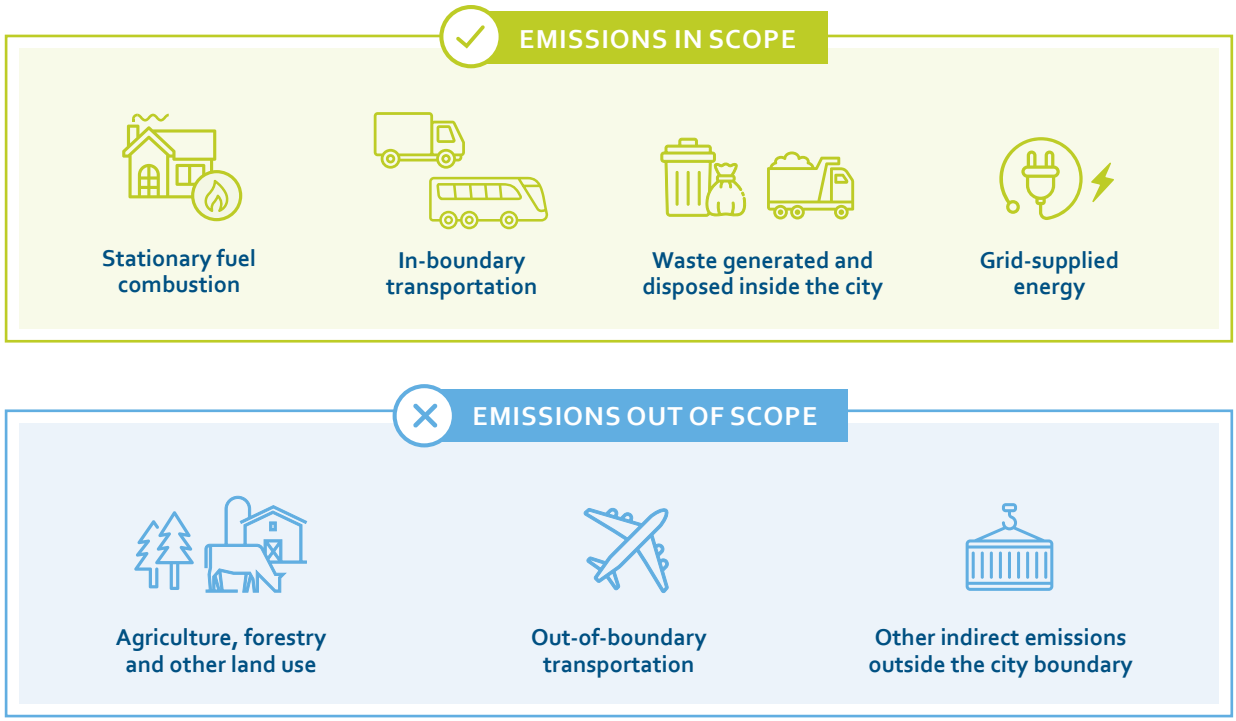


A note on GHG Emissions Scope

The GHG emissions inventories used in this strategy are based on the provincial Community Energy and Emissions Inventory (CEEI) that provides a provincial framework for tracking and reporting energy and GHG emissions at a community-wide scale. CEEI is a cost-effective and flexible data collection, analysis and reporting system for BC local governments and other interested parties. The system establishes and enables inventory baselines, ongoing monitoring, and periodic reporting. The CEEI uses three data sets:

- Transportation emissions based on vehicle registration data and vehicle kilometers travelled estimates
- Utilities energy and emissions by residential, commercial and small/medium industrial buildings
- Waste data based on historic annual tonnes of waste disposed using Waste-In-Place method.

Figure 8: Scope of community GHG emissions inventory



GHG Emissions Reduction Targets

Extensive GHG emissions modelling and forecasting was conducted to understand Kelowna's current community GHG emissions as well as how current local plans and policies and senior government policies, programs and standards will impact those emissions towards 2030 and 2050.

The modelling built on provincial CleanBC policies and projections and included the City of Kelowna's currently planned emissions reduction actions. The model demonstrates the significance of supporting the local implementation of provincial policy outlined in the CleanBC Roadmap to 2030 to achieve reductions that align with Provincial and international targets.

Based on the modelling, input from Council and the community the CRKS implementation actions have been developed based on the following targets:

In partnership with senior governments; local citizens and businesses; non-profits; external agencies; and utility providers; work towards reducing absolute community greenhouse gas emissions:

- *40 per cent below 2007 levels by 2030; and*
- *Achieve net zero emissions by 2050*

WHAT WE HEARD

Survey respondents feel that Kelowna's GHG emission reduction target should:

Align with the province

29%

be **more ambitious** than the Province

49%

be **less ambitious** than the Province

11%

need more information

11%

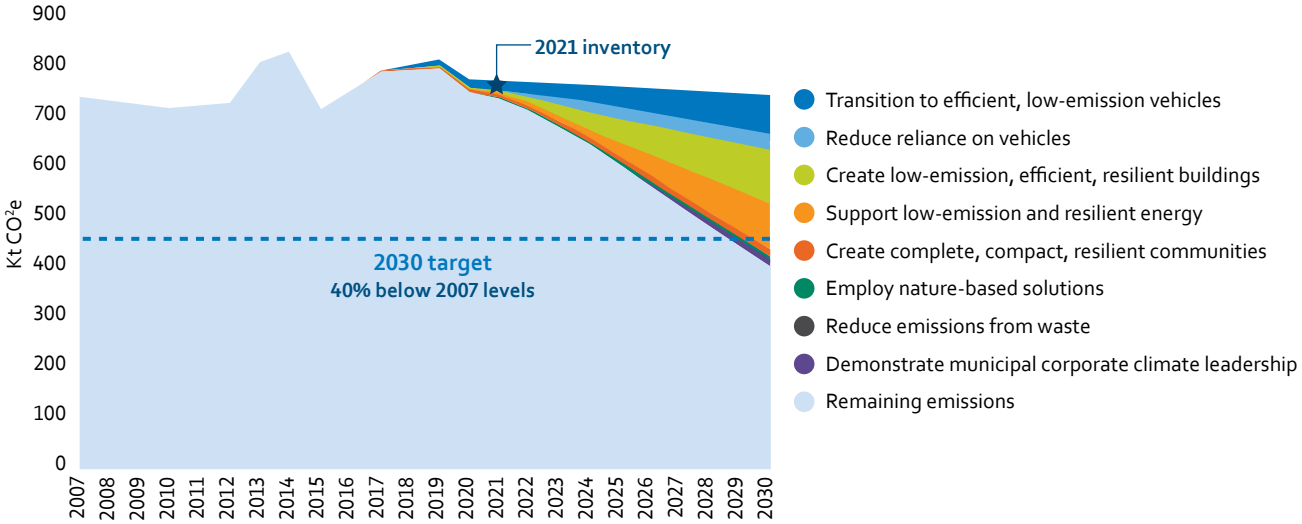
MODELLING THE FUTURE

Emissions Reduction Opportunities

Achieving our GHG emissions targets and creating a more resilient community involves action from multiple "key drivers" as summarized in the *A Path Forward* section. Some of the actions identified are already underway and continual progress is necessary, while others will be implemented throughout the life of the CRKS. Some focus areas will see immediate benefit if the corresponding actions are implemented (e.g., low-emission, resilient buildings), while others are crucial to implement early to see benefits beyond the life of this plan (e.g., complete, compact, resilient communities).

Based on modelling, if all the strategies and actions are implemented with community uptake, Kelowna could exceed the 40 per cent reduction target by 2030 as demonstrated in Figure 9. As transportation and buildings are the community's main emissions sources, they also provide some of the biggest opportunities for reduction.

Figure 9: Scope of community GHG emissions inventory



Addressing Climate Risks and Vulnerabilities

Reducing GHG emissions is essential to help limit the impacts of climate change, but we also need to prepare for and adapt to the local impacts that we are already experiencing, and those still to come. A Climate Vulnerability and Risk Assessment based on the region's climate projections (see *Factors for Change*) identified flooding, extreme heat, and wildfire as the greatest climate threats to our community. Other potential hazards resulting from a changing climate include landslides, water security, invasive species, and extreme cold.

Modelling climate hazards both in the present day and in the long term projected to the year 2070, may exceed typical community planning guidelines, but it is essential to consider this horizon as climate projections commonly extend to or beyond this timeframe. Moreover, it is important to acknowledge that the largest climatic changes are often anticipated toward later years of the projection period, however decisions made in the near term can impact the level of risk that the community may encounter in the future. Understanding and incorporating long-term climate projections into decision-making ensures the community's resilience to climate hazards.

Potential actions for all seven hazards were identified and assessed through the *City of Kelowna Climate Adaptation Report.* Further analysis on select interventions for heat and flooding was completed to understand how these actions could reduce the level of risk for the community.

Some adaptation actions were modelled to understand their impact on the community. This modelling demonstrated a significant reduction in people's exposure to the hazard as well as significant financial savings. For example, expanding flood construction levels across the community can reduce the number of people exposed to flooding by over 30 per cent and reduce potential damages by up to $500 million (a 20 per cent reduction over a business-as-usual scenario) by 2070. Expanding urban tree canopy and expanding cool or green roofs for new and existing buildings could reduce the population exposed to extreme heat in more urbanized areas by nearly half by 2070 (dropping from 30 per cent of the population to 15 per cent of the population exposed to extreme heat).

Example: Modelling Extreme Heat and Urban Heat Islands

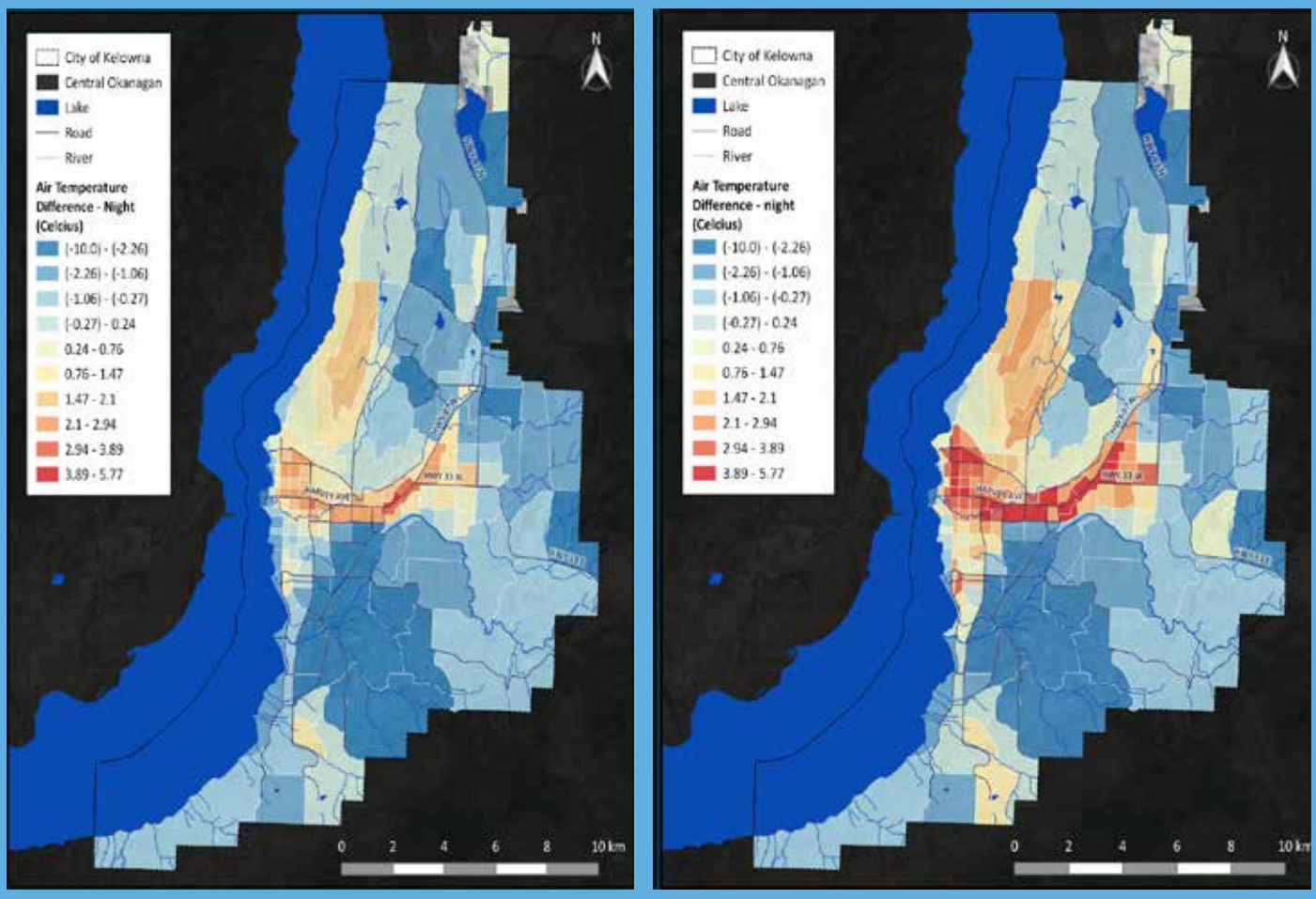
Land use greatly impacts the average temperature fluctuations of an area. Spaces that are heavily vegetated or treed, or are near water bodies, are typically cooler than those with hard, dry surfaces. Buildings, roads, sidewalks, and parking lots absorb heat from the sun, and radiate it back, concentrating heat in densely developed areas. These areas, known as Urban Heat Islands (UHIs) are pockets of landscape with elevated temperatures that are made worse by human activities, like driving, or internal space cooling, that release more heat into the environment.

Using satellite data for the region, the variation in average temperatures across Kelowna can be more fully understood. The maps below show the variation in surface temperature by traffic zone relative to the Kelowna weather station. Areas that are cooler are shown in blues, and areas that are hotter are in reds. The map on the left represents actual data using satellite imagery from 11 pm PST on June 29, 2021, during the peak of the heat dome event. The land surface temperature at the weather station was 30°C. The map demonstrates the impacts of land use on surface temperatures, as treed and vegetated areas tend to correspond with lower temperatures (darker blues), while more densely developed and highly urbanized areas tend to correspond with higher temperatures (darker reds).

