Community Energy & Emissions Plan

Town of Oliver, March 2024

Town of Oliver
CANADA'S WINE CAPITAL

Community Energy Association

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Acknowledgements

The Community Energy and Emissions Plan (CEEP) was developed by the Town of Oliver in collaboration with the Community Energy Association (CEA). We would like to acknowledge the many individuals and organizations who participated in the development of this Plan.

Glossary

AAA	All Ages and Abilities
ALR	Agricultural Land Reserve
BAU	Business as Usual
CEEI	Community Energy and Emissions Inventory
CEEP	Community Energy and Emissions Plan
CLIC	Community Lifecycle Infrastructure Costing tool
CSMI	Commercial and Small Medium Industrial
DCC	Development Cost Charges
DCFC	Direct Current Fast Charge
EV	Electric Vehicle
GHG	Greenhouse Gas
GJ	Gigajoule
IPCC	Intergovernmental Panel on Climate Change
kWh	Kilowatt hour
MURB	Multi Unit Residential Building

OCP	Official Community Plan
RDOS	Regional District of Okanagan-Similkameen
tCO_2e	Tonnes of carbon dioxide equivalent
VKT	Vehicle Kilometers Travelled
ZEV	Zero Emissions Vehicle

Executive Summary

The Town of Oliver Community Energy and Emissions Plan (CEEP) carves a path towards a low carbon future: A future where Oliver residents experience the benefits of a connected, healthy, and economically prosperous community while taking action on climate change and adapting to climate impacts.

The climate is changing in British Columbia (BC) and globally. The average global temperature has already increased by 1 degree Celsius (°C) above pre-industrial levels. The United Nations Intergovernmental Panel on Climate Change (IPCC) is urging a limit of 1.5°C warming, which would require global emissions to be net-zero by 2050.

The Town of Oliver CEEP focuses on leveraging municipal powers to help residents, businesses, and visitors save energy, emissions, and money. It is residents and businesses in the Town of Oliver that have the biggest role: a significant reduction in community greenhouse gas (GHG) emissions depends on their individual choices about how to get around, where to live, and how to handle food waste and yard material. The Plan lays out actions for transportation, buildings, waste, and organizational readiness. Actions fall into three categories:

- **Infrastructure**: Investments into Oliver owned infrastructure that enables residents and businesses to make lower-emissions choices, such as active transportation networks and public charging stations.
- **Policy**: Changes to Oliver policies and regulations that lead to energy and emission reductions in the community, such as requirements and incentives for enhanced energy efficiency in new buildings.
- **Engagement**: Outreach, education and incentives that inspire residents and businesses to make choices to reduce energy and emissions and prepare for a low carbon future.

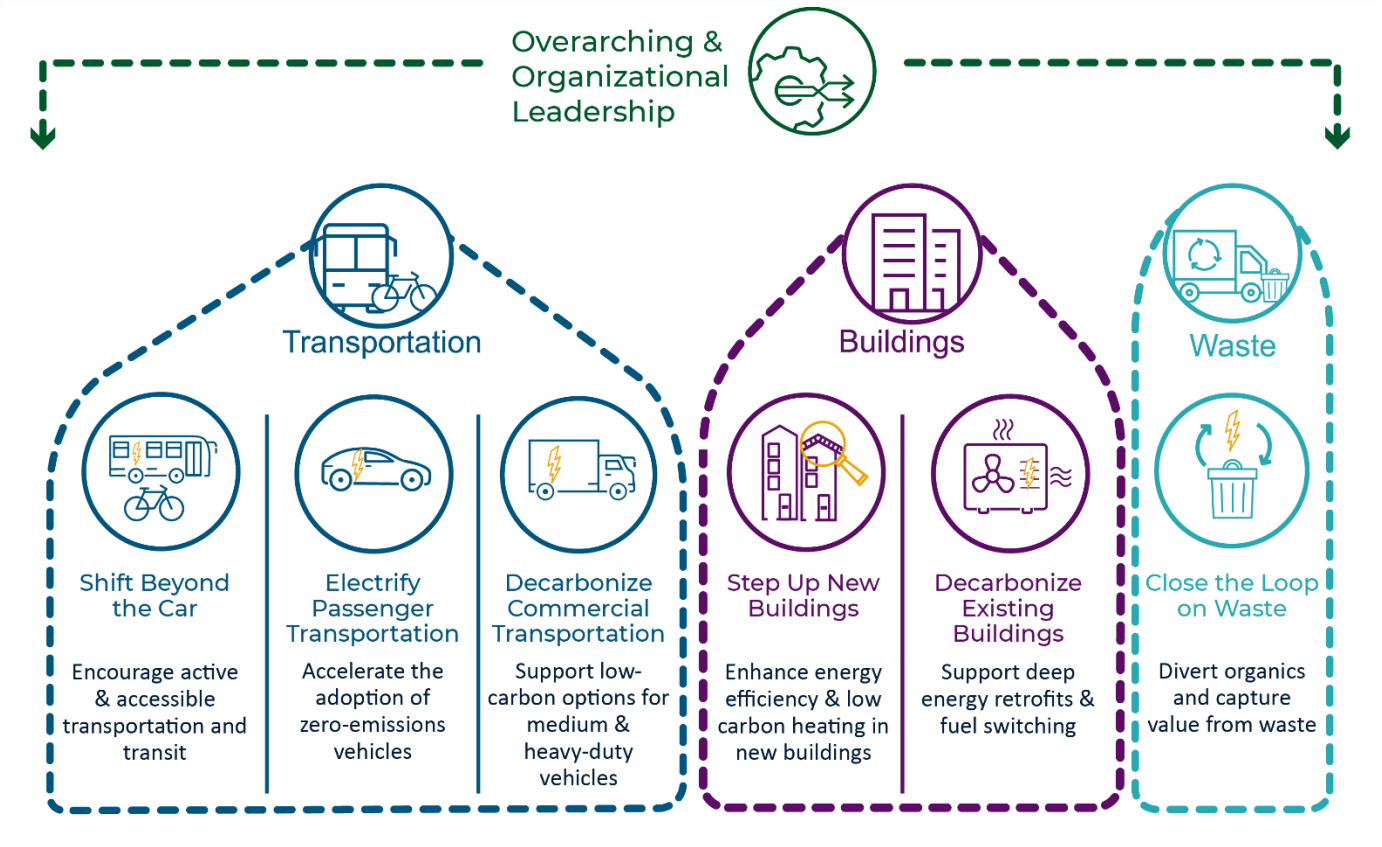
The purpose of this Plan is to outline a practical approach for Town of Oliver to use its municipal powers to help residents and businesses save energy and, by doing so, save money and reduce greenhouse gas emissions.

Town of Oliver Community Greenhouse Gas Reduction Target

40% reduction from 2007 levels by 2030 and 80% reduction by 2050

The Big Moves

The six Big Moves are broad categories of actions that have the biggest impact on reducing emissions in the community. The Big Moves focus on the types of emissions that are most in control of the local government and that are measured in the emissions inventory. The CEEP lays out strategies and actions under each of the six Big Moves



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There is one more important category of actions – Organizational Leadership. This "seventh Big Move" is very important because it ensures that climate action becomes a part of regular decision-making and operational process within Oliver. Page 58

Our Community's Low Carbon Vision

During the CEEP planning process, community stakeholders went through a visioning exercise called "backcasting" to imagine what a low carbon future for the Town of Oliver could look like. We chose 2040 as our visioning year to allow for a slightly longer time horizon than 10 years but short enough to imagine the changes happening.

In 2040, emissions in the Town of Oliver will be reduced by about 60%. The water and the air we breathe will be cleaner and natural systems will be thriving. In 2040, you will walk out the front door into a liveable community where concrete has dwindled and natural spaces are abundant. A variety of new mobility services are available to support the needs of all residents and visitors. Congestion is reduced and you arrive at your destination more efficiently. You can also choose to travel by e-bike, scooter or zero-emission public transit.

The air in Oliver is cleaner because there are far fewer cars on the street and most are electric. There is less noise and much more space for parks and pedestrian-only streets as active and alternative transportation has been prioritized.

People are trying out new types of living arrangements with more shared functions and spaces. More houses are built with wood, which makes them better for the climate as they have less embodied carbon than concrete buildings.

In addition to this community vision, workshop participants defined success for each major sector of community emissions:

The Future of Transportation	The Future of Buildings	The Future of Waste
The main modes of transportation for residents and tourists are safe active transport or electric public transport, followed by personal EVs.	Our community's buildings have solar PV systems, are exceptionally energy efficient, and powered, heated and cooled with 100% renewable energy. The highest level of the Zero Carbon Step Code is implemented, and nature-based solutions, such as trees for cooling, are in place.	Our community diverts all organic waste for either composting or biogas generation, and reuses and recycles all other waste.

Current Energy, Emissions and Costs by Sector

The current state of energy, emissions and expenditure is shown in the chart below for each sector. The most recent inventory year is 2019. In 2019, for the whole community of Oliver:

- Total energy consumption was 1,126,865 GJ
- Total GHG emissions were 55,607 tonnes of CO_2e
- Total energy expenditures were $33,931,048

Passenger vehicles account for 41% of Oliver's emissions and commercial buildings account for 21%. Commercial vehicles account for 15% of emissions, residential buildings account for 12%, and decomposition of waste in landfill accounts for 10%. In 2019, Oliver residents spent over $13 million at the gas station to fuel their personal vehicles and $5.3 million on home energy. Oliver businesses also had significant fuel costs, spending nearly $16 million on mobility fuels and building energy. Most of this money leaves the community.

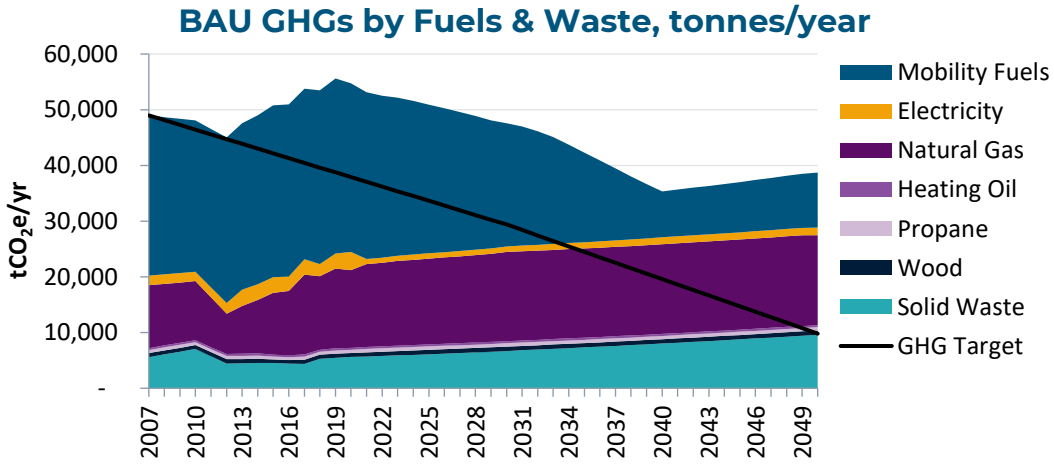
Understanding where we're starting from is just as important as knowing where we want to get to. After visioning, the next phase of the "backcasting" approach identifies our starting point – the current state. Participants identified the current state of buildings, transportation, and waste in Oliver.

The Town of Oliver is a small community, home to just over 5,500 residents, growing at a rate of 1.8%. The majority of residential buildings are single-family homes, but there are also a number of row homes and low-rise apartment buildings.

Nearly 90% of residents get around by car and truck, however, Oliver is working to improve active transportation options as part of their Active Transportation, Downtown Beautification, and Wayfinding plan. BC Transit also operates a public transit route from Osoyoos to Penticton with two stops in Oliver. The Town has 13 level 2 electric vehicle charging stations and one fast charging (level 3) station. Residential garbage and recycling pickup is provided year-round by the Town, while yard waste is collected from March to November.

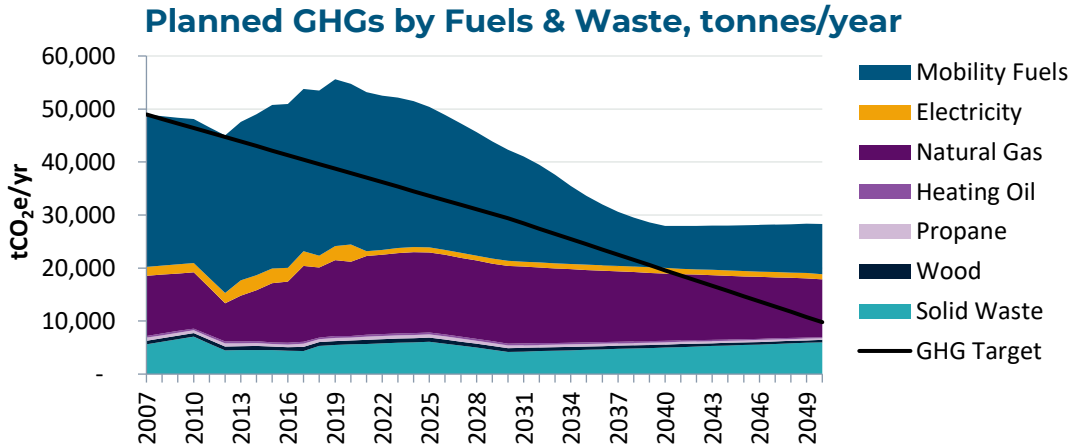
Working Towards our Future Vision and Target

This CEEP carves a pathway towards our low carbon vision and emissions reduction target of 40% below 2007 levels by 2030. The two graphs below compare the business as usual scenario with the fully implemented plan scenario.



Business as Usual

The Business as Usual (BAU) scenario shows anticipated GHG emissions reductions due to policy commitments made by the Government of Canada and Province of BC. It is anticipated that emissions will reduce by 1,389 tonnes CO_2e or 3% below 2007 levels in 2030 under a BAU scenario.



Full Implementation

By fully implementing this plan, emissions could be reduced by 6,679 tonnes CO_2e or 14% below 2007 levels in 2030 and 21,009 tonnes CO_2e or 43% in 2040.

Implementation Plan Summary

Big Move	Strategy	Timeframe		
		Short	Med	Long
Shift Beyond the Car 	**SHIFT 1: Optimize land use planning tools to enable complete and compact community growth**			
	SHIFT 1.1 – Optimize & apply policies and bylaws for complete & compact community growth			
	SHIFT 1.2 – Create a complete and connected community through local amenities			
	SHIFT 1.3 – Activate public spaces and program civic amenities			
	SHIFT 1.4 – Create a complete community through local housing choice			
	SHIFT 1.5 – Create a complete community with local businesses			
	SHIFT 1.6 – Support a vibrant and pedestrian/cycling oriented downtown			
	SHIFT 1.7 – Promote local food security			
	SHIFT 1.8 – Protect and steward the natural environment			
	SHIFT 1.9 – Plan to adapt and build community resilience			
	SHIFT 2: Increase walking, cycling and other forms of zero emission mobility			
	SHIFT 2.1 – Enable active transportation through plans and policies			
	SHIFT 2.2 – Build safe routes for walking, cycling and other forms of zero emission mobility			
	SHIFT 2.3 – Develop and deliver an active transportation outreach strategy			
	SHIFT 2.4 – Promote cycling and e-bikes as a fun & viable way to traverse Oliver			
	SHIFT 2.5 – Investigate micro e-mobility and on-demand mobility services			
	SHIFT 3: Increase transit ridership and support a transition to a zero emissions transit network			
	SHIFT 3.1 – Collaborate with BC Transit and neighbouring municipalities to promote transit ridership			
	SHIFT 3.2 – Encourage BC Transit to transition to a carbon-reduced/zero emissions transit network			
	GHG emissions reductions for this Big Move in 2030	**411 tCO_2e**		

Electrify Passenger Transport 	**ELECTRIFY 1: Enable charging on-the-go**			
	ELECTRIFY 1.1 – Design, seek grants and expand the public EV charging network			
	ELECTRIFY 2: Enable charging at home and work			
	ELECTRIFY 2.1 – Encourage & consider adopting EV-ready building requirements			
	ELECTRIFY 2.2 – Enable EV charging in existing residential and commercial buildings			
	ELECTRIFY 3: Encourage EVs through outreach and supportive policies			
	ELECTRIFY 3.1 – Develop and deliver an EV outreach strategy			
	ELECTRIFY 3.2 – Accelerate EV adoption through supportive policies and incentives			
	GHG emissions reductions for this Big Move in 2030	**760 tCO_2e**		
Decarbonize Commercial Transport 	**COMMERCIAL 1: Accelerate the adoption of ZEVs for commercial fleets**			
	COMMERCIAL 1.1 Encourage businesses to adopt commercial ZEV infrastructure			
	COMMERCIAL 1.2 Engage Commercial and Industrial Stakeholders			
	COMMERCIAL 2: Lead by example by transitioning Oliver's municipal fleet			
	COMMERCIAL 2.1 – Adopt a municipal fleet replacement policy that prioritizes EV and low carbon options for replacing Oliver's municipal fleet over time.			
	GHG emissions reductions for this Big Move in 2030	**Minimal reductions[1]**		

[1] While local governments have less influence over commercial vehicles, and therefore less potential to reduce emissions, this sector is responsible for 15% of emissions in the community and should be a part of Oliver's planning considerations.

Step Up New Buildings 	**NEW BUILDINGS 1: Adopt the Energy Step Code with a low carbon approach**			
	NEW BUILDINGS 1.1 – Adopt the Energy Step Code			
	NEW BUILDINGS 1.2 – Encourage a low-carbon approach to the Energy Step Code			
	NEW BUILDINGS 2: Build Industry Capacity			
	NEW BUILDINGS 2.1 – Provide leadership, outreach, and guidance regarding the Energy Step Code			
	NEW BUILDINGS 2.2 – Review and integrate Energy Step Code information into permitting processes			
	GHG emissions reductions for this Big Move in 2030	**388 tCO_2e**		
Decarbonize Existing Buildings 	**EXISTING BUILDINGS 1: Improve Energy Efficiency and Enable Fuel Switching**			
	EXISTING BUILDINGS 1.1 – Encourage and enable deep energy retrofits			
	EXISTING BUILDINGS 1.2 – Encourage and enable building electrification			
	EXISTING BUILDINGS 2: Build Industry Capacity and Increase Demand			
	EXISTING BUILDINGS 2.1 – Establish a long-term education campaign by linking to and promoting Better Homes BC and Better Buildings BC			
	EXISTING BUILDINGS 2.2 – Build industry capacity			
	GHG emissions reductions for this Big Move in 2030	**1,457 tCO_2e**		

Close the Loop on Waste 	**WASTE 1: Divert Waste & Organics from Landfill**			
	WASTE 1.1 – Adopt policies that increase organics diversion			
	WASTE 1.2 – Encourage back-yard composting & support future regional organics collection and processing			
	WASTE 1.3 – Collaborate on a regional comprehensive zero-waste outreach program with the RDOS			
	GHG emissions reductions for this Big Move in 2030	**2,509 tCO_2e**		
	Total Plan Reductions Relative to Business as Usual in 2030	**5,525 tCO_2e**		

Introduction

Municipal Commitment

The Town of Oliver, like most communities across British Columbia, is responding to climate change. The Town of Oliver signed on to the BC Climate Action Charter, which is a voluntary agreement between the Province of British Columbia, the Union of B.C. Municipalities, and individual local government signatories. Local governments commit to:

- Carbon neutrality in corporate operations;
- Measure and report their corporate greenhouse gas emissions; and
- Create complete, compact, and more energy-efficient communities.

Provincial legislation – the Local Government (Green Communities) Statutes Amendment Act (Bill 27, 2008) – also requires that each local government establish targets, plans, and strategies to do their part to mitigate climate change. Having an up-to-date plan such as this Community Energy and Emissions Plan (CEEP) helps with this, and also makes the Town of Oliver ready to apply for funding from the Federal or Provincial governments and other funders to implement strategies in the plan.

Implementing the plan will result in numerous social, economic and environmental benefits to the community, as outlined in Figure 1.

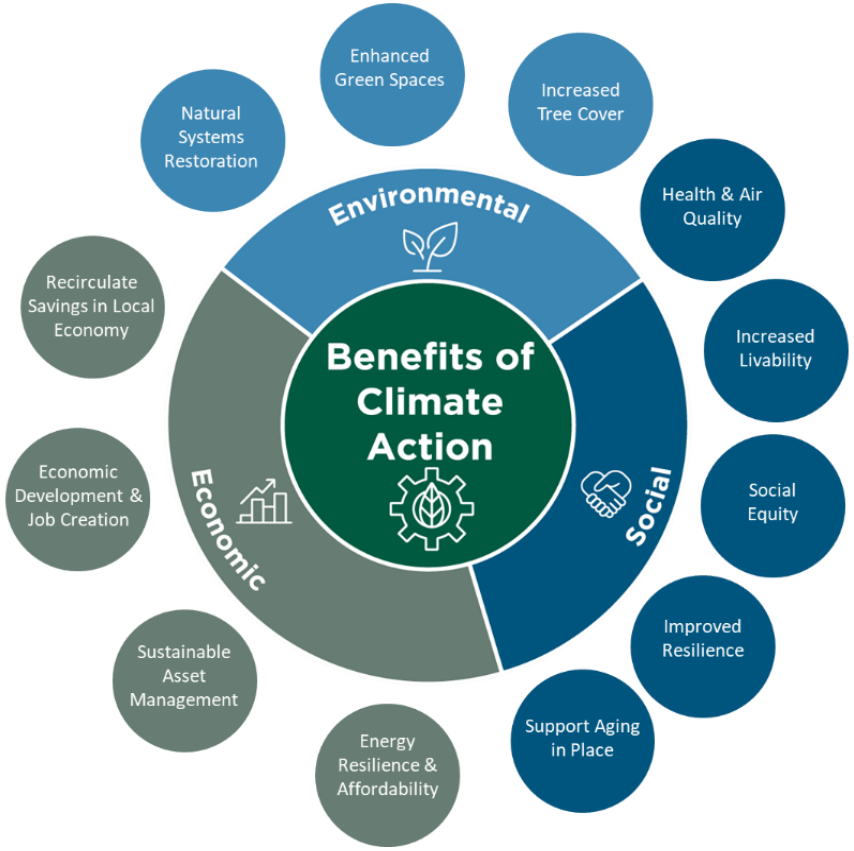


Figure 1 - Climate Action Co-Benefits

What is the Community Energy and Emissions Plan?

