Resilient Okotoks

Climate Action Plan 2021-2033

Okotoks

Prepared for:
Town of Okotoks
5 Elizabeth Street
Okotoks, AB, T1S 1K1

Developed by:
Integral Group
Suite 180 - 200 Granville Street
Vancouver, BC, V6C 1S4

With:
Tamsin Mills
Resilience Consulting

TABLE OF CONTENTS

TERRITORIAL ACKNOWLEDGEMENT

Treaty Seven & Indigenous Peoples

Okotoks acknowledges the traditional territories of the people of the Treaty 7 region in Southern Alberta, which includes Blackfoot Confederacy members Siksika, Piikani, and the Kainai First Nations, the Stoney Nakoda of Bearspaw, Chiniki and Wesley First Nations, the Dene of Tsuut'ina First Nations, and the Métis Nation Region 3, and all those that make Treaty 7 lands their home. Okotoks also acknowledges the traditional territories of the Ktunaxa Nation. Okotoks recognizes the historic achievements and contributions of Indigenous people and their key role in the development of the Calgary Metropolitan Region and Okotoks. The Town remains committed to respecting Indigenous culture and reconciliation, and promoting the awareness and recognition of Indigenous people.

ACKNOWLEDGEMENTS

The Town of Okotoks' *Climate Action Plan* is the outcome of almost a year of collaborative effort between a broad range of municipal staff and senior leadership, Town Council, and community members. We wish to thank everyone involved for their time and contributions.

Town staff would like to dedicate this report to the young people of Okotoks and say a special thank you to the students who took the time to make their voices heard.

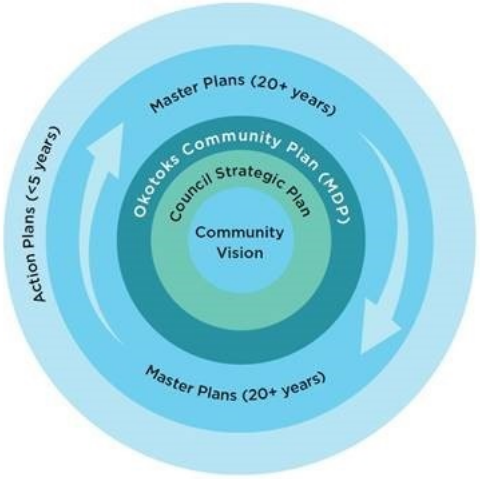
REPORT SUMMARY

A Climate of Change

Okotokians are aware that climate change is occurring and that it is another challenge to be met. The community has already experienced how warming temperatures from greenhouse gas (GHG) emissions are causing changes, from hotter and drier summers, to wetter winters, and more frequent and extreme weather events. As these trends continue, they will lead to impacts such as increased flooding and extended periods of drought. If they go unaddressed, Okotoks faces a future in which property damage, poorer health, and economic uncertainty are more commonplace.

Luckily, responding to climate change also presents opportunities to Okotoks. The Town is already leading the way through its sustainability efforts, many of which are helping to make the community more livable today and more sustainable for future generations. Taking bold action on climate change offers another chance to reaffirm a collective vision of a better future for Okotoks – a close-knit community that is prepared, resilient and thriving.

A Plan of Action



The Town has created this *Climate Action Plan* to guide Okotoks on the course to this desired future. It has been designed to meet the Town of Okotoks' target of achieving **carbon neutrality by 2050**, while also making the community **more resilient and a better place to live**. It establishes a detailed pathway to 2030 with guidance to 2050, while highlighting strategies that will help move the community forward for many years to come.

This action plan combines everything known about what Okotoks can do to mitigate climate change and how to prepare for the changes that cannot be avoided. It represents the necessary next step in implementing many decisions that the Town of Okotoks has already made, including the long-term direction provided in the *Environmental Master Plan* and *Municipal Development Plan*. It is an important next step in realizing the goals and objectives set out in these existing broader community-scale plans.

Resilient Okotoks

To reduce the collective impact on the environment and make the most of opportunities, the *Climate Action Plan* establishes goals for climate action across eight priority areas:

1) Buildings
2) Transportation and Land Use
3) Waste
4) Energy Supply
5) Ecosystems and Local Food
6) Health, Wellness and Preparedness
7) Water Conservation and Management
8) Mainstreaming and Corporate Leadership

In each of these areas, Town staff have worked with local residents and community partners to establish realistic targets and practical next steps to guide the Town to a sustainable future. Each action has also been selected to achieve multiple co-benefits under the One Planet Living Framework, which range from improved health and happiness, to the protection of local lands and ecosystems, stronger local economy, and others.

BUILDINGS	
Goal	**Okotoks is a leader in low-carbon, resilient building design**.
Objectives	**1)** Guide new construction projects that are energy efficient and resilient to future climate conditions **2)** Retrofit existing buildings to reduce energy use and emissions, and to enhance resilience to future climate conditions **3)** Promote high-performance buildings through alternative financing mechanisms and robust incentives
Targets	• Build 100% of new construction to a 'green' standard by 2033 • Build 20% of new construction to a zero carbon energy levels of performance by 2033, such as Passive House or equivalent
TRANSPORTATION & LAND USE	
Goal	**Getting around Okotoks is convenient and safe, with ample options that reduce reliance on cars.**
Objectives	**1)** Increase access to safe, equitable and sustainable multi-modal transportation options **2)** Improve access to regional and local transit to provide efficient transportation alternatives **3)** Reduce car dependency through car sharing and ridesharing options, and ensure that parking aligns with the needs of the community **4)** Support electric vehicle adoption throughout the community **5)** Create compact, vibrant, and resilient communities where people can meet their daily needs
Targets	• Increase percentage of trips made using transit or active transportation by 25% by 2030 • Reduce the distance driven by residents (vehicle km travelled) by 25% by 2033
WASTE	
Goal	**Okotoks continues to reduce the amount of waste that is generated and disposed, and makes the most of opportunities for reuse.**
Objectives	**1)** Increase waste reduction and diversion from residential and industrial/commercial/institutional buildings, the streetscape, and demolition, construction, and land-clearing **2)** Promote waste reduction through sharing and reuse
Targets	• Recycle, reuse or compost 95% of waste by 2050

ENERGY SUPPLY	
Goal	**Okotoks has a diverse, resilient energy supply that helps to minimize the generation of greenhouse gas emissions and air pollutants.**
Objectives	**1)** Increase local supply of renewable electricity, and renewable heating fuels and systems **2)** Explore opportunities to develop district energy systems and connections **3)** Promote renewable energy generation through alternative financing mechanisms and robust incentives **4)** Collaborate with local industry, neighbouring communities, and other levels of government to diversify and strengthen Okotoks' energy supply
Targets	• Use 100% renewable energy at corporate facilities by 2050
ECOSYSTEMS & LOCAL FOOD	
Goal	**Okotoks has strengthened its connection to nature by protecting and enhancing its natural areas, and promoting its local food assets.**
Objectives	**1)** Protect and enhance biologically diverse and resilient ecosystems across the community **2)** Ensure no net loss to Okotoks' urban forest canopy cover over time **3)** Increase, protect and enhance green and natural assets across Okotoks **4)** Increase residents' access to and connection with nature **5)** Increase local food production and sustainable food choices
Targets	• Increase native plant species across the town by 30% by 2030 • Increase the area of protected riparian areas by 25% by 2030 • Increase naturalized areas in new and existing developments by 25% by 2030 • Increase local community food assets by 75% by 2033
HEALTH, WELLNESS & PREPAREDNESS	
Goal	**Okotokians are informed, connected, and prepared to respond and recover in the face of future climate challenges.**
Objectives	**1)** Strengthen community connections to enhance social resilience, especially for those most vulnerable to the impacts of climate change **2)** Improve local knowledge, capacity, and collaboration to respond to climate-related emergencies **3)** Mitigate the impact of flooding on buildings, community assets and infrastructure **4)** Minimize health impacts of steady temperature increases and heat waves on residents **5)** Minimize health impacts of wildfires and wildfire smoke on residents **6)** Work with community partners and organizations to understand and mitigate cross-jurisdictional risks
Targets	• Return 50% of previously developed area within the floodway to naturalized area to allow for changing river flows and patterns by 2050 • Upgrade 80% of all vulnerable infrastructure by 2050
WATER CONSERVATION & MANAGEMENT	
Goal	**Okotoks has ensured a resilient water supply, and leads the way on conservation and reuse.**
Objectives	**1)** Prepare for more limited water supply over time and improve the resilience of the existing water supply infrastructure **2)** Explore innovative approaches to water management and reuse

Targets	• Achieve a 20% reduction in outdoor use of potable water (summer daily peak) by 2030 • Achieve and maintain an annual potable water system loss rate of less than 5% by 2030 • Achieve and maintain lowest per capita gross water and residential potable water consumption rates in Canada by 2050 • Meet or exceed Provincial guidelines for both drinking water quality and surface water quality on an ongoing basis
MAINSTREAMING & COPORATE LEADERSHIP	
Goal	**The Town of Okotoks shows corporate leadership on proactive climate action, both in the community and through the region.**
Objectives	**1)** Apply a climate lens to municipal asset management **2)** Develop staff capacity and community understanding of climate action in Okotoks **3)** Leverage funding available from different levels of government that can support climate action in Okotoks **4)** Work with local industry and businesses to promote the co-benefits of climate action
Co-benefits	• Equity and Local Economy • Culture and Community

Implementing the Plan

The Town of Okotoks will act as both a leader and a partner in the implementation of the *Climate Action Plan*. As a leader, the Town will be responsible for integrating actions in its own internal policies, programs, and facilities. As a partner, the municipality will continue to work alongside local businesses, community organizations, institutions, and other levels of government to share resources and lessons learned, and to refine climate action strategies over time. The Town will continue to support local residents and businesses in implementing their own climate actions by providing the information and resources they need to make climate-smart decisions. At the same time, municipal staff will do their best to support new and innovative ideas brought forward by community members and partners. The Town of Okotoks will also work to ensure the costs and benefits of climate action are distributed fairly, drawing on lessons from the *Social Wellness Framework*.

Plan implementation will rely on Town staff identified as action leads, along with key community partners, both of which have been established in the existing plans and programs brought together in this document.

1. INTRODUCTION

The Town of Okotoks is unique. It offers all the conveniences of big city living, while maintaining the peaceful atmosphere and close-knit sense of community for those looking for a small Alberta town. Located along the Sheep River, it has an abundance of natural advantages, including sunny weather, a stunning view of the Rockies, and clean, clear water. These characteristics have made Okotoks a community of choice for many, especially families and entrepreneurs, and the town has experienced substantial growth that is expected to continue in the future.

As with many other communities in Alberta, the past few years have been challenging for Okotoks. Between economic uncertainty in the resource sector and the COVID-19 pandemic, residents and local businesses have faced significant challenges. The people of Okotoks have risen to meet these difficulties with determination, flexibility, and teamwork.