Future temperatures across Kelowna will be influenced by climate change and land use decisions such as densification of urban areas. The map on the right shows the influence of development on surface temperature variability by 2070. The UHI effect will increase temperature in more densely developed regions if development does not include heat mitigation measures.

Figure 10 (left): Nighttime surface temperature variation on June 29, 2021 by traffic zone. Temperatures are relative to the Kelowna weather station.

Figure 11 (right): Influence of climate change and development without intervention on surface temperature variability by 2070.



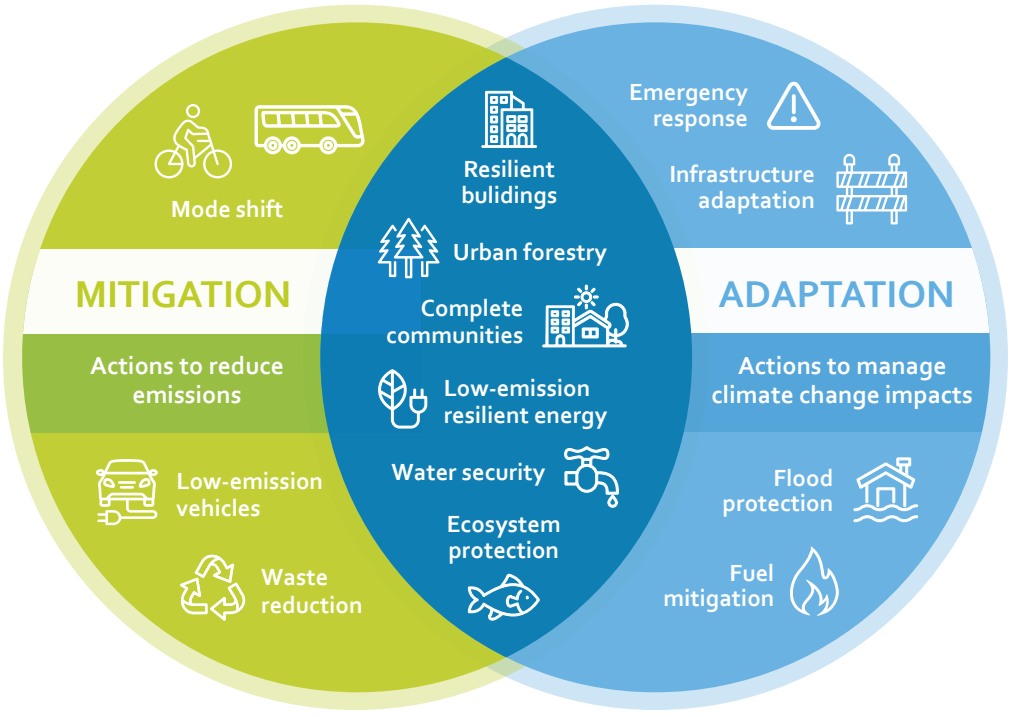
A PATH FORWARD

For Kelowna to become resilient to climate change, it will require collective action by all levels of government, businesses, organizations, and the broader community.

As a local government, the City of Kelowna is uniquely positioned to influence this shift as to how a community grows, commutes, interacts and protects natural assets for a continued quality of life. The CRKS focuses on actions that the City can take to help our community make this shift.

Mitigating and adapting to climate change are two interconnected efforts that are crucial for addressing the challenges posed by a changing climate. While each effort has distinct goals and strategies, combining mitigation and adaptation efforts through a low-emission resilience approach is essential for effectively managing the impacts of climate change and ensuring the long-term sustainability of ecosystems, economies, and societies. Addressing climate adaptation and mitigation simultaneously also maximizes efficiencies and co-benefits of action.

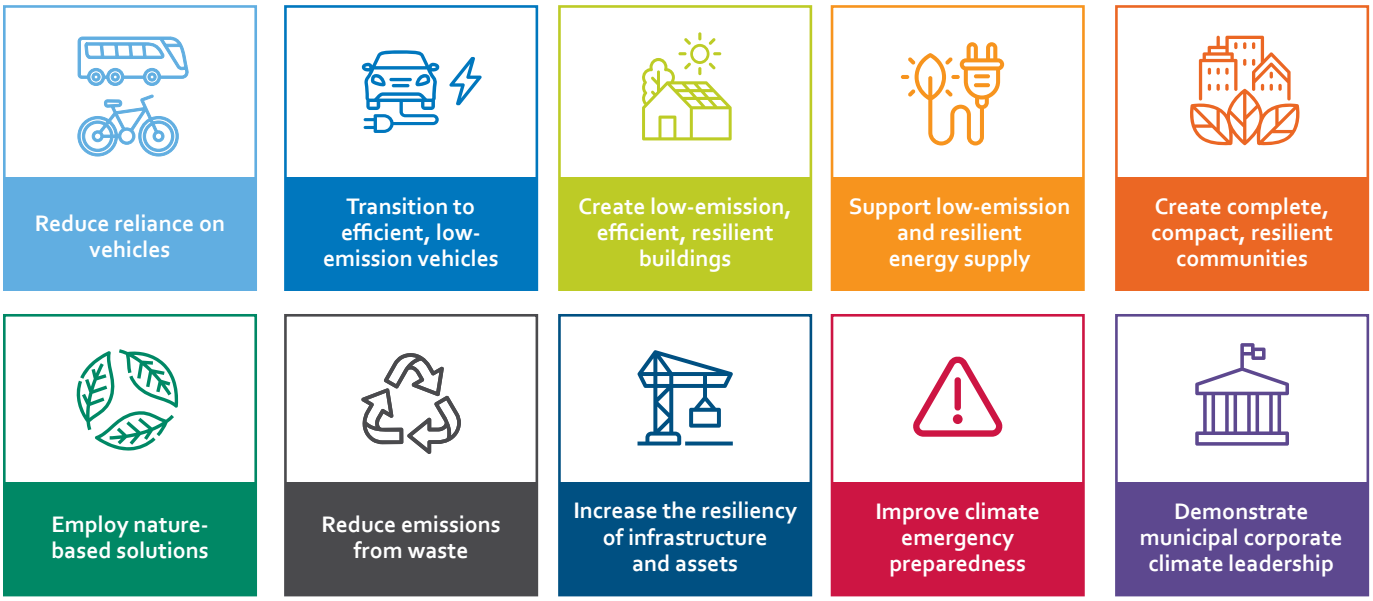
Figure 12: Balancing mitigation and adaptation through a low-emission resilience approach



Key Drivers

Based on technical analysis, research, and community engagement, 10 key drivers emerged as illustrated in Figure 13 where the biggest impact can be made to help transition to a low-emission, resilient community.

Figure 13: 10 key drivers for climate action



Each key driver is broken down according to Figure 14. These key drivers have been modelled, where possible, for potential GHG emissions reductions impact in the community. The drivers are broken into 27 strategies, and further into actions the City can take to help create a low-emission resilient community. It should be noted that many actions identified in other plans (e.g., the Transportation Master Plan), are also included in this strategy as they are critical to helping achieve our goals.

Figure 14: Key drivers, strategies, and actions

The following sections summarize the strategies, climate mitigation and adaptation impact, primary and secondary progress indicators,[19] equity considerations, and co-benefits for each of the 10 key drivers. The full Implementation Framework that includes the 153 actions is provided in Appendix 1.

At the beginning of each Key Driver section, the climate hazards addressed through the various actions of each key driver are listed. The symbols correspond to the following climate hazards:

Heat Cold Wildfire Flood

Landslide Air quality Drought Invasive species

19 Primary progress indicators are those which are imperative to track to determine overall success of the driver. Secondary progress indicators are those which may help provide insight into the progress of a driver, but on their own wouldn't provide a complete picture.

KEY DRIVER 1

Reduce Reliance on Vehicles

CLIMATE IMPACT

Contribution to 2030 Emissions Target

5.5%
(18.5 kt CO_2e)

Climate Hazards Addressed

MODELLED CHANGES

- 21% of trips by sustainable mode by 2030 (TMP)
- Double transit ridership by 2040 (TMP)
- Quadruple bike trips by 2040 (TMP)
- Reduce vehicle kilometres travelled (VKT) per capita 20% (TMP)

WHAT WE HEARD FROM THE PUBLIC

To support emissions reduction from transportation, key themes from engagement suggest:

- Expanded, safer bike lanes
- Increased transit frequency

The main cause of GHG emissions in Kelowna is on-road transportation. In 2021, 54 per cent of Kelowna's total emissions came from the gas and diesel fuels used by cars, light and heavy-duty trucks.

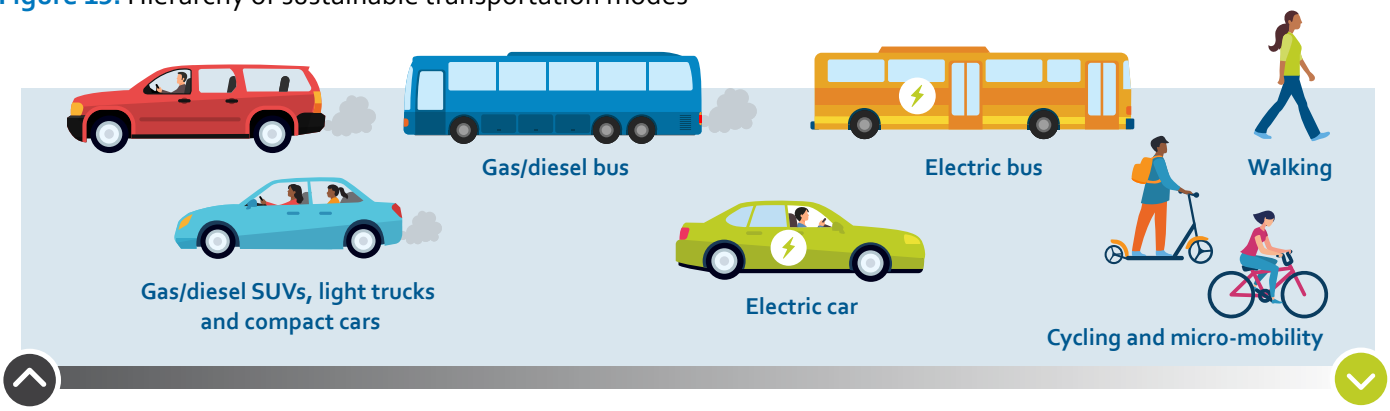
Cutting down vehicle use by shortening trip distances and shifting to active modes (walking, rolling, cycling) and public transit are key strategies for achieving Kelowna's climate goals, while also lowering transportation costs for residents and businesses, and improving health and quality of life. Active modes are easy, cheap, and very effective for shorter-distance trips, especially in dense, mixed-use communities. Transit is much more energy efficient (per person) than a private car and can offer low-cost options for those travelling longer distances.

Based on the latest data available from 2018, 85 per cent of all trips in Kelowna are by vehicle, either as a driver or a passenger.[20] The best opportunities to shift these trips to more sustainable modes are within the Urban Centres and Core Area, where trips are shorter, the terrain is relatively flat, and supporting infrastructure for walking, biking and transit is readily available. Increased densification (see the Complete, Compact, Resilient Communities Driver for related actions) will result in shorter trip distances that make biking, walking or transit more convenient.

Kelowna's Transportation Master Plan aims to support provincial policy to reduce distance driven, increase sustainable mode share, and move toward vehicle electrification (outlined in the following Key Driver). Implementing the Plan per its implementation schedule (or sooner) is a key component to helping reduce reliance on vehicles. The Plan's actions will help to create fast and reliable transit, improve road connections, develop comfortable bicycle routes, create walkable neighbourhoods, and help people use and enjoy new ways of getting around.

20 Based on 2018 Central Okanagan Household Travel Survey

Figure 15: Hierarchy of sustainable transportation modes



Strategies

STRATEGY	ACTIONS

T1 Create fast and reliable transit

Transit is the best option for shifting driving trips that are too long to walk or bike or for those with mobility issues. Investing in transit is critical to supporting the 2040 OCP and keeping Kelowna moving as our population grows. The TMP aims to double transit ridership by 2040 but to do so requires increasing our investment in transit service and infrastructure. Examples include dedicated transit lanes on Hwy 97, improvements to the current transit maintenance and operations site and plans for a new site which will support increased transit service, and increased frequency on many of our transit routes. Investments such as these will be critical to creating fast and reliable transit that can help reduce our reliance on vehicles. Additionally, the new transit maintenance and operations centre is being designed with electric buses in mind, which would help to further lower emissions from transit operation.

6 actions
T1.1 – T1.6

T2 Enable active modes

Bicycling is an affordable, healthy, and sustainable way to keep Kelowna moving. For shorter trips, biking can also offer travel times that are competitive with driving. The TMP aims to quadruple the number of trips made by bicycle by 2040. The key to making biking and walking attractive options is building a network of comfortable routes protected from traffic. Supporting e-bike use is also part of this strategy as e-bikes can extend the distance people are able to travel and make it easier to climb hills. Increasing walking and biking is an important strategy for accommodating growth, particularly in our Urban Centres and Core Area.

17 actions
T2.1 – T2.17

T3 Expand shared mobility options

Emerging technologies are creating new ways for people to get around. Often these emerging modes are "shared" which means they can be rented for a single trip with a smartphone. Emerging technologies such as ride-hailing, carshare, e-bikeshare and e-scooter-share can make it easier to get around without owning a car and will be important parts of how people get around in the future.

3 actions
T3.1 – T3.3

T4 Reduce distance driven by vehicles

Incentives or disincentives (such as distance-based insurance premiums) are one way to encourage people to reduce the annual distance that they drive (e.g., by combining trips, working from home, living closer to work, etc.). In fact, one of the most cost-effective ways to manage traffic congestion is to reduce the number of people traveling to work or school during the morning and afternoon rush hours. Actions like the Employer Commute Trip Reduction Program help reduce the number of people driving along during peak travel times, saving time, money and GHG emissions.

2 actions
T4.1 – T4.2

Tracking Progress

Primary indicator – transportation emissions: The provincial government publishes annual transportation emissions for each community in BC through the community energy and emissions inventory (CEEI). While CEEI data is several years behind, it provides a consistent, defensible method to track transportation emissions in Kelowna year-over-year.