Climate action consists of both reducing emissions, or *mitigation*, and preparing for the impacts of a changing climate, *or adaptation*. This Community Energy and Emissions Plan (CEEP) is an important component of a local government's overall climate action strategy, which should also include a plan to address emissions from the local government's own operations and a climate adaptation plan. This scope of this plan includes the elements on the left of Figure 2 which are mitigation, territorial emissions, and community emissions.

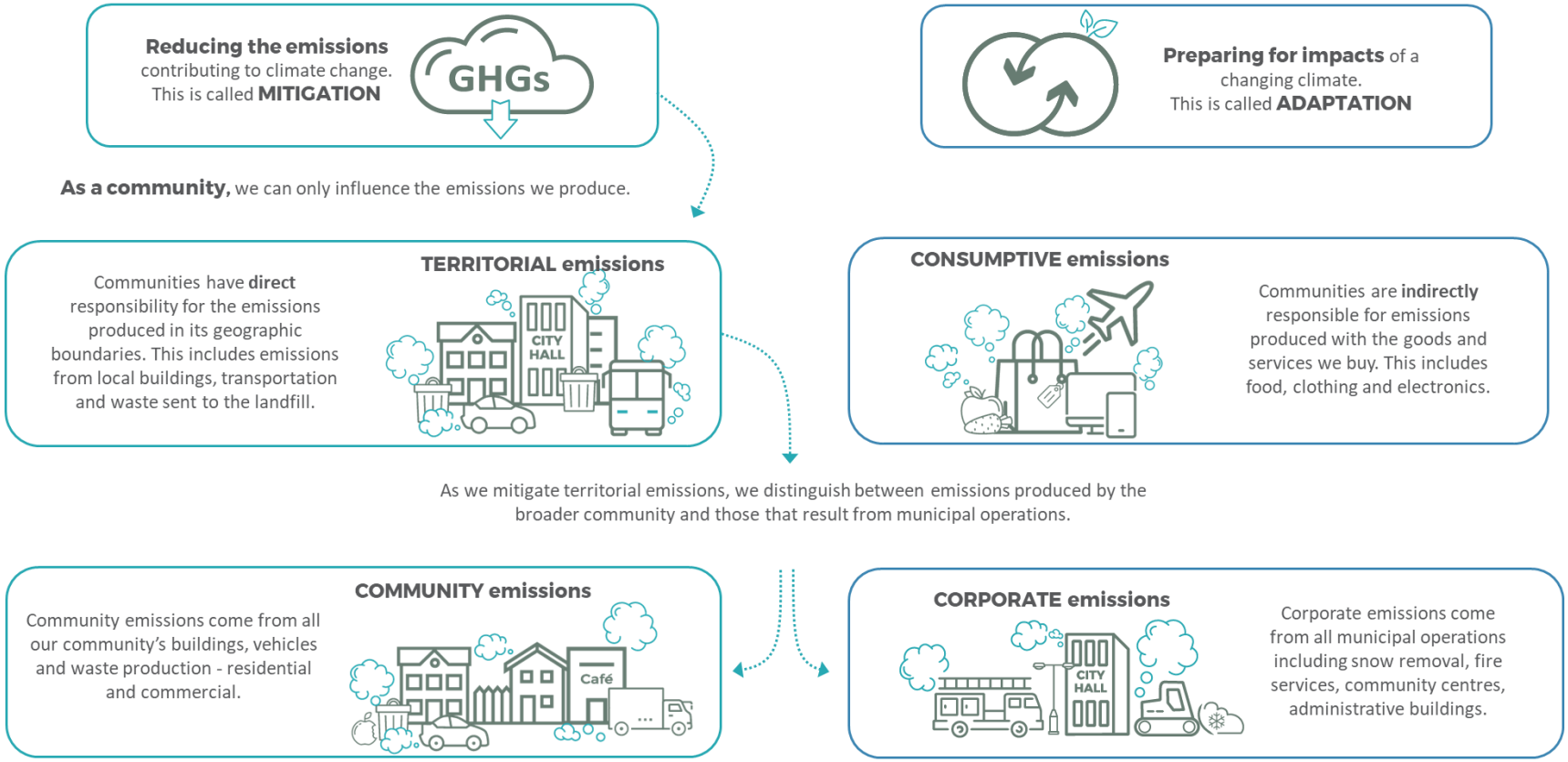


Figure 2 - Local Government Climate Action

The Town of Oliver CEEP focuses on leveraging municipal powers to help residents and businesses save energy, emissions, and money. It is residents and businesses in Oliver that have the biggest role: a significant reduction in community greenhouse gas (GHG) emissions depends on their individual choices about how to get around, where to live, and how to handle food waste and yard material. The Plan lays out actions across 7 Big Moves for transportation, buildings, waste, and organizational readiness.

Shift Beyond the Car	Electrify Passenger Transportation	Decarbonize Commercial Transportation	Step Up New Buildings	Decarbonize Existing Buildings	Close the Loop on Waste	Organizational Leadership
						

Actions fall into three categories of municipal powers:

Infrastructure	Policy & Regulation	Engagement & Outreach
Investments into the Town of Oliver owned infrastructure that enable residents to make lower-emissions choices, such as active transportation networks and public charging stations.	Changes to Town of Oliver policy and regulation that lead to energy and emission reductions in the community, such as requirements and incentives for enhanced energy efficiency in new buildings.	Outreach, education and incentives that inspire residents and businesses to make choices to reduce energy and emissions and prepare for a low carbon future.

Targets for Reducing Our Emissions

Community targets show the urgency of the challenge we are facing and the call to action to reduce our GHG emissions. Oliver's 2030 and 2050 community target is aligned with the Provincial government target.

To meet our 2030 target, Oliver needs to produce at least 19,590 fewer tonnes of greenhouse gasses in a year as compared to 2007. The actions in this plan are projected to achieve emission reductions of 6,667 tonnes CO_2e by 2030 below 2007 levels, if fully implemented. In the business as usual scenario, Oliver will produce just 1,389 fewer tonnes of greenhouse gasses in a year, relative to 2007.

Our community targets are:

- **40% reduction in GHG emissions below 2007 levels by 2030**
- **80% reduction in GHG emissions below 2007 levels by 2050**

Inventories: What is measured in this plan?

Local governments have varying degrees of influence over different sources of emissions within their boundaries. Our emissions come from both 'local' sources (emissions that are created here) and 'global' sources from local consumption (emissions that include everything from the extraction of raw materials through to processing and transport as well as emissions that may be counted elsewhere but are still ultimately our emissions).

Oliver's GHG reduction target references only local (territorial) emissions. These emissions are measured in the Energy and Emissions Inventory using the BC Methodological Guidance for Quantifying GHG Emissions. The major categories of emissions included in this inventory are: buildings (residential and commercial), transportation (passenger and commercial) and waste.

This plan does not comprehensively address embodied carbon (the emissions associated with creating something), or life cycle emissions (how many GHGs are emitted over the lifetime of an energy source or object). This is outside of the scope of what municipalities can meaningfully address currently, but is important for everyone to think about when they are buying goods or services. How was your item created, how far did it travel, how is it packaged? These are all important questions to consider when buying consumer goods.

Current Energy, Emissions and Costs by Sector and Fuel Type

Figure 3 shows energy consumption, GHG emissions and energy expenditure by sector in 2019.

The sectors are;

- Passenger vehicles
- Commercial vehicles
- Residential buildings
- Commercial and small-medium industrial buildings (CSMI)
- Waste

In 2019, for the whole community of Oliver;

- Total energy consumption was 1,126,865 GJ
- Total GHG emissions were 55,607 tonnes of CO_2e
- Total energy expenditures were $33,931,048

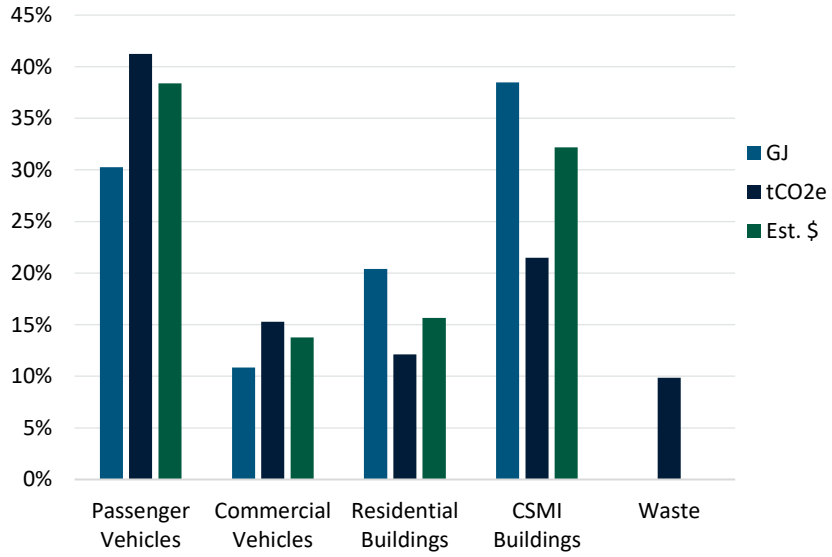


Figure 3 - Current Energy, Emissions and Costs by Sector

Passenger vehicles account for 41% of Oliver's emissions and commercial buildings account for 21%. Commercial vehicles account for 15% of emissions, residential buildings account for 12%, and decomposition of waste in landfill accounts for 10%.

Passenger vehicles and commercial buildings are also responsible for the majority of energy expenditures in Oliver for a combined 70%. This is the money spent by Oliver residents at the pump filling the tank of their personal vehicles, which can be a financial burden for many people, and Oliver businesses powering and heating their buildings. The remaining money is spent on residential energy consumption (16%) and commercial vehicles (14%). Almost all of this money spent by residents and businesses leaves the community.

Waste has no energy consumption or expenditure associated with it in this inventory, as once in a landfill it is only a source of emissions. Buildings and vehicles use various fuel sources such as natural gas, electricity, gasoline and diesel which cost money to purchase and contain a certain amount of energy. Waste does not use any fuel sources, but its decomposition in a landfill does result in GHG emissions.

Figure 4 shows Oliver's energy expenditures and emissions in 2019 in terms of fuel source rather than sector. Looking at emissions and expenditures in this way can reveal some interesting trends.

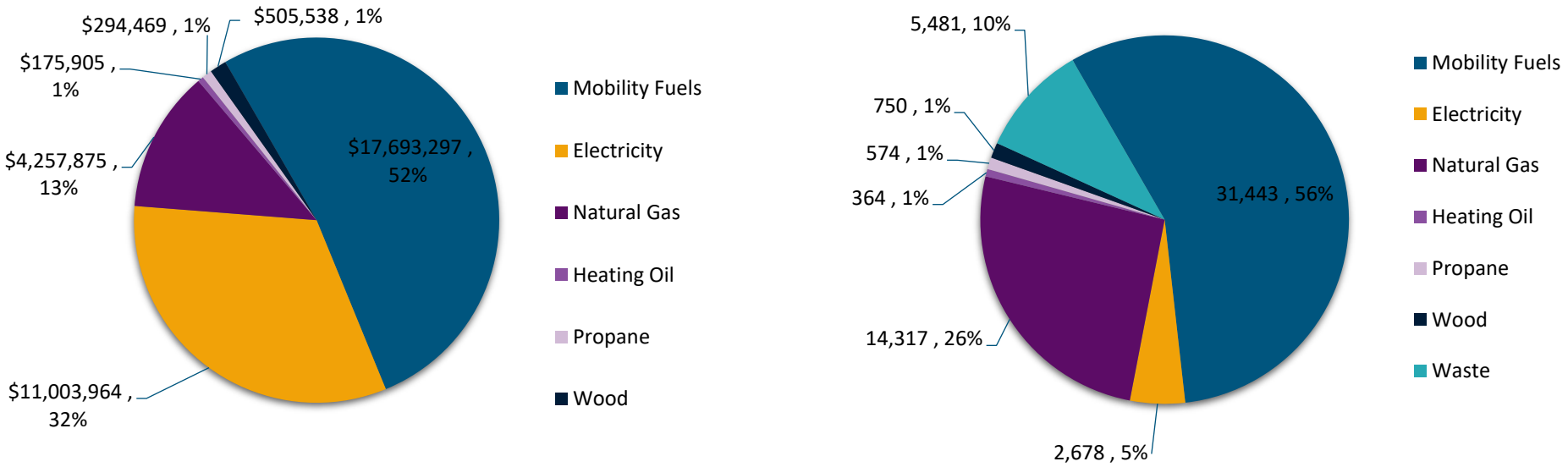


Figure 4 - Energy Expenditures ($) and Emissions (tonnes CO_2e) by Fuel Type

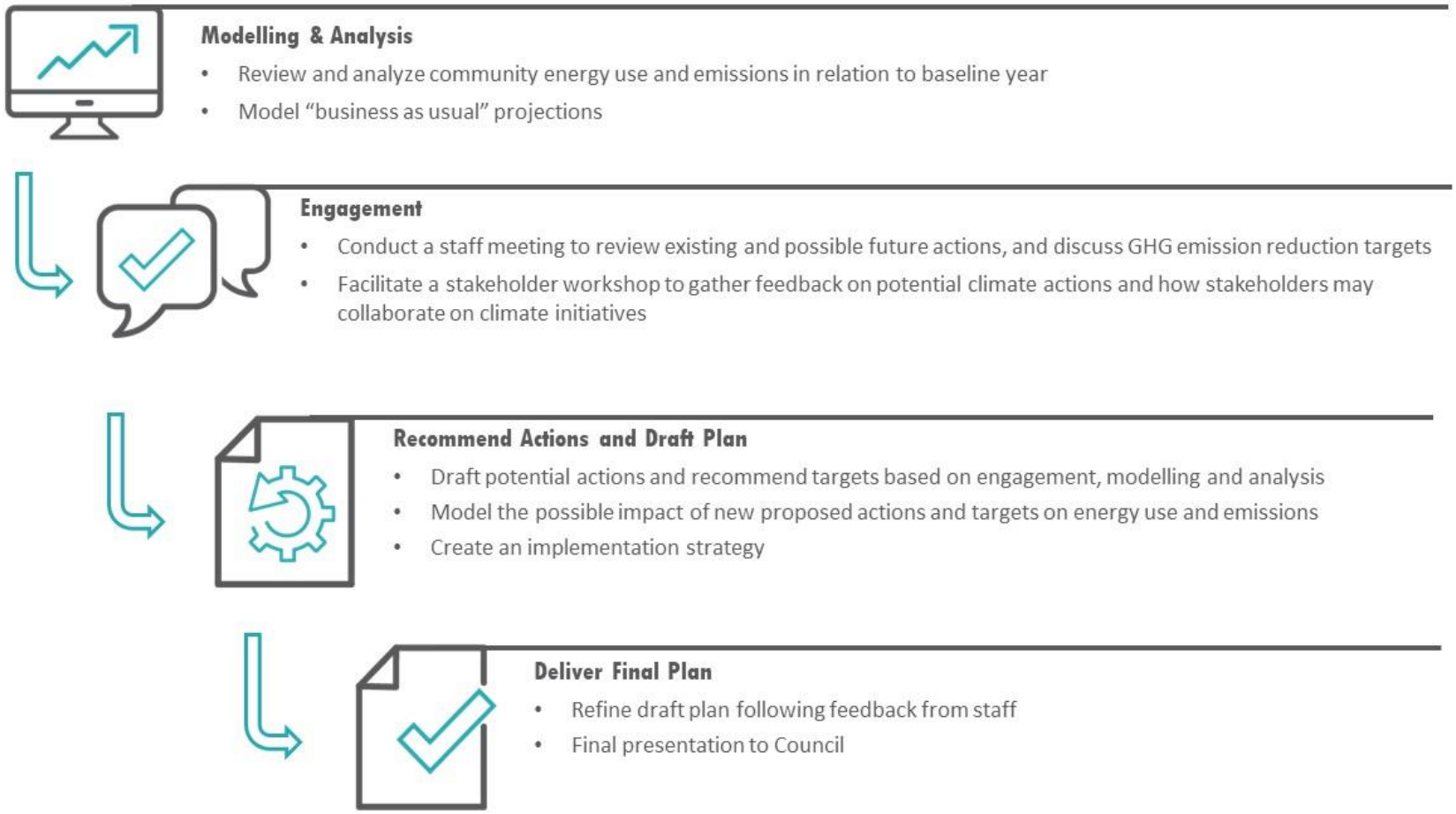
Natural gas and electricity are primarily used in buildings, both residential and CSMI. Small amounts of these fuels may be used in other sectors, such as commercial transportation (natural gas) and passenger vehicles (electricity for EV's). Natural gas contributes 26% of community emissions whereas it accounts for only 13% of the expenditures. On the other hand, electricity contributes only 5% of community emissions but accounts for 32% of expenditures. Heating oil, propane and wood account for less than 5% of emissions and expenditures combined because they are not the main source of energy in most buildings.

Gasoline and diesel are mobility fuels. These are the fuels that we use to power our personal vehicles and most commercial vehicles. They contribute 56% of total community emissions and account for 52% of energy expenditures.

The decomposition of waste in landfill contributes 10% of total emissions in Oliver. There is no energy cost associated with waste.

Process

The development of the Oliver Community Energy and Emission Plan followed the process outlined in the infographic below.



Backcasting and Forecasting

There were two different approaches used in the development of the Oliver CEEP: Forecasting and Backcasting. Forecasting is a common approach used to create estimates of future emissions using current inventory data and projections. Backcasting, on the other hand, starts by imagining the desired future scenario that is not limited by current projections or past experience. Used in combination, these two approaches provide us with a clear positive vision of the future and a measurable plan to start us on the pathway to our destination.

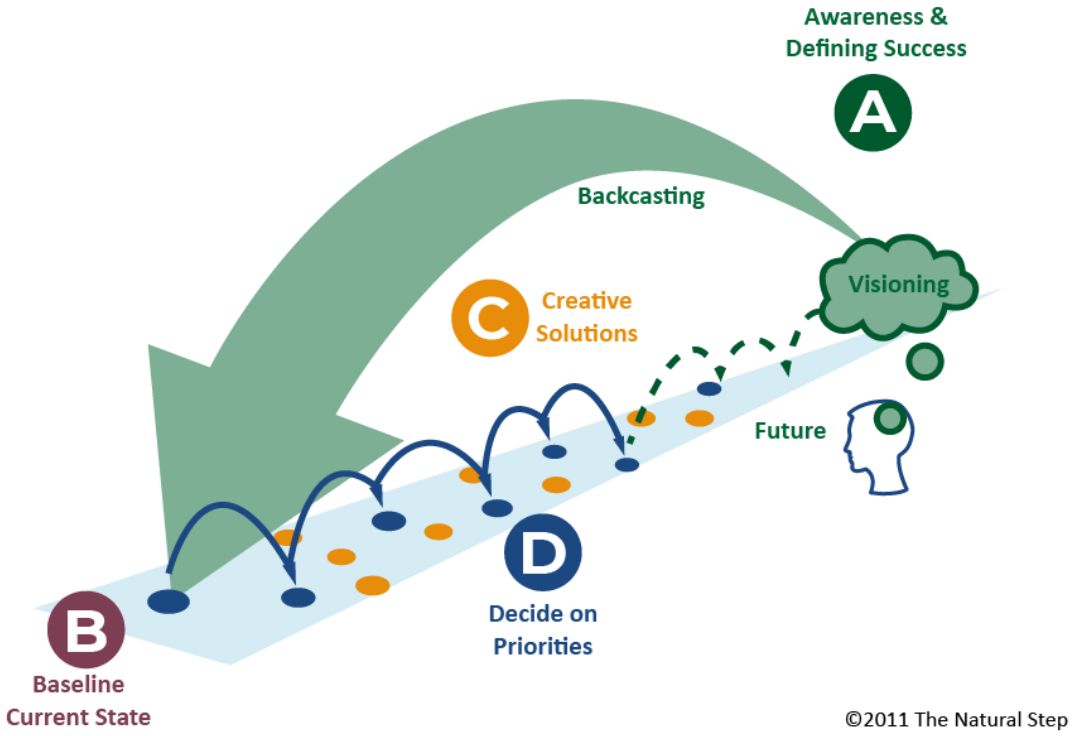
Backcasting Approach: Envisioning our Future

Backcasting is a planning approach that starts by defining the future vision before working backwards to identify and prioritize creative solutions to reach that desired future

The concept of "backcasting" as used in this planning processes was developed by the Natural Step.

During the workshop, Oliver staff and stakeholders:

- **Developed a vision of their desired low carbon future, focusing on three sectors: transportation, buildings, and waste.**
- **Identified the current state of the sectors.**
- **Brainstormed creative solutions to complement the Big Moves.**
- **Prioritized the solutions.**



Forecasting Approach: Inventory and Modelling

What does 'Business As Usual' mean?

Business As Usual, or BAU, is a way of describing what is estimated to happen to Oliver's emissions if the Town takes no further action to decrease emissions beyond what it is already doing and plans to do. A number of factors are taken into account to develop BAU emissions scenarios, population growth being one of the most important considerations. As the number of people increase in a community, more buildings are needed/used and more vehicles are driven on roads.