Okotokians are aware that climate change is occurring and that it is another challenge to be met. The community has already experienced how warming temperatures from greenhouse gas (GHG) emissions are causing changes, from hotter and drier summers, to wetter winters, and more frequent and extreme weather events. As these trends continue, they will lead to impacts such as increased flooding and extended periods of drought. If they go unaddressed, Okotoks faces a future in which property damage, poorer health, and economic uncertainty are more commonplace.

Luckily, responding to climate change also presents opportunities to Okotoks. The Town is already leading the way through its sustainability efforts, many of which are helping to make the community more livable today and more sustainable for future generations. In this future, buildings are safer and more comfortable, and utility bills are lower. The streets are quieter and people can walk to work taking in the sunshine and clean air. Taking bold action on climate change offers another chance to reaffirm a collective vision of a better future for Okotoks – a close-knit community that is prepared, resilient and thriving.

A Resilient, Low-Carbon Okotoks

Okotoks is aiming to reach a state of **carbon neutrality** by 2050 – in other words, to reduce the total effect of human activity on the climate to zero (after accounting for remaining carbon emissions and removals). Actions taken to achieve carbon neutrality should also make Okotoks even better than it is today.

To guide Okotoks on the course to this desired future, the Town has adopted a **low-carbon resilience (LCR)** approach. At its core, low-carbon resilience involves considering and balancing the two pillars of climate change action: **mitigation**, or the reduction of GHG emissions that contribute to climate change, and **adaptation** to reduce the consequences or take advantage of opportunities associated with a changing climate. Low-carbon resilience focuses on integrated strategies and actions that reduce emissions and vulnerability to climate change impacts at the same time.

Key Terms

Throughout this report, key terms are bolded to help draw the reader's attention to important concepts. Definitions for these terms and others can be found in Appendix A.

Why Does Okotoks Need a Climate Action Plan?

While the Town of Okotoks has many plans and policies in place that contribute to the community's collective vision for the future, strategies related to climate change are spread across many documents. An overarching plan is needed to guide a consistent approach and avoid overlap or conflicting actions. *Resilient Okotoks*, the *Climate Action Plan* (CAP), addresses this gap by combining everything known about what Okotoks can do to mitigate climate change and how to prepare for the changes that cannot be avoided.

What are those changes? There are many, but the key factor is that average local temperatures have increased at a rate of +1.4°C per century since 1917, a rate approximately twice the global average. In the past 50 years, this rate has increased to approximately +3.9°C per century. Following this trend, the average annual temperature in Okotoks is anticipated to increase by +3.4ºC by the 2050s[1].

Climate Events in Alberta

In the past few years alone, Albertans have experienced some of the most disruptive and costly climate-related extreme events ever recorded, each resulting in significant economic losses and human harm. Embracing a low-carbon resilience approach to climate action means that Okotoks will be better prepared for future challenges:

- **2013 Southern Alberta floods:** Heavy rainfall on the melting snowpack in the Rocky Mountains led to flooding that caused five fatalities and as much as $6 billion in financial losses and property damage[2]. Fortunately, lessons learned from past floods helped to minimize impacts in Okotoks.
- **2016 Fort McMurray wildfires:** In total, wildfires burned more than 590,000 hectares of land and forced 90,000 from their homes, with over 2,400 homes and buildings lost and two indirect fatalities. With a total cost of over $9 billion[3], this is the most expensive natural disaster in Canadian history.
- **2020 Northeast Calgary hailstorm:** On June 13, the region experienced devastating hail, rain and wind that shredded vinyl siding, smashed windows, and flattened crops. With an insured cost of $1.2 billion in damage, it is the fourth most costly natural disaster in Canadian history[4].

The Town of Okotoks has already started preparing for climate change and is well-positioned to achieve significant emissions reductions and reach carbon neutrality. By taking proactive action, the community can better prepare itself for the future while reducing the costs of climate change.

Thinking ahead is important because many actions to reduce emissions depend on how land is used, how buildings are designed, and the way transportation networks are shaped, which are all long-lasting decisions. As the Town's population is projected to increase by 88% by 2050 (from 29,002 to 54,474), there is a major opportunity to incorporate climate action as the community grows, and ensure that the costs and benefits of that action are spread equitably across the town.

Okotoks will also be supported by provincial climate action. The Government of Alberta introduced its *Climate Leadership Plan*[5] in 2015, with key strategies including:

- Carbon pricing.
- Moving away from coal-generated electricity by 2030 and developing more renewable energy; and
- Capping oil sands emissions.

[1] Town of Okotoks. (2020). *Climate Resilience Express Action Plan.*
[2] City of Calgary. (2018). *The Flood of 2013.*
[3] University of British Columbia. (n.d.) *Fort McMurray and the Fires of Climate Change.*
[4] CTV News. (2020). *Southern Alberta storm caused almost $1.2B in damage, fourth most costly Canadian natural disaster.*
[5] Government of Alberta. (2015). *Climate Leadership Plan.*

While this program was dismantled in 2019, many of the above strategies remain in place. It is not yet known what targets will be set or what climate action strategies will be emphasized. In the absence of firm Provincial direction, the Town of Okotoks has the chance to chart its own course on climate action.

Equity in Climate Action

Applying an 'equity lens' to **climate action** means ensuring that the benefits and burdens of climate change and climate action are distributed fairly throughout a community, and that they account for future generations. It means only asking for people to make changes that are manageable for them, while reducing potential costs for those who are already challenged in making ends meet. It also means ensuring that community members who are most vulnerable to climate change are better protected, and that the positive outcomes of climate action can be enjoyed by all for years to come.

Building Back Better

The COVID-19 pandemic has been difficult for everyone in Okotoks. Daily routines have changed, local businesses have relied on creative solutions to stay afloat, and the path to recovery is still being determined. At the same time, recent events are a reminder of the benefits of living in a close-knit community, where elderly residents can count on their neighbours to help pick up groceries and where people pride themselves on supporting local entrepreneurs. It has also helped to reimagine what Okotoks could look like in the future by 'building back better', including:

- Realizing flexible work and telecommuting options;
- Emphasizing complete, walkable, and inclusive neighbourhoods that prioritize non-vehicular movement;
- Tackling social isolation and providing better spaces for gathering; and
- Coming together for increased engagement and involvement in the community.

Overview of the Climate Action Plan

The *Climate Action Plan* has been designed to meet the Town of Okotoks' target of achieving carbon neutrality by 2050, while also making the community more resilient and a better place to live. It establishes a detailed pathway to 2030 with guidance to 2050, while highlighting strategies that will help move the community forward for many years to come. To reduce the collective impact on the environment and make the most of opportunities, the CAP establishes goals for climate action across eight priority areas:

1) **Buildings:** Okotoks is a leader in low-carbon, resilient building design.
2) **Transportation and Land Use:** Getting to, from and around Okotoks is convenient and safe, with ample options that reduce reliance on cars.
3) **Waste:** Okotoks continues to reduce the amount of waste that is generated and disposed, and makes the most of opportunities for reuse.
4) **Energy Supply:** Okotoks has a diverse, resilient energy supply that helps to minimize the generation of greenhouse gas emissions and air pollutants.
5) **Ecosystems and Local Food:** Okotoks has strengthened its connection to nature by protecting and enhancing its natural areas, and promoting its local food assets.
6) **Health, Wellness and Preparedness:** Okotokians are informed, connected, and prepared to respond and recover in the face of future climate challenges.

7) **Water Conservation and Management:** Okotoks has ensured a resilient water supply, and leads the way on conservation and reuse.

8) **Mainstreaming and Corporate Leadership:** The Town of Okotoks shows corporate leadership on proactive climate action, both in the community and through the region.

In each of these areas, Town staff have worked with local residents and community partners to establish realistic targets and practical next steps to guide the Town to a sustainable future, which are explored in Section 4 of this document.

2. BUILDING ON A HISTORY OF ACTION

A Strong Foundation

The Town of Okotoks has a long history of sustainability and climate initiatives that set that stage for further climate action, covering both mitigation and adaptation. The following community plans and policies have put Okotoks on the path to becoming a low-carbon and resilient community, and will act as the foundation for the *Climate Action Plan*.

Important to note is that many of these have already been synthesized within the *Environmental Master Plan* (EMP), which was developed through extensive community consultation and approved in 2018. **In essence, the CAP picks up where the EMP left off by building on and refining the great work that Okotoks has already set in motion.**

- ***Community Sustainability Plan*** **(CSP):** In 2014, the Town engaged in a substantial resident engagement process that established a community vision for a more sustainable and resilient Okotoks. Released in 2016, the *Community Sustainability Plan* articulates this collective vision and establishes six short-term steps needed to achieve it.
- ***Municipal Development Plan*** **(MDP):** The *Municipal Development Plan*, with updates approved in January 2021, is a statutory plan that outlines land-use planning, development and growth for the Town of Okotoks looking towards 2080. It also provides guidance on the many interconnected factors (e.g. historical, social, economic, environmental) that shape the community. Based on the One Planet Living Framework, it establishes 10 goals for the town to work towards, including improved health and happiness, the protection of local lands and ecosystems, and a stronger local economy.
- The **MDP** also establishes five objectives to address climate change and foster community resilience, each accompanied by numerous actions. Key examples relevant to the CAP include creating more resilient buildings, utilizing a climate lens for all infrastructure projects, and establishing resilience in the energy distribution system.
- ***Climate Resilience Express Action Plan*****:** Completed in 2018, the *Climate Resilience Express Action* Plan summarizes efforts of a climate resilience workshop held with internal and external stakeholders in December 2017. This process identified seventeen climate-related risks and six climate-related opportunities, with examples of risks including overland flooding from heavy rainfall (high risk), grass fires and strong winds (medium risk), and heat stress for residents (low risk). Actions to reduce risk are generally captured in the *Environmental Master Plan*.
- ***Climate Risk and Resilience Assessment*** and associated ***Recommendations Report*****:** Completed in 2019, this process explores community resilience more broadly by including hazards that are not strictly climate-related (e.g. hazardous material spills). The Assessment included a survey; hazard and asset mapping; and two one-day workshops focused on the UN Office for Disaster Risk Reduction's (UNDRR) 10 Essentials for Making Cities Resilient[6].