Secondary indicators: Kelowna's Transportation Master Plan set targets for 2040 that include doubling transit ridership, quadrupling the number of trips made by bicycle and reducing the average distance driven per person by 20 per cent. The following metrics can help us monitor and track progress toward meeting our climate and transportation goals:

- Distance driven per capita
- Trips by bike and distance biked
- Transit ridership

Equity Considerations

- Increase transit and active transportation infrastructure in areas with a higher proportion of lower income households
- Make mode-shifting more affordable for lower income households (e.g., active transportation and transit incentives)
- Consider all ages and abilities when planning and designing infrastructure and programs.
- Factor in climate hazards (e.g., heat, smoke from wildfires) and the elements (e.g., snow) for transit and active transportation infrastructure.

Co-Benefits

Improved health | Improved livability | Energy and fuel savings | Improved air quality

KEY DRIVER 2

Transition to efficient, Low-Emission Vehicles

CLIMATE IMPACT

Contribution to 2030 Emissions Target

27.5%

(92.5 kt CO_2e)

Climate Hazards Addressed

MODELLED CHANGES

- 100% of new personal vehicles are EV's by 2035 (CleanBC)
- 10% of commercial vehicles are electric by 2030 (CleanBC)
- BC Renewable and Low Carbon Fuel Requirements (CleanBC)

WHAT WE HEARD FROM THE PUBLIC

To support emissions reduction from transportation, key themes from engagement suggest:

- More public electric vehicle (EV) charging
- Availability of at home charging in condos and apartments

Most of Kelowna was designed around car use. As a result, it remains the default way most residents get around. In fact, we collectively drive the equivalent of going to the moon and back twice every weekday.[21]

Considering that most of these trips are still completed in vehicles that use gasoline or diesel, it is easy to understand why transportation accounts for the largest sources of GHG emissions in our community.

Getting people out of their automobiles through effective planning (i.e., trip distance reduction) and mode shifting to active transportation (e.g., walking, biking) and public transit remains a priority (see Key Driver 1). Shifting away from reliance on personal vehicles, however, does not mean banning cars. Cars and trucks will continue to be used for the foreseeable future, especially when driving remains the most practical option for some trips. Even with promoting mode-shifting, Kelowna's Transportation Master Plan estimates that 75 per cent of trips will still be made by automobiles by 2040 (down from 85 per cent in 2018). This is a citywide average that recognizes that mode shift happens slowly and is highly dependent on largely pre-existing land use patterns and the built environment. However, within Kelowna's more compact urban centres the TMP estimate 55 percent of trips will be made by automobiles in 2040 (down from 75 per cent currently). Regardless, it is clear that personal vehicles will continue to be the dominant way to move around for the foreseeable future. This means that reducing emissions through low-emission fuel technologies (e.g., plug-in electric vehicles), hydrogen fuel-cells, and renewable fuels (e.g., biofuels) will be a vital component of this strategy.

The Province has mandated that 100 per cent of new personal vehicle sales must be emission-free by 2035. This means EVs will undoubtedly make a significant impact on GHG emissions reduction over the next decade. EVs are a market-ready, proven technology providing a feasible pathway to decarbonizing our transportation sector. Continued implementation of the Community Electric Vehicle & E-Bike Strategy will help with the transition to EVs, mainly by supporting EV charging expansion. Further emissions reductions will come from provincial renewable and low carbon fuel requirements, which will increasingly reduce the emissions intensity of transportation fuels in BC.

21 City of Kelowna, 2022. Transportation Master Plan.

Strategies

STRATEGY		ACTIONS
T5	**Increase access to EV charging on private property** Access to at-home charging represents a barrier for many Kelowna residents, especially those living in multi-unit residential buildings that require strata approval for changes to the building. The City recently adopted new Zoning Bylaw regulations to reduce these barriers in new residential buildings, however, support is still needed to expand EV charging for existing multi-unit residential buildings and make residential charging more affordable and accessible for all.	**5 actions** T5.1 – T5.5
T6	**Expand the public EV charging network** Supporting the public charging network is critical to give EV drivers confidence in a reliable network of charging opportunities in convenient locations. Public charging opportunities may be the predominant charging option for many EV drivers, including those visiting our community. The City has an important role to play in expanding public charging opportunities because it owns many of the assets that will be used to install public EV charging infrastructure (e.g., on-street parking, parkades, etc.).	**8 actions** T6.1 – T6.8
T7	**Support the transition to efficient and zero-emission commercial vehicles and goods movement** Goods movement activity in the Central Okanagan is primarily servicing businesses and residents in the region (only one to two per cent of truck trips are inter-regional or just "passing through"). One of the six strategic directions of the Regional Goods Movement Strategy is to accelerate adoption of zero-emissions goods movement vehicles and to provide supporting infrastructure. Example actions include greening provincial and municipal fleets of medium- and heavy-duty vehicles, advocating for a provincial medium- and heavy-duty zero-emission vehicle sales standard, and advocating for public charging and low/zero-emissions refueling stations that support goods transporters and couriers.	**5 actions** T7.1 – T7.5
T8	**Support more fuel-efficient, lower emission driving** The implementation of BC's Renewable and Low Carbon Fuel Requirements, together with shifting the way people drive (e.g., how you accelerate, idle, or anticipate traffic) will help reduce the amount of GHG emissions produced by internal combustion engines (and help save drivers hundreds of dollars in fuel each year). Local government can support this by implementing options to increase efficiency of existing traffic flow, offering education for eco-driving and anti-idling, and advocating for continued incentives for EVs.	**6 actions** T8.1 – T8.6

Tracking Progress

Primary indicator – transportation emissions:
As indicated in Key Driver 1, the provincial government publishes annual transportation emissions for each community in BC through the CEEI.

Secondary indicators: The following metrics can help us monitor and track progress toward meeting our climate and transportation goals:

- Fuel Sales
- Number of public EV chargers installed
- Number of electric vehicle registrations

Equity Considerations

Increasing access to home charging for new and existing residential buildings can help make the transition to electric vehicles easier and more affordable for lower income households.

Co-Benefits

KEY DRIVER 3

Create Efficient, Low-Emission and Resilient Buildings

CLIMATE IMPACT

Contribution to 2030 Emissions Target

32%

(107 kt CO_2e)

Climate Hazards Addressed

MODELLED CHANGES

New Buildings

- All new buildings are zero carbon by 2030 (CleanBC)
- 15 % decrease in average new dwelling size by 2050
- Highest Energy Step Code level adoption by 2028*
- Increased heat pump uptake in homes starting in 2022
- Cool roofs for all new buildings

* Zero Carbon Step Code policy was not modelled, as policy details were not available at time of modelling

Existing Buildings

- Switch 80% of primary building heating to heat pumps and hot water heat pumps by 2040* (CleanBC);
- 80 per cent of building stock is retrofitted to 50 per cent thermal, 20 per cent electrical energy use by 2040**;
- Municipal buildings use 100 per cent clean energy by 2030; and
- Add cool roofs for 10 percent of existing buildings.

* Projection based on CleanBC min. 100% efficient heating equipment by 2030

** Expert assessment of future retrofit requirements

WHAT WE HEARD FROM THE PUBLIC

To support emissions reduction for buildings, key themes from engagement suggest the community wants to see:

- Incentives for landlords to complete upgrades;
- New rental buildings are built with high energy efficiency standards;
- Regulations requiring energy saving or low-emission upgrades;
- Support with upfront costs (e.g., incentives, grants or financing);
- Information on how to make some of the upgrades on their own; and
- Assistance with finding contractors who could make the upgrades.

Buildings represent the second largest source of GHG emissions in Kelowna. In 2021, the energy used to heat, power, and cool our buildings represented 38 per cent of Kelowna's total emissions. Burning fossil fuels (e.g., natural gas) for space and water heating and cooking is responsible for the majority of GHG emissions from buildings.

Well insulated buildings with low air leakage use less energy and produce less GHG emissions. These features, combined with heating and hot water systems that use low-emission sources, lower the emissions even more. More efficient, low-emission buildings are also more resilient to the climate changes we will face by keeping comfortable temperatures during extreme heat or cold.

With Kelowna's rapid population growth, new building construction presents a critical opportunity to shape a more sustainable future. According to the recent Housing Needs Assessment,[23] 19,000 to 26,000 housing units will need to be constructed by 2031 to meet existing demand and future growth. This projected increase underscores the necessity for these buildings to be low-emission, efficient, and resilient structures. The provincial Energy Step Code and Zero Carbon Step Code provide pathways to create low-emission resilient buildings at the time of construction.

Reducing energy and emissions in buildings involves not only adopting new building practices but also retrofitting existing structures. Many of the 40,000 buildings in the city are not currently optimized for low emissions or energy efficiency. Retrofitting these structures by improving insulation, installing energy-efficient windows, installing lower-emission heating and cooling systems, integrating renewable energy sources, and many other improvements, can significantly cut energy consumption and emissions, while also lowering energy costs for residents and businesses.

The transition to efficient, low-emission buildings in Kelowna is not only about reducing GHG emissions but also about increasing the city's resilience against extreme weather and natural disasters. Improving building envelopes, windows, heating and cooling systems, ventilation and air filtration systems, cool or green roofs, and landscaping is crucial in the face of more frequent and severe temperature extremes, ensuring comfort and safety while reducing energy use and costs.

Strategies

STRATEGY		ACTIONS
B1	**Support retrofits to create more efficient, low-emission, resilient residential buildings** Residential buildings represent 85 per cent of the current building stock, therefore supporting renters and homeowners will be key to accelerate energy retrofits in Kelowna. Actions focused on education and information can empower residents with the resources they need to undertake home retrofits, reduce energy waste and improve indoor air quality. Furthermore, financial incentives and financing options can help ease the upfront investment costs needed to complete energy renovation projects.	**10 actions** B1.1- B1.10
B2	**Support retrofits to create more efficient,low-emission, resilient non-residential buildings** Non-residential buildings represent 15 per cent of the current building stock. By promoting energy benchmarking, commercial retrofit programs and utility programs focused on improving energy efficiency, Kelowna can increase the speed at which non-residential buildings are retrofitted.	**3 actions** B2.1- B2.3
B3	**Accelerate adoption of low-emission, efficient new buildings** New construction is an opportunity to lock in low-emission, energy-efficient and resilient buildings for generations to come. Accelerating the adoption of the higher Energy Step Code and/or Zero Carbon Step Code levels can advance these efforts. Collaborative efforts with organizations to promote incentives and training will help ease the transition.	**5 actions** B3.1 - B3.5

23 City of Kelowna, 2023. Housing Needs Assessment. Retrieved from: https://getinvolved.kelowna.ca/housing-needs-assessment-healthy-housing-strategy

Strategies

STRATEGY		ACTIONS
B4	**Increase the resilience of new construction to local climate hazards** New building design should include resilient features to prepare for climate change. Advocating to senior government for heat-risk reduction and FireSmart requirements, investigating options for green infrastructure at the site level (e.g., green roofs, cool roofs, shade trees) are ways to reduce risks from climate hazards.	**3 actions** B4.1- B4.3

Tracking Progress

Primary indicator – building emissions:
The provincial government publishes annual emissions from buildings for each community in BC through the CEEI. This data is largely based on utility information for energy use by fuel type. While CEEI data is several years behind, it provides a consistent, defensible method to track emissions from buildings in Kelowna year-over-year.

Secondary indicators: The following metrics can help us monitor and track progress toward meeting our low-emission resilience goals in the buildings sector:

- Number of home renovation rebates accessed (e.g., heat pumps, insulation, electric water heaters, etc.)
- Energy Step Code performance level of new buildings: Thermal, Mechanical, Airtightness Performance
- Emissions intensity of new buildings: total emissions and emissions intensity

Equity Considerations

- "Energy poverty" reduction (i.e., supporting households who are struggling to pay their home energy bills.)
- Affordable cooling during extreme heat waves, and heating during extreme cold events.

Co-Benefits

WHAT IS ENERGY POVERTY?

Energy poverty is broadly defined as the household experience of struggling to meet one's energy needs. There are three drivers for energy poverty: household income, energy price, and energy efficiency in homes.

The experience of energy poverty could involve any mix of those three factors depending on the local and household context. Focusing on improving energy efficiency (which the City has more influence over) can help reduce energy use in homes and consequently lower energy bills, as income level and energy prices are largely outside of local government influence.

KEY DRIVER 4

Support Low-Emission and Resilient Energy

CLIMATE IMPACT

Contribution to 2030 Emissions Target

26.2%

(88 kt CO_2e)

Climate Hazards Addressed

MODELLED CHANGES

- 100% clean electricity by 2030 (CleanBC)
- 15% natural gas supply replaced with RNG by 2030 (CleanBC)
- 7% natural gas supply replaced with low-emission hydrogen

WHAT WE HEARD FROM THE PUBLIC

Public input on renewable energy options demonstrated support for a variety of approaches in Kelowna, including:

- Requiring new developments to be solar PV ready;
- Purchasing renewable energy systems in bulk;
- Installing solar panels as shading devices;
- Investing in public solar and wind energy utilities; and
- Providing incentives and subsidies for renewable energy systems.

The energy supply to our homes and businesses in Kelowna primarily comes from hydro-electric power and natural gas. As outlined in the Province's CleanBC Plan, there are currently efforts to significantly reduce the emissions intensity of both fuel sources.

BC has a very low-emission electricity supply, where the emissions per unit of electricity delivered is over 90 per cent lower than the Canadian average. Under the CleanBC Roadmap to 2030, electricity delivery is slated to be net-zero emissions by 2030, which would effectively reduce GHG emissions from grid-supplied electricity.*,[24] This has the potential to impact both the building and transportation sectors, as use of low-emission electric technologies (e.g., heat pumps, EVs) increase over time.

In addition to low-emission electricity, the CleanBC Roadmap aims for 15% of the natural gas supply to be renewable natural gas (RNG) by 2030, which reduces the emissions intensity of natural gas by a similar percentage. The City has been collaborating with FortisBC since 2012 to reduce emissions from natural gas by capturing methane at Glenmore Landfill in order to produce RNG, a low-emission energy option. The City is investigating other opportunities to add to the existing RNG supply.