Other considerations that were taken into account to develop Oliver's BAU emissions scenario for this report include the following:

- Changing climate patterns— as warmer winters and hotter summers occur, they are and will continue to change the way that energy is consumed in buildings
- Likely future impacts of policies already adopted by other orders of government, such as:
    - Renewable and low carbon fuel standards
    - Vehicle tailpipe emissions standards
    - Zero-Emission Vehicle (ZEV) mandate as part of the CleanBC Plan, requiring 10% of new vehicle purchases by 2025 as ZEVs, 30% by 2030, and 100% by 2035
    - The greening of the BC Building Code ready buildings by 2032 (progressive steps towards net zero energy)

Figure 5 and 6 show Oliver's GHG emissions inventory from 2007-2019 and its BAU forecast from 2020-2050, split by sector, and by fuels & waste.

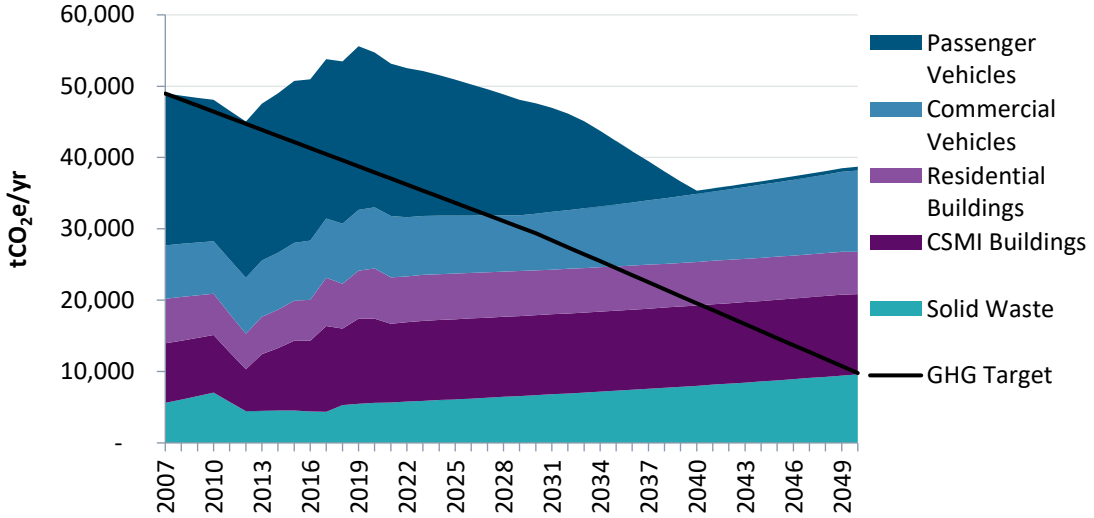


Figure 5 - Business As Usual GHG Emissions by Fuel Type

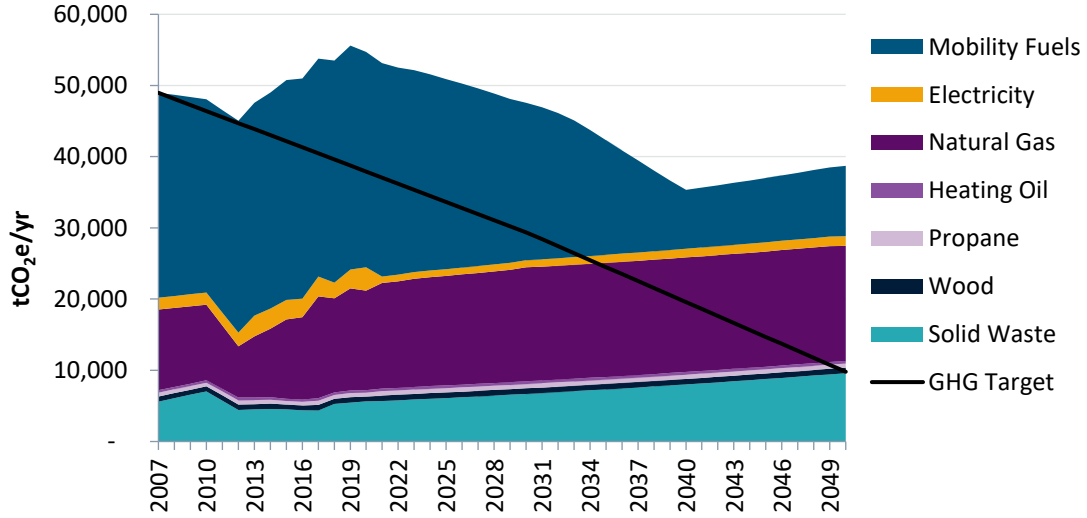


Figure 6 - Business As Usual GHG Emissions by Sector

Forecasted Emissions Reductions

Figure 7 shows the modelled emissions reduction by Big Move, relative to the BAU. If all Big Moves are implemented in Oliver to the degree outlined in this Plan, GHG emissions in 2030 could be reduced by 6,679 tonnes CO2e or 14% below 2007 levels. In 2040, emissions could be reduced by 21,009 tonnes of CO_2e, or 43% below 2007 levels. Even though the emissions reduction targets are not met, these actions will put Oliver on the right trajectory in the short-term, and it is anticipated that new technologies will become available in the future which will enable Oliver to achieve the long-term target.

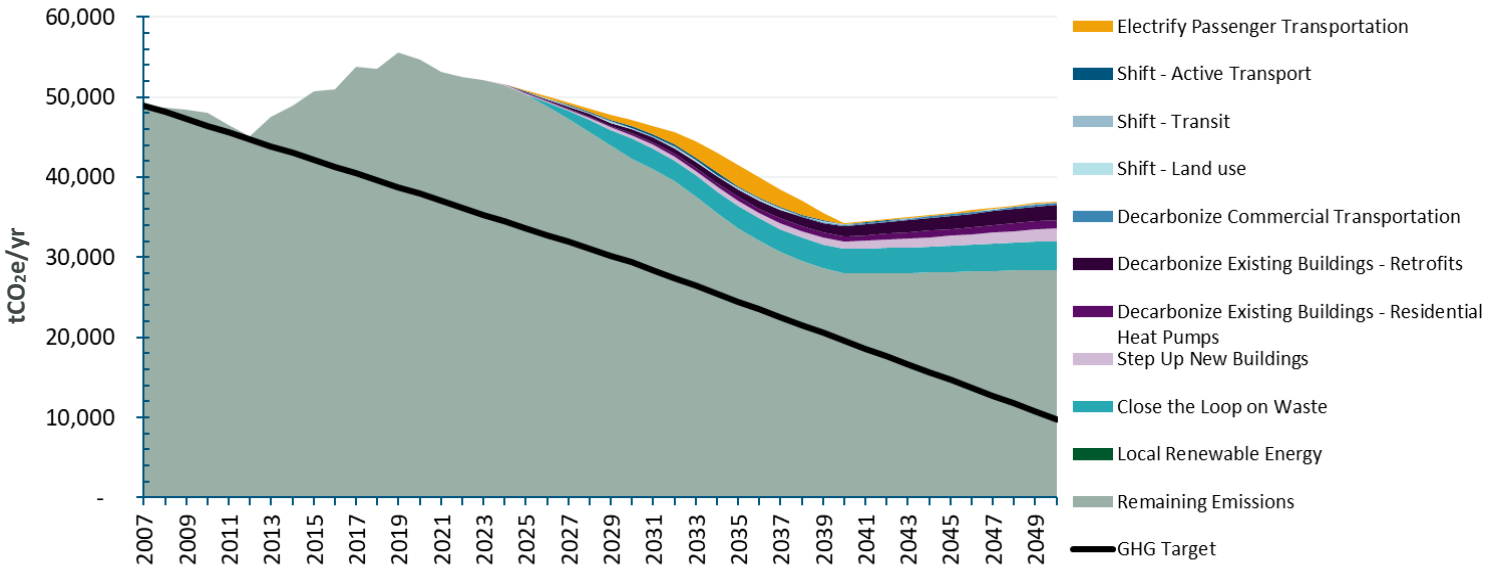


Figure 7 - Modelled Emissions Reduction

Figure 8 shows the emissions reduction by Big Move in 2030 relative to the BAU. The largest opportunity for GHG reduction is from diverting organic waste from landfill, which could reduce 2,509 CO_2e. Whilst the BAU scenario assumes a certain level of passenger vehicle electrification, this Big Move presents an opportunity for further emission reductions, at 760 tonnes CO_2e[2]. Retrofitting the existing building stock for both fuel switching to heat pumps and improved energy efficiency present savings of 824 and 623 tonnes CO_2e respectively.

The modelling methodology is described in detail in Appendix E: Inventory and Modelling Methodology.

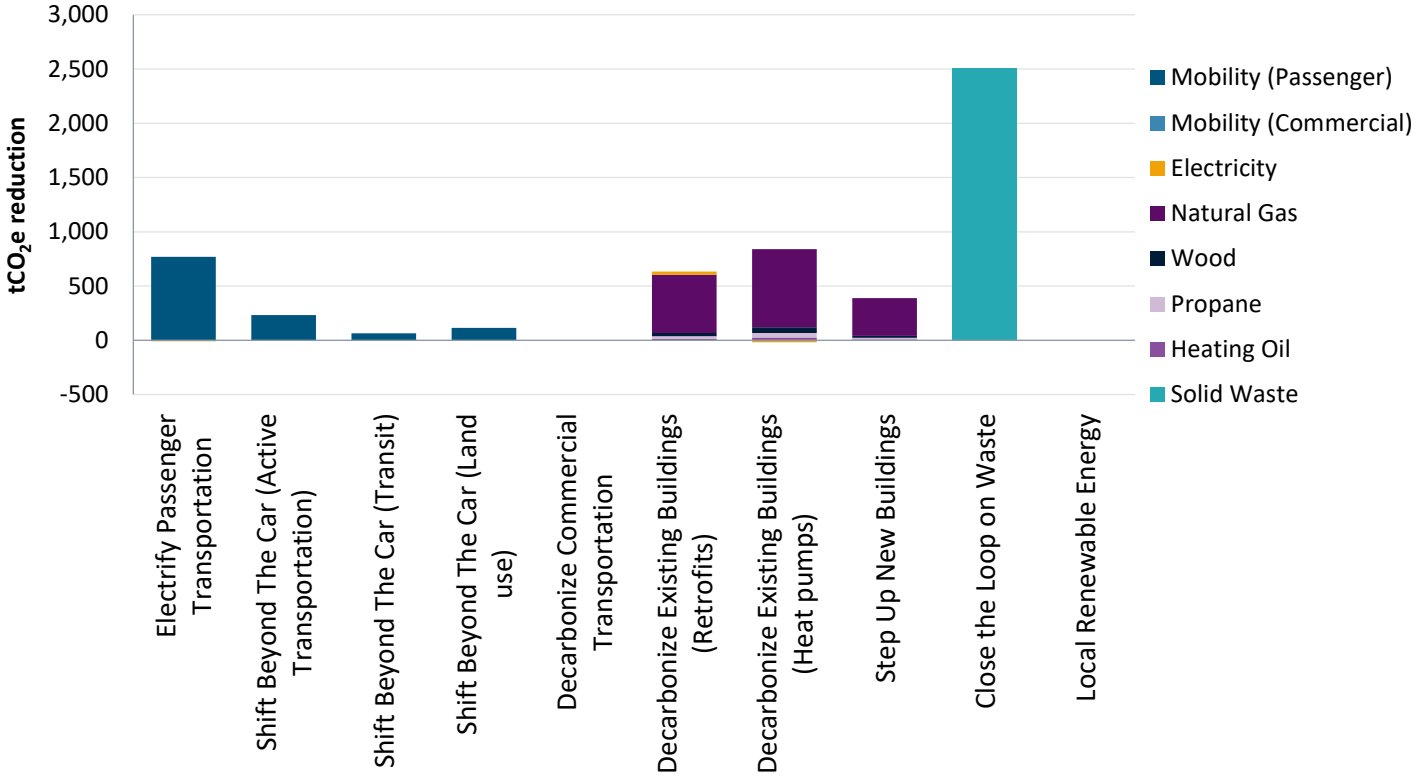
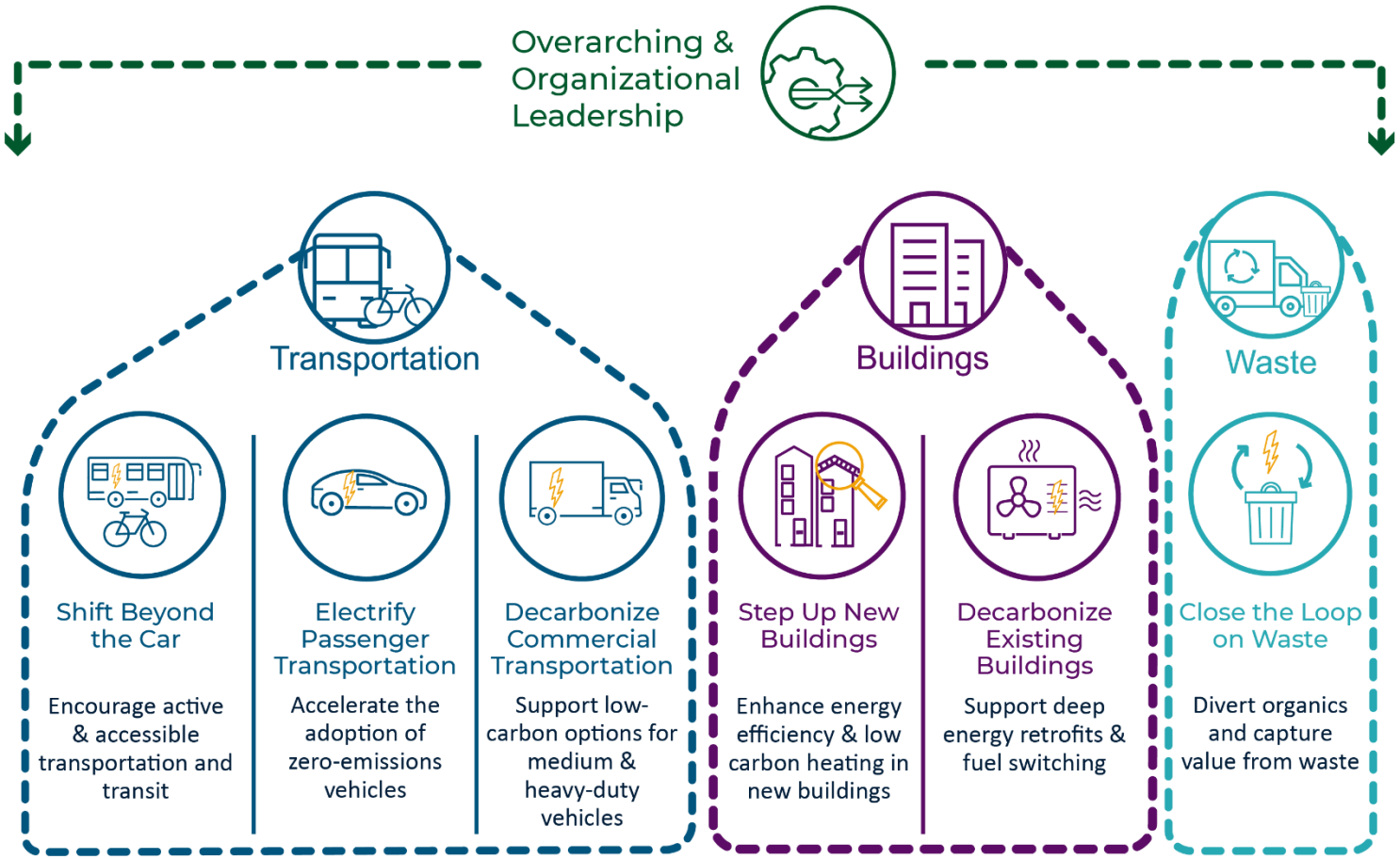


Figure 8 - Emissions Reduction by Big Move in 2030, Relative to BAU

[2] Switching to EVs results in 769 tCO_2e reduction from mobility fuels and 9 tCO_2e increase in mobility electricity, with a net reduction of 760 tCO_2e.

Action Plan


Overarching & Organizational Leadership
Transportation
Shift Beyond the Car
Encourage active & accessible transportation and transit
Electrify Passenger Transportation
Accelerate the adoption of zero-emissions vehicles
Decarbonize Commercial Transportation
Support low-carbon options for medium & heavy-duty vehicles
Buildings
Step Up New Buildings
Enhance energy efficiency & low carbon heating in new buildings
Decarbonize Existing Buildings
Support deep energy retrofits & fuel switching
Waste
Close the Loop on Waste
Divert organics and capture value from waste

Action Plan Guide

The following section outlines each of the six Big Moves organized by sector (transportation, buildings, and waste). The key actions from each sector that the Town should focus on are as follows:

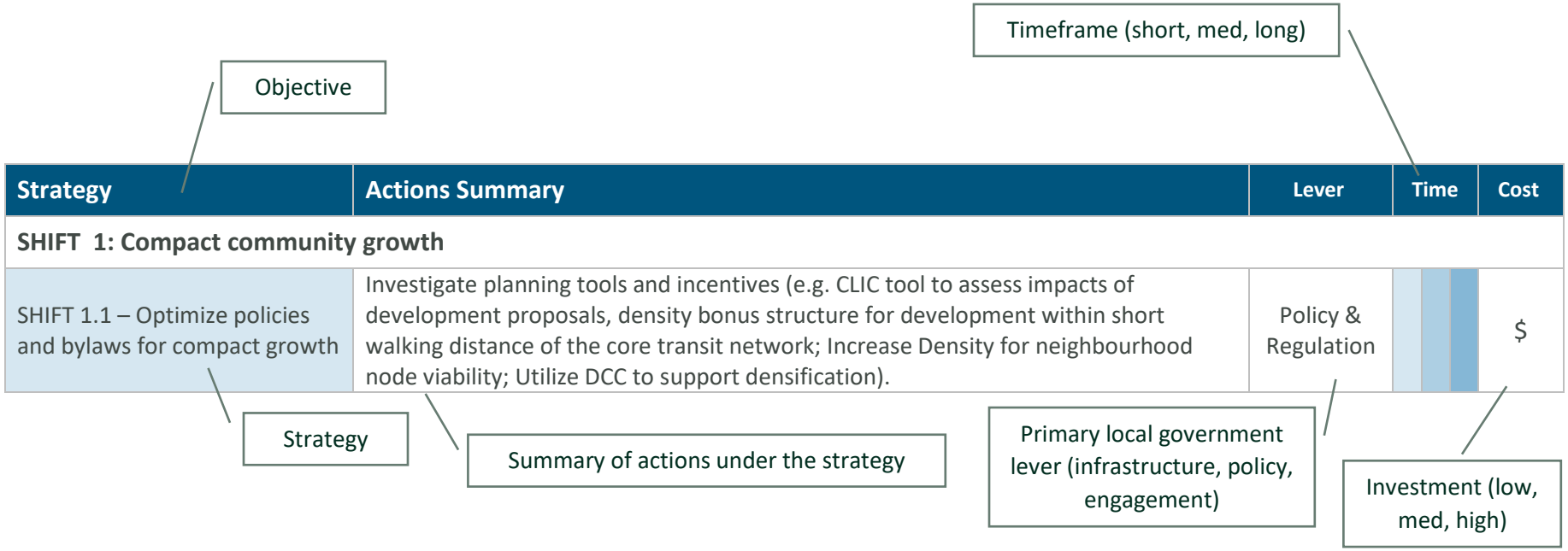
1. Shift beyond the car:
    a. Continue focussing growth within municipal boundaries, having density as close as possible to the downtown and transportation corridors
    b. Continue expanding transit, particularly intercommunity transit
    c. Continue expanding active transportation infrastructure, walking, cycling, etc.
    d. Promote potential forthcoming Provincial incentives for e-bikes / micro e-mobility
2. Electrify passenger vehicles:
    a. Collaborate with RDOS on the implementation of their EV strategy
    b. Install publicly accessible EV chargers at municipal properties, leveraging external funding
    c. Consider requiring new buildings to be EV ready or have EV chargers, particularly multi-unit residential buildings
3. New buildings:
    a. Consider implementing the Zero Carbon Step Code early in the community, being one level above Provincial requirements
    b. Consider implementing the BC Energy Step Code early in the community, being one step ahead of Provincial requirements
4. Existing buildings:
    a. Collaborate with RDOS on their implementation of a regional retrofit strategy

b. Conduct additional work locally to ensure that local energy efficient and zero carbon retrofits take place. Consider obtaining funding from FCM's Green Municipal Fund under the Community Efficiency Financing stream for this investigation

5. Waste:

   a. Continue collaborating with RDOS on waste GHG reduction measures, such as organics diversion / composting

The following pages outline further details on each of the six Big Moves – and their associated objectives, strategies and actions. Below is an example of a strategy from Shift Beyond the Car, showing the types of information displayed.



Legend

Lever	Timeframe				Cost	Definition	
Infrastructure 	Short (1-2 years)				Low	<$25,000	$
Policy & Regulation 	Medium (3-5 years)				Med	$25,000 - $100,000	$$
Engagement & Outreach 	Long (5+ years)				High	>$100,000	$$$

Notes:

- Lever: Many strategies utilize more than one local government lever. The following tables show only the primary lever, however Appendix A: Implementation Details, indicate all levers involved.
- Timeframe: Many strategies span more than one timeframe, with some actions starting in the short term and full deployment of the strategy occuring in the longer term.

The Way We Move

Vision:

A complete zero-emission transportation system connects our community and region.

Current State:

Vehicles are responsible for 56% of the greenhouse gas emissions generated from residents and businesses in Oliver. Transportation fuels such as gasoline and diesel are the largest energy expenditures in the community at $17.7 million per year.