[6] UN Office for Disaster Risk Reduction (UNDRR). (2019). *The Ten Essentials for Making Cities Resilient.*

Showing Leadership

Alongside the community plans and policies described in the previous section, the Town of Okotoks has also spent the past decade implementing a multitude of initiatives that support climate action within its own corporate operations. The examples in Table 1, categorized by the eight priority areas of the CAP, represent only a portion of the work the Town already has completed or has underway:

Table 1: Examples of corporate climate action initiatives underway or completed at the Town of Okotoks

Priority Area	Town Actions Completed or Underway
Buildings	• Conducting comprehensive energy audits and resilience reviews of all Town buildings to identify opportunities for energy savings and to improve resilience (e.g. motion sensors have been added and lighting has been upgraded in some municipal buildings) • Creating and implementing a corporate green building policy that requires municipal buildings to be constructed to meet LEED Gold standards or better • Converting all existing traffic, pedestrian, and street lights to LED technology
Transportation & Land Use	• Continuing to expand the town's network of electric vehicle (EV) charging stations at key locations (e.g. the new Okotoks Arts and Learning Campus) and installing EV infrastructure for municipal operations • Exploring the viability of low-emissions equipment (e.g. lawn maintenance) • Purchasing electric bicycles for Town employees to commute between buildings • Expanding work-from-home options for staff, where appropriate, to reduce the number of people needing to commute
Waste	• Introducing a waste reduction strategy for all Town buildings and facilities • Implementing a three-stream waste diversion program for all Town-run community events • Enhancing waste management programs for public spaces (e.g. downtown, parks) • Tracking and reducing paper used • Prohibiting Styrofoam and other products that cannot be recycled from Town events, meetings, and services
Energy Supply	• Exploring long-term strategies to generate or purchase renewable energy to meet 100% of demand for municipal buildings • Installing renewable energy at municipal facilities
Ecosystems & Local Food	• Increasing the amount of community gardening space available to residents • Creating a digital map that shows where residents can collect fruit
Health, Wellness & Preparedness	• Creating a comprehensive, digital system that allows the Town, Province, and utility providers to overlay key information to help inform emergency management procedures
Water Conservation & Management	• Exploring opportunities to reuse rainwater for municipal irrigation needs • Using xeriscaping for municipal landscaping projects • Finding ways to reuse swimming pool water from the Okotoks Recreation Centre
Mainstreaming & Corporate Leadership	• Providing orientation sessions for Council after each election on environmental sustainability • Establishing formal partnerships with local businesses on sustainability • Developing an integrated communication strategy focused on key climate-related hazards faced by the community • Developing ongoing public outreach to increase awareness of climate hazards

3. CLIMATE CHANGE IN OKOTOKS

Future Climate Projections & Impacts

Okotokians are already feeling the effects of climate change, and the associated short-term shocks and long-term stresses are projected to intensify in the future. It is important to either avoid or prepare for these impacts in order to both maintain and enhance community health and wellbeing. Fortunately, climate change will also present some potential opportunities, and in order to take advantage of these effectively it is important to understand what the future has in store for Okotoks.

Climate Terminology

Weather refers to the atmospheric conditions at a given location at a given time. These conditions generally occur over a short period and are subject to frequent change.

Climate refers to the weather conditions prevailing in an area in the long term (i.e. years or decades).

Climate change refers to variations in climatic conditions over time that have been observed in the past, along with future conditions that are anticipated based on these model projections.

To determine what Okotoks can expect in the future, regional climate data is used to represent general climate trends. For example, to get a sense of overall temperature change, variables such as hottest day of the year, days above 25°C and days above 30°C are used as a reference. Based on this approach, Okotokians can anticipate changes in four general categories, with specifics to be explored in this section:

- Warming temperatures
- Shifting precipitation patterns
- Changing growing seasons
- Increase in the frequency and severity of extreme weather events

To establish a greater level of detail, the *Climate Action Plan* uses climate data from the 2018 *Climate Resilience Express Action Plan* and the 2019 *Climate Risk and Resilience Assessment* and associated *Recommendations Report*. These incorporate historic climate trends from four climate stations in the region (Olds, Calgary, Gleichen and Lethbridge) and future climate projections from the Climate Change Hazards Information Portal (CCHIP)[7].To ensure that Okotoks future planning uses the best available data, these projections have been cross-checked against the Climate Atlas of Canada[8] and Climate Data Canada[9] portals, both produced collaboratively by the country's leading climate organizations and supported by the Government of Canada. See Appendix B for more information on future climate projections and associated impacts for Okotoks.

Flooding in Okotoks

Okotoks has experienced some major flooding events in recent years, especially in 2005 and 2013. Following the 2005 flood, the Town strengthened its flood mitigation strategies and infrastructure to prepare for future events. In 2013, despite facing higher water levels, Okotoks was more prepared for local impacts and was able to help surrounding communities.

[7] Risk Sciences International. (n.d.) *Climate Change Hazards Information Portal (CCHIP).*
[8] Prairie Climate Centre. (2020). *Climate Atlas of Canada*.
[9] Environment & Climate Change Canada. (2020). *Climate Data Canada.*

While these projections and impacts paint a startling picture, the Town of Okotoks has already started to plan and implement numerous adaptation responses. This puts the community in a good position to capitalize on some of the beneficial opportunities associated with climate change, with key examples including:

- Reduced space heating demand due to increased winter temperatures and fewer extreme cold spells
- Increased ability and opportunities to store water for future uses
- Potential opportunities for renewable energy development
- Increased opportunities for winter tourism and recreation resulting from fewer periods of extreme cold, and increased opportunities for summer and shoulder season tourism and recreation from increased temperatures
- Longer growing season for agriculture and local producers from increased temperatures in summer, spring, and fall

The 2013 Southern Alberta Flood

Reducing Energy & Emissions in Okotoks

Although a certain degree of climate change is unavoidable due to emissions that have already been released into the atmosphere, the Town of Okotoks can do its part to help ensure climate impacts do not become unmanageable by reducing local emissions as much as possible.

Currently, over 400,000 tonnes of GHG emissions are emitted each year from homes, businesses, and activities in Okotoks. In order to meet a commitment of carbon neutrality by 2050, this needs to be reduced by 30 to 60 percent over the next ten years – that means cutting out at least 65,000 tonnes of GHG emissions per year. To achieve this desired future, it is essential to understand where these emissions come from and what that looks like in years to come.

Greenhouse Gas Inventory

The foundation of the CAP is a corporate and community emissions inventory that was prepared for Okotoks for the year 2018. This was developed in line with the Federation of Canadian Municipalities' Partners for Climate Protection Protocol ('the PCP Protocol') [10], which uses international GHG inventory protocols and refines them for use in Canada. Okotoks' GHG inventory is split into two sections:

- A **corporate** inventory that contains emissions sources over which the Town has direct control, either because it owns/operates them or because they are sources which are traditionally provided by a municipality and are contracted out; and
- A **community** inventory which contains emissions from within the municipal jurisdiction that the Town does not own/operate.

At a high level, corporate buildings, water, and waste emerged as the largest contributors on the corporate side, while community emissions are approximately split between transportation and buildings (residential, industrial, commercial, and institutional combined). Considering corporate and community emissions together provides us with a few valuable insights, summarized below:

Buildings and stationary energy *represent 45% of the energy use in the Township and 53% of the Township's emissions. The primary energy use is residential buildings.*

Transportation *via passenger vehicles and commercial transportation powered by gasoline, aviation gasoline, electricity and diesel make up 55% of the energy use and 45% of the emissions in Okotoks. Passenger vehicles represent 80% of the transportation emissions.*

Waste *is not a major factor in the Township's energy use, but solid waste decomposition and incineration both produce greenhouse gases that contribute a small portion of the Township's total emissions.*

A 'business as usual' (BAU) forecast was developed using the 2018 baseline to illustrate one likely emissions future if current emissions patterns continue (Figure 1). **If actions are not taken quickly, emissions can be expected to grow steadily over the coming decades, with a 51% increase from 2018 to 2050**. The BAU forecast includes a lower GHG intensity of the electric grid anticipating Alberta's move away from using coal.

Growth forecasts are incorporated in the BAU forecast as well. If Okotoks grows faster than expected without taking action, emissions will increase as a result. The numbers are clear: now is the time to act.

[10] Federation of Canadian Municipalities (FCM). (2018). *Partners for Climate Protection (PCP) Protocol: Canadian Supplement to the International Emissions Analysis Protocol.*

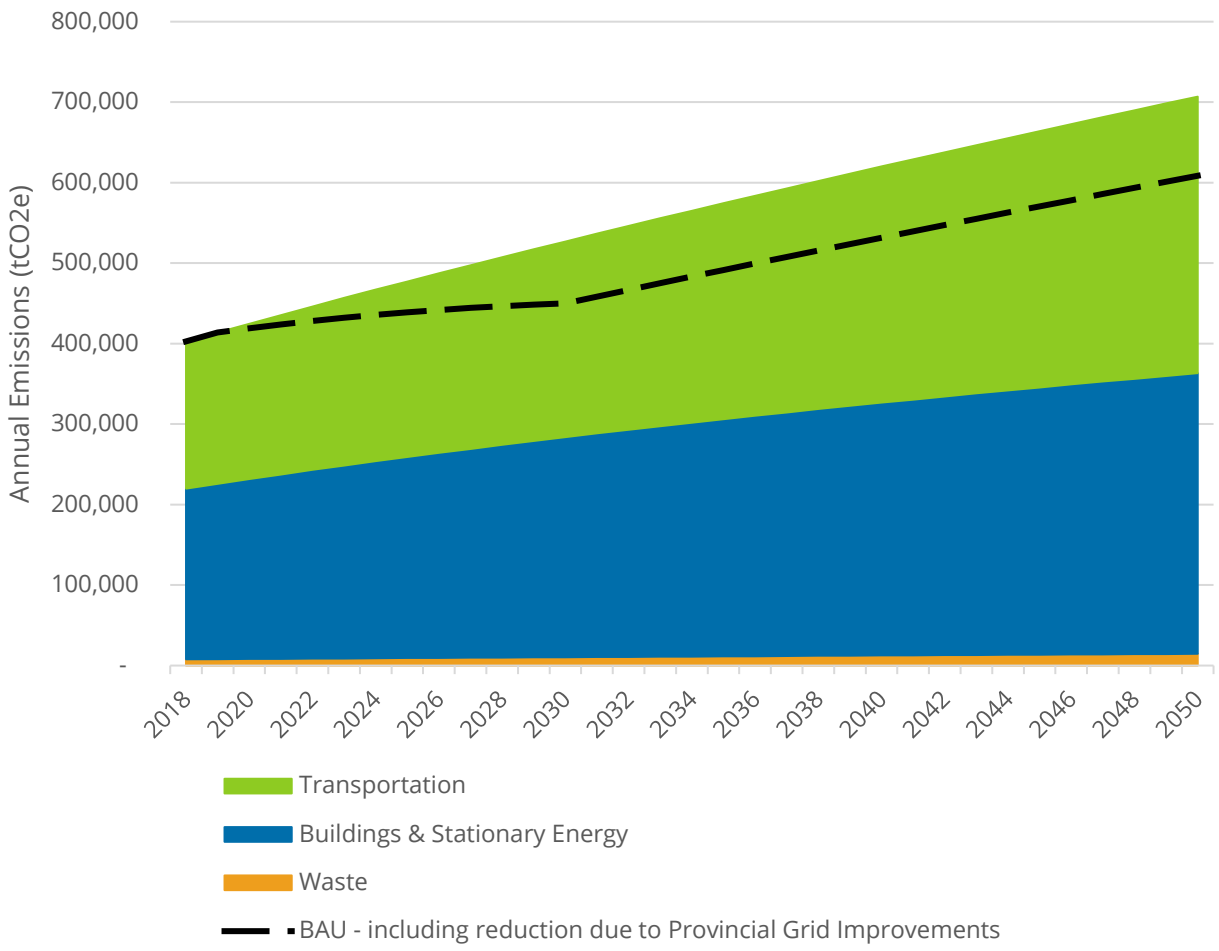


Figure 1: Okotoks' business-as-usual emissions forecast from 2018 to 2050, showing a 51% increase over time

4. OKOTOKS' CLIMATE ACTION PLAN

A Low-Carbon & Resilient Okotoks

Resilient Okotoks, the Town's *Climate Action Plan*, summarizes the key actions that are needed immediately in order to meet future targets. This pathway was established by projecting three emissions reductions scenarios (front-loaded, moderate, and back-loaded) from present day to 2050. With help from the community (described in Appendix C), these scenarios were evaluated for feasibility and effectiveness, and the Town will be moving forward with the moderate option, balancing efforts over the next few decades.