* CleanBC's focus on "100% clean electricity" is on the BC Hydro grid, which supplies the majority of electricity in BC. The provincial emissions factors which are used to estimate emissions in Kelowna will decline as a result of this policy.

24 Clean BC Roadmap, p.8: https://www2.gov.bc.ca/assets/gov/environment/climate-change/action/cleanbc/cleanbc_roadmap_2030.pdf

As low-emission technologies evolve and are adopted into the mainstream, it is important that local governments continue supporting utility-scale renewable energy generation that helps to achieve our collective climate goals. Policy targets for low-emission fuels, whether electricity, RNG, or clean hydrogen, are anticipated to increase and play a critical role in achieving our future GHG targets.

From a resilience perspective, current climate change impact projections indicate that Kelowna can expect more frequent and more extreme weather events in the near future. These events will threaten energy supply and incur high recovery costs. Energy resilience and emissions reductions can be achieved with renewable energy systems and natural gas replacement.

Strategies

STRATEGY		ACTIONS
EN1	**Support the transition to a low-emission energy supply** Renewable energy is a community-wide effort. The City can support it by removing barriers to renewable energy infrastructure installation in its codes and bylaws, and by supporting public utility efforts. Coordinating site design to utilize PV panels can offer dual benefits of energy generation and shading. Building code guidance may help encourage this practice. The City can also continue to investigate the potential for an anaerobic digestion system for organic waste to create RNG, and for potential renewable energy-sourced district heating and cooling system projects.	**6 actions** EN1.1 - EN1.6
EN2	**Advocate for increased resilience of local energy supply** The City will coordinate with energy utilities in the increased provision of renewable energy and improved energy infrastructure resilience. This coordination must advocate for adequate local energy supply for heating and cooling during extreme and extended heat and freezing events.	**2 actions** EN2.1 - EN2.2

Tracking Progress

Primary indicators:

- Annual BC electricity grid emissions factor
- Annual percentage RNG delivered to BC natural gas network

Secondary indicators:

- Amount of biogas captured at the Glenmore Landfill
- Annual percentage of hydrogen delivered to BC natural gas network
- Annual kWh capacity of personal and public solar PV, wind energy, and renewable energy storage installations

Equity Considerations

Providing subsidies, incentives, and support for equity-seeking and vulnerable populations is an important step in alleviating energy poverty.

Co-Benefits

Energy and fuel savings | Resilient energy | Improved air quality

KEY DRIVER 5

Create Complete, Compact, Resilient Communities

CLIMATE IMPACT

Contribution to 2030 Emissions Target

4.6%

(15.6 kt CO_2e)

Climate Hazards Addressed

MODELLED CHANGES

- Building mix 2050: 33 per cent single detached; 17 per cent doubles/rowhouses; and 50 per cent apartments.
- 15 per cent decrease in average new dwelling size by 2050 (due to more multi-unit dwellings)

WHAT WE HEARD FROM THE PUBLIC

Public input was generally supportive of developing compact, complete, resilient communities. Themes included:

- Developing more multi-unit housing (e.g., 6-storey wood frame);
- Adding commercial zones to suburban neighbourhoods;
- Policy and regulation changes, for example: reducing parking requirements and changes to development regulations and cost charges to incent infill instead of sprawl; Requiring park/green land components of new development; and
- Restricting hillside development to decrease landslide risk.

Urban form has a significant influence on the amount of energy used for mobility as well as heating and cooling of buildings. As a result, our land use and development decisions can have long-term "lock in" effects whose impacts can endure for many decades.

Like many places in North America, Kelowna was built around the automobile with single family homes spread across the city. This lower building density, located further from services has influenced our community's GHG emissions.

Today, however, Kelowna's 2040 OCP focuses growth on Urban Centres, the Core Area, and along transit corridors and stops planning for new suburban neighbourhoods, which will enhance livability and help reduce emissions while adapting to a changing climate. The Pillars of the 2040 OCP provides direction for how our community will grow, commute, interact and protect natural assets, all of which are intricately related to how we will reduce GHG emissions and adapt to anticipated climate changes as illustrated in Figure 16 on the following page.

Consistency with the OCP's Pillars, Growth Strategy, objectives and policies in development is crucial, but so is ensuring that new plans, policies, and bylaws are also aligned with the OCP's direction. While in the short-term, reductions may be slow to realize, over the long-term these actions to improve our communities by making them compact, complete, and resilient will lock-in low-emission, high-choice, high quality of life for decades to come.

As we continue to grow, climate needs to be considered in all land use decisions, from both a GHG emissions perspective as well as ensuring resiliency to future climate impacts. For example, modelling illustrated that updating bylaws to include expansion of city-wide flood construction levels demonstrates that damages from flooding can be reduced 11 to 45 per cent depending on the severity of flood event compared to a do-nothing approach.

The *Complete, Compact, Resilient Communities* driver should not be considered in isolation. It's implementation alongside other drivers such as *Reduce Reliance on Vehicles (Key Driver 1), Efficient,Low-Emission and Resilient Buildings (Key Driver 3), Employ Nature-Based Solutions (Key Driver 6),* and *Increase the Resiliency of Infrastructure and Assets (Key Driver 8),* is crucial to achieving a low-emission, resilient community.

Figure 16: Pillars of the 2040 OCP

STRATEGY		ACTIONS
C1	**Target growth in climate resilient Urban Centres and Core Areas** Prioritizing infill development can allow people to live closer to their daily needs in more efficient homes, while at the same time allow for more natural features and agriculture to be preserved.	**2 actions** C1.1 - C 1.2
C2	**Apply a climate lens to land-use planning and development policies** A variety of efforts achieve this strategy. Revisiting development regulations, form and character guidelines, and public realm design principles can foster compact, complete communities in Urban Centres and along Transit Supportive Corridors. Developing with floodplains and wildfires in mind helps to avoid loss of property and life. Strengthening landscaping requirements to absorb stormwater and plant trees to shade from heat will help new development be more resilient to climate impacts. Assessing developments through a climate lens may reveal opportunities for improvements or alternatives to reduce GHG emissions or to be better prepared for a changing climate.	**8 actions** C2.1 - C2.8

Tracking Progress

While there is no single indicator that can be used as a proxy to measure Complete, Compact, Resilient Communities, the following secondary indicators can help show progress for this Key Driver:

- Residential growth by Urban Centre and Suburban neighbourhood (monitored in OCP Progress Reports)
- Residential units within 200m of Transit Supportive Corridors (monitored in OCP Progress Reports)
- Annual area of urban infill land developed (housing and commercial use area measurements)
- Resident and employee density to be developed
- Average annual "Climate lens" scores of approved development applications (criteria in development)

Equity Considerations

- Infill development can create neighbourhood gentrification. Efforts must be made not to displace equity-denied and vulnerable populations. A portion of new infill development must be made affordable.
- Developments should protect people, especially vulnerable populations, against climate change threats.
- Efficient and affordable public transport is vital in dense areas to ensure that all residents, regardless of income, have access to jobs, education, and services.
- Offering a mix of housing types with universal design (e.g., apartments, townhouses, single-family homes) can cater to different needs and preferences, accommodating a diverse population.

Co-Benefits

KEY DRIVER 6

Employ Nature-Based Solutions

CLIMATE IMPACT

Contribution to 2030 Emissions Target

3.6%

(12 kt CO_2e)

Climate Hazards Addressed

MODELLED TARGETS

- Increase tree canopy coverage by 2040 – 12% Urban Centres, 20% Core Area, 25% remainder of City*
- Achieve 10 per cent more tree coverage than targeted in the OCP

* Since the modelling was completed, new tree canopy targets were endorsed: 20% - Urban Centres and Core Area; 15% - Gateway; and 25% - Suburban and Rural Areas.

WHAT WE HEARD FROM THE PUBLIC

- Encourage homeowners to plant trees;
- Protect and expand tree canopy;
- Protect natural areas to mitigate heat and flood damage;
- Encourage green roofs and gardens; and
- Increase required percentage of park/green land in new developments.

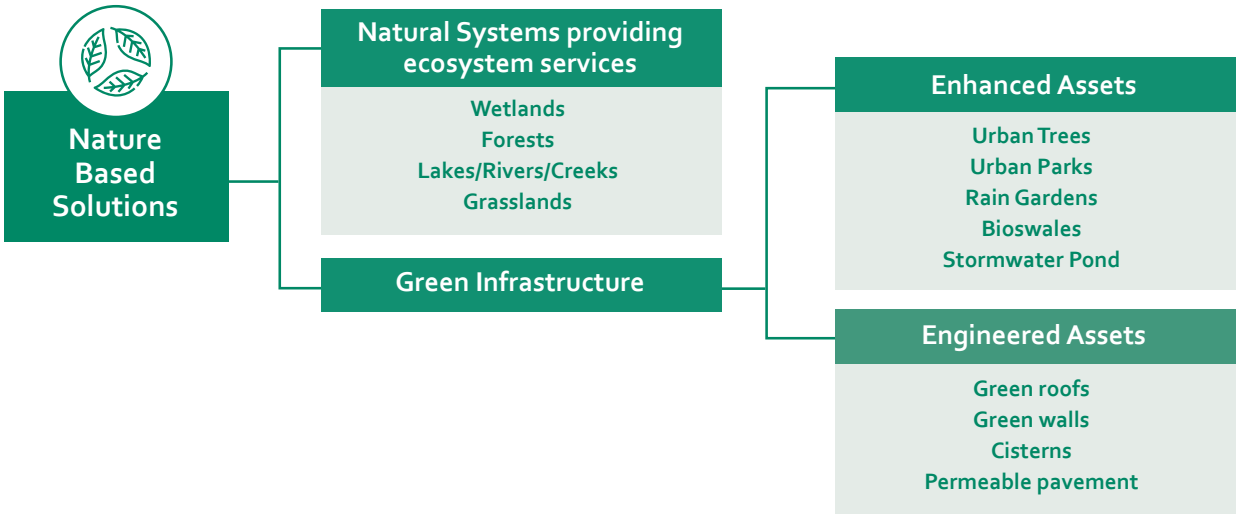
Okanagan Lake, 27 creeks, over 200 wetlands, grasslands, old growth forests, coniferous woodlands, and mature forests provide habitat for a wide variety of plants and animals, including several numerous species at risk in Kelowna. The City also has a variety of green infrastructure supporting this natural network – nearly 22,000 inventoried urban street and park trees, stormwater ponds, and rain gardens.

Kelowna relies on functional ecosystems to maintain the quality of water in lakes and streams, to mitigate floodwaters, moderate temperatures and support better air quality, to preserve slopes, to develop and protect healthy populations of pollinator species, and maintain the natural beauty of the Okanagan area. In addition to the host of other services they provide, natural systems and green infrastructure can significantly reduce GHG emissions through carbon sequestration and help our community adapt to the impacts of extreme weather including heat, flooding, and drought.

Our environment has been significantly modified by human activity and urbanization over the past century. Protecting ecosystems, and ensuring they are managed in a way to limit dramatic shifts as the climate and ecozones shift northward (and upward in elevation) will help maintain these ecosystem services. Working to protect, preserve and enhance Kelowna's ecosystems and green infrastructure network is essential for managing temperature in dense urban neighbourhoods and protecting the forests and grasslands surrounding the city. As Kelowna continues to grow and becomes more densely populated, the cooling benefits of urban trees, as well as parks and urban greenspaces will be amplified.

Modelling showed that increasing tree canopy coverage in our Urban and Core Areas could help reduce the number of people impacted by heat waves by 20 per cent.[25] The threat of wildfire is also top-of-mind for many in Kelowna, and careful management of forests and grasslands is one of the steps that the community can take to reduce the risk of wildfires in the future as outlined in the Community Wildfire Resiliency Plan.

Figure 17: Types of nature-bases solutions[26]



Strategies

STRATEGY		ACTIONS
N1	**Protect and restore natural systems providing ecosystem services to reduce climate hazard risk** Kelowna will continue to restore shorelines, including along the lake, and along streams, to reduce potential damages from flooding, and to ensure these systems are healthy enough to absorb floodwaters. Watershed-level management, and the use of natural asset inventories and other datasets will ensure that natural systems are being managed to anticipate climate change impacts, and to reduce the risks of climate hazards like flooding and wildfire.	**5 actions** N1.1 - N1.5
N2	**Utilize green infrastructure to improve climate resilience** The Sustainable Urban Forest Strategy outlines how Kelowna will protect, monitor and expand the urban tree canopy. To increase the greenspace to help manage stormwater, overland flooding, and heat, and drought, green infrastructure networks will be encouraged on private properties, and where new development is happening. Implementing the Parks Master Plan will ensure adequate public green space across the community.	**4 actions** N2.1 - N2.4
N3	**Inventory, assess and monitor ecosystems and green infrastructure** Evaluating and quantifying ecosystem services will allow the City to track their contribution to climate change management. Monitoring invasive species and sensitive ecosystems will help the City prioritize actions. A management strategy can coordinate these activities with other strategies at the City, and across the region. For example, planting and maintenance programs for natural area parks and green infrastructure must be coordinated to ensure improved management of natural vegetation.	**6 actions** N3.1 - N3.6

25 Modelling results from the Climate Adaptation Report show that, by 2070, a 5% increase in total tree canopy in urban and core areas could result in a 20% decrease in number of people experiencing nighttime temperatures of 22°C or higher during extreme heat events similar to the 2021 heat dome. It is estimated that around 70,000 people could be experiencing these dangerous levels of nighttime temperature by 2070 in Kelowna during extreme heat events.

26 Adapted from https://gibsons.ca/wp-content/uploads/2018/01/GibsonsFinancialPlanningReportJan2018-PRINT.pdf

Tracking Progress

Primary indicators:

- **Tree canopy coverage:** Track tree canopy coverage per the 2040 OCP and Sustainable Urban Forest Strategy
- **Changes to natural and sensitive ecosystems:** Kelowna has the privilege of having some of the rarest ecosystems in the country, and it's important to track the status of these ecosystems in the face of increased growth and development. A sensitive ecosystem inventory (SEI) was recently completed at the regional level, and going forward a metric should be developed for ensuring changes to sensitive ecosystems can be adequately monitored on a regular time interval (e.g., every 3-5 years).