Shift Beyond the Car	Electrify Passenger Transportation	Decarbonize Commercial Transportation
Encourage active and accessible transportation and transit.	Accelerate the adoption of zero-emission vehicles.	Support low carbon options for medium and heavy-duty vehicles.

Shift Beyond the Car

Encourage active and accessible transportation and transit.

Overview

Walking and cycling are not just weekend recreational activities – they are viable, beneficial, economical and environmentally-friendly modes of transportation. The Town of Oliver can design and build well-connected, accessible, safe and enjoyable routes. This will encourage residents and visitors to choose an active mode of travel such as walking and cycling. Good sidewalks, bike lanes, and trails make active transportation a viable choice when traveling through neighbourhoods, communities, and town centers. The same infrastructure also affords access for those who use mobility aids, such as scooters and wheelchairs.

Planning for a zero-carbon transportation system requires a paradigm shift. Rather than solve traffic and infrastructure problems by expanding roads or building more of them, communities can support all transportation options and facilitate alternative travel choices that reduce the need for more, or bigger, roads. Not only does this reduce transportation-related emissions, but this shift can also result in reduced infrastructure and maintenance costs down the road.

Objectives

1. **Optimize land use planning tools to enable compact community growth**
2. **Enable walking, cycling and other forms of zero emission mobility**
3. **Promote transit ridership and support a zero emissions transit network**

Looking Forward to 2030

- Half of all trips taken in our community are with active/assisted transportation or transit.
- Streets have been reimagined to prioritize active, public and low carbon transportation options.
- New neighbourhoods are designed to maximize active transportation options and are fully connected via walking paths / sidewalks, bike paths and transit options.
- Appropriate facilities for bike storage and e-bike charging are located in strategic hubs to support emission-free commuting.

Provincial Action

As part of the Province of British Columbia's commitment through CleanBC to embrace clean and renewable energy across the board, the government developed Move Commute Connect – B.C.'s Active Transportation Strategy. The strategy established a new target for active and assisted transportation: *By 2030, double the percentage of trips taken with active transportation*.

Federal Action

The Government of Canada's Pan Canadian Framework on Clean Growth and Climate Change commits to supporting a shift from higher- to lower-emitting modes of transportation as well was investing in infrastructure.

Strategies for Shifting Beyond the Car

Strategy	Actions Summary	Lever	Time	Cost
SHIFT 1: Optimize land-use planning tools to enable complete and compact community growth				
SHIFT 1.1 – Optimize & apply policies and bylaws for complete & compact community growth	Investigate planning tools and incentives (e.g. CLIC tool to assess impacts of development proposals, density bonus structure for development within short walking distance of the core transit network; Increase Density for neighbourhood node viability; Utilize DCC to support densification if possible).			$
SHIFT 1.2 – Create a complete and connected community through local amenities	Support carbon neutral connectivity by including design elements in and around civic facilities that promote active transportation and low-carbon option (e.g. cycling/e-bicycles, e-bicycle charging stations, EV charging, public transit). Undertake long-term strategic land acquisition planning to foster a complete community that supports a sustainable growth pattern with civic choices that promote quality of life, active transportation, and community independence into the future.			$$$
SHIFT 1.3 – Activate public spaces and program civic amenities	Encourage "zero-impact" events and vending that generate less waste (i.e. disposables), and enable recycling. Encourage transitioning from gas powered generators or propane to solar and electricity options.			$
SHIFT 1.4 – Create a complete community through local housing choice	Adopt policies that promote long-term rentals, secondary suites, and entry-level market housing in Oliver, and promote BC Housing's Secondary Suite Incentive Program[3]. Collaborate with the province/developers to ensure that non-market affordable housing is highly energy efficient (e.g. Step Code 4+); and low GHG emitting (higher levels of the Zero Carbon Step Code). Implement the Province of BC's Small-Scale Multi-Unit Housing (SSMUH) legislation as required for communities with populations greater than 5,000.			$
SHIFT 1.5 – Create a complete community with local businesses	Ensure there is a viable supply of commercially zoned and mixed-use properties for a growing community that desires choice.			$
SHIFT 1.6 – Support a vibrant and pedestrian/cycling oriented Downtown	Facilitate Downtown as a central hub for sustainable low-carbon living through compact mixed-use infill that is close to amenities and provides housing choice. Bring festivals, events, and programming to the Downtown. Collaborate with downtown events to demonstrate CEEP initiatives, including e-cycling, farmer's markets, waste diversion, EV vehicles & charging technology.			$$
SHIFT 1.7 – Promote local food security	Support the preservation of Agriculture lands in the region through policies and decisions that promote compact infill development and the preservation/inclusion of Agriculture/ALR lands at the			$

[3] https://www.bchousing.org/housing-assistance/secondary-suite

Strategy	Actions Summary	Lever	Time	Cost
	RDOS Board. Support opportunities for local farmers' markets, and other opportunities for local farmers to sell their food.			
SHIFT 1.8 – Protect and steward the natural environment	Collaborate with local environmental groups on various environmental initiatives. Undertake or collaborate with RDOS and regional partners on an Environmentally Significant Areas / Habitat Corridor Study.			$
SHIFT 1.9 – Plan to adapt and build community resilience	Collaborate with the RDOS on flood mitigation studies and practices. Promote FireSmart in neighbourhoods to educate homeowners with fire-prevention strategies. Collaborate with the Province and regional partners to continue the work of climate projections on next-stage planning (i.e. Regional Climate Change Risk Assessment & Adaption Plan) so that our residents, buildings and infrastructure are better prepared and more resilient to withstand the effects of climate change.			$$
SHIFT 2: Increase walking, cycling and other forms of zero emission mobility				
SHIFT 2.1 – Enable active transportation through plans and policies	Develop a Complete Streets Policy to formalize hierarchy (pedestrian - bike - transit – commercial truck - car); Encourage businesses/civic amenities to include trip-end facilities (bike racks, lockers, showers). Review Subdivision Servicing bylaw to identify opportunities to include active transportation infrastructure into new subdivisions.			$$
SHIFT 2.2 – Build safe routes for walking, cycling and other forms of zero emission mobility	Apply for grants and strategically improve active transportation infrastructure per existing plans and the Active Transportation Plan. Implement Complete Streets Policy to reconfigure streets to be 'complete streets' as streets are regularly scheduled for resurfacing / reconstruction for pavement maintenance or installation of utilities. If new streets are required, design to support connectivity. Prioritize grants & budgeting for key AAA (All Ages & Abilities) transportation infrastructure that will connect major destinations (schools, shopping) to main residential areas; Invest in enhanced transit. Promote active intermodal travel (e.g. bike racks in key locations and bike carriers on public transit). Initiate a 10-year program to connect all neighbourhoods to safe and convenient active transportation paths. Ensure transportation in the community is designed to help facilitate aging in place.			$$$
SHIFT 2.3 – Develop and deliver an active transportation outreach strategy	Promote new routes, bike racks, and end-of-trip facilities that enable employers active transportation for commuting to work; Promote events such as Bike to Work Week. Expand active transportation promotion. E.g. education events for new 'all ages and abilities' routes (e.g. priority for disabled users, etiquette when passing others). Work with regional partners to engage the community on active transportation and transit. Collaborate with communities in the region on shared outreach capacity.			$

Strategy	Actions Summary	Lever	Time	Cost
SHIFT 2.4 – Promote cycling and e-bikes as a fun and viable way to travel around Oliver	Support groups that wish to hold awareness events for e-bikes/support vendors who wish to operate in Oliver. Consider a grant program for e-bikes. Investigate additional bike racks/lanes, including bikes and/or e-bikes in its municipal fleet. Continue investigating inter-municipal trails/partnerships for safe and accessible region-wide trail connections.			$
SHIFT 2.5 – Investigate micro e-mobility and on-demand mobility services	Investigate the outcomes/lessons learned in e-scooter pilot programs in select BC communities. Consider joining the new e-scooter pilot program (any time from April 2024 and pilot effective until April 2028), through a Council resolution or bylaw. Collaborate with a technology vendor if they are interested in bringing e-mobility on demand solutions to the community, such as electric kick-scooters or e-bikes available for rent through an app. Support any e-bike incentives when they exist (e.g. Province of BC).			$
SHIFT 3: Increase transit ridership and a support a transition to a zero emissions transit network				
SHIFT 3.1 – Collaborate with BC Transit & neighbouring municipalities to promote transit ridership	Promote transit ridership by celebrating new routes and offering free transit days; Encourage flexible and active intermodal travel (e.g. bike racks on buses, bike racks at key bus stops, etc.). Collaborate with transit providers to enable free transit programs for children/seniors, during bad air quality or very cold weather, or universal free transit. Collaborate with transit providers and engage the community services/routes to better serve high-need riders in the community.			$$
SHIFT 3.2 – Encourage BC Transit to transition to a zero emissions transit network	Encourage transit providers and neighbouring communities to shift to zero emissions vehicles (e.g. electric). Collaborate with BC Transit and neighbouring municipalities to connect all neighbourhoods and connect to other communities with zero emissions transit.			$
Total GHG emissions reductions for this Big Move: 411 tCO_2e in 2030				

Electrify Passenger Transportation

Accelerate the adoption of zero-emission vehicles.

Overview

Zero-emission vehicles (ZEVs) are clean, efficient, and cost-effective. In British Columbia, where about 98% of all electricity is renewable and non-emitting, electric vehicles (EVs) are already a viable near zero-emission option.

Local governments can make zero-emission vehicles an easier choice for residents and businesses by investing in infrastructure, enacting supportive policies, and by engaging with companies and organizations that operate large fleets, such as car-sharing and ride-hailing providers. Local governments also deliver community outreach and education on zero-emission transportation choices.

If every British Columbia local government implemented this Big Move, by 2030 they would collectively reduce the province's total greenhouse gas emission inventory by 1.5 to 2 million tonnes, because it would lead to removing half a million internal combustion vehicles from our roads. At the individual community level, this move could yield 5 to 25% emissions reductions by 2030.

Objectives

1. **Enable charging on-the-go**
2. **Enable charging at home and work**
3. **Encourage EVs through outreach and supportive policies**

Looking Forward to 2030

- Half of the kilometers driven in our community are by zero emission vehicles.
- New buildings are required to provide an electrified, dedicated service for EV charging.
- A robust and strategically designed charging network ensures infrastructure is available at workplaces and public parking spaces.
- The Town of Oliver continues to demonstrate leadership by prioritizing EVs in its fleet replacement policy and all service contracts require low emission vehicles as part of municipal contracts.

Provincial Action

In May 2019, the Province enacted the Zero Emissions Vehicle Act to follow through on the transportation commitments in its CleanBC climate plan. The legislation requires manufacturers to ensure that a steadily increasing proportion of all new light-duty cars and trucks sold or leased in British Columbia will be zero-emission vehicles, strengthened in 2021 to require 100% by 2035.

The Province established its Go Electric Program to support the transition. The program provides incentives to reduce the price of new zero-emissions vehicles and charging stations, and works to raise awareness of the benefits of such vehicles.

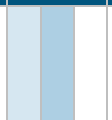
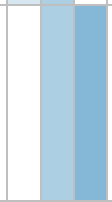
Federal Action

The Government of Canada also provides up to $5,000 as a point-of-sale incentive for the purchase or lease of new light duty zero-emission vehicles, and offers tax deductions for businesses.

Canada's Electric Vehicle Availability Standard also has nationally legislated ZEV sales targets, for each year from 20% in 2026 to 100% by 2035.

Strategies for Electrifying Transportation

Strategy	Actions Summary	Lever	Time	Cost
ELECTRIFY 1: Enable charging on-the-go				
ELECTRIFY 1.1 – Design, seek grants and expand the public EV charging network	Install public Level 2 charging at one municipally owned parking lot to demonstrate leadership. Consider up to 4 Level 2s as a demonstration at that location. Consider a community EV charging infrastructure strategy (current/future demand for L2 and DCFC, garage orphans). Engage with FortisBC, Chevron, Petro-Canada etc. to include Oliver in their EV charging networks. Collaborate with the Regional District / other local governments on implementing the regional charging network strategy. When opportunities arise during construction, "future proof" locations with EV-ready installations (e.g. conduits). Leverage grants to implement community EV charging infrastructure strategy. Consider implementation to focus on supporting other actions, such as integrated transportation hubs (connectivity of charging infrastructure to e-bike shares, transit options, etc.). Perform an EV charging gap analysis and incorporate an equity lens so that future charging needs can be anticipated and met in a strategic and fair way.			$$$
ELECTRIFY 2: Enable charging at home and work				
ELECTRIFY 2.1 – Encourage & consider adopting EV-ready building requirements	Initiate staff consultation on Part 9 and Part 3 new construction charging infrastructure requirements. Draft building bylaw amendment to integrate Part 9 EV readiness requirement for 100% of all new non-street parking. For Part 3, consider requiring smart chargers, to facilitate load management in the future. Implement Part 3 EV charger readiness policy (i.e. 100% electrified, EV-ready stalls for new MURBs (energized outlet capable of supporting Level 2 charger - integrate load management); 25% of stalls at new, non-residential Part 3 buildings). Require EV readiness reflective of new Part 3 construction for rezoning or development permits for major redevelopment / renovation.			$
ELECTRIFY 2.2 – Enable EV charging in existing residential and commercial buildings	Provide information to homeowners and businesses about Provincial EV charging incentives; work with the Oliver Tourism Association to get the word out to local tourism businesses. Support stratas and property management companies on navigating the process to retrofit existing parking stalls with EV charging equipment. Promote provincial residential/MURB and workplace L2 retrofit incentives. Advocate for Tier 2 exemptions or kWh allowances or time-of-day billing to protect EV owners against increased electricity prices.			$
ELECTRIFY 3: Encourage EVs through outreach and supportive policies				

Strategy	Actions Summary	Lever	Time	Cost
ELECTRIFY 3.1 – Develop and deliver an EV outreach strategy	Advise local groups of EV outreach incentives from Emotive. Demonstrate various Electric Vehicles at local events. Showcase new EV charger installations. Create a communications plan to support engagement. Deliver builder/developer education on EV charging requirement for part 9 and part 3 such as an Open House for electrical trades to engage on EV charging readiness requirement. Partner with other organizations to host engagement events such as test-drives and ride-alongs at local events. Collaborate with the RDOS and member municipalities on EV outreach initiatives (e.g. regional workshop to identify opportunities to leverage community EV charging network implementation to support regional travel. Partner with neighbouring communities on ongoing active outreach to public and car dealers, implementing the communications plan to support community identity around EVs. Create a community or regional brand around electric vehicle adoption, reflective of the local priorities and context to encourage adoption.			$
ELECTRIFY 3.2 – Accelerate EV adoption through supportive policies and incentives	Investigate opportunities for strategic locations for EV charging stations in attractive public locations that promote civic amenities, local shopping and green trips/tourism. Consider adjusting speed limits for some streets to 30km/h where possible to allow for low speed EV's (as well as supporting active transportation, micro e-mobility, and aging in place). Include public EV charging stations as a desired amenity to be requested during a rezoning. Add public EV charging stations as a desired amenity to the Official Community Plan's amenity policies.			$
Total GHG emissions reductions for this Big Move: 760 tCO_2e in 2030				

Decarbonize Commercial Transportation

Accelerate the transition to zero emission medium and heavy-duty vehicles

Overview

Oliver has limited influence over emissions from medium and heavy-duty commercial vehicles; however, these vehicles represent 15% of our community emissions. Oliver can start to engage with fleet operators so they are aware of technology changes. Additionally, Oliver can show leadership by transitioning its own fleet.

Objective

1. **Accelerate the adoption of zero-emission vehicles for commercial fleets**
2. **Lead by example by transitioning the municipal fleet**

Looking Forward to 2030

- Commercial fleets have leveraged their investment in charging infrastructure to establish high-powered charging hubs.
- Transit buses and school buses are electric, providing clean, emission-free travel options for the young and old.

Provincial Action

The Province has set targets for 10% of heavy-duty vehicles and 94% of buses to be electric, and 16% of heavy-duty vehicles to run on LNG by 2030.

Federal Action

The Federal Government has set a target of a 40% reduction in tailpipe emission intensity by 2025 from 2015 levels.

Strategies for Decarbonizing Commercial Transportation

Strategy	Actions Summary	Lever	Time	Cost
COMMERCIAL 1: Accelerate the adoption of ZEVs for commercial fleets				
COMMERCIAL 1.1 Encourage businesses to adopt commercial ZEV infrastructure	Update OCP to include policies that encourages commercial/mixed-use building adoption of EV technology as new buildings are constructed (e.g. land use/zoning change to allow for transit charging hub, or electric school bus parking zone, etc.). Consider supporting a pilot fleet electrification initiative with one commercial / institutional partner (collaborating with other local return-to-base fleets such as BC Transit, school board, waste haulers, and industry / commercial operators).			$
COMMERCIAL 1.2 – Engage commercial and industrial stakeholders	Conduct outreach/engagement with local businesses on EV technology and available grants. Engage with BC Transit and School District to identify early adoption opportunities of electric bus and transit options (recognizing 100% electric transit target for BC Transit). Engage with stakeholders on design of the commercial EV charging network and integrate as much as possible with public and municipal charging strategies.			$
COMMERCIAL 2: Lead by example by transitioning municipal fleet				
COMMERCIAL 2.1 – Adopt a municipal fleet replacement policy that prioritizes EV and low carbon options for replacing Oliver's municipal fleet over time	Oliver to become a West Coast Electric Fleets partner by pledging to incorporate Zero Emissions Vehicles (ZEVs) into the Town's municipal fleet. Develop an EV-based fleet-replacement policy. Require Municipal fleet electrification policy to buy used vehicles at time of replacement if no low-carbon options are available. Seek grants through the Province and others to incorporate ZEVs into Oliver's municipal fleet. Review and integrate municipal purchasing policy/contractual requirements for municipal services to require low emission vehicles, increasing over time (applies to commercial entities that are contracted for municipal services).			$$
Total GHG emissions reductions for this Big Move are minimal[4]				

[4] While local governments have less influence over commercial vehicles, and therefore less potential to reduce emissions, this sector is responsible for 15% of emissions in the community and should be a part of Oliver's planning considerations.

Where We Live and Work

Vision:

Our community's buildings are exceptionally energy efficient, and powered, heated and cooled with 100% renewable energy.

Current State:

Our homes and commercial buildings are responsible for 34% of the greenhouse gas emissions generated in Town of Oliver. The main source of emissions is natural gas used for space and water heating.

Step Up New Buildings	Decarbonize Existing Buildings
Enhance energy efficiency and low carbon heating in new buildings	Support deep energy retrofits and fuel switching

Step Up New Buildings

Enhance energy efficiency and low carbon heating in new buildings

Objective

1. **Adopt the Energy Step Code and the Zero Carbon Step Code**
2. **Build industry capacity**

Overview

While existing buildings generate the majority of building-related greenhouse gas emissions, local governments have greater authority to influence new construction. They can do so via the BC Energy Step Code; a section of the BC Building Code that local governments may use to require or incentivize better-than-code energy performance in new construction. While the Step Code is a great tool for improving overall building energy performance, it does not explicitly address emissions from new buildings. Local governments can influence emissions by implementing the regulation in tandem with the Zero Carbon Step Code and incentives that target zero-emission heating and cooling systems.

The Town of Oliver's population is growing at a rate of 1.83%. Every new building built to minimum code standards is a lost opportunity for improved energy efficiency and reduced carbon emissions and is one more building that will have to be retrofitted down the road.

Looking Forward to 2030

- All our community's new buildings are built to meet the requirements of the top step of the BC Energy Step Code, and the highest level of the Zero Carbon Step Code.
- The building industry is now focused on whole building performance, as opposed to prescriptive code requirements.
- Energy performance is quantified and verified, so homeowners and buyers now have a better understanding on the long-term operations cost of the home.
- Homes are quiet, comfortable, and durable. Energy costs are minimized through efficient design that reduces demand.

Provincial Action

The Province's CleanBC climate plan outlines the dates when the base *BC Building Code* will adopt BC Energy Step Code performance targets:

- **Since 2023, all new buildings must be 20% more energy efficient than those built to meet previous minimum code requirements.**
- **By 2027, all new buildings will be 40% more energy efficient.**
- **By 2032, all new buildings will be "net zero energy ready".**

The plan also includes zero carbon targets, stating that after 2030 all new space and water heating equipment sold and installed in B.C. will be at least 100% efficient and all new construction will be zero carbon.

Since 2023, local governments have been able to choose to implement the Zero Carbon Step Code.

CleanBC Better Homes links homeowners and residential builders to rebates and resources, and CleanBC Better Buildings provides funding and capital incentives to encourage energy efficiency in larger buildings.

Federal Action

Natural Resources Canada's Build Smart: Canada's Buildings Strategy establishes the goal that all provinces and territories will adopt a net-zero energy-ready model building code by 2030.