The actions in the CAP have been mostly sourced from the *Environmental Master Plan*, which was developed through extensive community consultation and approved in principle in 2018, along with the *Waste Management Plan* and many other important Town documents. This means that Okotoks is building on countless hours of engagement and knowledge sharing with Town staff and community partners.

These actions will help ensure Okotoks is prepared for future climate impacts while putting it on a course to achieving a **30% reduction in emissions by 2030**, and **carbon neutrality by 2050** (Figure 2). By bringing mitigation and adaptation actions together under one umbrella, Okotoks is making sure that the next steps are complementary and not contradictory. This approach will also help the community make the most of resources and build momentum with resources that are doubly effective.

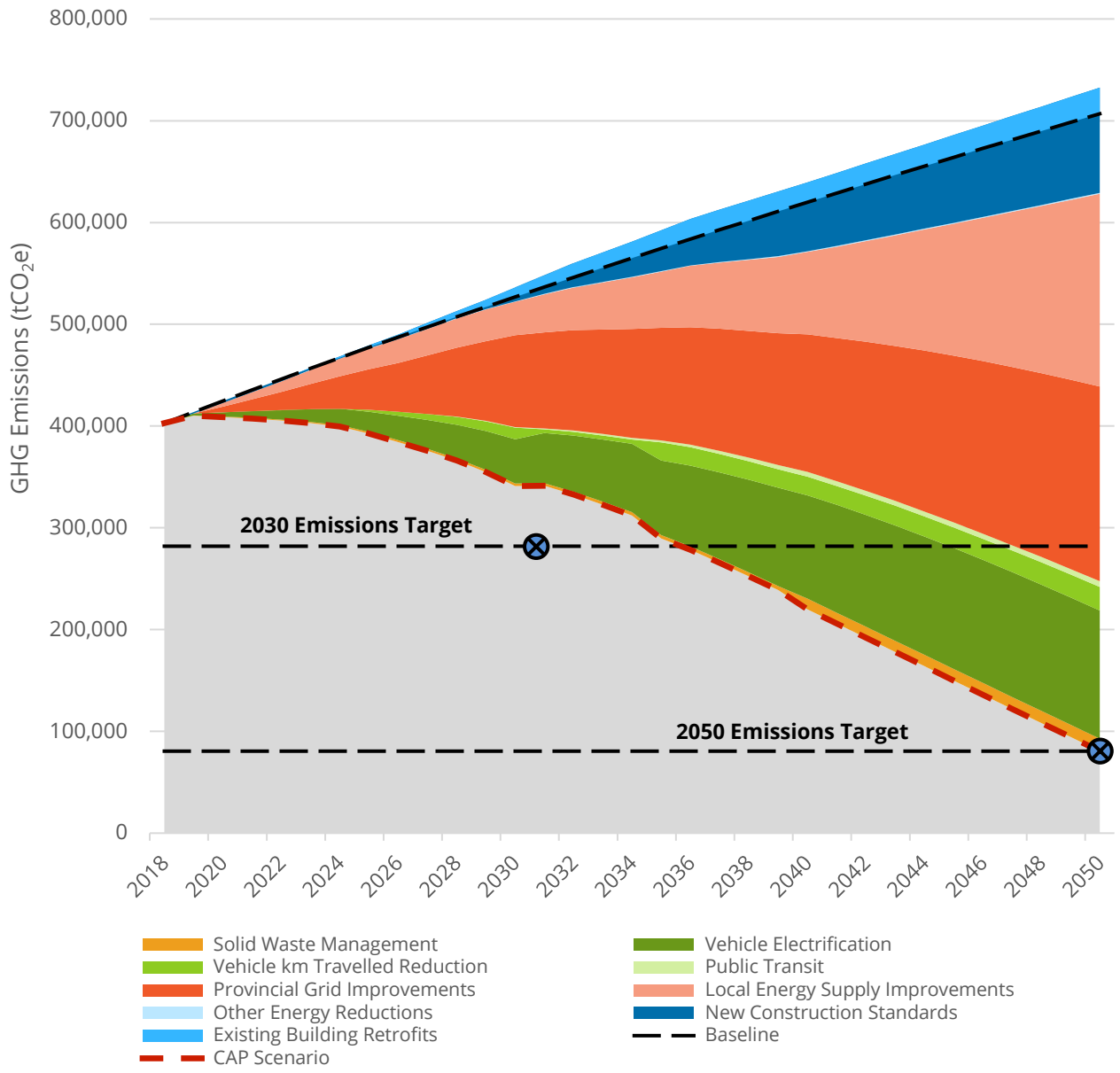


Figure 2: Okotoks' low-carbon emissions scenario to 2050, showing the effect of climate action on emissions[11]

[11] Note that in the low-carbon emissions scenario, the wedge for Existing Building Retrofits is shown above the Baseline. This wedge includes fuel switching retrofits, which shift energy load from natural gas to electricity. As Alberta's grid currently has a higher greenhouse gas intensity than natural gas, Existing Buildings Retrofits result in an overall emissions increase if conducted in isolation. However, the increase is more than balanced with the emissions reductions shown for Provincial Grid Improvements and Local Energy Supply Improvements (i.e. renewable energy sources). When completed alongside other emissions reduction actions, retrofits will help to reduce emissions and create more efficient, more comfortable buildings.

Getting to Carbon Neutral

Resilient Okotoks lays out the actions that need to be taken to reduce community emissions by more than **322,000 tonnes of CO_2e**, which is an **80% reduction** from 2018 levels. To achieve this the focus has been on actions the Town can realistically implement under its jurisdiction, and that work with current information, staff capacity, and technologies that are available.

After implementing the actions below, Okotoks will be on the right track. However, an additional **80,552 tonnes of CO_2e** will need to be addressed before 2050 if Okotoks is going to be truly carbon neutral. The good news is that there are many options the Town can lean on to overcome this gap and offset the remaining emissions, with examples including:

- **Biosequestration**, which involves the quantification of emissions that are naturally captured as more trees are planted and natural areas are preserved within municipal boundaries. This is explored in further detail in the Town's *Natural Asset Inventory and Ecosystem Services Assessment*.
- **Carbon offsets**, the purchase of credits that represent emissions reductions in other areas that are effectively transferred to Okotoks.
- **Renewable energy credits (REC)**, the purchase of certificates that represent one megawatt hour of clean, renewable energy that can be put towards local emissions reductions.
- **Negative emissions technologies**, which use new mechanisms to sequester carbon by capturing and storing the emissions directly at the source, such as industrial or biofuel facilities.

Organizations around the world are working hard to discover new and innovative ways to capture carbon and help communities close the emissions gap, and this area is rapidly evolving. This also means that there is strong potential for economic development and the creation of green jobs. The Town recognizes that these tools will play a big role in climate action initiatives, and will continue to monitor their local applicability as the Town moves toward 2050 and the carbon neutral target.

Photo credit: Lisa Forseth

The Many Benefits of Climate Action

Taking action on climate change is the right thing to do for the planet, but it can also help to make Okotoks a better place. There are countless ways that reducing emissions and preparing for climate change can also benefit livability, sense of community, health, and overall well-being for everyone in Okotoks, which are known as **co-benefits**.

The Town considers these co-benefits in terms of Bioregional's One Planet Living Framework, which consists of ten simple principles that make it easy to plan and deliver on a community commitment to sustainability (Figure 3). These principles are also used as the foundation for the *Municipal Development Plan*, though slight modifications are made in that document to better account for growth and development patterns. The actions included in this *Climate Action Plan* have been designed to help make the most of these principles to encourage a community that is strong, healthy, and thriving.

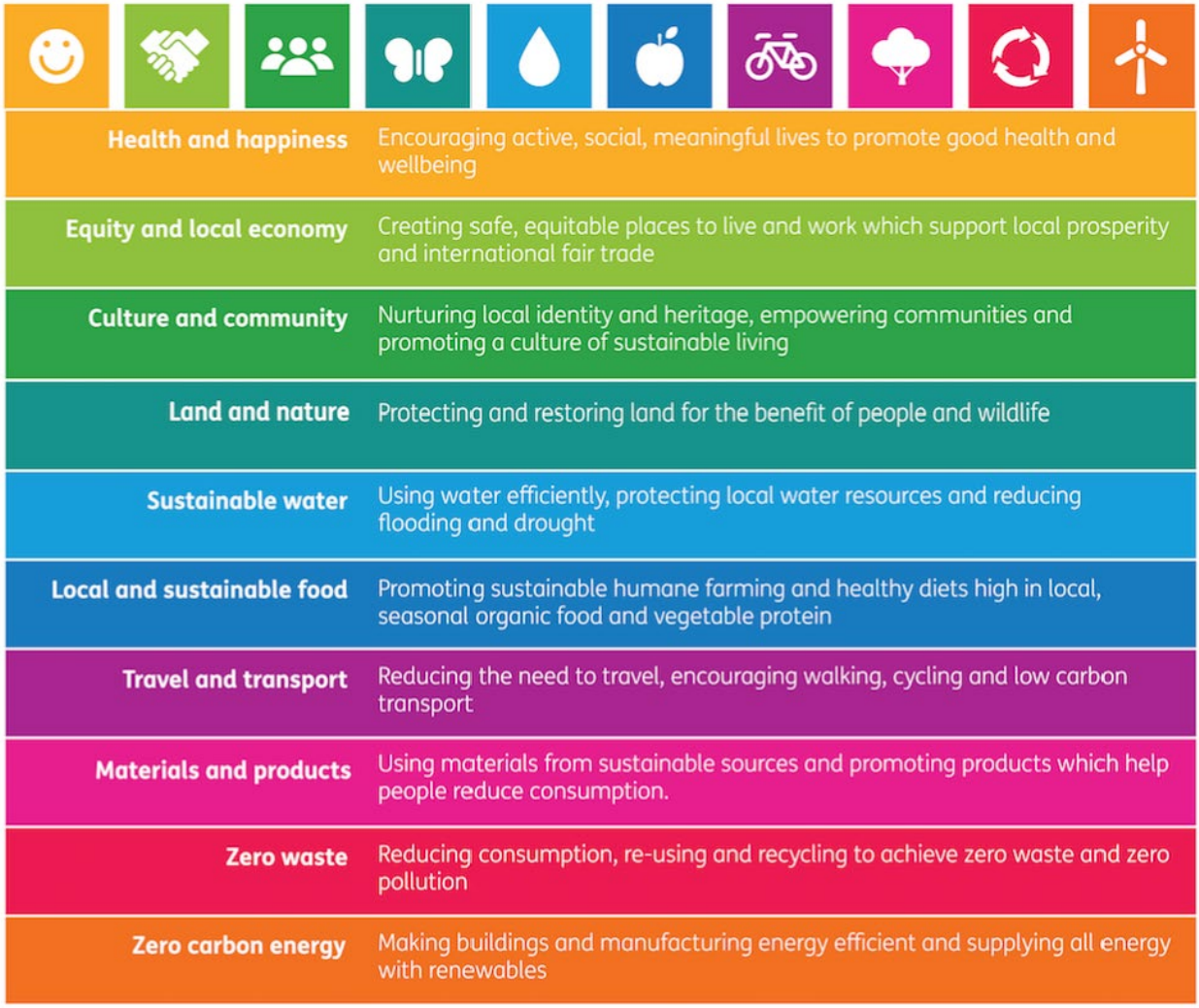


Figure 3: One Planet Living principles and how they will help to make Okotoks even better (source: Bioregional)