Secondary indicators: Additional metrics may be considered to help us monitor and track progress toward implementing nature-based solutions:

- Number of restoration projects completed (Mission Creek Compensation Bank Credits added) (to be developed)
- Measure the proportion of residents with low incomes living within 500m walking distance to a neighbourhood park (as tracked with the OCP indicators).
- Percentage of City Parkland protected as Natural Area (or percentage of native species coverage in parks) (to be developed)
- Amount of private land area protected under no disturbance covenant for the purpose of protecting environmentally sensitive areas (to be developed).

Equity Considerations

- Incorporate traditional knowledge in solutions/actions (e.g., through collaboration with traditional knowledge keepers/sylix nation)
- Ensuring that green infrastructure is not just concentrated in wealthier areas but is also present in underserved or marginalized communities to provide equal environmental and health benefits. For example, targeting tree canopy expansion to areas of low tree equity (areas with low tree canopy and higher social vulnerabilities) is one way to help populations who may be more susceptible to extreme heat.
- Green infrastructure should be accessible to all, regardless of age, ability, or socio-economic status. This includes designing parks, green spaces, and walking trails that are wheelchair accessible and have amenities for various age groups and abilities.

Co-Benefits

KEY DRIVER 7

Reduce Emissions from Waste

CLIMATE IMPACT

Contribution to 2030 Emissions Target

<1%

(1.9 kt CO_2e)

MODELLED TARGETS

- 95% of organic waste is diverted from landfills by 2030

WHAT WE HEARD FROM THE PUBLIC

- Offer kitchen waste composting program;
- Integrate circular economy principles to reduce landfill directed goods;
- Apply climate friendly procurement practices; and
- Create up-cycling / recycling / repair mall

Emissions from waste account for 8 per cent of the total GHG emissions GHG emissions in Kelowna. Reducing emissions from waste comes from two primary actions: reducing the total volume of waste being produced, and by changing how the remaining waste is managed.

As garbage, recycling, and yard waste is managed regionally in the Central Okanagan, both of these approaches need to be in collaboration with the Regional District of Central Okanagan through the execution of the regional Solid Waste Management Plan.[27]

Reducing the total volume of waste hinges on encouraging behavioral change and conscious consumption practices, as well as developing systems to direct materials away from the landfill and extending its useful life. By reducing the total volume of waste being produced, we can reduce the associated GHG emissions from transporting the waste to landfills, and the noise and pollution associated with the collection and transportation of waste.

How the remaining waste is managed also impacts our GHG emissions, as the biodegradation of organic materials in landfills releases methane, a powerful greenhouse gas. Methane can be reduced by diverting biodegradable waste to beneficial approaches such as composting, anaerobic digestion, and recycling.[28]

The Regional District of Central Okanagan are investigating options to expand their organics program to include a food waste program by 2026. This could divert up over 75 per cent of the waste material currently collected in the waste pick up program.

27 Regional District of Central Okanagan, Solid Waste Management Plan, https://www.rdco.com/en/your-government/solid-waste-management-plan.aspx

28 Government of Canada, 2022. Reducing methane emissions from Canada's municipal solid waste landfills: discussion paper. Reducing methane emissions from Canada's municipal solid waste landfills: discussion paper - Canada.ca

While the City does not include GHG emissions associated with the production, transportation, and sale of materials before they become waste in its emissions inventory, focusing on product lifecycle emissions can have environmental, economic, and social benefits. Transitioning from a take-make-waste linear economy towards a circular economy (as illustrated in Figure 18) through smarter product design, longer use, re-use, re-purposing, and recycling can help to minimize waste, promote sustainable use of natural resources, and reduce GHG emissions, while also providing a local economic opportunity for new business ideas. While local government can play a role in this transition, it will require the collaboration of senior government, business, and the community to make it a reality.

Figure 18: Linear economy vs. circular economy

Strategies

STRATEGY		ACTIONS
WR1	**Reduce waste generation and increase waste diversion** Kelowna can reduce overall waste generation by implementing the regional Solid Waste Management Plan, and by working with community members, businesses, and industries to identify ways to reduce overall consumption of material goods and reduce waste production. By transitioning to a circular economy, goods and materials can be repaired, reused, and repurposed for usage.	**6 actions** **WR1.1 - WR1.6**

Tracking Progress

Primary indicator - waste emissions:

- The provincial government publishes annual emissions from waste for each community in BC through the CEEI. This data is largely based on the total amount of waste disposed at the Glenmore Landfill from Kelowna sources. While CEEI data is several years behind, it provides a consistent, defensible method to track emissions from waste in Kelowna year-over-year.

Secondary indicators:

- Material diverted from landfil disposal on-site (tonnes)
- Discharge rate (tonnes per capita)

Equity Considerations

Long term planning for expansion or new management facilities should consider vulnerable populations that could be impacted.

Food waste diversion efforts can increase food security by engaging the social sector and people with lived experience of food insecurity to drive innovative, locally informed solutions.

Co-Benefits

- Energy and fuel savings
- New jobs
- Improved livability

KEY DRIVER 8

Increase Resiliency of Infrastructure and Assets

CLIMATE IMPACT

Climate Hazards Addressed

WHAT WE HEARD FROM THE PUBLIC

- Solar biking corridors (solar panels above bike route to generate electricity and provide shelter); and
- Incorporate findings from the Climate Vulnerability and Risk Assessment into new infrastructure projects

The community relies on the City for essential services, such as water supply, potable water and wastewater treatment, road and traffic maintenance, solid waste disposal (in partnership with the RDCO), fire prevention, and recreational/cultural programs.

Other important community services that are not under the City's control include energy supply (e.g., the electricity grid) and health care. The infrastructure that enables these essential services is very important to support the economy and provide the first line of protection against shocks and disasters.[29]

Much of Kelowna's infrastructure was built based on knowledge from the past, but the increases in frequency and intensity of storms and extreme temperatures associated with climate change can exceed the capacity of this infrastructure, causing damage and, in some cases, failure.[30] This has led to a heightened need for resilient infrastructure that can withstand and adapt to the impacts of climate change and natural disasters.

Recognizing this, the City has already taken action in some areas to ensure our infrastructure is more resilient. For example, the multi-year, multi-million-dollar Mill Creek Flood Protection Project initiative includes significant upgrades to the diversion structure that redirects a portion of flood flows to Mission Creek to help reduce flooding potential within the City. As our community continues to grow and the climate continues to change, infrastructure will play an integral role in ensuring reliable City services and building resilience.

Many industries rely on continued services our infrastructure provides. The agriculture industry, for instance, is collaborating with the BC government through the Climate Change Adaptation Program BC to build the sector's resilience to climate change. The City, however, can also play a role through ensuring resilient infrastructure to help support farmers. Warmer and drier conditions and increase in extreme precipitation events are two areas the City can play a role in addressing. Reviewing the City's critical infrastructure as well as developing water shortage management plans and the Water Security and Responsibility Plan will help ensure that this sector is serviced during climate events.

Resilient infrastructure is about more than just durability; it's about adaptability and the capacity to maintain critical functions in the face of various challenges. The goal is to create systems that not only withstand these trials but also recover swiftly and efficiently, minimizing impact on daily life and economic activities. This approach protects the community, reduces potential recovery costs and contributes positively to the overall quality of life. By building a city that is prepared for future challenges, Kelowna is taking a significant step towards a sustainable and resilient urban future.

29 United Nations Office for Disaster Risk Reduction, https://www.undrr.org/resilient-infrastructure#:~:text=for%20sustainable%20development-,Resilient%20infrastructure,defence%20against%20shocks%20and%20disasters.

30 Engineers Canada. Preparing for the Impact of Climate Change: The Importance of Improving Climate Resiliency – the Engineering Perspective, https://engineerscanada.ca/sites/default/files/Engineers-Canada-Submission-Preparing-Impact-Climate-Change-en.pdf

Strategies

STRATEGY	ACTIONS
R1 Infrastructure is upgraded or adapted to withstand the impacts of a changing climate Using information for the Climate Vulnerabilities and Risk Assessment (CVRA) and other studies to target the most vulnerable critical infrastructure in the city, Kelowna can increase its resilience by upgrading its bridges and culverts, upgrade key buildings with fire resistant materials, design and retrofit public spaces to provide protection and shelter in its most vulnerable neighborhoods.	**9** actions R1.1 - R1.9

Tracking Progress

As City infrastructure and assets relate to multiple climate hazards, there is no single metric that shows progress on this Key Driver. However, the following indicators can help show how critical infrastructure is performing in the face of climate change:

- Number of critical infrastructure buildings adhering to FireSmart guidelines (to be developed)
- Progress towards increasing creek channel widths to meet hydrological needs (widening channels/ floodplains) (to be developed)
- Water supply: pump resilience – the number of pump failures due to a climate-related event
- Water quality: number of boil water advisories due to a climate-related event
- Landfill: number of days closed due to a climate-related event

Equity Considerations

- Ensure that resilient infrastructure is not only built in affluent areas but also in underserved and vulnerable communities that may be more prone to the impacts of climate change and disasters.
- Develop funding and investment strategies that do not unduly burden low-income residents, and ensure transparent and equitable allocation of resources for infrastructure projects.

Co-Benefits

Energy and fuel savings

Improved livability

KEY DRIVER 9

Improve Climate Emergency Preparedness

CLIMATE IMPACT

Climate Hazards Addressed

WHAT WE HEARD FROM THE PUBLIC

- Only 28 per cent of survey respondents felt extremely or well prepared for extreme weather events, indicating that additional action may be needed to help the community feel prepared.

The Ministry of Emergency Management and Climate Readiness (EMCR) is BC's lead coordinating agency for all emergency management activities, including preparedness, mitigation, response, and recovery. The Ministry has developed a new approach, ClimateReadyBC, to learn lessons from past emergencies, address disaster and climate risk, build capacity and resilience to face current challenges, and prepare BC communities to mitigate risk from future disasters.

The City of Kelowna's Fire Department administers the Central Okanagan Regional Emergency Plan which supports all local governments in the Central Okanagan and Westbank First Nation. The Plan, which is constantly evolving, goes hand-in-hand with the Province's ClimateReadyBC approach. In the event of a climate hazard event, or other emergency, a centralized source of official information is provided through cordemergency.ca, and Emergency Support Services provide short-term essential needs to those impacted.

The City has been working with other service and community organizations on implementing the Community Safety Plan and Heat Response Plan to support vulnerable populations during emergency events. Continuing to collaborate with these groups and expand and evolve supports will be critical as climate events become more extreme and more frequent.

Disasters such as unprecedented forest fire seasons, heat domes and atmospheric river events will continue to increase in complexity as climate change persists. Emergency preparedness and response is a key component of ensuring the community is safe and resilient when disaster strikes.

Emergency planning is not just about responding to immediate threats; it's also about preparedness, recovery, and rebuilding in the aftermath of those events. Communities that are better prepared tend to recover more quickly, reducing the long-term social and economic impacts of emergencies.

Having a well-structured emergency plan in place that is adapted to a rapidly changing climate equips individuals, families, and communities with the knowledge and tools to respond swiftly and efficiently, minimizing the impact of disasters. It involves understanding potential risks, protecting those most vulnerable, having clear communication channels, and ensuring access to essential resources like food, water, and medical supplies.

As highlighted in the bullets below, the Central Okanagan Emergency Response Plan already includes actions for response to climate related emergencies such as:

- Cooling and clean air locations for heat and wildfire events in each jurisdiction (note: BC Transit provides transportation at no cost to cooling centers during heat events);
- A centralized website (cordemergency.ca) with up-to-date information on current emergencies and resources for emergency preparedness, response, and recovery; and
- A dedicated communications staff which will allow for ongoing educational campaigns that encourage emergency preparedness throughout the year (e.g., how to prepare in the event of a wildfire, flooding, or heat event, where to go during a smoke event, etc.)

The Plan, however, must continually evolve to be responsive to new information and new hazards.

Strategies

STRATEGY		ACTIONS
EP1	**Enhance climate emergency response planning** A proactive approach is vital for safeguarding communities against the increasing frequency and severity of climate-induced events such as wildfires, floods, and extreme weather patterns. By having a plan in place for each hazard outlined in the Climate Vulnerability and Risk Assessment (CVRA) with a focus on protecting vulnerable populations, Kelowna can effectively enhance its emergency response planning.	**11 actions** EP1.1 - EP1.11
EP2	**Empower the community to be prepared for climate emergencies** By actively involving the community in preparedness initiatives, through information sharing, education and support, individuals become more than just passive recipients of aid; they become active participants in safeguarding their environment and well-being.	**5 actions** EP2.1 - EP2.5

Tracking Progress

The following indicators can help show progress on Climate Emergency Preparedness:

- Number of cooling locations in vulnerable neighborhoods.
- Number of community education campaigns
- Survey responses show an increase in community preparedness (to be developed)
- Survey responses indicate residents feel socially connected during a climate related emergency (to be developed)

Equity Considerations

- Ensure that emergency information is accessible to all, including non-English speakers, people with disabilities, and seniors.
- Ensure that vulnerable populations have access to cooling locations during extreme heat events and warming during extreme cold events. However, there are limitations to the use of cooling locations for more vulnerable individuals living indoors as people are exposed to heat going to/from cooling locations. Further, to adequately reduce risk, cooling centres must be open late as homes could be at peak temperatures late in the evening.[31]
- Encourage increasing social connections and social safety net for all people that may find emergency information less accessible.

Co-Benefits

31 https://www.interiorhealth.ca/sites/default/files/PDFS/heat-alert-response-planning-toolkit.pdf

KEY DRIVER 10

Demonstrate Municipal Corporate Climate Leadership

CLIMATE IMPACT

Contribution to 2030 Emissions Target

<1%

(0.1 kt CO_2e)

Climate Hazards Addressed

MODELLED TARGETS

- 50% of new municipal light duty vehicles are EVs by 2030; and
- 50% of municipal heavy duty vehicles are EVs by 2050

WHAT WE HEARD FROM THE PUBLIC

Key municipal corporate climate leadership themes heard through community engagement include:

- The need for more relevant climate change policies and programs;
- Concern for the high cost of implementing necessary changes;
- The need for more consistency in existing plans, and more urgency on climate action; and
- Concern about the lack of community buy-in.