Strategies for Stepping Up New Buildings

Strategy	Actions Summary	Lever	Time	Cost
NEW BUILDINGS 1: Adopt the Energy Step Code and Zero Carbon Step Code				
NEW BUILDINGS 1.1 – Adopt the Energy Step Code	Designate departments and individuals to attend the local government Step Code Peer Network and start working on an implementation strategy. Adopt the Energy Step Code with a community-wide requirement for a step above the current base regulation and promote adoption of higher steps.			$
NEW BUILDINGS 1.2 – Adopt the Zero Carbon Step Code	Promote Better Homes BC website and materials. Conduct consultation with the local building industry about the Zero Carbon Step Code. Showcase low carbon building in Oliver. Consider a tiered approach encouraging Zero Carbon Step Code (e.g. Step 4 community wide, Step 3 if they implement Strong or Zero Carbon Performance). Adopt the Zero Carbon Step Code with a community-wide requirement for a level above the current base regulation and promote adoption of higher levels.			$
NEW BUILDINGS 2: Build Industry Capacity				
NEW BUILDINGS 2.1 – Provide leadership, outreach and guidance regarding the Energy Step Code	Promote existing incentives for building more efficient new homes via Better Homes & Better Buildings BC. Leverage funding to provide subsidies to builders that offset the additional cost of Energy Advisors and/or provide incentives for mid-construction air tightness testing. Fee rebates could also be considered for new homes that install solar or electric vehicle charging stations.			$
NEW BUILDINGS 2.2 – Review and integrate Step Code information into permitting processes	Review and integrate clear and timely information for builders and homeowners regarding the Step Codes into permitting processes. Assemble and promote list of local or regional Energy Advisors. Support locally relevant education with regional partners where possible and regional building industry partners where possible to accelerate Energy Advisor training.			$
Total GHG emissions reductions for this Big Move: 388 tCO_2e in 2030				

Decarbonize Existing Buildings

Support deep energy retrofits and fuel switching

Overview

In 2030, most of the buildings in the Town of Oliver will be ones that are already standing today. Many buildings use more energy than is necessary. Owners of 20-year-old gas-heated homes can lower their energy bills by as much as 30% through energy efficiency retrofits and reduce about 1 tonne of greenhouse gas emissions per year. Homeowners can pursue various degrees of building energy retrofits—from replacing individual pieces of equipment to comprehensive overhauls of the whole building, known as deep energy retrofits.

Deep energy retrofits involve changes to the entire building, including insulation, windows and doors, and air barrier, as well as ventilation and space and water heating equipment. To ensure emissions reductions as well as energy reductions, the energy retrofit must include fuel switching, from fossil fuel sources to zero-carbon sources such as electricity. Such projects usually rely on the expertise of an energy advisor, who conducts energy modelling and airtightness testing.

The Town of Oliver has limited jurisdiction over requirements for existing building retrofits but has an opportunity to influence and enable building owners to make investments in the energy efficiency of their buildings.

Objectives

1. **Improve energy efficiency**
2. **Encourage and enable fuel switching**
3. **Build industry capacity and increase demand**

Looking Forward to 2030

- 25% of our existing building stock has undergone a deep energy retrofit.
- All replacement heating and hot water systems are zero emissions, powered by either electricity or renewable gas.

Provincial Action

CleanBC Better Homes links homeowners and renovators to rebates and resources, and CleanBC Better Buildings provides funding and capital incentives to encourage energy efficient renovation in larger buildings. The Province is currently working on an Existing Buildings Renewal Strategy, which will enable increased energy efficiency retrofits in the existing building stock.

CleanBC's Roadmap to 2030 includes a target stating that after 2030, all new space and water heating equipment sold and installed in B.C. will be at least 100% efficient.

Federal Action

The Canada Greener Homes Loan provides up to $40,000 in interest-free financing for homeowners to make energy efficient upgrades.

Strategies for Decarbonizing Existing Buildings

Strategy	Actions Summary	Lever	Time	Cost
EXISTING BUILDINGS 1: Improve Energy Efficiency				
EXISTING BUILDINGS 1.1 – Encourage and enable deep energy retrofits	Promote *Better Buildings* and *Better Homes BC* and Federal programs on the Town's website (building permit checklist), and Regional District retrofit initiatives at front counter and in property tax mailings as well as business license renewal mailings. Lead by retrofitting existing Municipal buildings and streetlights with energy saving options, as per Corporate Energy and Emissions Plan. Require EnerGuide assessments (Part 9 buildings) and building energy benchmarking (Part 3 buildings) as a condition of a renovation permit over a value threshold. Require minimum energy performance standards aligning with the Province's upcoming retrofit code.			$
EXISTING BUILDINGS 1.2 – Encourage and enable building electrification	Provide information about Better Buildings & Better Homes BC and Energy Advisors, to make renovators and homeowners more aware of low-carbon options (e.g. heat pumps) at time of permit. Identify and remove any potential barriers to energy efficient & low-carbon upgrades including streamlining permitting processes, optimizing communications with applicants, restructuring permitting fees, and others. Promote various rebate and incentive programs offered by the Province and BC Hydro.			$
EXISTING BUILDINGS 2: Build Industry Capacity and Increase Market Demand				
EXISTING BUILDINGS 2.1 – Establish a long-term marketing campaign	Establish a community-wide online social media campaign to promote the principles and programs of "*Better Buildings* and *Better Homes BC*" (and Federal programs) to encourage building envelope improvements and electrification. Collaborate with RDOS/local governments in the region on a coordinated ongoing campaign to promote / integrate "Better Buildings and Better Homes BC" principals and programs, in promoting deep energy retrofits and fuel-switching from heating oil, propane, and natural gas to heat pumps. Consider approaching FCM for funding for a feasibility study.			$
EXISTING BUILDINGS 2.2 – Build industry capacity	Promote "Better Buildings & Better Homes BC" to educate renovators and realtors on energy efficiency and low carbon choices for space and water heating. Signal intention to adopt 'retrofit code' when it becomes available (outreach to public, retailers, realtors, trades).			$
Total GHG emissions reductions for this Big Move: 1,457 tCO_2e in 2030				

How We Manage ‘Waste’

Vision:

Our community diverts all of our organic waste, such as food scraps and yard trimmings, from landfills and recovers value from everything that enters the waste stream.

Current State:

Organic waste ending up in our landfill accounts for 10% of our community’s GHG emissions. Currently, residential garbage and recycling pickup is provided year-round by the Town, while yard waste is collected from March to November. Other organics, such as food scraps, are not collected.

Close the Loop on Waste

Divert organics and capture value from waste

Close the Loop on Waste

Divert organics and capture value from waste

Overview

Emissions from waste occur when organic waste mixed in with garbage decomposes in the landfill and produces methane, a potent greenhouse gas that is released into the atmosphere. Organic waste makes up a substantial proportion of landfill waste, and includes food waste from homes and businesses, yard and garden waste, wood waste, and paper that cannot be recycled, such as food-soiled paper. Organic material decomposes over approximately 10 years in the local landfill. Organic diversion reduces or eliminates the new waste added every year but the waste that is already in place at the landfill continues its decomposition process. How much waste is diverted (the diversion rate) is key to emissions savings.

By diverting organic waste from the landfill, it can be turned into compost that can be sold. There are other technologies that can capture value from the waste stream, such as landfill gas capture, biogas digesters, gasification plants, and waste heat recovery systems.

Objectives

1. **Divert organics from the landfill**
2. **Capture landfill gas and/or explore other resource recovery technologies**

Looking Forward to 2030

- Our community is educated in waste diversion – all Oliver residents, businesses and institutions recycle and divert yard waste responsibly. Most households have a back-yard composter for their food-scrap organics, and the RDOS has identified a viable and sustainable location for a future regional organics composting.
- We are looking forward to our community's residential and commercial food and yard waste being converted to useable compost at a regional processing facility in the future.
- Oliver supports the RDOS in becoming a leader in Integrated Resource Management for the region.

Provincial Action

The Province of British Columbia is targeting that, by 2030, 95% of organic waste will be diverted from landfills, and 75% of landfill gas will be captured. The province has also committed to fund workforce training.

Federal Action

The Government of Canada, through its Investing in Canada Infrastructure Program (ICIP) provides funding for infrastructure that enables resource recovery, such as generating renewable fuel from waste.

Strategies for Closing the Loop on Waste

Strategy	Actions Summary	Lever	Time	Cost
WASTE 1: Divert Organics from Landfill				
WASTE 1.1 – Adopt policies that increase organics diversion	Collaborate with the Regional District to initiate staff consultation on organics, processes & targets. Connect with RDOS and local groups to promote back-yard composting.			$
WASTE 1.2 – Encourage back-yard composting, and support future regional organics collection and processing	Gather available information from RDOS and become better informed of community organic waste volumes and landfill diversion programs. Implement weekly curbside organic waste collection by Spring 2025.			$$
WASTE 1.3 – Collaborate on a regional comprehensive zero-waste outreach program with the RDOS	Support community-led composting projects / demonstrations. Support existing and new capacity for reusable resources, including Free Swaps, Share Sheds, free store for unwanted goods, and building materials depot. Collaborate with School District on programs educating about waste reduction/diversion. Conduct annual community zero-waste drives to enhance awareness, streamline with school and business programs.			$
Total GHG emissions reductions for this Big Move: 2,509 tCO_2e in 2030				

Organizational Leadership

Implementation for Success

Several key factors are important for the successful implementation of community energy and emission reduction plans based on research conducted by CEA, QUEST, and Smart Prosperity.[5] Among others, they include establishing broad support for implementation, building staff and financial capacity for implementation, and institutionalizing the plan in order to withstand political and staff turnover.

With regards to institutionalization, ideas on how this can be done are shown in the table below.

Incorporate	Embed climate action into other planning documents such as the OCP, bylaws and policies, and departmental/master plans. Climate action could also be incorporated into Town staff job descriptions. Some communities report on climate action or sustainability implications in reports to Council.
Budget	Embed climate action into the budgeting process.
Monitor	Monitor indicators as outlined in the Monitoring and Evaluation section.
Convene	Host regular meetings to discuss implementation with internal and/or external stakeholders.
Report	Report regularly to Council on progress and accomplishments. Annual reporting is recommended. It can be integrated with CARIP reporting.
Renew	Prepare for plan renewal approximately every five years.

[5] Community Energy Implementation Framework, https://questcanada.org/project/getting-to-implementation-in-canada/?dc=framework

Monitoring and Evaluation

Monitoring and evaluating the implementation of the Climate Action Plan is critical for its success. Key Performance Indicators (KPIs) enable communities to measure the outcomes of a plan's implementation. When KPIs are monitored regularly, communities can determine how to best allocate resources to support implementation, and what success different actions are having.

Suggested indicators are shown inAppendix B: Sample Key Performance Indicators.

Funding

Funding sources that communities typically use for climate action are shown in the table below.

Internal Funding Sources	External Funding Sources
1. LGCAP rebate allocated for climate action 2. Allocation from operating budget 3. Revolving energy efficiency fund (from corporate projects) 4. Forgone revenue 5. General revenue (e.g. property taxes) 6. Recycling and solid waste user fees 7. Building permit fees and other service fees charged by Development Services 8. Water user fees	1. UBCM Gas Tax Agreement Funds 2. FCM's Green Municipal Fund supports plans, studies, capital projects and pilot projects for environmental initiatives in a number of focus areas 3. Federal government programs such as the Low Carbon Economy Challenge and Clean Energy Innovation Program 4. Provincial government programs such as the Go Electric Fleets Program, BikeBC Program, and CleanBC Communities Fund 5. Emotive grants for EV educational events to foster greater EV adoption 6. CleanBC and FortisBC energy efficiency incentives for new home construction and for increasing energy efficiency in existing buildings 7. BC Housing and FortisBC for education or demonstration projects to encourage the building industry to construct low energy and GHG emission homes.

Appendix A: Implementation Details

CEA Implementation Support

CEA offers a range of implementation supports that can help Oliver complete the actions proposed in this plan. Current implementation offers include support for four of the Big Moves: Shift Beyond the Car, Electrify Passenger Transportation, Decarbonize Existing Buildings, and Step Up New Buildings.

Big Move	CEEP Action(s)	CEA Implementation Support
Shift Beyond the Car 	**Shift 2.4 – Promote cycling and e-bikes as a fun & viable way to traverse Oliver** **Shift 2.5 – Investigate micro e-mobility and on-demand mobility services**	Education, awareness and storytelling (electric mobility and all types of mobility, public transit, etc.) Support with micromobility pilots and rollouts, from project planning to engagement and implementation
Shift Beyond the Car 	**Shift 2.2 – Build safe routes for walking, cycling and other forms of zero emission mobility**	Zero emission mobility strategy development (electric vehicles and mobility beyond the car, i.e., bicycles, scooters, e-bikes) Active transportation plans Grant writing Stakeholder engagement and dialogue
Shift Beyond the Car 	**Shift 2.1 – Enable active transportation through plans and policies**	Low carbon / active transportation planning

Big Move	CEEP Action(s)	CEA Implementation Support
Electrify Passenger Transportation 	**Electrify 1.1 – Design, seek grants and expand the public EV charging network**	EV charging implementation plans EV charging siting studies and gap analysis (GIS-based) Project management/support for EV charging capital projects
Electrify Passenger Transportation 	**Electrify 1.1 – Design, seek grants and expand the public EV charging network**	Low Carbon Fuel Standard (LCFS) credits for EV charging
Decarbonize Existing Buildings 	**Existing Buildings 1.1 – Encourage and enable deep energy retrofits** **Existing Buildings 1.2 – Encourage and enable building electrification**	Residential buildings retrofit program Community buildings retrofit program Expand building industry capacity Public, stakeholder, and homeowner engagement and communications
Step Up New Buildings 	**New Buildings 1.1 – Adopt the Energy Step Code** **New Buildings 1.2 – Adopt the Zero Carbon Step Code**	Step Code (SC) and Zero Carbon Step Code (ZCSC) Implementation

Template Actions

The following pages include *template* detailed actions for each of the Big Move strategies. The actions are presented in four tiers: Tier 1 represents foundational actions that any community can begin with and Tier 4 represents full deployment of the strategy. The Big Move will be considered fully deployed when all four tiers are complete. Highlighted columns indicate the level of implementation modelled in the Town of Oliver CEEP.

Note that although some actions may not be specifically applicable to Oliver, they are standard for representative communities in BC and will help guide the Town.

Municipal levers are noted for each strategy:

Infrastructure	Policy & Regulation	Engagement & Outreach
 Investments into the Town of Oliver owned infrastructure that enable residents to make lower-emissions choices, such as active transportation networks and public charging stations.	 Changes to Town of Oliver policy and regulation that lead to energy and emission reductions in the community, such as requirements and incentives for enhanced energy efficiency in new buildings.	 Outreach, education and incentives that inspire residents and businesses to make choices to reduce energy and emissions and prepare for a low carbon future.

Timeframe		
Short (1-3 years)	Medium (3-5 years)	Long (5+ years)

Transportation – Shift Beyond the Car

The combination of land use (being near where you need to go daily) and infrastructure (active and accessible paths & transit) and policy (parking pricing) combine to shift transportation preferences from single occupancy vehicles to active transportation and transit. Land use policy effects are long term rather than short term partly due to the long time-scale of development.

Strategy	Tier 1	Tier 2	Tier 3	Tier 4
SHIFT 1.1 **Optimize & apply policies and bylaws for complete & compact community growth** 	✓ Review & apply OCP policies to further incent or require infill development. Review employment locations and link location/land use to local economic development strategy.	✓ Focus development in compact mixed-use centres (i.e. downtown) with existing services and amenities that have safe and well-connected walking/cycling/bus routes to reduce GHG emissions.	□ Investigate planning tools and incentives (e.g. CLIC tool to assess impacts of development proposals, density bonus structure for development within short walking distance of the core transit network; Increase Density for neighbourhood node viability; Utilize DCC to support densification).	
SHIFT 1.2 **Create a complete and connected community through local amenities**	✓Decrease out-trips from Oliver by acquiring, creating and improving local amenities that support a complete community with choices for all ages and abilities (e.g. community center upgrades)	□ Support carbon neutral connectivity by including design elements in and around civic facilities that promote active transportation and low-carbon option (e.g. cycling/e-bicycles, e-bicycle charging stations, EV charging, public transit).	□ Undertake long-term strategic land acquisition planning to foster a complete community that supports a sustainable growth pattern with civic choices that promote quality of life, active transportation, and community independence into the future.	
SHIFT 1.3 **Activate public spaces and program civic amenities**	✓ Promote residents staying in Oliver and playing locally by activating public spaces and programming public amenities with activities that engage and support all ages and abilities,	□ Encourage “zero-impact” events and vending that generate less waste (i.e. disposables), and enable recycling.	□ Encourage transitioning from gas powered generators or propane to solar and electricity options.	

	including recreation and sports, music/art/cultural programming and education, special events, festivals, and open-air markets.			
SHIFT 1.4 **Create complete communities through housing choice**	✓ Support a diverse and attainable local housing supply that is inclusive of all generations and incomes. Support BC Housing Projects.	Review and adopt policies that promote long-term rentals and entry-level market housing in Oliver.	✓ Promote compact housing located close to existing amenities and services in walkable/bike able areas. Encourage infill that is located near transit and walking/biking corridors and amenities/businesses;	Work with the province/developers to ensure that non-market affordable housing is highly energy efficient (e.g. Step Code 4+); and low GHG emitting.
SHIFT 1.5 **Create a complete community with local businesses**	✓ Support the retention and expansion of the local business community to ensure a thriving community with a variety of choices to reduce trips outside Oliver.	✓ Actively encourage the attraction of a community hospital to locate in Oliver to reduce residents' need to make regular out-trips.	Ensure there is a viable supply of commercially zoned and mixed-use properties for a growing community that desires choice.	
SHIFT 1.6 **Support a vibrant and active Downtown**	Facilitate Downtown as a central hub for sustainable low-carbon living through compact mixed-use infill that is close to amenities and provides housing choice.	✓ Support downtown as a vibrant walkable and bike-able hub. Seek opportunities for increasing Downtown pedestrianism and cycling through an Active Transportation Strategy.	□ Bring festivals, events, and programming to the Downtown. Collaborate with downtown events to demonstrate CEEP initiatives, including e-cycling, farmer's markets, waste diversion, EV vehicles & changing technology.	
SHIFT 1.7 **Promote local and regional food security**	✓ Support the retention/expansion of local food-related initiatives as opportunities arise.	✓ Promote growing food locally and sustainable backyard gardening practices. Promote/facilitate community gardening initiatives. Promote RDOS's backyard compost bin sales.	✓ Investigate "urban farm" initiatives and policies (e.g. backyard ducks & hens) as part of upcoming OCP/zoning bylaw updates.	Support the preservation of Agriculture lands in the region through policies and decisions that promote compact infill development and the preservation/inclusion of

				Agriculture/ALR lands at the RDOS Board.
SHIFT 1.8 **Protect and steward the natural environment**	✓ Protect and steward natural areas and waterways. Review related policies and bylaws.	Collaborate with local environmental groups on various environmental initiatives (e.g. Meadowlark Festival).	□ Incorporate and encourage sustainable landscaping practices (example: drought resistant landscaping, bioswales and low-energy LED lighting on public lands). Promote sustainable landscaping practices to homeowners and builders that reduce energy use (e.g. tree shade, drought resistant landscaping). Review landscaping policies and bylaws.	□ Undertake or collaborate with RDOS and regional partners on an Environmentally Significant Areas / Habitat Corridor Study.
SHIFT 1.9 **Plan to adapt and build community resilience**	✓ Seek opportunities to help mitigate extreme temperatures and anticipate weather events (e.g. community cooling stations).	Collaborate with the RDOS and OBWB on flood mitigation studies and practices.	Promote FireSmart in neighbourhoods to educate homeowners with fire-prevention strategies.	□ Collaborate with the Province and regional partners to continue the work of the "Okanagan Climate Projections" on next-stage planning (i.e. Regional Climate Change Risk Assessment & Adaption Plan) so that our residents, buildings and infrastructure are better prepared and more resilient to withstand the effects of climate change.
SHIFT 2.1 **Enable active transportation through plans and policies** 	✓ Develop an Active Transportation Strategy to review gaps/opportunities to increase safe & convenient pedestrianism and cycling in the community.	Develop a Complete Streets Policy to including formalizing hierarchy (pedestrian - bike - transit - truck - car); Encourage businesses/civic amenities to include trip-end	Review Subdivision Servicing bylaw to identify opportunities to include active transportation infrastructure into new subdivisions.	

		facilities (bike racks, lockers, showers).		
SHIFT 2.2 **Build safe routes for walking, cycling and other forms of zero emission mobility** 	Apply for grants and strategically improve active transportation infrastructure per existing plans and the Active Transportation Strategy.	Implement Complete Streets Policy to reconfigure streets to be 'complete streets' as streets are regularly scheduled for resurfacing / reconstruction for pavement maintenance or installation of utilities. If new streets are required, design to support connectivity.	Prioritize grants & budgeting for key AAA (All Ages & Abilities) transportation infrastructure that will connect major destinations (schools, shopping) to main residential areas; Invest in enhanced transit. Promote active intermodal travel (e.g. bike racks in key locations and bike carriers on public transit).	Initiate a 10-year program to connect all neighbourhoods to safe and convenient active transportation paths.
SHIFT 2.3 **Develop and deliver an active transportation outreach strategy** 	Promote new routes, bike racks, and end-of-trip facilities that enable employers active transportation for commuting to work; Promote events such as Bike to Work Week.	Expand active transportation promotion. E.g. education events for new 'all ages and abilities' routes (e.g. priority for disabled users, etiquette when passing others).	Work with regional partners to engage the community on active transportation and transit.	Collaborate with communities in the region on shared outreach capacity.
SHIFT 2.4 **Promote cycling & e-bikes as a fun & viable way to traverse Oliver, including steep slope neighbourhoods**	✓ Promote cycling & e-bikes as a viable way to traverse Oliver, including flat areas along Beach Avenue and steep slope neighbourhoods.	□ Support groups that wish to hold awareness events for e-bikes/support vendors who wish to operate in Oliver. Consider a grant program for e-bikes.	□ Investigate additional bike racks/lanes, including bikes and/or e-bikes in its municipal fleet.	□ Continue investigating inter-municipal trails/partnerships for safe and accessible region-wide trail connections.
SHIFT 2.5 **Investigate micro e-mobility (i.e. electric scooters) and on-demand mobility services** 	□ Investigate the outcomes/lessons learned in e-scooter pilot programs in select BC communities. Before advancing this "Shift", ensure province has fully legalized this mode.		□ Collaborate with a technology vendor if they are interested in bringing e-mobility on demand solutions to the community, such as electric kick-scooters or e-bikes available for rent through an app.	