Buildings

Goal	Okotoks is a leader in low-carbon, resilient building design.
Objectives	**1)** Guide new construction projects that are energy efficient and resilient to future climate conditions **2)** Retrofit existing buildings to reduce energy use and emissions, and to enhance resilience to future climate conditions **3)** Promote high-performance buildings through alternative financing mechanisms and robust incentives
Targets	• Build 100% of new construction to a 'green' standard by 2033 • Build 20% of new construction to a zero carbon energy levels of performance by 2033, such as Passive House or equivalent
Co-benefits	

Buildings are our shelters. They protect us from wind and rain and snow and sun. They house families, schools, businesses and technology. They are also among the biggest sources of energy consumption, given all the power required to heat and cool these spaces, and to keep the lights on.

Reducing emissions from buildings is essential for Okotoks to meet its climate targets. This requires ensuring that all types of new buildings are constructed to high standards, and that existing buildings are retrofitted to reduce energy use and emissions. The added benefit of this work is that it helps to make buildings safer and more comfortable for the people who use them. Public engagement showed that there is strong community support for both energy efficiency retrofits and green standards for new construction.

The Town of Okotoks has already initiated action at both the corporate and community scales. To begin, it has implemented a policy that all municipal buildings being constructed meet LEED Gold standards or better, which helps to reduce emissions and encourages other sustainability best practices. In another example, by taking advantage of provincial grants and the ample Alberta sunshine, the Town installed solar power at the Okotoks Operations Centre, cutting the indirect emissions from the wastewater treatment plant by 700 tonnes per year. In 2021, the Town plans to install more solar power at the Centennial Arenas.

The Town has also been active in promoting energy efficiency and renewable energy for local residents. DIY Home Energy Assessment Kits provide homeowners and renters with basic instructions and tools to conduct their own residential energy assessment, which can identify opportunities to upgrade their energy efficiency. The Town also supports alternative funding programs for home improvements, such as the Clean Energy Improvement Program (CEIP), which makes it easier for residents to afford major energy efficiency upgrades and the installation of renewable energy into their homes.

The actions in this section indicate key next steps for reducing emissions from buildings and making them more resilient to future climate conditions. Note that both energy benchmarking and improving resilience of buildings received mixed results during engagement for the CAP, and so the Town will need to focus on providing more information on these items.

Key Strategies & Actions

NEW BUILDINGS		TIMELINE
BD1	Lobby the Province for the adoption of an energy step code or other advanced minimum energy performance criteria.	By 2025
BD2	Adapt the rezoning and permitting process to encourage all new homes to be built to a minimum of 'solar ready'.	By 2025
BD3	Create and implement sustainable municipal construction guidelines that encourage all new facility construction and major renovation projects to meet a third party green building certification program (e.g. LEED Gold, BOMA) and to consider resilience under future climate conditions.	By 2025
BD4	Create a set of guidelines and/or checklists that outline baseline green and resilient building requirements, including but not limited to: • Energy efficiency • Renewable energy generation • Construction and operational waste management • Water conservation • Active transportation connections • Green space conservation • Design guidance for future climate hazards (e.g. heat waves)	By 2025
BD5	Work with the Province, nearby local governments, and other organizations to provide training to inspectors and industry professionals on new building energy performance requirements.	By 2025
BD6	Incentivize a 'better than code' level of building performance for new construction specific to each building type (e.g. R-2000, EnerGuide). Incorporate new standards and building code elements related to resilience.	By 2029
EXISTING BUILDINGS		**TIMELINE**
BD7	Work with utilities to improve building owner and tenant access to energy consumption data, which can encourage energy use reductions.	In progress
BD8	Work with local building owners and other municipalities to implement a voluntary energy benchmarking program.	In progress
BD9	Partner with other local governments and the Alberta Urban Municipalities Association (AUMA) to lobby the Province for the adoption of a province-wide energy benchmarking regulation.	By 2025
BD10	Create an energy management guideline that outlines municipal energy performance requirements, including an analysis of optimal efficiency of each building and development of an energy rating standard.	By 2025
BD11	Conduct a comprehensive energy audit and resilience review of all Town buildings to identify opportunities for energy savings and improved resilience. Items to evaluate include, but are not limited to: • Potential energy and cost savings related to facility and equipment operation • Electricity and space heating demand, along with the potential for alternative energy sources • Installation and/or improvement of motion sensor lights in all Town buildings • Review of facility exposure to climate hazards and measures to reduce risk (e.g. mechanical cooling, air filtration, emergency supplies) • Backup power type, hours, and refueling potential	By 2025

BD12	Design and implement a low-carbon resilience retrofit program for existing buildings that explores: • Grants, rebates, or refunds on retrofit products and materials, in alignment with existing programs • Programs that allow homeowners to finance their retrofits through the Town and repay the loan through their property tax bill • Time of sale energy audits • Bulk buying renewable energy or retrofit products to reduce cost • Skill training for energy retrofits and servicing • Support for resilience retrofits, such as energy efficient cooling and floodproofing measures	By 2025
BD13	Encourage energy audits and EnerGuide labelling at point of sale.	By 2029
FINANCING & INCENTIVES		**TIMELINE**
BD14	Provide support and incentives for on- and off-site renewable energy for new and existing buildings.	By 2025
BD15	Work with the Province, banks, and other organizations to provide alternative financing arrangements for solar PV systems, including increasing availability to existing programs.	By 2025
BD16	Develop incentives for the building industry to meet specified higher levels of new construction building standards than those required within each sector. Include incentives for installing resilience-related upgrades (e.g. heat pumps that provide summer cooling).	By 2029

What Can You Do?

Identify ways to improve your home's energy efficiency and reduce utility bills by arranging a DIY Home Energy Assessment or hiring a professional to conduct a home energy audit

Ask your realtor to prioritize energy efficiency and low-carbon heating and cooling systems when purchasing a new home

Upgrade your boiler to a high-efficiency heat pump

Install low-flow fixtures and find and address any leaks in outdoor irrigation systems

Photo credit: Heather Reid

Transportation & Land Use

Goal	Getting around Okotoks is convenient and safe, with ample options that reduce reliance on cars.
Objectives	**1)** Increase access to safe, equitable and sustainable multi-modal transportation options **2)** Improve access to regional and local transit to provide efficient transportation alternatives **3)** Reduce car dependency through carsharing and ridesharing options, and ensure that parking aligns with the needs of the community **4)** Support electric vehicle adoption throughout the community **5)** Create compact, vibrant, and resilient communities where people can meet their daily needs
Targets	• Increase percentage of trips made using transit or active transportation by 25% by 2030 • Reduce the distance driven by residents (vehicle km travelled) by 25% by 2033
Co-benefits	

Transportation habits and land use have a big impact on the environment and the health of the community. With Okotoks being quite spread out, most trips are made in private, gas-powered vehicles, which releases pollution into the air and causes wear and tear on the infrastructure. All these trips add up, with over 75 million litres of transportation fuel purchased every year from local gas stations. As a result, personal vehicles, work vehicles and deliveries contribute around 183,000 tonnes of greenhouse gas emissions every year, almost 45% of local emissions. In addition to the environmental consequences, local reliance on private vehicles has also limited the development of public transit and active transportation options.

Changing this reliance on private vehicles can make Okotoks a better place to move around every day. Promoting more complete communities makes it easier to walk or roll to get where you need to go. When driving is essential, there are low-emissions options, especially electric vehicles. As a community, Okotoks now has strong plans and policies in place to make local land use and transportation more sustainable:

- The *Municipal Development Plan* outlines policies to limit the impact of local transportation on the environment by developing an integrated multimodal transportation network.
- The *Active Transportation Strategy* prioritizes enhanced connectivity between existing and future pedestrian and cyclist pathways in support of an active transportation network.

With this momentum, there has been some exciting progress on sustainable transportation. For example, the Town has:

- Introduced Okotoks Transit, an on-demand, 'curb-to-curb' shuttle service;
- Implemented electric vehicle charging stations at municipal facilities;
- Partnered with provincial and regional authorities to identify and implement improvements to the regional transit program; and
- Initiated a wayfinding project with pedestrian safety improvements on critical roads.

There is still a long way to go. Reducing emissions from private vehicles is a top priority. Engagement revealed strong consensus and support for increasing personal electric vehicles. The Town recognizes existing financial and infrastructure barriers to achieving this and will target these for action. At the same time, it will be important to help people choose other transportation options by expanding the transit network and improving the ease with which residents can move about the community.