Municipal government decisions shape the resources, infrastructure, and day-to-day services the community relies on. The City has many examples of climate leadership to build upon.

While corporate emissions make up a very small proportion of the overall community emissions (less than one per cent), the Strategic Energy Management Plan and the Green Fleet Strategy provide pathways to lower our corporate emissions, while demonstrating new ways the community can lower their GHG emissions and prepare for climate change.

Reducing GHG emissions from municipal buildings, operations, and vehicles is a central part of the City's leadership on climate action. The City can demonstrate what can be done to retrofit buildings, prepare for a full fleet conversion to low-emission vehicles, and change operations to maximize efficiency and reduce emissions.

Being a climate leader is not only about reducing the emissions from our corporate assets. Incorporating climate aspects into the plans, policies, and programs that guide the organization's work is crucial to making significant progress toward safeguarding Kelowna's people, places, buildings, and infrastructure. To keep moving forward will require embedding climate action in strategic decision making and the budget process to enhance staff capacity and to find opportunities with other community priorities to increase benefits, share costs, and avoid inefficiencies.

The municipality is the first line of defense in ensuring that community members are informed and prepared for climate change, that all members of the community have access to the opportunities and resources driving the transition to a low-emission resilient future. Therefore, the City also has a role in ensuring residents, businesses, and visitors feel empowered to take climate action.

Strategies

STRATEGY		ACTIONS
CL1	**Incorporate Indigenous Knowledge in Climate Action Initiatives** Indigenous Knowledge provides an additional lens to view natural systems, historic changes, and prioritization of community needs. By building meaningful relationships with the syilx/Okanagan people and other urban Indigenous people residing in Kelowna, the community can benefit from the insights of Indigenous Knowledge, while also strengthening ties between the people and communities.	**1 action** CL1.1
CL2	**Incorporate a Climate Lens into municipal governance and operations** Integrating climate considerations into plans, goals, and budgets allows the City to work effectively to reduce GHG emissions, and to increase community resilience to climate change. This work will require dedicated staff, and funding to share information with City staff and implement climate action.	**7 actions** CL2.1 – CL 2.7
CL3	**Decarbonize City assets and operations** The Strategic Energy Management Plan identifies actions to reduce corporate building GHG emissions in alignment with the CRKS target – 40% below 2007 levels by 2030. The Green Fleet Strategy provides recommendations to reduce emissions from the City's gas- and diesel-powered fleet. Making sustainability a screening criterion for procurement at the City will help ensure resiliency is built into those processes.	**3 actions** CL3.1 - CL3.3
CL4	**Empower the community to take climate action** The City will need to find innovative ways to engage with the community to inspire climate action. Sharing information, promoting incentives and collaborating with other organizations will help propel the implementation of the CRKS.	**5 actions** CL4.1 - CL4.5

Tracking Progress

Primary indicators:

- GHG emissions from municipal operations (e.g., civic buildings and fleet)

Secondary indicators:

- Energy Use Intensity (kWh/m2) for civic buildings
- Percentage of municipal fleet that are zero-emission
- Number of dedicated staff working on climate action
- Number of community members participating in climate action programs
- Number of subscribers to the Climate & Environment e-subscribe list

Equity Considerations

Those most impacted by climate emergencies/events are often not included in leadership and decision making. Reducing this impact requires engagement of equity-seeking groups in planning, policy making, and response. For climate action to be both effective and equitable, we must understand and address the barriers that hinder participation, such as financial constraints, transportation issues, and differing considerations for owners versus renters.

Co-Benefits

Energy and fuel savings | Resilient energy | Improved air quality

MOVING FORWARD

Climate change and its impacts affect everyone in Kelowna. Homes, businesses, industry, agriculture, and natural resources are all feeling the effects of the changing climate and have a role to play in reducing future climate change and preparing for its impacts.

Wildfire, extreme heat, flooding, and drought are all top-of-mind for Kelowna's residents and visitors. Adapting to and preparing for the impacts of these and other hazards, must be coupled with opportunities to reduce energy consumption, improve efficiency, and reduce overall GHG emissions. By combining climate resilience and climate change mitigation efforts, Kelowna will maximize the benefits of these actions.

For example, building retrofits can dramatically reduce the energy needed to heat and cool spaces, and the switch to heat pumps provides critical energy-efficient and low-emission space cooling during heat waves. Dense urban development allows community members to use active transportation for their daily travel needs, and planting trees and other vegetation along these trails and transportation corridors provides shade and cooling, while also improving air quality and helping to manage stormwater.

Kelowna's transition to a climate-ready economy presents opportunities for new industries, the generation of new jobs, and energy cost savings for the entire community. Centering those most vulnerable to climate change impacts, and those with the lowest resilience to economic stresses will ensure that Kelowna is prepared for both the expected and unexpected impacts of our changing climate.

This work represents a critical step along that journey. However, the bulk of the work lies ahead. The work required to implement these changes, and to work closely with all members of the community is not simple or easy, but it is both essential and rewarding. Steady progress will build momentum, transforming Kelowna into a safe, healthy, vibrant, and resilient community for everyone.

Monitoring and Reporting

The City wants to become a low-emission, resilient community and will work towards this by carrying out this strategy and the actions listed in Appendix A. Regular monitoring and evaluation will help measure the community's progress on its climate goals, will help monitor how the actions are being carried out, and flag when actions may be unnecessary or need minor adjustments. The CRKS will be implemented gradually and reviewed constantly. The City will check the primary indicators and action status and report updates annually.

As our actions aim for the next six years and society is quickly changing, we need to evaluate the CRKS midway through implementation to see if there are parts of the strategy that need to be updated. For instance, staff will examine how well we are implementing the actions and reducing GHG emissions, new climate research, consistency with policy from other levels of government and City plans, financial factors, climate risks and vulnerabilities, and community priorities.

Community Engagement and Action

For the CRKS to be successful, the City will need to secure broad community support by engaging and empowering all residents, businesses and interest holders. While this strategy is centered on actions that the City will take the lead on, collaboration and execution at the household, organizational, and neighbourhood levels are essential for effectively lowering emissions and increasing resilience.

The City is dedicated to organizing and supporting ongoing community climate action. This means continuous engagement to raise awareness of climate change across the community and providing opportunities for people to participate in climate action and work towards required behaviour changes. One way to ensure that different groups can take part is to provide clear and useful climate change information. This includes information about how climate change might affect Kelowna, the critical elements of the CRKS and what Kelowna residents and visitors can do in their own lives to support the strategy, and reporting on the progress of the CRKS.

The City is committed to working with the community on the implementation of the CRKS. Together, we can build a climate resilient Kelowna.

APPENDIX A | ACTIONS

The Climate Resilient Kelowna Strategy recognizes the intertwined nature of mitigation and adaptation in addressing climate change.

Mitigation actions, such as reducing reliance on vehicles and increasing the use of low-emission energy, directly aim to lower greenhouse gas (GHG) emissions, tackling the root cause of climate change. On the other hand, adaptation actions, like enhancing the resilience of infrastructure and emergency planning, prepare the community to effectively respond to and withstand the impacts of climate change, such as extreme weather events and rising temperatures. Integrating both approaches in a unified action plan is crucial because focusing solely on mitigation overlooks the immediate and ongoing impacts of climate change, while focusing only on adaptation does not address the underlying issue of global warming. By harmonizing mitigation and adaptation efforts, the strategy ensures a holistic and forward-thinking approach, enhancing the long-term sustainability and resilience of the community.

The ten key drivers set out in the Climate Resilient Kelowna Strategy include 153 actions that together enable Kelowna to reduce GHG emissions as well as prepare for and adapt to a change climate. These actions will build on the progress made in the previous Community Climate Action Plan (2018-2023) as well as more recent policy targets, and regulatory standards initiated by the provincial and federal government.

The Strategy actions focus on action that can be taken to 2030, because we can best predict and control this period of implementation, and the climate crisis demands rapid, transformational change over the coming decade.

The Implementation Framework is a living document and will be reviewed and adjusted periodically, if necessary, to ensure the most impactful actions are being pursued.

The following tables are organized by the 10 key drivers and lists the corresponding actions. Each action is assessed on the following criteria:

- **Mitigation:** Indicates whether or not the action is expected to have an effect on reducing GHG emissions.
- **Adaptation:** Indicates whether or not the action is expected to increase resilience with regards to certain hazards (and if so, which hazard according to the adaptation symbol legend below).
- **City Plan / Policy Alignment:** Indicates which major City plans or policies the initiative aligns with.
- **Resources:** Indicates the level of resources (financial and staff) needed to implement the action: low (<$50,000), moderate ($50,000 - $250,000), high (>$250,000).
- **Timeline:** Indicates the timeline in which the action should be implemented: in progress (currently underway), ongoing (continual effort required), short (begin in 0-2 years), medium (begin in 2-5 years), long (begin in 5+ years).
- **Priority:** Indicates the importance of the action, relative to other actions, in reducing emissions and/or building resilience to climate hazards.
- **Lead Department:** Indicates the City department(s) primarily responsible for implementation of the action.

ADAPTATION SYMBOLS

Heat	Landslide
Cold	Air quality
Wildfire	Drought
Flood	Invasive species

KEY DRIVER 1

Reduce Reliance on Vehicles

	Action	Mitigation	Adaptation	City Plan / Policy Alignment	Resources	Timeline	Priority	Lead Dept.
Strategy T1: Create fast and reliable transit								
T1.1	New Transit Maintenance & Operations Centre (includes infrastructure for electric bus conversion) in alignment with the Kelowna Regional Transit Facility Strategy to facilitate increased transit service. This includes the initial Hardy Transit Facility Refurbishment and the longer-term Hollywood Transit Facility.	✓		TMP Project ID48	high	In-progress	critical	Integrated Transportation
T1.2	Dedicated Transit Lanes on Highway 97	✓		TMP Project ID 34	high	In-progress	critical	Integrated Transportation
T1.3	More frequent transit service	✓		TMP Project IDs 27.1 – 27.8, Climate and Environment Review	high	ongoing	critical	Integrated Transportation
T1.4	Improved transit infrastructure	✓		TMP Project IDs 28 – 33, 35 – 42, 43.2 – 47	high	ongoing	critical	Integrated Transportation
T1.5	Transit pass program expansion + option to expand discounts to reach more of those in need through exploring new funding sources.	✓		TMP Project ID 24, Climate and Environment Review	high	short	high	Integrated Transportation
T1.6	Implement the transit travel training program to encourage and empower people to use conventional transit.	✓		TMP Project ID 25	moderate	ongoing	medium	Integrated Transportation
Strategy T2: Enable active modes								
T2.1	Implement all biking infrastructure projects in the TMP	✓		TMP Project IDs 89-130, Climate and Environment Review	high	in progress	critical	Integrated Transportation
T2.2	Increased investment in crosswalk safety, signals and flashers	✓		TMP Project ID 5	moderate	ongoing	high	Integrated Transportation
T2.3	Increase investment in a Neighbourhood Traffic Calming Program	✓		TMP Project ID 6	moderate	ongoing	medium	Integrated Transportation
T2.4	Accelerated expansion of the sidewalk network expansion	✓		TMP Project ID 7	moderate	ongoing	medium	Integrated Transportation
T2.5	Implement local street urbanization program (sidewalks, street trees, etc. where infill is occurring)	✓		TMP Project ID 8	moderate	ongoing	medium	Integrated Transportation
T2.6	Develop a Transportation Safety Strategy	✓		TMP Project ID 26	low	In progress	low	Integrated Transportation
T2.7	Develop and offer adult and student bicycle skills training and education	✓		TMP Project ID 11 & 22	low	In progress	medium	Integrated Transportation
T2.8	Implement bike map and wayfinding programs	✓		TMP Project IDs 13 & 14	low	ongoing	medium	Integrated Transportation
T2.9	Implement and promote safe routes to school, and advocate for increased funding for school busing	✓		TMP Project ID 20 + option	moderate	ongoing	high	Integrated Transportation
T2.10	Implement open streets programs	✓		TMP Project ID 19	low	ongoing	low	Integrated Transportation
T2.11	Improve bike and sidewalk year-round maintenance	✓		TMP Project ID 4	high	ongoing	medium	Integrated Transportation

Action		Mitigation	Adaptation	City Plan / Policy Alignment	Resources	Timeline	Priority	Lead Dept.
T2.12	Improve safety and security of bike parking and theft prevention	✓		TMP Policy 4.7 and 4.8	moderate	In progress	medium	Integrated Transportation
T2.13	Examine options to implement biking, neighbourhood streets and multi-modal projects found in TMP Scenario 3.	✓		Climate and Environment Review	high	short	high	Integrated Transportation
T2.14	Assess the feasibility of E-bike charging requirements for new residential developments	✓		CEVEBS	low	short	medium	Climate Action & Environment
T2.15	Update local regulations to be more permissive of E-bikes (e.g. traffic and parks bylaws)	✓		CEVEBS	low	short	medium	Integrated Transportation
T2.16	Pilot E-bike public chargers at strategic locations	✓		CEVEBS	moderate	In progress	low	Integrated Transportation
T2.17	Consider E-bike incentives for certain demographics (e.g. low-income, seniors)	✓		CEVEBS, Climate and Environment Review	low	short	high	Climate Action & Environment
Strategy T3: Expand shared mobility options								
T3.1	Implement emerging technologies and shared mobility program	✓		TMP Project ID 21	low	Ongoing	medium	Integrated Transportation
T3.2	Develop a curbside management strategy	✓		TMP Project ID 16	low	In progress	low	Integrated Transportation
T3.3	Examine options to implement other programs and shared mobility projects in TMP Scenario 3	✓			low	medium	medium	Integrated Transportation
Strategy T4: Reduce distance driven by vehicles								
T4.1	Develop and implement the Employer Commute Trip Reduction program.	✓		TMP Project ID 19	low	In progress	medium	Integrated Transportation
T4.2	Advocate for ICBC to include distance-based insurance premiums	✓			low	short	high	Climate Action & Environment