SHIFT 3.1 **Collaborate with BC Transit & neighbouring municipalities to promote transit ridership** 	□ Promote transit ridership by celebrating new routes and offering free transit days; Encourage flexible and active intermodal travel (e.g. bike racks on buses, bike racks at key bus stops, etc.)	□ Collaborate with transit providers to enable free transit programs for children/seniors, and during bad air quality or very cold weather.	□ Collaborate with transit providers and engage the community services/routes to better serve high-need riders in the community.	□ Explore universal free transit with transit providers.
SHIFT 3.2 **Encourage BC Transit to transition to a zero emission transit network**  		✓ Continue collaborating with neighbouring communities on safe and convenient inter-community transit that is safe and responsive to the needs of the communities.	□ Encourage transit providers and neighbouring communities to shift to zero emissions vehicles (e.g. electric).	□ Collaborate with BC Transit and neighbouring municipalities to connect all neighbourhoods and connect to other communities with zero emissions transit.

Transportation – Electrify Passenger Vehicles

New vehicle sales are approximately 10% of total vehicle stock annually. In BC, switching to an EV from a fossil vehicle eliminates almost 100% of the emissions. The more that people can walk, cycle and take transit in the community and between communities may reduce the percentage of EV's required for the first target year. In 2019, 10% of car sales (not including trucks and SUVs) were EV's, though this is not even across BC. Provincial ZEV mandates do not require even portions of sales regionally so the Town of Oliver can help influence local EV adoption.

Strategy	Tier 1	Tier 2	Tier 3	Tier 4
ELECTRIFY 1.1 **Design, seek grants and expand the public EV charging network** 	□ Install public Level 2 charging at one municipally owned parking lot to demonstrate leadership. Consider up to 4 Level 2s as a demonstration at that location.	□ Consider a community EV charging infrastructure strategy (current/future demand for L2 and DCFC, garage orphans). Engage with FortisBC, Chevron, Petro-Canada etc. to include Oliver in their EV charging networks.	□ Collaborate with the Regional District / other local governments on implementing the regional charging network strategy. When opportunities arise during construction, "future proof" locations with EV-ready installations (e.g. conduits).	□ Leverage grants to implement community EV charging infrastructure strategy. Consider implementation to focus on supporting other actions, such as integrated transportation hubs (connectivity of charging infrastructure to e-bike shares, transit options, etc.).
ELECTRIFY 2.1 **Encourage & consider adopting EV-ready building requirements** 	□ Initiate staff consultation on Part 9 and Part 3 new construction charging infrastructure requirements.	□ Draft building bylaw amendment to integrate Part 9 EV readiness requirement for 100% of all new non-street parking. □ For Part 3, consider requiring smart chargers, to facilitate load management in the future.	□ Implement Part 3 EV charger readiness policy (I.e. 100% electrified, EV-ready stalls for new MURBs (energized outlet capable of supporting Level 2 charger - integrate load management); 25% of stalls at new, non-residential Part 3 buildings)	□ Require EV readiness reflective of new Part 3 construction for rezoning or development permits for major redevelopment / renovation.

ELECTRIFY 2.2 **Enable EV charging in existing residential and commercial buildings** 	□ Provide information to homeowners and businesses about Provincial EV charging incentives; work with the Thompson Okanagan Tourism Association / Oliver Tourism Association to get the word out to local tourism businesses.	□ Support stratas and property management companies on navigating the process to retrofit existing parking stalls with EV charging equipment.	□ Promote provincial residential/MURB and workplace L2 retrofit incentives.	□ Advocate for Tier 2 exemptions or kWh allowances or time-of-day billing to protect EV owners against increased electricity prices.
ELECTRIFY 3.1 **Develop and deliver an EV outreach strategy** 	□ Advise local groups of EV outreach incentives from Emotive. □ Demonstrate various Electric Vehicles at local events. □ Showcase new EV charger installations. □ Create a communications plan to support engagement. □ Deliver builder/developer education on EV charging requirement for part 9 and part 3 such as an Open House for electrical trades to engage on EV charging readiness requirement.	□ Continue outreach to builders, public, EV boat/auto dealers including workshops and stakeholder engagement. □ Partner with other organizations to host engagement events such as test-drives and ride-along's at local events.	□ Collaborate with the RDOS and member municipalities on EV outreach initiatives (e.g. regional workshop to identify opportunities to leverage community EV charging network implementation to support regional travel. □ Partner with neighbouring communities on ongoing active outreach to public and car dealers, implementing the communications plan (Tier 1) to support community identity around EVs.)	□ Create a community or regional brand around electric vehicle adoption, reflective of the local priorities and context to encourage adoption.
ELECTRIFY 3.2 **Accelerate EV adoption through supportive policies and incentives** 	□ Investigate opportunities for strategic locations for EV charging stations in attractive public locations that promote civic amenities, local shopping and green trips/tourism.	□ Consider adjusting speed limits for some streets to 30km/h where possible to allow for low speed EV's.		

Transportation – Decarbonize Commercial Transportation

Strategy	Tier 1	Tier 2	Tier 3	Tier 4
COMMERCIAL 1.1 **Encourage businesses to adopt commercial ZEV infrastructure** 		□ Update OCP to include policies that encourages commercial/mixed-use building adoption of EV technology as new buildings are constructed.	□ Consider supporting a pilot fleet electrification initiative with one commercial / institutional partner. (e.g. land use/zoning change to allow for transit charging hub, or electric school bus parking zone, etc.), (Collaborating with other local return-to-base fleets such as BC Transit, school board, waste haulers, and industry / commercial operators).	
COMMERCIAL 1.2 **Engage commercial and industrial stakeholders** 	□ Conduct outreach/engagement with local businesses on EV technology and available grants.	□ Engage with BC Transit and School District to identify early adoption opportunities of electric bus and transit options (recognizing 100% electric transit target for BC Transit, and currently available school bus funding for School Districts).	□ Engage with stakeholders on design of the commercial EV charging network. □ Integrate as much as possible with public and municipal charging strategies.	
COMMERCIAL 2.1 **Adopt a municipal fleet replacement policy that prioritizes EV and low carbon options for replacing Oliver's municipal fleet over time.** 	□ Oliver to become a West Coast Electric Fleets partner by pledging to incorporate Zero Emissions Vehicles (ZEVs) into the Town's municipal fleet. Develop an EV-based fleet-replacement policy.	□ Review and integrate municipal purchasing policy/contractual requirements for municipal services to require low emission vehicles, increasing over time (applies to commercial entities that are contracted for municipal services).	□ Require Municipal fleet electrification policy to buy used vehicles at time of replacement if no low-carbon options are available. Seek grants through the Province and others to incorporate ZEVs into Oliver's municipal fleet.	□ Municipal fleet electrification policy fully implemented (to extent that available technology allows) for 100% EV.

Buildings – Step Up New Buildings

Step Code is an efficiency code, not a GHG code. Efficiency is a good first step, but to get deep emissions reductions the heating fuel must be low/no emissions. Electricity is nearly emissions free in BC and heat pumps use 1/2 to 1/4 the energy of a baseboard heater, saving energy and money over the long run. Each new building that is inefficient and has a fossil heating system is one more building that will need to be retrofitted at some point.

Strategy	Tier 1	Tier 2	Tier 3	Tier 4
NEW BUILDINGS 1.1 **Adopt the Energy Step Code** 	□ Designate departments and individuals to attend the local government Step Code Peer Network and start working on an implementation strategy.	□ Adopt the Energy Step Code with a community-wide requirement for a step above the current base regulation. □ Promote adoption of higher steps.	□ Determine timelines for adopting upper steps (e.g. earlier adoption of Step 3). □ Adopt a rezoning policy to require upper steps for new developments that add significant density.	□ Adopt upper steps of the Energy Step Code community-wide at the earliest opportunity, and signal intent to require top step in advance of 2032.
NEW BUILDINGS 1.2 **Adopt the Zero Carbon Step Code** 	□ Promote Better Homes BC website and materials. □ Conduct consultation with the local building industry about the Zero Carbon Step Code.	□ Showcase low carbon building in Oliver. □ Consider a tiered approach encouraging Zero Carbon Step Code (e.g. Step 3 community wide, Step 2 if they implement Strong or Zero Carbon Performance).	□ Require Strong or Zero Carbon Performance, as the legislation allows.	□ Support opportunities to reduce embodied carbon and increase sequestered carbon in the construction sector, with a goal to make construction net negative overall.
NEW BUILDINGS 2.1 **Provide leadership, outreach, and guidance regarding the Step Codes** 	□ Promote existing incentives for building more efficient new homes via Better Homes & Better Buildings BC.	□ Leverage FortisBC funding to provide subsidies to builders that offset the additional cost of Energy Advisors and/or provide incentives for mid-construction air tightness testing. □ Fee rebates could also be considered for new homes that install solar or electric vehicle charging stations.	□ Lead by building facilities that achieve high BC Step Code with a low carbon footprint.	

NEW BUILDINGS 2.2 **Review and integrate Energy Step Code information into permitting processes.** 	□ Review and integrate clear and timely information for builders and homeowners regarding the Step Codes into permitting processes. □ Assemble and promote list of local or regional Energy Advisors.	□ Support locally relevant education with regional partners where possible. □ Support regional building industry partners where possible to accelerate Energy Advisor training.	□ Continue partnering to provide training to building industry, focusing on meeting forthcoming Steps.	

Buildings – Retrofit Existing Buildings

Building envelope improvements reduce energy needed to heat the building. An average retrofit can save 10% to 35% of energy while a deep retrofit ($80,000-$100,000) can save 50% to 60%. Heat pumps use 1/2 to 1/4 of the energy of baseboard heaters. Electricity has >80% less emissions than natural gas.

Strategy	Tier 1	Tier 2	Tier 3	Tier 4
EXISTING BUILDINGS 1.1 **Encourage and enable deep energy retrofits.** 	□ Promote *Better Buildings* and *Better Homes BC* on the Town's website (building permit checklist), and Regional District retrofit initiatives (e.g. virtual energy assessments), at front counter and in property tax mailings as well as business license renewal mailings.	□ Lead by retrofitting existing Municipal buildings and streetlights with energy saving options, as per Corporate Energy and Emissions Plan.	□ Require EnerGuide assessments (Part 9 buildings) and building energy benchmarking (Part 3 buildings) as a condition of a renovation permit over a value threshold.	□ Require minimum energy performance standards aligning with the Province's upcoming retrofit code (*as more information becomes available).
EXISTING BUILDINGS 1.2 **Encourage and enable building electrification, solar & renewable gas** 	□ Provide information about Better Buildings & Better Homes BC and Energy Advisors, to make renovators and homeowners more aware of low-carbon options (e.g. heat pumps) at time of permit.	□ Identify and remove any potential barriers to energy efficient & low-carbon upgrades including streamlining permitting processes, optimizing communications with applicants, restructuring permitting fees, and others.	□ Promote various rebate and incentive programs offered by the Province and BC Hydro.	
EXISTING BUILDINGS 2.1 **Establish a long-term marketing campaign** 		□ Establish a community-wide online social media campaign to promote the principles and programs of "Better Buildings and Better Homes BC" (based on 'energy diets') to encourage building envelope improvements, electrification or other low carbon fuel sources.	□ Collaborate with RDOS/local governments in the region on a coordinated ongoing campaign to promote / integrate "Better Buildings and Betters Homes BC" principals and programs, in promoting deep energy retrofits and fuel-switching from heating oil, propane, and	

			natural gas to heat pumps. Consider approaching FCM for funding for a feasibility study.	
EXISTING BUILDINGS 2.2 **Build industry capacity**	□ Promote “Better Buildings & Better Homes BC” to educate renovators and realtors on energy efficiency and low carbon choices for space and water heating.	□ Signal intention to adopt 'retrofit code' when it becomes available (outreach to public, retailers, realtors, trades).		

Waste – Close the Loop on Waste

Strategy	Tier 1	Tier 2	Tier 3	Tier 4
WASTE 1.1 **Adopt policies that increase organics diversion** 	□ Collaborate with the Regional District to initiate staff consultation on organics, processes & targets.	□ Connect with RDOS and local groups to promote back-yard composting	□ Promote diversion (away from landfill) for construction and demolition wood waste. □ Require recycling & organics diversion for event permitting once a regional composting facility is operational.	□ Promote RDOS waste diversion programs to the community (residential, commercial, institutional) organics (food waste, yard waste, etc.), and promote future RDOS curbside organics waste collection once a regional program becomes available.
WASTE 1.2 **Encourage back-yard composting, and support future regional organics collection and processing** 	□ Gather available information from RDOS and become better informed of community organic waste volumes and landfill diversion programs.	□ Once available, support any viable/sustainable regional program that includes curbside kitchen waste collection for homes and businesses.	□ If RDOS provides composting in the future, require developers to install central collection points that are regularly picked up for multi-family units and food-related businesses.	□ Collaborate with RDOS on regional public program for compost pick-up from all buildings. □ Integrate organics collection in streetscapes, where appropriate.
WASTE 1.3 **Collaborate on a regional comprehensive zero-waste outreach program with the RDOS** 	□ Support community-led composting projects / demonstrations. □ Support existing and new capacity for reusable resources, including Free Swaps, Share Sheds, free store for unwanted goods, and building materials depot. □ Collaborate with School District on programs educating about waste reduction/diversion.	✓ Connect and collaborate with RDOS staff dedicated to waste diversion to support implementation. □ Conduct annual community zero-waste drives to enhance awareness, streamline with school and business programs.	□ Educate and communicate the source-separation requirements. □ Investigate the feasibility of a local recycling transfer station.	□ If established, join the RDOS waste reduction working group consisting of key staff across the region that institutionalizes support for organics diversion and zero waste initiatives, & include external organizations where possible.

Appendix B: Sample Key Performance Indicators

Two types of indicators are recommended. Primary indicators measure community energy consumption and GHG emissions, while secondary indicators can quantify the indirect success of various actions. The following table provides a description of these indicators, the measures of success, data sources for each indicator, and frequency of reporting. Annual progress reporting should be planned by the Town of Oliver.

	Indicators	Measures of Success	Data Sources
Overall	1. Community GHG emissions	40% reduction in emissions from 2007 levels by 2030 80% reduction in emissions from 2007 levels by 2050	Provincial energy & emissions data at the community level[6]
Overall	2. Energy usage	Average household and commercial energy use declines over time to 2050 Annual fuel sales (gas & diesel) decreases over time to 2050	Provincial energy & emissions data at the community level, Kalibrate fuel sales data for area gas stations.
Overall	3. Corporate GHG emissions and energy consumption	Reducing corporate GHG emissions and energy consumption at least as much as community reductions	Billing data collected from Finance Dept, converted to emissions using Province of BC methodology
Overall	4. Integration with other plans / policies / bylaws	No. of plans / policies / bylaws with climate action embedded	Municipal staff

[6] https://www2.gov.bc.ca/gov/content/environment/climate-change/data/ceei

	Indicators	Measures of Success	Data Sources
Overall	5. Outside grants / funding / support received for climate action	Dollars contribution received, or in-kind	Municipal staff
Transportation	6. VKT replacement with transit, active transportation, and e-mobility	Increase in the number of trips completed and/or vehicle trips replaced with e-scooters/e-bikes through a micro e-mobility sharing program, transit, and active transportation	Municipal staff can request ride data from micro e-mobility sharing program (e.g. Lime, Bird, Roll, etc.) BC Transit ridership data, and Census data Go By Bike BC logged rides
	7. Infrastructure to promote active transportation	Progress towards outcomes of the following plans: • Active Transportation, Downtown Beautification and Wayfinding Plan • Official Community Plan X # of km implemented	Public Works & Recreation
	8. New homes constructed to EV-ready	Increase in # of homes constructed to EV-ready	Permit applications
	9. Corporate fleet	Increase in #/% of EVs in the corporate fleet and measure of tCO_2e avoided	Municipal staff
	10. # of EVs in the community	Increase in # of EV registrations per year and overall EVs/capita	Insurance Corporation of British Columbia (ICBC) data

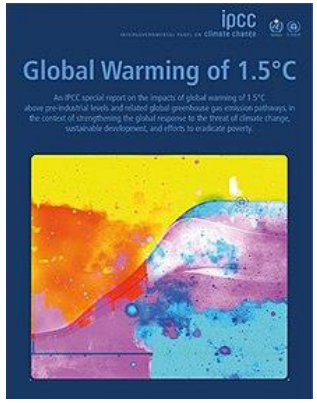
	Indicators	Measures of Success	Data Sources
Existing buildings	11. # of energy efficiency incentives distributed for building efficiency upgrades	Average increase in incentive use	Summary data from FortisBC (and other entities as applicable, e.g. Province)
New buildings	12. # of buildings at each level of the BC Energy Step Code	Increase in number or percentage of new buildings constructed to various levels of the Step Code	Permit applications
New buildings	13. # of new homes built to emit less than one tCO_2e annually	Increase in number or percentage of new homes built to emit less than one tCO_2e annually	As-built EnerGuide assessments for new homes
Renewable Energy	14. # of renewable energy buildings installations	Increase in percentage of buildings adding solar and other renewable energy sources	Distributed Generation Program applications *(Note: this only covers renewable energy systems that generate electricity. Others will not be possible to track.)*

Waste	15. Amount of organics diverted from landfill	Increase in organics at composting facility	Town of Oliver or Regional District of Okanagan-Similkameen
	16. Recycling rates	Increase in recycling rates	Town of Oliver or Regional District of Okanagan-Similkameen
	17. Tonnes of waste per capita to landfill	Decrease in waste per capita sent to landfill	Town of Oliver or Regional District of Okanagan-Similkameen
Other	18. Urban tree canopy cover	Increase in canopy	Development applications; Public Works tree planting data
	19. Per capita water consumption	Decline in water use	Usage data on water utility bills / metering system
	20. # of participants at building community & citizen educational events / workshops	High participation levels at events	Registration/Attendee lists for events

Appendix C: Climate Action at All Levels

Global Action

When Canada signed the Paris Agreement in 2015, we joined a global commitment to keep global warming below 2°C, and as close to 1.5°C as possible. In October 2018, the United Nations Intergovernmental Panel on Climate Change (IPCC) released a major report that emphasized the dramatic difference in consequences between a 1.5°C and 2°C world. Every degree of warming beyond this threshold will lead to increased impacts of extreme weather, more wildfires and floods, increases in sea-level rise, and severe threats to human health and well-being.

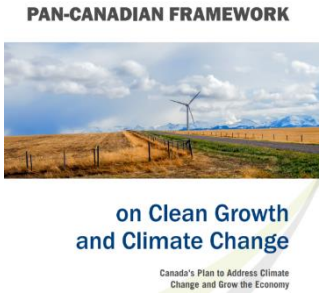


By limiting these impacts, we can ensure a healthy environment, economy and society for ourselves and future generations. While it is not too late, time is of the essence.

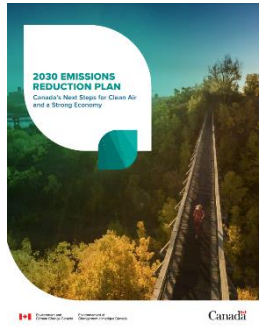
The key finding of the IPCC report is that limiting warming to 1.5°C is possible, but requires deep emissions reductions across all areas of society – reducing global emissions by 45% from 2010 levels by 2030 and reaching net zero emissions by 2050.

National Action

In 2016, the Government of Canada released its Pan-Canadian Framework on Clean Growth and Climate Change. The framework sets out the federal government's strategy to meet its commitment under the Paris Agreement to reduce national greenhouse gas (GHG) emissions 30% below 2005 levels by the year 2030. In 2019, Canada's emissions were 738 megatonnes of CO_2 equivalent (Mt CO_2e), which is a 0.4% decrease from 2005 levels. More recently, the Government of Canada created the 2030 Emissions Reduction Plan: Clean Air, Strong Economy to achieve 40-45% emissions reductions below 2005 levels by 2030 and has established a target of net-zero emissions by 2050, requiring an acceleration of action by all levels of government.



Actions available to the federal government include vehicle fuel-efficiency standards, model national building codes, energy ratings, and carbon pricing. The partners for Climate Protection (PCP) program is a national network of over 400 municipalities with the shared goal of taking action against climate change and reducing local greenhouse gas emissions. PCP is managed and delivered by FCM and ICLEI—Local Governments for Sustainability Canada (ICLEI Canada) and receives financial support from the Government of Canada and ICLEI Canada.