Key Strategies & Actions

ACTIVE TRANSPORATION		TIMELINE
TL1	Host closed-street downtown events, such as car-free days. Based on the outcomes, identify sections of downtown that could be transformed into car-free zones by 2025.	By 2025
TL2	Partner with a private company to host community bike share program.	By 2025
TL3	Explore the implementation of low impact recreation trail design. Consider the impacts of extreme weather events and erosion in trail design.	By 2025
TL4	Develop a comprehensive mobility plan that includes all forms of transportation (e.g. roadways, public transit, active transportation, rail). Through this plan, aim to: • Improve active transportation access to downtown Okotoks • Increase the percentage of children using active transportation to get to school • Improve active transportation in existing neighbourhoods and commercial areas	By 2029
TL5	Work with neighbouring municipalities to expand regional active transportation options, specifically: • Fund and construct a regional bike path to Calgary • Develop a dedicated active transportation lane or pathway between Millarville, Turner Valley, Black Diamond, Okotoks, and Aldersyde	By 2029
TL6	Progressively close off more and 'high' streets to cars to prioritize non-vehicular movement.	By 2033
TL7	Build a pedestrian crossing over the river on the west side of Okotoks.	By 2033
PUBLIC TRANSIT		**TIMELINE**
TL8	Improve access to regional and local transit to increase trips taken by public transit, accounting for public health guidelines related to COVID-19. In support of this: • Advocate for regional transit at the Calgary Metropolitan Region Board (CMRB) • Explore the feasibility of a rail route between Okotoks and Calgary	By 2029
CARSHARING		**TIMELINE**
TL9	Develop a campaign to encourage staff to carpool to meetings (when permitted under public health guidelines).	In progress
TL10	Support carsharing by partnering with a third party to create and adopt a community-wide carpooling app, and/or hosting a local car share program (e.g. car2go).	By 2025
TL11	Establish a percentage footprint reduction target for parking areas and introduce shared parking concepts to the community.	By 2025
ELECTRIC VEHICLES		**TIMELINE**
TL12	Encourage corporate uptake of low-emissions vehicles and equipment. In support of this: • Revise the Town's sustainable purchasing guideline to include a phased program for the replacement of municipal fleet with low-emissions vehicles • Research the viability of alternative low-emission equipment and implement measures where feasible • Ensure municipal electric vehicles and equipment are fully charged daily, or that a charging station has back-up power	In progress
TL13	Lobby the Province for the provision of incentives for electric vehicles.	By 2025
TL14	Incentivize electric vehicle charging stations at all new multi-unit residential buildings and in commercial parking lots.	By 2025
TL15	Implement a zero emissions and/or renewable fuel standard for the municipal fleet.	By 2033

TL16	Once electric vehicle penetration has increased, explore renewable energy options (e.g. solar arrays) for charging equipment.	By 2033
LAND USE		**TIMELINE**
TL17	Update the Land Use Bylaw to incorporate a climate lens into all relevant local development planning on a consistent basis. In support of this: • Establish resources dedicated to the development and implementation of an adaptation strategy, working closely with Infrastructure and Operations • Incorporate existing tools such as The Climate Atlas to stay up to date with climate projections and hazards • Ensure climate risk assessments are incorporated into all relevant local development planning on a consistent basis	In progress
TL18	Ensure all new neighbourhoods are designed as complete, transit-oriented communities. In support of this, encourage and incentivize: • All new neighbourhoods to implement active transportation strategies to meet daily needs (i.e. 'complete communities') • Increased density targets for new neighbourhood development, including targets for mixed use design and multifamily housing • A wider diversity of housing types (e.g. tiny homes, secondary suites, accessory dwellings) in new and existing neighbourhoods • A wider diversity of commercial building types (e.g. small units, work/live units) in new and existing developments	By 2025
TL19	Implement holistic environmental requirements for new developments. In support of this: • Develop local guidelines for new neighbourhood development, modelled off of LEED Neighbourhood Design (ND), but customized for the local context • Incentivize all new neighbourhoods to implement conservation design principles that allow for higher percentage of land to remain protected • Partner with and/or incentivize a developer to create a new community that will achieve levels of environmental performance on par with LEED ND or a similar green neighbourhood certification program • Work with other levels of government to identify support for a future net-zero community (e.g. Drake Landing 2.0)	By 2033

What Can You Do?

Walk or cycle for short trips and take transit whenever possible

Encourage your children to walk, cycle, take transit, or use the school bus to school

Consider an electric vehicle and/or e-bike for your next purchase

Carpool to work wherever possible

Waste

Goal	Okotoks continues to reduce the amount of waste that is generated and disposed, and makes the most of opportunities for reuse.
Objectives	**1)** Increase waste reduction and diversion from residential and industrial/commercial/institutional buildings, the streetscape, and demolition, construction, and land-clearing **2)** Promote waste reduction through sharing and reuse
Targets	• Recycle, reuse or compost 95% of waste by 2050
Co-benefits	  

Solid waste management (i.e. the disposal of garbage, compostable organic materials, and recycling) is one of the key municipal services that the Town of Okotoks offers to its residents. However, solid waste decomposing in landfills produces methane, a short-lived but very potent GHG, and waste incineration results in emissions of carbon dioxide, sulfur dioxide, and nitrous oxide. For this reason, it is important to consider how waste management factors into local climate action.

In its renewed *Waste Management Plan*, the Town re-committed to diverting 80% of waste from the landfill by 2020, highlighting several strategies, which have already been introduced, to increase waste diversion, such as:

- Evolving the Town's subscription-based blue cart recycling program to a universal program for all residents;
- Implementing a universal, residential-wide green cart program for organics; and
- Implementing a bylaw for multi-family buildings and industrial, commercial, and institutional buildings to provide on-site recycling and organic waste collection services.

While plenty of work is already underway, there is still room to continuously reduce both the amount of waste that is diverted from the landfill and into recycling or composting facilities, and to lessen the amount of waste generated in the first place. Examples of actions underway include:

- Reshaping the waste management utility into one that operates on a frequency or volume based rate structure (i.e. a 'pay as you throw' approach); and
- Exploring opportunities for community reuse and repair programs.

Another area that can be improved is in the management of food waste. While composting food waste is better than sending it to a landfill, preventing food from being wasted in the first place is much more effective. Every tonne of household food waste that is avoided is the emissions equivalent of taking one car off the road each year.

Engagement for the CAP confirmed that there is consensus that waste diversion is important, and that people support the actions needed to achieve this. Looking to the future, Okotoks will need to encourage further waste reduction across all sectors, while making sure that waste management procedures are as sustainable as possible.

Key Strategies & Actions

WASTE REDUCTION & DIVERSION		TIMELINE
WS1	Implement bylaw requirements and assist the industrial, commercial, and institutional sector to provide on-site single source commingled recycling and organic waste collection services.	In progress
WS2	Work with the Foothills Regional Services Commission to create a regional materials recovery facility and supporting shared collection system.	In progress
WS3	Lobby the Province for action on the Alberta Environment and Parks (AEP) Extended Producer Responsibility Program.	In progress
WS4	Create a municipal partnership with schools to develop waste initiatives, such as a Youth Ambassador program.	In progress
WS5	Make compostable dog waste bags and compost stations available in parks and green spaces.	In progress
WS6	Partner with a local builder to pilot a construction and demolition waste diversion project.	By 2025
WS7	Develop a construction and demolition waste policy for Town construction projects.	By 2025
WS8	Develop a building deconstruction program to salvage building materials rather than use traditional demolition methods.	By 2029
WS9	Develop a waste reduction program with local businesses in partnership with the AEP Extended Producer Responsibility Program.	By 2029
WS10	Progress construction and demolition waste management initiatives in alignment with implementation of the AEP Extended Producer Responsibility Program.	By 2029
WS11	Explore the potential for recycling sweeper sand.	By 2029
WS12	Advocate for methane capture at Foothills Regional Landfill.	By 2029
WS13	Partner with local businesses and other regional governments to develop an eco-industrial waste pilot.	By 2033
SHARING ECONOMY		**TIMELINE**
WS14	Partner with local community groups to support a local reuse center in Okotoks.	In progress
WS15	Encourage restaurants and grocery stores to reduce the price or donate leftover food products.	By 2025
WS16	Implement a polystyrene and non-recyclable container phase-out or prohibition.	By 2025
WS17	Create incentives for businesses to stock bulk products with no packaging and/or incentives for consumers to buy in bulk or use their own containers.	By 2029

What Can You Do?

Switch from single-use items (i.e. diapers, plastic utensils, disposable razors) to reusable options

Separate out waste (if you don't already) to minimize garbage in the landfill

Freeze your food before it goes bad

Energy Supply

Goal	Okotoks has a diverse, resilient energy supply that helps to minimize the generation of greenhouse gas emissions and air pollutants.
Objectives	**1)** Increase local supply of renewable electricity, and renewable heating fuels and systems **2)** Explore opportunities to develop district energy systems and connections **3)** Promote renewable energy generation through alternative financing mechanisms and robust incentives **4)** Collaborate with local industry, neighbouring communities, and other levels of government to diversify and strengthen Okotoks' energy supply
Targets	• Use 100% renewable energy at corporate facilities by 2050
Co-benefits	  

The world relies on energy for so many of the things that are used every day, from heating buildings to running the dishwasher. In Alberta, this energy primarily comes from coal, which means it leads to both air pollution and a significant portion of the community greenhouse gas emissions. In addition to the environmental impact, this energy supply is also subject to natural hazards and an increasingly volatile market, both of which can cause disruptions to usual operations.

To evolve the community's energy footprint, the Town is working to improve energy efficiency and to diversify and strengthen the energy grid. Key strategies include:

- Assisting residents and businesses in reducing their energy consumption through advanced energy efficiency programs;
- Increasing the use of renewable energy at corporate facilities; and
- Creating opportunities for alternative energy projects, highlighting the success of the Drake Landing Solar Community (DLSC).

Many of these initiatives line up closely with what has been planned for local buildings, discussed in detail within the Buildings section.

Although Okotoks has little control over industry and power generation at the provincial scale, there remains lots of opportunity to reduce emissions from energy and to strengthen the grid. This is an area that people agree is important. For example, participants who responded to the CAP survey strongly supported an increase to 40% of buildings installing renewable heating by 2030. The actions in this section highlight key opportunities to achieve these energy goals.

Key Strategies & Actions

RENEWABLE ENERGY		TIMELINE
EN1	Increase the production of renewable energy through the installation of more solar PV systems on all municipal buildings and facilities.	In progress
EN2	Explore options for deriving energy from waste, including solid waste, wastewater, and operational waste heat.	By 2029
EN3	Pilot a community solar garden or community co-op program, into which residents can 'sponsor' part of the infrastructure and procure local green energy.	By 2029
EN4	Use solar power to light town pathways.	By 2033
DISTRICT ENERGY		**TIMELINE**
EN5	Research opportunities for energy co-generation and/or district heating in existing and future facilities and operations.	By 2025
EN6	Conduct a feasibility analysis of low-carbon district energy heating and cooling systems for new builds, including wastewater systems.	By 2029
FINANCING & INCENTIVES		**TIMELINE**
EN7	Create a reward system that encourages land developers and individuals to adopt low-carbon renewable energy systems for space heating.	By 2025
EN8	Coordinate discounted bulk purchases of product to reduce the cost of renewable energy technologies.	By 2029
EN9	Work with local utilities to identify ways of allowing feed-in-tariffs.	By 2029
PARTNERSHIPS		**TIMELINE**
EN10	Strengthen collaboration and knowledge sharing with natural gas and power utilities through regular contact/exchange platform. Formally incorporate information shared by utilities in municipal plans and strategies.	In progress
EN11	Explore opportunities to install renewable heat, cooling and backup power at critical infrastructure and emergency shelters.	By 2025
EN12	Explore the development of a sustainable solar farm in partnership with Fortis and other industry and research partners.	By 2029
EN13	Work with energy partners to increase resilience of energy infrastructure, with key steps including but not limited to: • Conduct a vulnerability and impact assessment of community energy infrastructure • Ensure critical power lines are buried, or strengthened to withstand future ice loading, wind, and flood risk • Ensure the community has updated old and worn out pipes, or pipes made from gray cast iron to prevent pipeline failure in the future	By 2029

What Can You Do?