KEY DRIVER 2

Transition to efficient, Low-Emission Vehicles

Strategy T5: Increase access to EV charging on private property								
T5.1	Explore EV charging options for new institutional, commercial, and industrial developments	✓		CEVEBS	moderate	medium	medium	Climate Action & Environmental Stewardship
T5.2	Continue to offer EV-ready planning and residential charging incentives for MURBS	✓		CEVEBS	moderate	in progress	high	Climate Action & Environmental Stewardship
T5.3	Investigate tax exemptions for EV-ready affordable housing	✓		CEVEBS	moderate	medium	medium	Climate Action & Environmental Stewardship
T5.4	Continue advocating for provincial policy and programs to support EV charging in existing strata buildings.	✓		CEVEBS	low	in porgress	high	Climate Action & Environmental Stewardship
T5.5	Continue supporting implementation of EV-ready requirements for new residential developments.			CEVEBS, Climate and Environment Review	low	in progress	critical	Climate Action & Environmental Stewardship

Action		Mitigation	Adaptation	City Plan / Policy Alignment	Resources	Timeline	Priority	Lead Dept.
Strategy T6: Expand the public EV charging network								
T6.1	Investigate a fee structure for City-owned/ managed public chargers	✓		CEVEBS	low	medium	medium	Parking Services
T6.2	Explore the feasibility and benefit of requiring on-street charging for major neighbourhood planning efforts	✓		CEVEBS	moderate	medium	high	TBD
T6.3	Investigate options for increasing public charging opportunities for MURB EV owners	✓		CEVEBS	moderate	medium	high	TBD
T6.4	Include EV-ready public parking in new municipal facilities	✓		CEVEBS	moderate	short	high	TBD
T6.5	Expand the off-street Public Level 2 charging network	✓		CEVEBS, Climate and Environment Review	high	in progress	critical	Parking Services
T6.6	Partner to expand the Level 3 regional charging network	✓		CEVEBS, Climate and Environment Review	high	in progress	high	Parking Services
T6.7	Explore curbside charging opportunities	✓		CEVEBS	low	in progress	medium	Climate Action & Environment
T6.8	Collaborate with other local and regional governments on a regional charging network strategy	✓		CEVEBS	low	medium	medium	Climate Action & Environment
Strategy T7: Support the transition to efficient commercial vehicles and zero-emissions goods movement								
T7.1	Work with Provincial Government to accelerate adoption of zero-emissions goods movement vehicles and provide supporting infrastructure	✓		RGMS	high	medium	high	Integrated Transportation
T7.2	Prepare for and support emerging sustainable delivery practices	✓		RGMS	low	medium	medium	Integrated Transportation
T7.3	Work with the Provincial Government to promote safety of goods movement vehicles to reduce impacts on vulnerable road users	✓		RGMS	low	medium	medium	Integrated Transportation
T7.4	Investigate opening public charging for EV fleets	✓		CEVEBS	low	long	medium	Climate Action & Environment
T7.5	Encourage taxi, carshare, and ride-hailing companies to utilize EVs in their fleets	✓		CEVEBS	low	medium	medium	Climate Action & Environment, Parking Services
Strategy T8: Support more fuel-efficient, lower emission driving								
T8.1	Advocate for continual and consistent funding levels for the BC Scrap-It program to help get older, high-polluting vehicles off the road	✓			low	short	medium	Integrated Transportation
T8.2	Implement and promote education regarding Kelowna's anti-idling bylaw	✓		OCP Implementation Action #1	low	In progress	medium	Climate Action & Environment
T8.3	Implement an eco-driving campaign	✓			low	short	medium	Integrated Transportation

Action		Mitigation	Adaptation	City Plan / Policy Alignment	Resources	Timeline	Priority	Lead Dept.
T8.4	Develop and implement a Traffic Mobility Plan to identify opportunities to increase the efficiency of existing traffic flow (e.g. incident response, event management, traffic signal timing, intelligent transportation systems, etc.)	✓			low	In progress	low	Integrated Transportation
T8.5	Explore lower speed limits on local streets	✓			medium	short	high	Integrated Transportation
T8.6	Continue to support and advocate for federal and provincial rebate programs that are key to ensuring EV uptake				low	in progress	critical	Climate Action & Environment

KEY DRIVER 3

Create, Low-Emission, efficient, Resilient Buildings

Strategy B1: Support retrofits to create more efficient, low-emission, resilient residential buildings

B1.1	Expand the Home Energy Coordinator program to support homeowners pursuing energy retrofits.	✓		OCP Objective 12.5, Climate and Environment Review	moderate	in progress	high	Climate Action & Environment
B1.2	Advocate for home energy labeling and disclosure.	✓		OCP 12.5.3	low	medium	low	Climate Action & Environment
B1.3	Explore partnerships with senior governments and utilities to support programming that focuses on energy poverty.	✓		OCP 12.5.4.	moderate	short	medium	Climate Action & Environment
B1.4	Explore partnerships with senior governments and utilities to develop retrofit programs for residential rental buildings.	✓		OCP 12.5.1, 12.5.4	moderate	short	medium	Climate Action & Environment
B1.5	Support the accelerated local implementation of a provincial alterations code for existing buildings.	✓		OCP 12.5.1	high	medium	high	Climate Action & Environment, Development Services
B1.6	Leverage data and modeling to explore opportunities for targeted retrofit programming (for example for a particular archetype or neighbourhood).	✓			moderate	short	medium	Climate Action & Environment
B1.7	Continue to offer incentives for proven low-emission technologies (e.g., CleanBC heat pump top-up rebate).	✓		Climate and Environment Review	low	in progress	high	Climate Action & Environment
B1.8	Promote government, utilities and other third party retrofit financing (e.g., Greener Homes Loan Program), and other incentives for energy efficiency retrofits.	✓			low	in progress	high	Climate Action & Environment, Communications
B1.9	Investigate incentives, financing and/or education to encourage building retrofits for flood-proofing, FireSmart, and air quality measures. Consider integrating with other retrofit programs (e.g. energy retrofit programs).				high	medium	medium	Climate Action & Environment, Development Services, Development Planning, Utilities
B1.10	Work with industry to prepare for provincial highest efficiency standards for new space and water heating by 2030.	✓			moderate	medium	medium	Climate Action & Environment

Action		Mitigation	Adaptation	City Plan / Policy Alignment	Resources	Timeline	Priority	Lead Dept.
Strategy B2: Support retrofits to create more efficient, low-emission, resilient non-residential buildings								
B2.1	Promote energy benchmarking and commercial retrofit programs to encourage retrofits in the ICI sector.	✓		OCP Objectives 12.4 & 12.5, Strategic Energy Management Plan	low	in progress	high	Climate Action & Environment
B2.2	Promote utility programs that improve energy efficiency of ICI buildings.	✓		OCP Objectives 12.4 & 12.5	low	short	high	Climate Action & Environment
B2.3	Expand the local green business certification program with a focus on GHG emissions reduction and climate resilience.	✓			moderate	in progress	medium	Climate Action & Environmental Stewardship
Strategy B3: Accelerate adoption of low-emission, efficient new buildings								
B3.1	Investigate and implement policy that reduces local barriers to building to the highest Energy Step Code or Zero Carbon Step Code.	✓		OCP Policy 12.4.1	moderate	short	critical	Climate Action & Environment, Development Services, Development Planning
B3.2	Accelerate Energy Step Code and/or Zero Carbon Step Code adoption.	✓		OCP Policy 12.4.1, Climate and Environment Review	moderate	short	critical	Climate Action & Environment, Energy Management
B3.3	Collaborate with service organizations, utilities and other levels of government to promote incentives and offer training and skills around energy efficient and low-emission building practices.	✓			low	medium	low	Climate Action & Environment
B3.4	Explore policies to increase the use of mass timber in larger buildings.	✓			low	short	medium	Climate Action & Environment, Development Services, Development Planning, Energy Management
B3.5	Consider policies reduce embodied emissions in new buildings.	✓			low	medium	medium	Climate Action & Environment, Energy Management
Strategy B4: Increase the resilience of new construction to local climate hazards								
B4.1	Advocate to higher levels of government to add heat-risk reduction elements to the local building code, such as thermal insulation, roof reflectance, space cooling requirements, and shading.	✓			low	in progress	critical	Climate Action & Environment, Development Services
B4.2	Investigate policy options to integrate climate resilient roof spaces (e.g., green roof or cool roof) for buildings in neighbourhoods projected to experience increased UHIE.	✓		Climate and Environment Review	high	short	critical	Development Services, Development Planning
B4.3	Advocate to the province to include FireSmart features, (e.g., including using fire-resistant construction materials, building design) in future BC Building Code updates.				low	short	critical	Climate Action & Environment

KEY DRIVER 4

Support Low-Emission Resilient Energy

Action		Mitigation	Adaptation	City Plan / Policy Alignment	Resources	Timeline	Priority	Lead Dept.
Strategy EN1: Support the transition to low-emission energy supply								
EN1.1	Develop strategies to identify and remove barriers to participation in renewable energy programs (e.g., municipal codes, policies, and legislation).	✓		OCP 12.6.1	low	medium	medium	Climate Action & Environment, Energy Management
EN1.2	Support the identification and development of regional renewable natural gas resources, such as anaerobic digestion of food scraps, waste decomposition, etc.	✓		OCP 12.6.2	moderate	short	medium	Climate Action & Environment, Energy Management
EN1.3	Encourage the development and expansion of low-emission district heating and cooling systems.	✓		OCP 12.6.3	low	short	low	Climate Action & Environment, Energy Management
EN1.4	Reduce reliance upon fossil fuels by encouraging and advocating for small-scale and decentralized generation of renewable energy, such as solar photovoltaics, wind, and geothermal.	✓		OCP 12.6.4	low	short	medium	Climate Action & Environment, Energy Management
EN1.5	Identify opportunities to promote the inclusion of waste-heat generation or recovery, with prioritized consideration by the City for necessary utility rights-of-way.	✓		OCP 12.6.5	moderate	medium	low	Climate Action & Environment, Energy Management
EN1.6	Continue exploring development of anaerobic digestion wastewater systems and/or methane recovery systems.	✓			high	In progress	high	Utilities
Strategy EN2: Advocate for increased resilience of local energy supply								
EN2.1	Advocate to local utilities to ensure resiliency into the electricity grid to reduce disruptions.	✓			low	medium	medium	Emergency Programs
EN2.2	Collaborate with local utilities on demand-response programs to reduce peak energy demand during climate events (e.g., during a heat wave).	✓			low	medium	high	Climate Action & Environment, Energy Management, Utilities

KEY DRIVER 5

Create Complete, Compact, Resilient Communities

Strategy C1: Target growth in climate resilient Urban Centres and Core Areas								
C1.1	Embed a climate and health lens in growth management plans (e.g., urban centre planning, neighbourhood plans, etc.).	✓		OCP 12.1.2, Implementation Actions 17-24	moderate	ongoing	high	Climate Action & Environment, Development Planning, Long Range Planning
C1.2	Reinforce the pillars of the OCP with respect to growth management. Support the implementation of projects/programs that achieve growth in urban centres and core area.	✓		OCP Pillars	high	ongoing	high	Long Range Planning

Action		Mitigation	Adaptation	City Plan / Policy Alignment	Resources	Timeline	Priority	Lead Dept.
Strategy C2: Apply a climate lens to land-use planning and development policies								
C2.1	Explore targeted development regulations, form and character guidelines and public realm design principles for select Urban Centres and Transit Supportive Corridors to achieve land use, transportation and climate resiliency objectives.	✓		OCP Implementation Actions 17-24	moderate	in progress	high	Development Planning, Infrastructure Delivery, Long Range Planning
C2.2	Develop a new City-wide floodplain bylaw, using the Mill Creek Floodplain bylaw as a template, to reduce flood risk for habitable space in floodplain areas.	✓		OCP Objective 15.4, Implementation Action 67	high	short	high	Bylaw 7900 working group, Development Engineering, Development Services, Development Planning, Utilities
C2.3	Consider opportunities to adjust parking requirements and on-street parking management to support infill development.	✓		OCP 4.19.1 & 5.19.1	low	short	medium	Climate Action & Environment, Parking Services
C2.4	Consider encouraging designs for off-street parking that allow structures to be adapted for purposes other than vehicle storage in the future.	✓		OCP Objectives 4.19 & 5.19	moderate	short	medium	Climate Action & Environment, Development Engineering, development Services, Parking Services
C2.5	Incorporate climate considerations into development guidelines for building and site and develop a process to review and communicate the performance.	✓		OCP 12.1.2	moderate	in progress	high	Climate Action & Environment, Development Services, Development Planning, Policy & Planning
C2.6	Develop "Model City Climate" to inform growth management decisions.	✓		OCP 12.2.2	moderate	in progress	medium	Climate Action & Environment, Information Services
C2.7	Adopt the Wildfire DP Terms of Reference.			Community Wildfire Resilience Plan (CWRP) L4	moderate	medium	critical	Climate Action & Environment, Development Services, Development Planning, Policy & Planning
C2.8	Include/incorporate the construction and major renovation of new single-family homes on existing lots into the Wildfire DP process.			CWRP L5	moderate	long	critical	Climate Action & Environment, Development Services, Development Planning, Policy & Planning

KEY DRIVER 6

Employ Nature-Based Solutions

Action		Mitigation	Adaptation	City Plan / Policy Alignment	Resources	Timeline	Priority	Lead Dept.
Strategy N1: Protect and restore natural assets to reduce climate hazard risk								
N1.1	Continue to use restoration techniques that will reduce the impacts of flooding on shorelines during utility projects, parks planning and implementation and/or development projects. Ensure consistent resources (staff and/or monetary) are established for long-term monitoring and maintenance of restoration sites.			Mission Creek Compensation Bank	moderate	short	medium	Development Planning, Utilities
N1.2	Use the natural asset inventory and/ or other environmental data sources to identify and implement priority restoration locations to improve natural asset functions.				high	medium	medium	Capital Planning & Asset Management, Climate Action & Environment, Parks Services, Utilities
N1.3	Collaborate with other local and senior governments to develop watershed-level management plans to enhance and/or prepare natural ecosystems for changing climate conditions.				moderate	medium	medium	Capital Planning & Asset Management, Development Engineering, Utilities
N1.4	Maintain or expand the current fuel treatment program, for both forest and grass fuels, integrating with ecosystem and biodiversity objectives as was done at the McKinley Park pilot project.			CWRP V1	high	ongoing	high	Park Services
N1.5	Develop staff training programs and operational policies to support natural areas management and expand coverage by native vegetation species in parks.				moderate	medium	medium	Parks Services, Climate Action & Environment
Strategy N2: Utilize green infrastructure to improve climate resilience								
N2.1	Implement the Sustainable Urban Forest Strategy.	✓		Sustainable Urban Forest Strategy	high	ongoing	critical	Parks Services
N2.2	Investigate policy, incentives, financing and/or programming to encourage landscaping best practices for yard smart features (e.g., heat resistant, FireSmart, Water Smart, etc.).			Climate and Environment Review	high	ongoing	high	Communications, Financial Services, Parks Services, Utilities
N2.3	Explore options to encourage on-site green infrastructure in development	✓		OCP Implementation Action 16, Climate and Environment Review	high	long	high	
N2.4	Complete and implement the Parks Master Plan	✓		Parks Master Plan	high	short	high	Parks and Buildings Planning, Parks Services