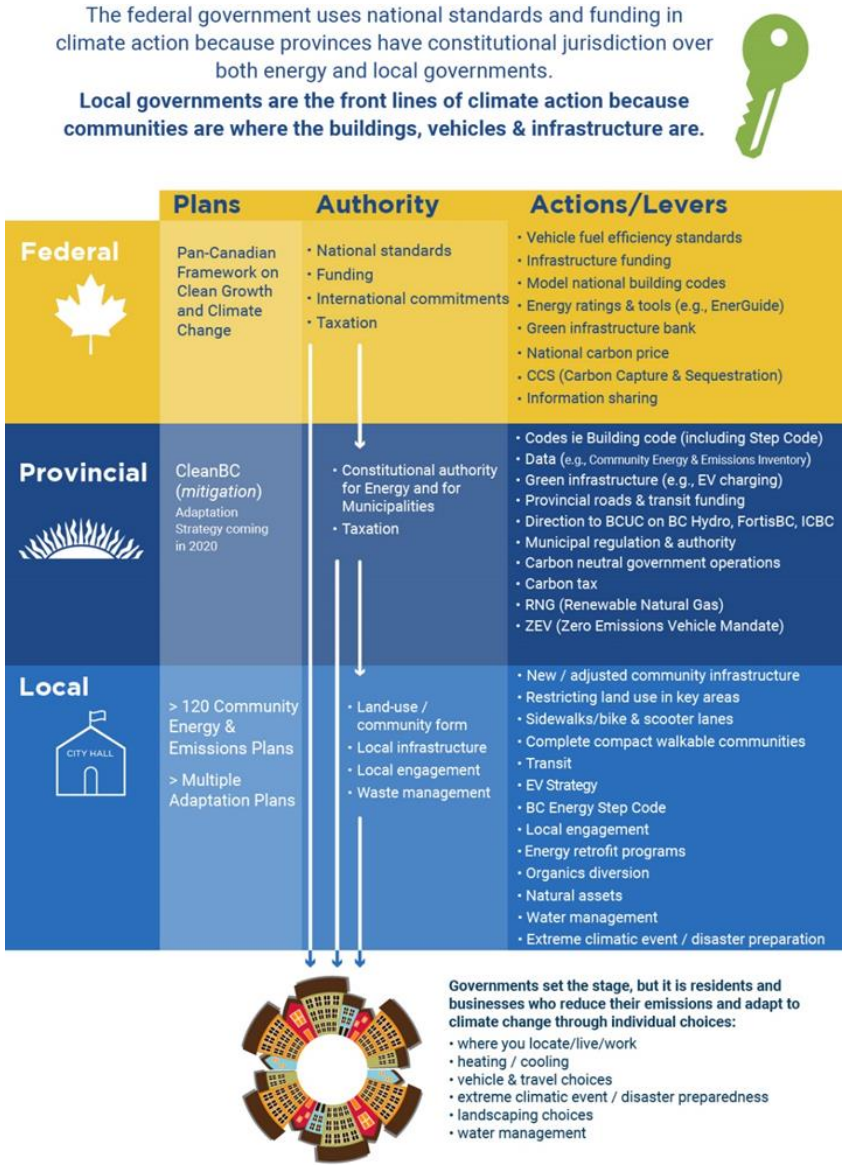
Provincial Action

In December 2018, the Province of British Columbia released its CleanBC climate plan. The plan reaffirmed the province's previous target to reduce emissions 80 per cent below 2007 levels by the year 2050 and established a new interim target to reduce emissions 40 per cent by 2030. In 2019, BC's provincial emissions were 3.8% above 2007 levels, which means that in order for BC to meet its emissions reduction target, we need a decrease of 43.8% from 2007 levels in just seven years.

CleanBC outlines a path to meeting the 2030 targets, outlining a range of actions to meet 75% of the target. These actions include sourcing clean and renewable electricity, incremental increases in building-energy performance in the BC Building Code, tailpipe emissions standards, and measures to reduce emissions from industry. The Province is currently identifying the actions to achieve the remaining 25% of emissions reductions.

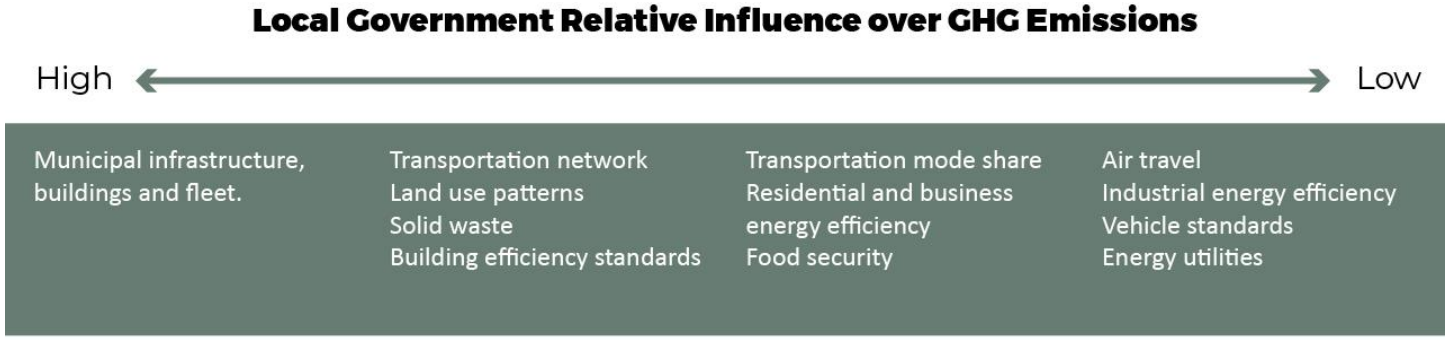
CleanBC builds on a history of provincial climate action: The provincial government has enacted laws and regulations to reduce emissions and transition to a low-carbon economy. These include the Climate Change Accountability Act, Carbon Tax Act, Greenhouse Gas Industrial Reporting and Control Act, and Clean Energy Act.

Senior levels of government have recognized the need for strong climate action (particularly on mitigation) and provide support to local governments.



Local Action

More than 120 British Columbia local governments have to date enacted community climate action plans or Community Energy and Emissions Plans (CEEPs), which outline actions they can take, or are taking, to reduce greenhouse gas emissions. Local governments have varying degrees of influence over different sources of emissions within their boundaries, as shown below.



In order to succeed, local governments will need leadership and/or support from other orders of government, as well as commitments from residents and businesses. Further, the outputs of this Plan and the targets/actions prioritized for implementation will need to be embedded into relevant policy, operational, budgetary and asset management plans or strategies. Communities and regional districts play an important role in climate change mitigation and adaptation. Almost every British Columbia local government has committed to some degree of action under the B.C. Climate Action Charter. Across Canada, local and regional governments directly and indirectly influence approximately 60 per cent of the nation's overall energy use and 50 per cent of its GHG emissions.

Residents and Businesses

Residents and businesses also have an important role in climate action, such as individual choices on where to live, how to heat or cool, how to travel, how to handle household waste, preparing for extreme events such as extreme heat, making landscaping choices that affect the urban tree canopy and are wildfire smart, and being careful with water use. Meanwhile, businesses' decisions regarding their current operations and future plans as well as factors such as leadership and innovation also impact community-based emissions and affect a community's resilience to a changing climate. Residential and business decisions are shaped by other levels of government, including local government, creating an opportunity for governments to influence those choices in a way that addresses environmental issues and climate action.

Appendix D: Template for Climate Action at the Personal Level

The Oliver CEEP details actions that the Town can implement to reduce community GHG emissions. These actions fall into one or more of three broad categories: Policy & Regulation, Infrastructure and Engagement & Outreach. Implementation of these actions will enable residents to make lower carbon choices.

Residents of Oliver can use an online tool to estimate their personal GHG emissions[7]. The following list provides examples of ways in which residents can reduce their personal carbon footprint and reduce their broader impact on the environment. The list below offers easy ways to reduce your household's GHG emissions, increase your quality of life while helping out the community and saving you money.

1. **Shop locally in Oliver! Supporting local businesses helps foster a complete community and reduces fuel consumption.**
2. **Enjoy the great outdoors! Walk or cycle for local trips. An e-bike is a great option for hilly terrain.**
3. **Next time you replace a family car, consider an electric vehicle (and get up to $9,000 in rebates toward your purchase!)**
4. **Look into rebates and financing for installing heat pumps and renovating your home to make it more energy efficient.**
5. **Buy locally grown fruits, vegetables and other foods grown in BC, and especially the Okanagan.**

[7] For example, https://www.saanich.ca/EN/main/community/sustainable-saanich/climate-change/carbon-fund-calculator.html

6. **Get involved with backyard gardening or community gardening to grow your own delicious local food.**
7. **Become a superstar recycler and try out backyard composting.**
8. **Find ideas for reducing water in your home and your yard from the Regional Water Conservation Strategy created by the RDOS.[8]**
9. **Become FireSmart and learn how to prevent wildfires.**
10. **Make informed choices about how you shop, travel, and use energy, to increase your quality of life and reduce your household's footprint.**

[8] https://www.rdos.bc.ca/utilities/water-systems/water-conservation/

Appendix E: Inventory and Modelling Methodology

This appendix contains details on the community energy & emissions inventory and projections for Town of Oliver.

Inventory

Oliver's inventories were created using data for buildings, transportation and waste obtained from the Province of BC. Full inventory years for buildings and waste are: 2007, 2010, and 2012-2019. Full inventory years for transportation are 2007 and 2010.

Emissions factors for inventory years are shown in the following table, and are sourced from the Province of BC.

Table 1 - Emissions factors used for inventory years

tCO_2e/GJ, by Year	2007	2010	2012	2013	2014	2015	2016	2017	2018	2019
Gasoline	0.068	0.067	0.066	0.065	0.065	0.065	0.065	0.065	0.065	0.065
Diesel	0.069	0.069	0.068	0.067	0.067	0.067	0.067	0.067	0.067	0.067
Electricity	0.010	0.010	0.011	0.011	0.010	0.010	0.009	0.009	0.007	0.008
Natural gas	0.050	0.050	0.034	0.038	0.042	0.050	0.050	0.050	0.050	0.050
Wood	0.019	0.019	0.021	0.021	0.020	0.019	0.019	0.019	0.019	0.019
Heating oil	0.068	0.068	0.076	0.074	0.072	0.068	0.068	0.068	0.068	0.068
Propane	0.061	0.061	0.068	0.066	0.065	0.061	0.061	0.061	0.061	0.061

As can be seen, some of the emission factors have changed over time. The emission factors for gasoline have decreased as a result of the Renewable and Low Carbon Fuel Requirements Regulation. The emissions factor for electricity has decreased as a result of ongoing efforts to decarbonise the electricity grid.

Transportation data was sourced from a previous release of the Province of BC's Community Energy & Emissions Inventory (CEEI) data,[9] and building energy and landfill waste data was sourced from the latest CEEI data and the Province's release of Provincial Inventory data at the community level.[10]

Assumptions made with respect to the inventories are as follows:

- The Province of BC made a series of standard assumptions in the creation of the CEEI data, which are outlined on the CEEI webpage: https://www2.gov.bc.ca/gov/content/environment/climate-change/data/ceei. The CEEI inventory years in the preceding charts are 2007, 2010, and 2012.
- The Province of BC made assumptions for buildings and landfill waste emissions information, which are outlined in the community level spreadsheets on the Provincial Inventory webpage: https://www2.gov.bc.ca/gov/content/environment/climate-change/data/provincial-inventory
- In creating the inventories, CEA made other assumptions in addition to these:
    - Because the Province removed transportation data from its most recent release of the 2007 and 2010 CEEI data, and has not provided this data for any other year, CEA has used population data to extrapolate transportation data for any year post-2010.

The following are not included in the inventory:

- Emissions from Agriculture, Forestry and Other Land Use (AFOLU)
- Emissions from large industry
- Consumptive emissions (e.g. food, services, consumer goods)

[9] https://www2.gov.bc.ca/gov/content/environment/climate-change/data/ceei
[10] https://www2.gov.bc.ca/gov/content/environment/climate-change/data/provincial-inventory

Business As Usual Projection

CEA's QuickStart model was used both to calculate the BAU trajectory, and to estimate the potential GHG reductions that could be achieved. Developed in 2010 on behalf of BC Hydro and used by approximately 65 communities to date, the model builds on information including population and community energy and emissions inventory data.

The model uses formulas both to calculate the BAU trajectory, and to estimate the impacts of implementing each Big Move.

The BAU trajectory was calculated by using available inventory data, and then projecting forwards using a population forecast provided based on census data.

There are full or partial inventory years that describe the community's emissions profile from 2007-2019. From 2020 onwards, all of the data is an estimate as a BAU projection.

For the BAU projection modelling, the assumption is that energy consumption and emissions will increase proportionally with increases to population, although the impact of policies from higher levels of government are also incorporated, and other assumptions. Only policies that have already been adopted and that will have quantifiable impacts are incorporated. Assumptions are:

- The Province's incremental steps to net zero energy ready buildings by 2032.
- Tailpipe emissions standards.
- Renewable & low carbon transportation fuel standards.
- BC Zero-Emissions Vehicle Act and new Federal mandate, requiring every new LDV sold in B.C. to be a zero-emission vehicle by 2035 (with a
- ramp up in advance of that date).
- An annual decrease in natural gas consumption per residential connection is included, as per Fortis BC 2017 Long Term Gas Resource Plan: https://fbcdotcomprod.blob.core.windows.net/libraries/docs/default-source/about-us-documents/regulatory-affairs-documents/gas-utility/171214_fei_2017_ltgrp_ff.pdf
- How the impacts of a changing climate will affect building energy consumption, as outlined below.

The final assumption had the following methodology:

- Climate change data for the region obtained from ClimateData.ca.
- Projected global emissions to 2030 currently places the world in the range for the IPCC's Fifth Assessment Report's Representative Concentration Pathway (RCP) 6.0 scenario.
- RCP 6.0 scenario not available on ClimateData.ca, therefore RCP 4.5 (median impact scenario) used as a (conservative) proxy.
- Decreases in residential heating oil and propane consumption assumed to be proportional to projected decreases in Heating Degree Days (HDDs).
- Decreases in residential and commercial natural gas consumption assumed to be proportional to decreases in HDDs and the proportions of natural gas consumed for space heating for each sector, and that proportion obtained from the Navigant 2017 Conservation Potential Review for FortisBC Gas.
- Decreases in residential and commercial electricity consumption assumed to be proportional to decreases in HDDs and the proportions of electricity consumed for space heating for each sector. However, proportions of electricity consumed for space cooling for each sector and how this will increase proportional to projected increases to Cooling Degree Days (CDDs) also included. These proportions obtained from the Navigant 2016 Conservation Potential Review for FortisBC Electric.

Although CEA's model assumes that projections will be linear, there will be annual variability due to factors such as economic conditions (on mobility fuels and building energy consumption) and climatic variations (particularly on building energy consumption). These variations mean that it may often be necessary to collect several years of data before one can see the success or lack of it in implementation of an action, in the primary indicators.

Modelling the Big Moves

The QuickStart model estimates the impacts of the Big Moves compared to the BAU trajectory. The impacts of the Big Moves can vary greatly between communities, and depend on the assumptions made. The assumptions made for each Big Move are based on research that CEA has conducted and can be tailored for individual communities.

GHG emission reductions by Big Move are described in the main body of this report in the Action Plan section.

The QuickStart model allows Big Move implementation at five levels; 0%, 25%, 50%, 75% and 100%. This allows for varying levels of ambition within each Big Move. The model also requires an implementation start year.

The QuickStart model makes the following assumptions based on full implementation (100% ambition level).

Big Move	Modelling Assumptions	
Step Up New Buildings	90%	New homes with zero-carbon heating
Decarbonize Existing Buildings	3%	Homes retrofit per year
	33%	Energy reduction per retrofit
	2%	Homes replacing fossil fuel heating with heat pumps
Shift Beyond the Car	1 year	Lag time from implementation for initial impact
	20 years	Full implementation takes 20 years
	17%	Maximum VKT reduction after 20 years from Active Transportation, Transit and Land Use
	40%	Attribution of VKT reduction to Active Transportation
	40%	Attribution of VKT reduction to Transit
Electrify Passenger Vehicles	5%	Current % of vehicle sales as EV
	80%*	Compound Annual Growth Rate of new car purchases as EV in year 1
	52%	Compound Annual Growth Rate of new car purchases as EV in year 5
Decarbonize Commercial Transportation	1%	Percentage GHG reduction per year
	10%	Maximum GHG reduction after 10 years
	5	Lag time from implementation for initial impact
Waste	75%	Percentage GHG reduction from organics diversion or landfill gas capture
	5	Full implementation takes 5 years.

If a lower level of ambition is selected, then that would be applied in the model. For example, if a community selects a 50% ambition level for Waste, then the GHG reduction would be 50% of 75% (or 37.5%) but would still take 5 years to ramp up to that diversion level.

*The Compound Annual Growth Rate (CAGR) is at 80% because the current rate of EV sales in Oliver is very low relative to the Provincial average, and a high CAGR will be needed to reach the Provincial ZEV sales mandate and the Electrify Passenger Transport actions outlined in this plan.

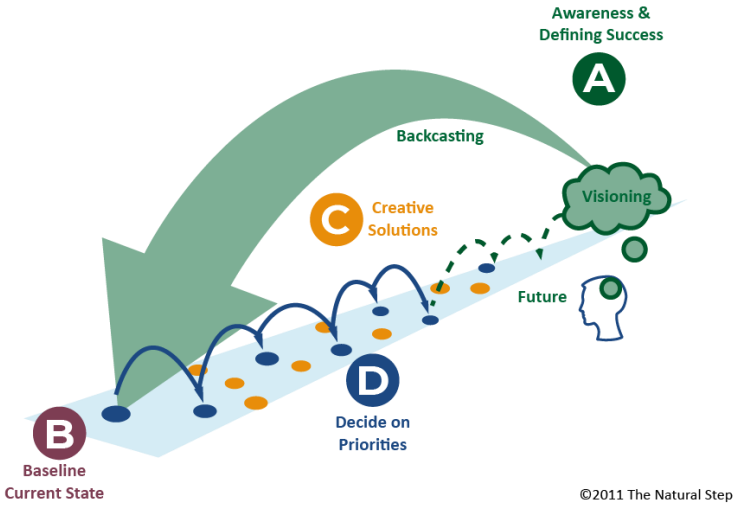
Appendix F: Engagement Summary

On January 25th, 2022, Oliver community stakeholders gathered via Zoom to discuss the Town of Oliver's Community Energy and Emissions Plan. The workshops were facilitated by Community Energy Association (CEA) staff. The workshop featured in-depth discussion on the current community emissions in the Town of Oliver as well as the envisioning of a low carbon future, review of the opportunities and actions to reduce community Greenhouse Gas Emissions (GHGs) and set the new community GHG reduction target for 2050. The workshop group who spent the morning examining community energy emissions and expenditure data and developing an action plan.

The workshop followed the "backcasting" approach, which first envisions a low carbon future and defines success, then identifies the current state before brainstorming creative solutions and prioritizing actions.

Workshop participants were divided into two breakout groups and remained in the same group throughout. The breakout groups were;

- Transportation
- Buildings
- Waste & Other (renewable energy and resiliency)



Workshop Activities

Activity A – A Vision of the Future

In the first breakout session, participants were asked to describe their vision of the future for Oliver for Buildings, Transportation, and Waste & Other. The year 2040 was used in this exercise as it bridges the gap between 2030 which is the short-term target year and 2050 which is the long-term target year. Participants were told that their vision could be unimpeded by traditional constraints such as cost. Participants were encouraged to be bold with their ideas. The Miro boards can be seen in Figure 9, Figure 10, and Figure 11.