Book a DIY home energy assessment kit for free from the Town at okotoks.ca

Switch to an electric vehicle when you are ready for your next car

Look for opportunities to learn about renewable energy through Town events and the broader community (e.g. the Drake Landing Solar Community)

Consider a solar PV system for your home

Ecosystems & Local Food

Goal	Okotoks has strengthened its connection to nature by protecting and enhancing its natural areas, and promoting its local food assets.
Objectives	**1)** Protect and enhance biologically diverse and resilient ecosystems across the community **2)** Ensure no net loss to Okotoks' urban forest canopy cover over time **3)** Increase, protect and enhance green and natural assets across Okotoks **4)** Increase residents' access to and connection with nature **5)** Increase local food production and sustainable food choices
Targets	• Increase native plant species across the town by 30% by 2030 • Increase the area of protected riparian areas by 25% by 2030 • Increase naturalized areas in new and existing developments by 25% by 2030 • Increase local community food assets by 75% by 2033
Co-benefits	

The rolling, fertile plains, deep river valleys and urban forests around Okotoks support a bounty of plants, animals, and complex ecosystems. These natural and agricultural spaces also offer a huge variety of ecosystem services that the community relies on: they clean the air and water, support the economy, and provide the recreational and cultural richness that Okotoks is known for. Thinking about climate change, these green spaces also absorb a huge amount of carbon, and help to manage extreme temperatures and heavy rainfall. A strong connection to nature is also beneficial for the mental health of community members.

The changing climate will also require rethinking food systems. Where food comes from, how it is transported, whether it was refrigerated in transit, and a variety of other factors play into the carbon footprint of the food people select to eat. In Okotoks, food from local farmers or personal gardens is likely the best choice whenever it is available. While local agriculture faces growing challenges from droughts, severe storms, and flooding, shifting temperatures and reduced frost days will extend the growing season and could allow the cultivation of new crops.

Protecting, enhancing, and utilizing natural spaces is vital to the long-term health and viability of the community. The Town has already started to implement key strategies and actions outlined in the *Community Sustainability Plan* and *Environmental Master Plan*, which will have the added benefit of increasing food security and making Okotoks an even nicer place to live.

The actions in this section indicate key next steps for protecting the local environment and bringing the community closer to nature.

Photo credit: Andrew Jarman

Key Strategies & Actions

BIODIVERSITY		TIMELINE
EC1	Develop and implement a comprehensive Ecosystem and Biodiversity Strategy. In support of this: • Create clear definitions and policy around conservation reserves and environmental reserves for the protection of valuable ecosystems • Create a conservation reserves policy and build a reserve fund for the protection of valuable ecosystems • Develop and implement a river valley protection and enhancement policy • Introduce wider setbacks for riparian and environmentally significant areas • Continue to educate on the proper management and mitigation of invasive species, problem wildlife and pests	In progress
EC2	Forge partnerships for ecological protection, for example: • Work with other government agencies, land owners, and the research community to manage risks associated with invasive species • Work with regional governments to develop a species at risk protection strategy in alignment with provincial and federal biodiversity strategies • Lobby provincial and federal governments to reduce pesticide use on agricultural lands for biodiversity and watershed protection • Partner with local school boards on a schoolyard naturalization program • Partner with Ducks Unlimited or the Nature Conservancy for wetland management and protection	In progress
URBAN FOREST		**TIMELINE**
EC3	Continue to implement the Urban Forest Management Master Plan to strengthen Okotoks' urban forest. In support of this: • Revise and update the existing urban forest database • Incorporate adaptive management planning into the plan to allow flexibility in managing invasive, threating insects and diseases • Create a reserve fund to pay for unforeseen situations that threaten the health of the Town's urban forest and naturalized spaces • Facilitate community involvement, education, and protection in both public and private urban forest expansion	In progress
GREEN INFRASTRUCTURE & NATURAL ASSETS		**TIMELINE**
EC4	Strengthen natural asset management based on the findings of the Natural Asset Inventory and Ecosystem Service Assessment, specifically: • Proactively identify high-value natural and semi-natural assets, and formulate management and/or policy responses that result in the securement and maintenance of high value assets • Establish a conservation fund for acquiring high priority natural and semi-natural assets for conservation • Create guidelines that outline how natural area assessments should be conducted, and how natural assets should be prioritized for retention • If required, conduct active restoration and monitoring on acquired lands to improve ecological condition	By 2025
EC5	Develop and implement a town-wide green network strategy. In support of this, implement key EMP actions including: • Establish naturalized open space and green infrastructure targets for all new neighbourhood developments and Town-owned properties • Develop policy direction that requires the connection of all new and existing green spaces with existing functional natural ecosystems • Explore and implement alternative funding arrangement for the inclusion of naturalized green spaces in new developments (e.g. development charges) • Explore green roof and wall targets and incentives for existing buildings • Create a green infrastructure network that connects green spaces across town	By 2029

OPEN SPACES & CONNECTION TO NATURE		TIMELINE
EC6	Increase the community's understanding of and connection with nature through actions such as: • Enhancing opportunities for public outdoor activities and connection (e.g. pathways, ponds, sitting areas, etc.) • Increasing the number and type of interpretive signs to educate visitors on various environmental features of the town • Promoting awareness and education on importance of biodiversity and habitat protection • Implementing and/or partnering on a citizen science program to assist with monitoring local biodiversity trends	By 2025
EC7	Foster a regional system of ecological parks and areas. In support of this: • Designate applicable parks, naturalized spaces, and view sheds as municipal heritage properties (including cultural landscapes and unique landscape features) • Advocate and work with other levels of government to create a regional park system or 'green belt' master plan with an emphasis on an active transportation corridor that connects to Calgary, Black Diamond, Turner Valley, Aldersyde, and High River	By 2033
LOCAL & SUSTAINABLE FOOD		**TIMELINE**
EC8	Encourage local food production by: • Creating a sun and shade policy for growing food in denser communities • Allowing and encouraging co-op multi-family local gardens in multi-family development • Implementing a visible pilot project to demonstrate the benefits of composting and rotating underutilized lots to soil fertility • Exploring the potential for the construction of hydroponic and/or indoor community gardens for winter food production	By 2025
EC9	Provide education and support for local and regional sustainable food choices and practices. In support of this: • Create a Sustainable Food Charter or policy for Town facilities and events (e.g. 100 mile radius) • Partner with local food and garden clubs to provide education on the benefits of local and sustainable food and agriculture practices • Create a community kitchen	By 2025
EC10	Encourage agricultural sector crop diversification and the use of drought-resistant crops.	By 2033

What Can You Do?

Support local farmers by asking for locally grown produce and other farm products

Choose organically grown produce wherever possible

Join or support a local clean-up or ecological restoration group to help improve natural areas

Avoid planting invasive species, such as morning glory or non-native grasses

Maintain trees on your property so they stay healthy, and plant new, drought-tolerant native species

Health, Wellness & Preparedness

Goal	Okotokians are informed, connected, and prepared to respond and recover in the face of future climate challenges.
Objectives	**1)** Strengthen community connections to enhance social resilience, especially for those most vulnerable to the impacts of climate change **2)** Improve local knowledge, capacity, and collaboration to respond to climate-related emergencies **3)** Mitigate the impact of flooding on buildings, community assets and infrastructure **4)** Minimize health impacts of steady temperature increases and heat waves on residents **5)** Minimize health impacts of wildfires and wildfire smoke on residents **6)** Work with community partners and organizations to understand and mitigate cross-jurisdictional risks
Targets	• Return 50% of previously developed area within the floodway to naturalized area to allow for changing river flows and patterns by 2050 • Upgrade 80% of all vulnerable infrastructure by 2050
Co-benefits	  

Looking at future climate projections, Okotoks faces growing risk from hotter, drier summers that can lead to heat-related illnesses, increased wildfire smoke events and compromised air quality, and heavy precipitation and extreme weather that can lead to flooding and widespread damage. Fortunately, preparing for the impacts of climate change is an opportunity to emphasize the strong community ties already in place and ensure that all Okotokians are looked after when things get tough.

The Town of Okotoks has already taken steps to increase social resilience throughout the community and to enhance emergency response, and engagement in this work will only continue to grow. At the neighbourhood-scale, this means building connections between residents so that they are aware of who will need assistance and are better prepared to help out during extreme events. For municipal operations, this involves reviewing and enhancing emergency response and communications measures, and ensuring that support is available for community members who might need it. There are also strategies that bring these two approaches together, such as encouraging residents to subscribe to the Alberta Emergency Alert network, which can ensure that residents are notified about emergencies in the community.

The intent of the actions in this section is to help Okotoks adapt to the short- and long-term impacts of climate change, and to make the community safer and healthier in the process. Engagement for the CAP showed that emergency preparedness plans are a priority for many people, though there was not consensus on this item. The Town has already developed a *Flood Action Plan* and Flood Preparedness Handbook, which will continue to be improved while preparedness resources for other climate-related hazards are developed.

Key Strategies & Actions

COMMUNITY CONNECTIONS & PRIORITY POPULATIONS		TIMELINE
HW1	Update voluntary registry of vulnerable persons.	In progress
HW2	Increase opportunities for community connection. For example: • Enhance the Neighbourhood Ambassador Program • Develop a 'workshop kit' and 'block party kit' that can be signed out by community members	By 2025
EMERGENCY MANAGEMENT		**TIMELINE**
HW3	Ensure that the Town has copies of emergency management plans for local schools, nursing homes, and major employers.	In progress
HW4	Conduct emergency exercises for different hazard types in a public forum (e.g. schools).	By 2025
HW5	Create or update an inventory of corporate skills and resources to inform business continuity planning.	By 2025
HW6	Strengthen information exchange with Canadian Pacific Railway (CPR) regarding hazardous materials travelling by rail.	By 2025
FLOODING		**TIMELINE**
HW7	Develop a Town wetlands policy that will bolster flood mitigation and maximize ecosystem services.	In progress
HW8	Work with current property owners in flood prone areas to protect, raise or relocate vulnerable structures. Ensure that homes and businesses in these areas have backwater valves and sump pumps with backup power.	In progress
HW9	Enhance community education on the importance of keeping storm drains clean and relevant bylaws (e.g. 'Adopt a Catch Basin').	In progress
HW10	Initiate a study to better understand best practices (regionally, nationally, internationally) for riverine flood management.	By 2025
HW11	Research the potential for a variable storm water utility rate based on a site's impermeable surface area.	By 2029
HW12	Where needed, install flood mitigation infrastructure to reduce risk (e.g. higher berms).	By 2033
OVERHEATING		**TIMELINE**
HW13	To prepare for heat waves, ensure measures are in place to allow residents to evacuate to a cool air shelter. For example: • Inventory spaces with cooling that are suitable to host those in need, and incorporate the findings into municipal emergency planning documents • If needed, upgrade key facilities to be able to accommodate evacuees	In progress
HW14	Increase public communication in early summer about tips for staying cool in the heat, how to identify heat illness and where to go to cool down. Increase registration on the Alberta Emergency Alert network to improve communication.	By 2025
WILDFIRES & WILDFIRE SMOKE		**TIMELINE**
HW15	At designated cool air shelters, add HEPA filtration or MERV 13+ filters to also provide clean air spaces during wildfire season. Partner with health authorities to develop messaging for tips to beat the heat and stay safe when air quality is poor.	By 2025
HW16	Ensure residents and businesses have cleared flammable vegetation and pruned flammable trees within 10m of structures and cleared all combustible material (e.g. firewood, debris under porches).	By 2029
HW17	Enforce forest fire prevention bylaws with respect to residential property maintenance and vegetation management	By 2029

What Can You Do?