Action		Mitigation	Adaptation	City Plan / Policy Alignment	Resources	Timeline	Priority	Lead Dept.
Strategy N3: Inventory, assess and monitor ecosystems and green infrastructure								
N3.1	Evaluate the services provided by Kelowna's natural assets and their contribution to reducing the impacts of climate change.				low	short	medium	Climate Action & Environment, Parks Services
N3.2	Develop and implement a strategy to monitor changes to sensitive ecosystems			OCP Implementation Action 6, Climate and Environment Review	low	short	medium	Capital Planning & Asset Management, Climate Action & Environment, Development Planning, Parks Services
N3.3	Investigate options to proactively monitor invasive species (and those harmful to humans, wildlife and domesticated animals) in natural areas, forest disturbed areas, and agricultural lands.				low	ongoing	medium	Infrastructure, Parks & Building Planning, Parks Services
N3.4	Invest in relevant data sets to give a better picture of key environmental indicators (e.g. LiDAR)			Climate and Environment Review	low	ongoing	medium	Climate Action & Environment, Parks Services
N3.5	Fund and develop a Green Infrastructure Strategy			Climate and Environment Review	low	short	medium	Climate Action & Environment, Parks Services, Capital Planning & Asset Management, Utilities
N3.6	Develop a natural environment strategy, with City responses to regional strategies			Climate and Environment Review	low	medium	medium	Climate Action & Environment, Parks Services

KEY DRIVER 7

Reduce Emissions from Waste

Action		Mitigation	Adaptation	City Plan / Policy Alignment	Resources	Timeline	Priority	Lead Dept.
Strategy WR1: Reduce waste generation and increase waste diversion								
WR1.1	Implement the regional Solid Waste Management Plan	✓		Solid Waste Management Plan	high	In progress	high	Utilities
WR1.2	Explore policies, programs and incentives to reduce construction waste with local construction associations and homebuilders associations (e.g. Canadian Home Builder's Association Central Okanagan).	✓		Climate and Environment Review	moderate	In progress	medium	Climate Action & Environment, Utilities (Landfill)
WR1.3	Collaborate with senior government and local non-profits to develop a food security program to reduce food waste, and to increase food security among vulnerable community members.	✓			moderate	in progress	medium	Climate Action & Environment, Social Development

Action		Mitigation	Adaptation	City Plan / Policy Alignment	Resources	Timeline	Priority	Lead Dept.
WR1.4	Work with the RDCO on expanding the organics program to include residential curbside food waste collection	✓			high	in progress	high	Utilities (Solid Waste Management)
WR 1.5	Advocate to senior levels of government for expansion of extended producer responsibility (EPR) initiatives	✓			low	medium	medium	Climate Action & Environment, Utilities (Solid Waste Management)
WR1.6	Collaborate with local partners (e.g., local businesses, COEDC) on circular economy programs focused on reducing waste, and reusing, recycling, and recovering materials for beneficial use.	✓		Climate and Environment Review	moderate	medium	medium	Climate Action & Environment, Utilities (Solid Waste Management), Partnership Office

KEY DRIVER 8

Increase the resiliency of infrastructure and assets

Strategy RI: Infrastructure is upgraded or adapted to withstand the impacts of a changing climate								
RI1.1	Prioritize renewal of flood-prone culverts and bridges identified in the Climate Vulnerability and Risk Assessment in the City's 10-year Capital Plan and longer-term servicing plans.				high	long	low	Capital Planning & Asset Management
RI1.2	Review the City's critical infrastructure (e.g. bridges, water and wastewater treatment plants, emergency response centers, etc.) that were identified to be at risk in the Climate Vulnerability and Risk Assessment, and retrofit to withstand climate events (e.g. wildfire, flooding, etc.).				high	long	medium	Capital Planning & Asset Management, Development Engineering, Emergency Programs, Energy Management, Infrastructure Delivery, Integrated Transportation
RI1.3	Design and retrofit public spaces (e.g. parks, public open space, etc.) with built and natural features that provide cooling, and refuge and shelter from heat and rain. Prioritize neighbourhoods with higher equity needs.	✓			high	long	medium	Climate Action & Environment, Parks & Building Planning, Policy & Planning
RI1.4	Engage a qualified professional (such as a Local FireSmart Representative) to update or complete formal FireSmart assessments of critical infrastructure within the Wildfire DP area.			CWRP D2	moderate	medium	high	Potential FireSmart Coordinator, Parks Services, Kelowna Fire Department
RI1.5	Use fire-resistant construction materials, building design and landscaping for all critical infrastructure when completing upgrades or establishing new structures.			CWRP D2	moderate	in progress	critical	Emergency Services, Risk Management, Utilities
RI1.6	Develop a plan to interconnect potable water supplies to provide resilience during climate events.				high	medium	medium	Emergency Services, Risk Management, Utilities
RI1.7	Develop a Water Shortage Management Plan for both urban and rural customers.				moderate	medium	medium	Utilities

Action		Mitigation	Adaptation	City Plan / Policy Alignment	Resources	Timeline	Priority	Lead Dept.
RI1.8	Complete and implement the Water Security and Responsibility Plan for the City of Kelowna. Collaborate with the water supply community to better understand responsibilities of the water source.			Water Security and Responsibility Plan	moderate	In progress	high	Utilities
RI1.9	Adopt a more predictable funding strategy for the City's stormwater management services (e.g., stormwater utility).				high	medium	high	

KEY DRIVER 9

Improve climate emergency preparedness

Strategy EP1: Enhance climate emergency response planning

EP1.1	Implement action 8.2 of the Community Safety Plan to "Improve planning and emergency responses for vulnerable populations (e.g., warming/cooling stations, clean air spaces, shelters and disaster response)			Community Safety Plan Action 8.2	moderate	In progress	high	S/C Lead: IH, COJHS Partners: CoK, NGOs, community at large
EP1.2	Implement the Heat Response Plan				high	ongoing	high	Risk Management
EP1.3	Ensure the hazards outlined in the Climate Vulnerability and Risk Assessment (CVRA) are incorporated into both the updated regional Hazard Risk and Vulnerability Assessment (HRVA) that is used to inform future Emergency Response Plan updates				moderate	short	high	Lead: Kelowna Fire Department Support: Climate Action & Environment
EP1.4	Collaborate with the Outreach Circle (service organizations and nonprofit groups that connect and coordinate the needs of those most vulnerable) on climate emergency response initiatives.				low	ongoing	high	Lead: Local service organizations (e.g. Interior Health) and nonprofits (e.g. Canadian Mental Health Association, Kelowna Gospel Mission), City of Kelowna (Social Development, Bylaw, KFD, Risk Management)
EP1.5	Complete, and participate in regular testing of, a wildfire incident preplan.			CWRP EP2	moderate	short	high	Emergency Programs, Kelowna Fire Department, Parks Services
EP1.6	Complete a community water delivery assessment for suppression requirements across all five water purveyors			CWRP EP4	moderate	short	high	Emergency Programs, Kelowna Fire Department, Utilities
EP1.7	Obtain additional structural protection units (SPUs) for the City.			CWRP EP7	low	short	high	Emergency Programs, Kelowna Fire Department
EP1.8	Review, update, and regularly revise a Total Access Plan. The objective of this plan is to pre-plan access to natural areas for the purposes of fire suppression and identify areas with insufficient access.			CWRP EP8	moderate	medium	high	Emergency Programs, Kelowna Fire Department, Parks Services
EP1.9	Develop community wide evacuation route planning, particularly for those neighbourhoods with limited road access for use during fires, floods or other emergencies.			CWRP EP10	moderate	short	high	Emergency Programs, Kelowna Fire Department, Parks Services

Action		Mitigation	Adaptation	City Plan / Policy Alignment	Resources	Timeline	Priority	Lead Dept.
EP1.10	Develop emergency response plans for all flood-prone creeks (i.e., Mission Creek, Mill Creek, Brandt's Creek, Bellevue Creek).				medium	medium	medium	Emergency Programs, Utilities
EP1.11	Ensure facilities used for Emergency Support Services have suitable indoor air quality, especially during wildfire/smoke events.				moderate	ongoing	high	Emergency Programs
Strategy EP2: Empower the community to be prepared for climate emergencies								
EP 2.1	Promote the provincial Smoky Skies Bulletin for the public to be notified about air quality alerts.				low	short	medium	Emergency Programs, Communication
EP 2.2	Develop programming for residents to understand indoor air quality and options for improvement.				low	short	medium	Climate Action and Environment, Integrated Transportation
EP 2.3	Collaborate to share information with the agricultural community on climate emergency response and preparedness (e.g. invasive species, fire-safe land management, and efficient water use).				low	medium	medium	Climate Action and Environment, Communications, Development Planning, Emergency Services, Utilities
EP 2.4	Offer support for residents to dispose of flammable debris and vegetation from FireSmart landscaping initiatives on private property.			CWRP V2	low	ongoing	medium	Climate Action and Environment, Communications, Development Planning, Emergency Programs, Utilities
EP2.5	Explore 'Connect & Prepare' programming that aims to develop social connections and shared emergency preparedness				moderate	medium	medium	Climate Action and Environment, Communications, Emergency Programs

KEY DRIVER 10

Demonstrate Corporate Climate Leadership

Strategy CL1: Incorporate Indigenous Knowledge in Climate Action Initiatives								
CL1.1	Engage and/or partner with the syilx/Okanagan people to work towards respecting and applying Indigenous knowledge and practices in climate initiatives.	✓			moderate	ongoing	high	Climate Action & Environment, Cultural Services
Strategy CL2: Incorporate a Climate Lens into municipal governance and operations								
CL2.1	Integrate climate change considerations into asset planning (e.g., 2040 Infrastructure Plan, Natural Asset Planning, etc.) and capital and operating budgets.	✓		Strategic Energy Management Plan, Climate and Environment Review	high	ongoing	critical	Climate Action & Environment, Capital Planning & Asset Management, Financial Services, Policy & Planning

Action		Mitigation	Adaptation	City Plan / Policy Alignment	Resources	Timeline	Priority	Lead Dept.
CL2.2	Expand dedicated staff and financial resources to implement climate policies, projects and plans.	✓		Strategic Energy Management Plan	high	ongoing	high	Climate Action & Environment, Capital Planning & Asset Management, Communications, Development Engineering, Development Services, Development Planning, Fleet Services, Parking Services, Parks & Building Planning, Parks Services, Policy & Planning, Social Development, Utilities, Energy Management
CL2.3	Develop tools and resources for staff to apply a climate lens in their work.	✓		Strategic Energy Management Plan, Climate and Environment Review	low	ongoing	high	Climate Action & Environment, Energy Management
CL2.4	Create a cross-departmental climate/sustainability team to collaborate and champion the implementation of policies, projects and plans that will address climate change.	✓			low	short	medium	Climate Action & Environment, Energy Management
CL2.5	Account for the hazards outlined in the Climate Vulnerability and Risk Assessment in the City's Enterprise Risk Management Program	✓		Enterprise Risk Management Program	low	short	high	Risk Management
CL2.6	Revise community GHG emissions reduction targets in the 2040 OCP, informed by the CRKS.	✓		2040 Official Community Plan	low	short	high	Climate Action & Environment, Long Range Planning
CL2.7	Review and update the CRKS in 2030	✓			moderate-high	long	critical	Climate Action & Environment
Strategy CL3: Decarbonize City assets and operations								
CL3.1	Implement the Strategic Energy Management Plan to demonstrate leadership by the City of Kelowna in reducing GHG emissions.	✓		Strategic Energy Management Plan	high	ongoing	high	Energy Management
CL3.2	Amend sustainable procurement policy to put a larger emphasis on climate in a variety of procurement situations.	✓		Sustainable Procurement Policy, Strategic Energy Management Plan	low	short	medium	Climate Action & Environment, Energy Management, Purchasing
CL 3.3	Continue to implement the Green Fleet Strategy to decarbonize the City's Corporate Vehicle Fleet	✓		Green Fleet Strategy, Strategic Energy Management Plan	low	ongoing	high	Fleet Services, Energy Management

Action		Mitigation	Adaptation	City Plan / Policy Alignment	Resources	Timeline	Priority	Lead Dept.
Strategy CL4: Empower the community to take climate action								
CL4.1	Create a Community Working Group composed of local residents, businesses, and other interest holders to collaborate on CRKS implementation and act as ambassadors for community climate action.	✓			low	short	high	Climate Action & Environment
CL4.2	Collaborate with other organizations (e.g. educational, utilities, etc.) to host public demonstrations of retrofit projects to share information about results and payback.	✓			moderate	medium	low	Communications, Energy Management, Climate Action & Environment
CL4.3	Educate the community about water security, and the importance of responsible use of water. Collaborate with the water supply community or consistent messaging.	✓			moderate	medium	low	Communications, Utilities
CL4.4	Offer and/or deliver educational programs to support climate action at the household level (e.g., home retrofits, FireSmart, climate resilient landscaping, low-emission transportation options, etc.)	✓			moderate	short	high	Climate Action & Environment, Communications
CL4.5	Continue to support the Regional Air Quality Program by developing a new Regional Air Quality Plan and implementing local initiatives (e.g., Lawn Swap Go Electric Rebate Program, Community Wood Smoke Reduction Program)	✓		Regional Clean Air Strategy	moderate	in progress	medium	Climate Action & Environment, Communications

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