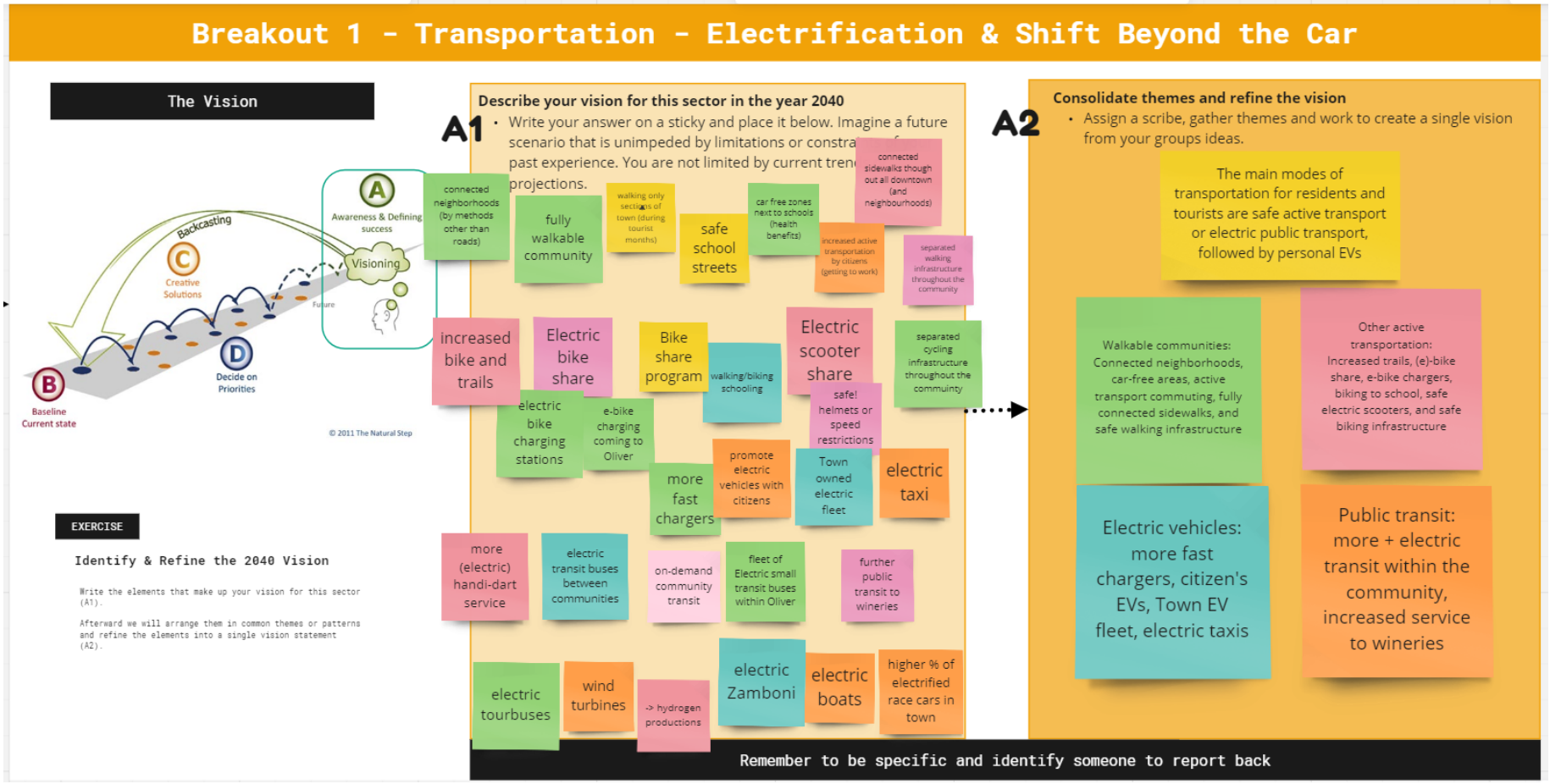


Figure 9 - A Vision of the Future for Transportation

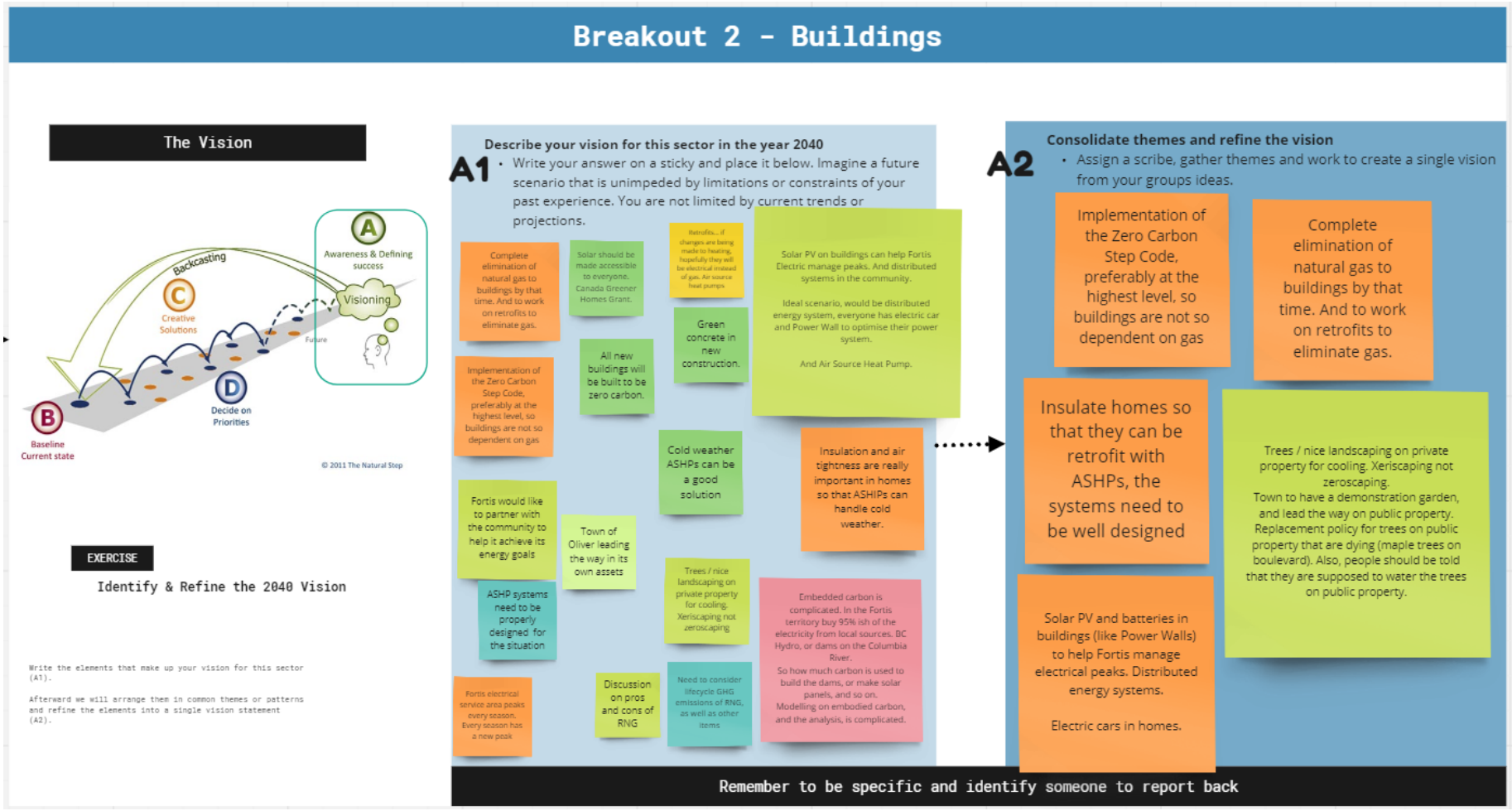


Figure 10 - A Vision of the Future for Buildings

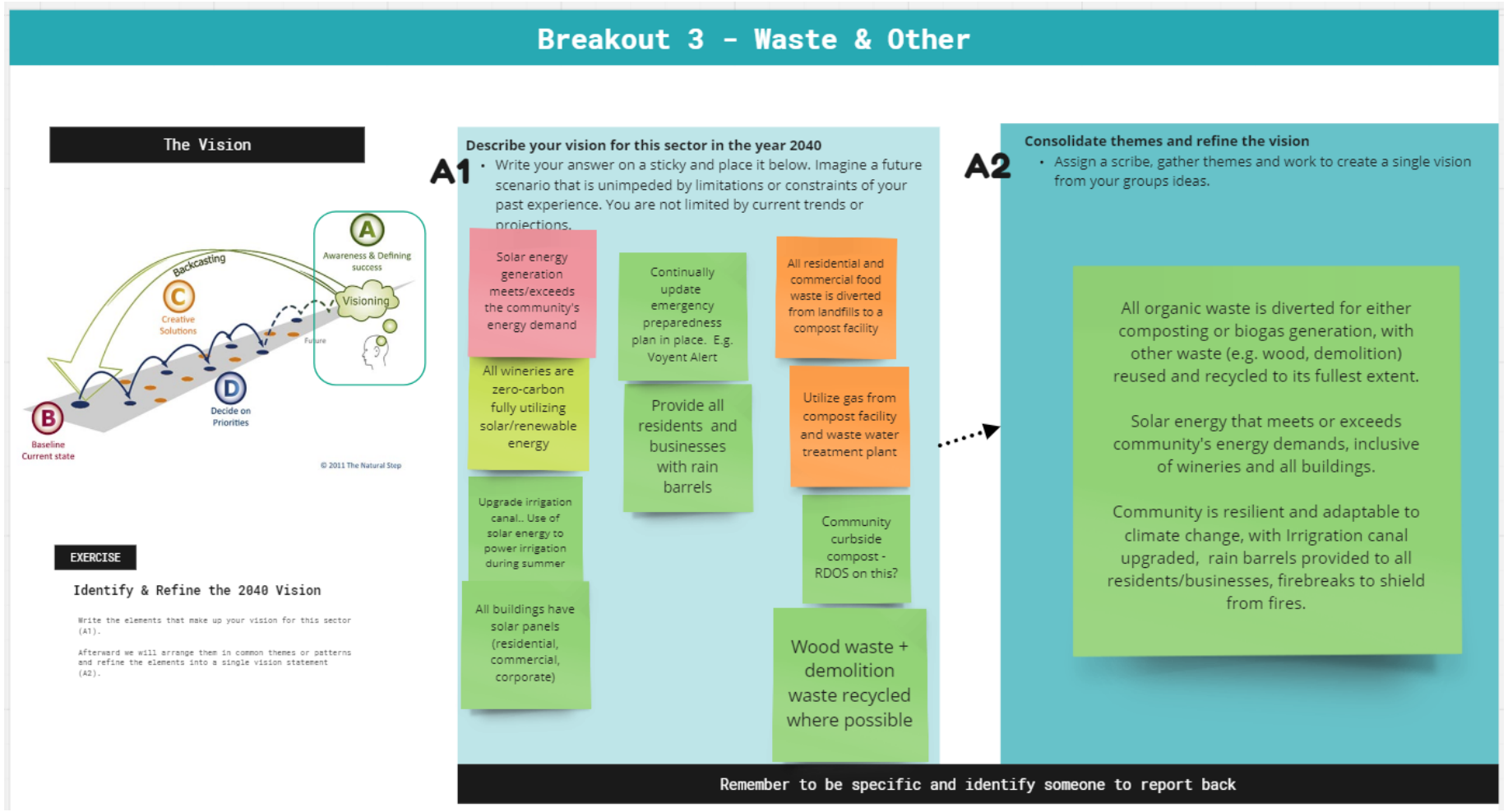


Figure 11 - A Vision of the Future for Waste & Other

Activity B – The Current State

In the second breakout session, participants were asked to describe the current state of Transportation, Buildings, and Waste for Oliver. The Miro boards can be seen in Figure 12, Figure 13, and Figure 14.

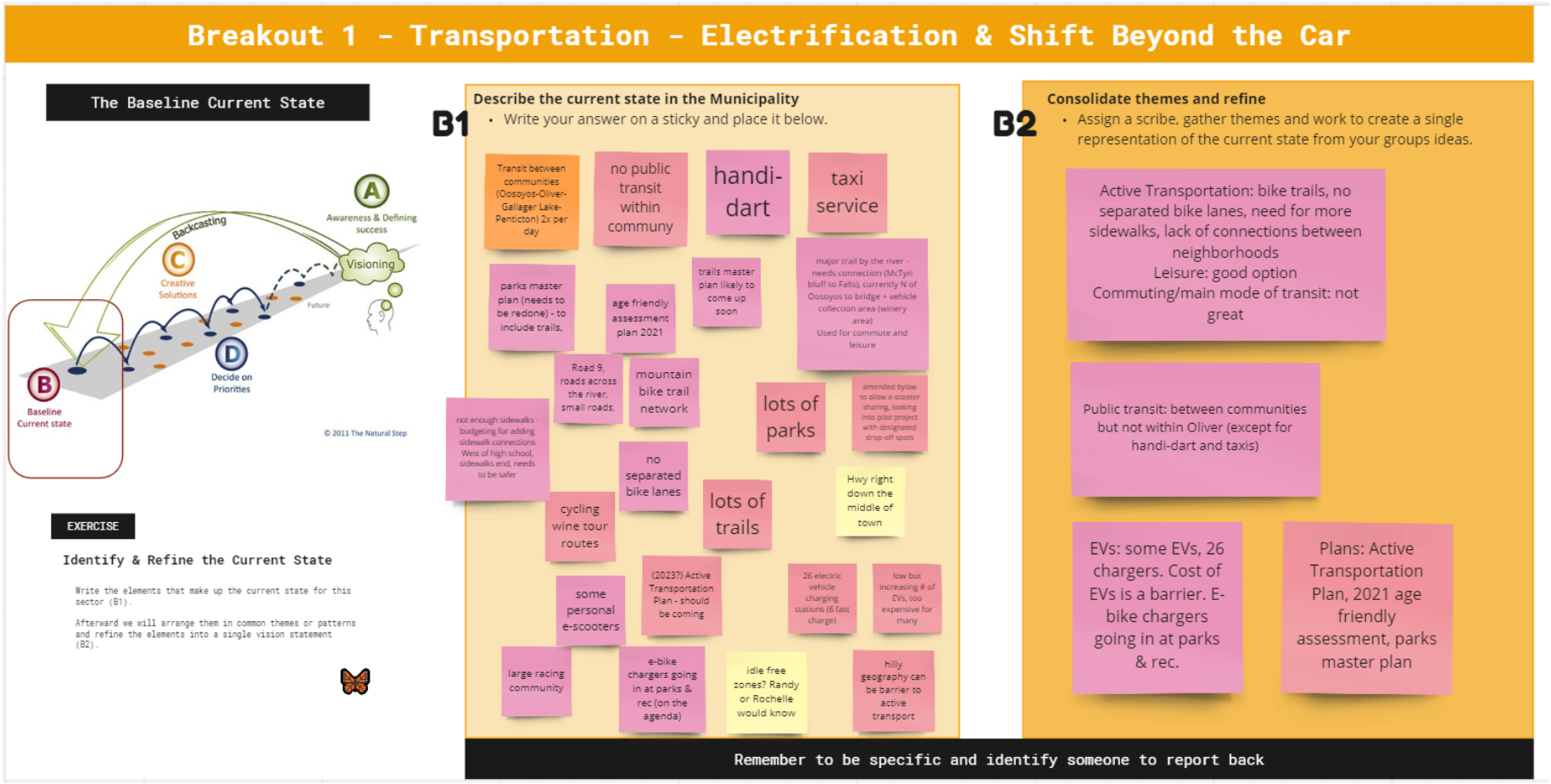


Figure 12 - The Current State of Transportation

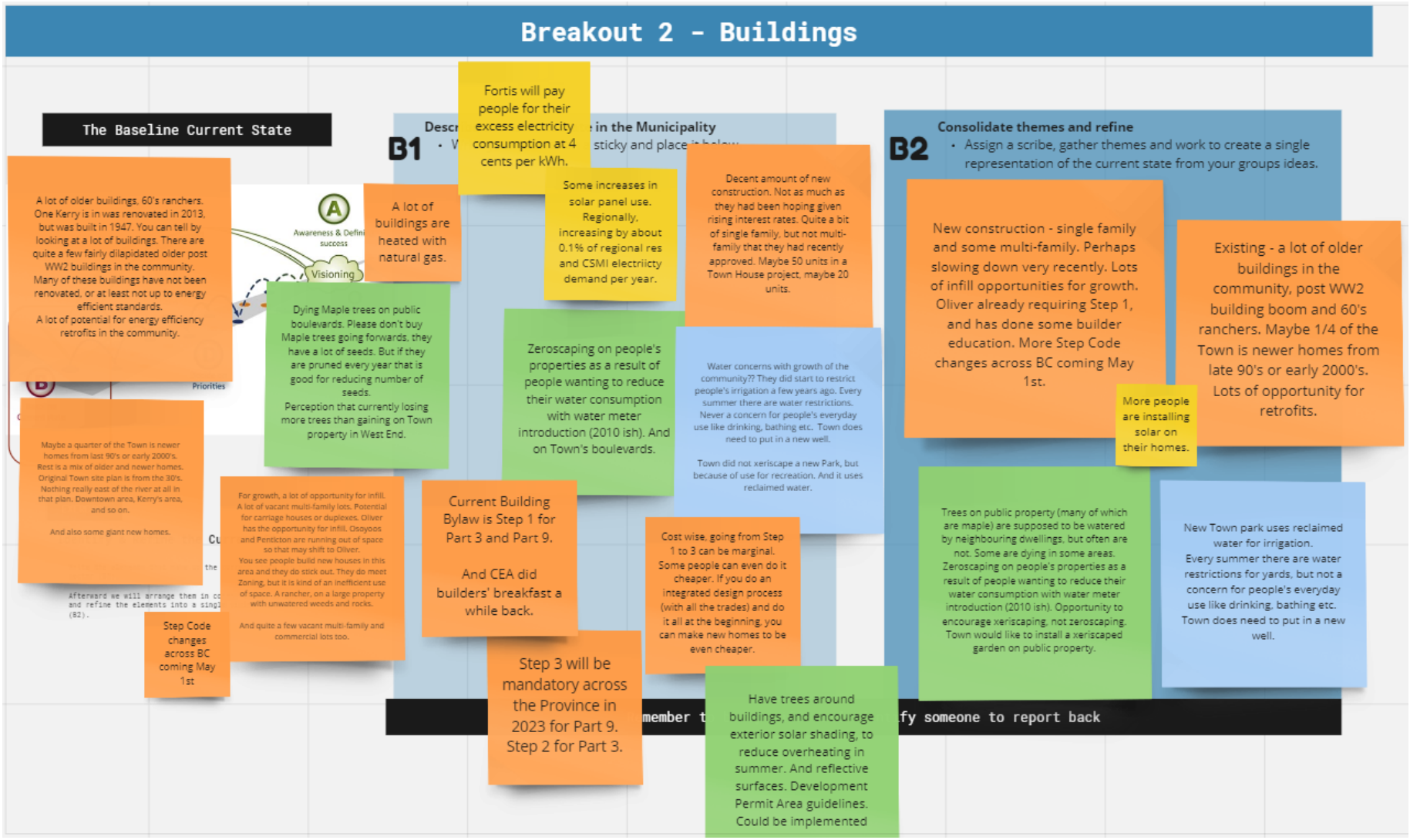


Figure 13 - The Current State of Buildings

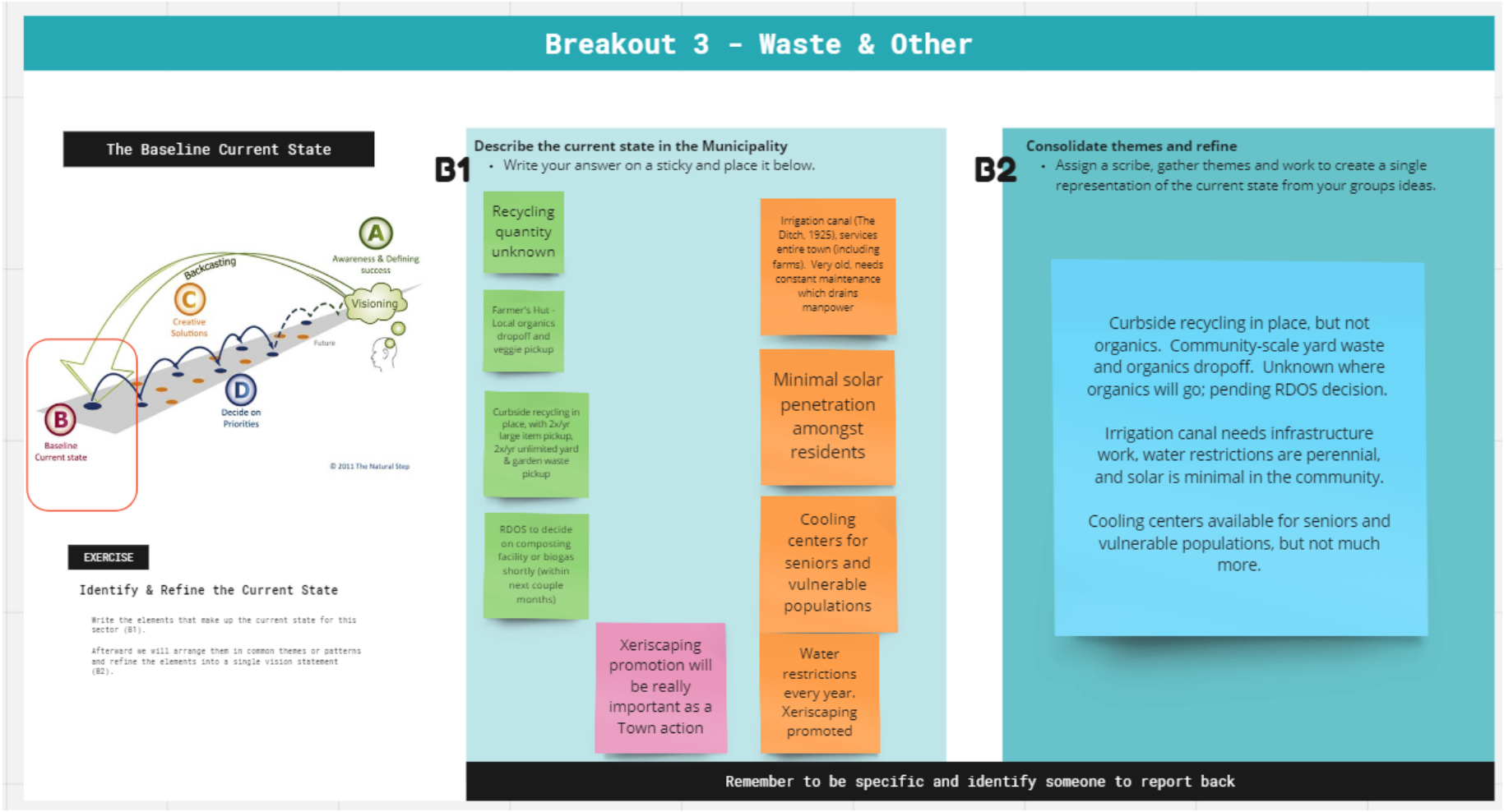


Figure 14 - The Current State of Waste & Other

Survey

Following the stakeholder workshop, participants were invited to complete a survey via Survey Monkey. Six responses were collected.

1. Do you have any more thoughts, ideas, or comments on Oliver's vision for **Transportation**?
    - More safety features and priority lanes and areas for pedestrian, bike and scooter traffic. public transit options and partnerships.
    - Increased trails/paths through neighbourhoods, connecting different areas. Don't focus so much on EVs. More evidence/stories coming out that EVs may not be the magical solution it's being presented as.
    - To make Oliver an idle-free vehicle zone.
    - Healthy public policy around transportation and active transportation. -Municipal support (grants or zero-interest loans) for citizens to purchase electric modes of transportation
    - Electric vehicles and tour busses, electric taxis electric chargers for citizen's convenience

2. Do you have any more thoughts, ideas, or comments on Oliver's vision for **Buildings**?
    - Complete elimination of natural gas would be ridiculously expensive. Rebates for solar panels on residential buildings.
    - Educate the public about the difference between xeriscaping and zeroscaping and the effects each have on keeping houses cool.
    - Increased rains gardens & rain barrels; green roofs; reflective roofs; increased canopy on buildings to keep heat off windows; capture wind power (wind turbine); houses and building to support cross-draft (cool in summer, warm in winter).

3. Do you have any more thoughts, ideas, or comments on Oliver's vision for **Waste** and Other?
    - Love the idea of curbside compost pickup, even for those households that already do their own composting.
    - Food diverted to food security programs & resources; increased use of grey water on agriculture; wind power generation (wind turbines); emergency plans for both extreme heat and cold;

4. What is your preferred 2030 target for Oliver?
    - 45% reduction (Intergovernmental Panel on Climate Change Target): three responses
    - 40% reduction (Provincial Target): two responses

- No Target: one response

5. What is your preferred 2050 target for Oliver?
    - 100% reduction (Intergovernmental Panel on Climate Change Target): three responses
    - 80% reduction (Provincial Target): two responses
    - No Target: one response