Host gatherings for your floor, building or block to get to know your neighbours

Participate in local celebrations and with places to connect, such as buddy boards, community libraries, tool shares, and community gardens

Offer to help seniors or others in your community who might need assistance, and check in on them during power outages or extreme events (e.g. heat waves, storms)

Plan for emergencies with your family (including pets) – have an emergency kit, communication plan, and meeting place

Water Conservation & Management

Goal	Okotoks has ensured a resilient water supply, and leads the way on conservation and reuse.
Objectives	**1)** Prepare for more limited water supply over time and improve the resilience of the existing water supply infrastructure **2)** Explore innovative approaches to water management and reuse
Targets	• Achieve a 20% reduction in outdoor use of potable water (summer daily peak) by 2030 • Achieve and maintain an annual potable water system loss rate of less than 5% by 2030 • Achieve and maintain lowest per capita gross water and residential potable water consumption rates in Canada by 2050 • Meet or exceed Provincial guidelines for both drinking water quality and surface water quality on an ongoing basis
Co-benefits	

The Town of Okotoks is located on the Sheep River, a vital resource which currently provides the entire community with drinking water. However, as Okotoks continues to grow, daily water usage is putting increased pressure on the river. The Town has partnered with Foothills County to develop a regional water solution by constructing a supplemental pipeline that will deliver water from the Bow River, and will ensure a sustainable source of water for the future. The importance of conserving the quantity and protecting quality of the water resources will continue to be a priority.

Fortunately, Okotoks has already demonstrated a long history of wise water use and management, and has achieved one of the lowest per capita potable water consumption rates in North America. From outdoor watering restrictions, to xeriscape rebate programs, to water utility portal access and education centres, research projects, and flood mitigation, Okotokians have risen to the challenge of water management. Several plans and programs already in place have helped Okotoks lead the way in sustainably managing water:

- The 2014 *Water Conservation, Efficiency and Productivity Plan* outlines various tools the Town will use to help address the supply and demand of water in Okotoks.
- The 2018 *Water Shortage Response Management Plan* formalizes tools the Town employs to manage water shortage response.
- The Town's annual *Water Conservation Rebate Program* offers rebates for residents who implement water reduction measures, including water efficient landscaping options such as rain barrels and drought tolerant plants.

Moving forward, the Town will need to make infrastructure decisions and investments that consider both climate change mitigation and adaptation. These considerations range from preparing for future droughts and water shortages, and ensuring that water infrastructure can address the climate conditions for decades to come.

Key Strategies & Actions

WATER CAPACITY		TIMELINE
WC1	Increase utilization of natural areas and open spaces for water capture and storage.	By 2025
WC2	Install a water pipeline from an adjacent watershed to ensure a secure supply that meets the needs of Okotoks' growing population.	By 2029
WATER CONSERVATION & REUSE		**TIMELINE**
WC3	Explore water reuse opportunities in Okotoks, especially greywater systems for residential and commercial applications and rain/stormwater reuse for irrigation and construction practices. Pilot water reuse and/or non-potable water projects at new developments.	By 2025
WC4	Lobby the Province to update their water reuse policies to allow for greywater and rain/stormwater reuse.	By 2025
WC5	Lobby the Province to provide incentives for new buildings to install greywater systems and rain/stormwater water reuse systems.	By 2025
WC6	Develop incentives for residents and businesses who plant native vegetation and shift away from traditional lawns.	By 2025
WC7	Explore opportunities to utilize treated wastewater effluent from wastewater treatment plant and/or process wastewater for municipal processes.	By 2029

What Can You Do?

Help reduce water consumption by planting drought tolerant lawns and gardens, installing water saving appliances and equipment, and using rain barrels

Improve the permeability of surfaces on your property to decrease runoff into storm drains

Help maintain green infrastructure such as rain gardens in your neighbourhood

Photo credit: Susan Sosick

Mainstreaming & Corporate Leadership

Goal	The Town of Okotoks shows corporate leadership on proactive climate action, both in the community and through the region.
Objectives	**1)** Apply a climate lens to municipal asset management **2)** Develop staff capacity and community understanding of climate action in Okotoks **3)** Leverage funding available from different levels of government that can support climate action in Okotoks **4)** Work with local industry and businesses to promote the co-benefits of climate action
Co-benefits	

The Town of Okotoks has already taken steps to mainstream corporate climate change mitigation and adaptation action. For example, it has introduced policies for educating each new Council on how sustainability should factor into municipal decision-making, and provides updates to Council and staff on the implementation of climate strategies. In addition, Town staff are in the process of developing an integrated communication strategy focused on key climate-related hazards faced by Okotoks, coupled with ongoing public education and outreach to increase resilience to these hazards.

The Town can show further leadership by integrating climate-related information across all its processes, procedures, and decision-making, including asset management and purchasing. For example, the Federal Government now requires the application of a 'climate lens' prior to funding any infrastructure projects, and the Town can be proactive by making sure to ask key climate-related questions prior to large investments.

The next steps for the Town will be to improve awareness and capacity of staff, partners, and the community, and to support great work that is already taking place. Corporate 'climate champions' or a 'climate task force' will be key to continuing the successful implementation of climate action through the organization and community.

Solar PV System at the Operations Centre

Key Strategies & Actions

ASSET MANAGEMENT & RESILIENT INFRASTRUCTURE		TIMELINE
CL1	Ensure the municipality prepares for hailstorms by putting fleet vehicles and equipment under cover.	In progress
CL2	Apply a climate change lens to asset management. Identify and upgrade assets and infrastructure that may be affected by climate change impacts.	By 2025
CL3	Use the Envision sustainable infrastructure rating system and/or a climate risk assessment (e.g. PIEVC) for all major infrastructure projects. Make this a requirement in tender documents for engineering assessments.	By 2025
EDUCATION & ENGAGEMENT		**TIMELINE**
CL4	Provide annual progress updates on the implementation of the Climate Action Plan for Council and throughout the organization.	In progress
CL5	After each municipal election, ensure Council is updated on the Climate Action Plan, including roles and responsibilities, and communication with the public on climate-related items.	In progress
CL6	Establish an implementation team to advance the Climate Action Plan, which will include: • Allocate staff resources to coordinating implementation of the plan • Engaging with community stakeholders • Enabling collaboration and knowledge exchange with staff and partners • Ensuring accountability through monitoring and evaluation of progress	By 2025
CL7	Develop an integrated communication strategy focused on key hazards faced by the communities. In support of this: • Develop an ongoing public education and outreach strategy to increase resilience to climate hazards • Collaborate closely with emergency services to deliver regular community-based emergency training for different hazards • Increase ongoing public education and outreach to enhance resilience to climate hazards at the household level	By 2029
CL8	Develop an ongoing public education and outreach strategy on preparing for the impacts of climate change and multi-hazard preparedness. Ensure that vulnerable populations are properly considered by working with partner organizations.	By 2029
PURCHASING & FINANCING		**TIMELINE**
CL9	Explore multiple funding sources and mechanisms to support emissions reductions, adaptation measures and emergency management.	In progress
CL10	Review and enhance sustainable purchasing and procurement guidelines for Town suppliers, vendors, meetings, and events.	In progress
PARTNERSHIPS		**TIMELINE**
CL11	Establish formal alliances with local industry and business in support of emissions reductions and resilience.	By 2025

What Can You Do?

Share your voice at Town events or in community surveys on climate action

Look for and support climate-related considerations in future Council reports

Get out and vote!

5. WHERE TO GO FROM HERE

The Town of Okotoks needs to implement bold climate action today in order to become a carbon neutral, resilient community by 2050. The *Climate Action Plan* sets out the broad goals, objectives, and strategies necessary to guide Okotoks to 2030 and then 2050, along with lessons that will carry over for the rest of the century. In charting this course, it is essential to work together, implementing actions in a way that benefits the whole community, and measuring achievements to refine the process.

Collaborating for Success

Moving Okotoks towards carbon neutrality and low-carbon resilience will require action from residents, businesses, community partners and other levels of government. Collaboration will be the key to success.

The Town of Okotoks will act as both a leader and a partner in the implementation of the *Climate Action Plan*. As a leader, the Town will be responsible for integrating mitigation and adaptation actions into its own internal policies, programs, and facilities. As a partner, the municipality will continue to work alongside local businesses, community organizations, institutions, and other levels of government to share resources and lessons learned, and to refine climate action strategies over time.

The success of the *Climate Action Plan* relies on individual efforts made by everyone in the community. While the CAP lays out some high-impact actions for community members, there will be many other opportunities that Okotoks residents and businesses can take to reduce their environmental impact. The Town will continue to support local residents and businesses in implementing their own climate actions Eithby providing the information and resources they need to make climate-smart decisions. At the same time, municipal staff will do their best to support new and innovative ideas brought forward by community members and partners.

Equitable Climate Action

Some groups and individuals in the community may be disproportionally impacted by climate change, and may have varying capacities to adapt to change and participate in climate action, both in terms of transitioning away from fossil fuels and recovering from extreme events. In Okotoks, those who may face greater challenges in a changing climate include, but are not limited to: racialized groups, new Canadians, people with lower-incomes, those with inadequate housing, older adults, young children and those with disabilities and pre-existing health conditions. Keeping equity front and centre will help to ensure all Okotokians are resilient.

Building resilience to climate change requires focusing first on the individuals and groups that are, or will be, most impacted by climate-related events such as flooding, heat waves and storms. In this way, climate action can be complementary to work that is already taking place to improve equity in the community and address the underlying barriers to equitable outcomes. The Town of Okotoks will work to ensure the costs and benefits of climate action are distributed fairly, drawing on lessons from the *Social Wellness Framework*. Engagement for the CAP highlighted areas of concern such as the expense associated with home retrofits and electric vehicles. Participants made it clear that incentives are necessary to realistically implement these changes. Town staff will continue to explore all options to break down barriers and maximize opportunities for people to participate in climate initiatives.

Much of the challenges of climate change, and the burden of responsibility to act, will fall on the shoulders of young people. With this in mind, the development of the CAP included targeted engagement for youth, to help understand their concerns and priorities. The Town will continue to empower youth to share their perspectives and take an active role in the implementation of climate actions.

Tracking Progress

Monitoring progress will be essential for the successful implementation of the *Climate Action Plan*, to help identify where new actions, or refinement of existing actions, are needed to reach community goals. To do this, indicators need to be established to paint a picture of the community's climate performance over time. Table 2 below lists the goal areas and their associated targets, then pairs them with existing indicators to help the Town monitor progress. Indicators from existing plans are supplemented with options for new indicators.

Town staff can choose those indicators that best meet the goals of efficiency and ease of measurement while illustrating progress towards objectives and targets. The chosen indicators will be tracked by comparing an established baseline with progress each year. Monitoring will be carried out as per the processes established in existing plans and brought together for action plan updates.

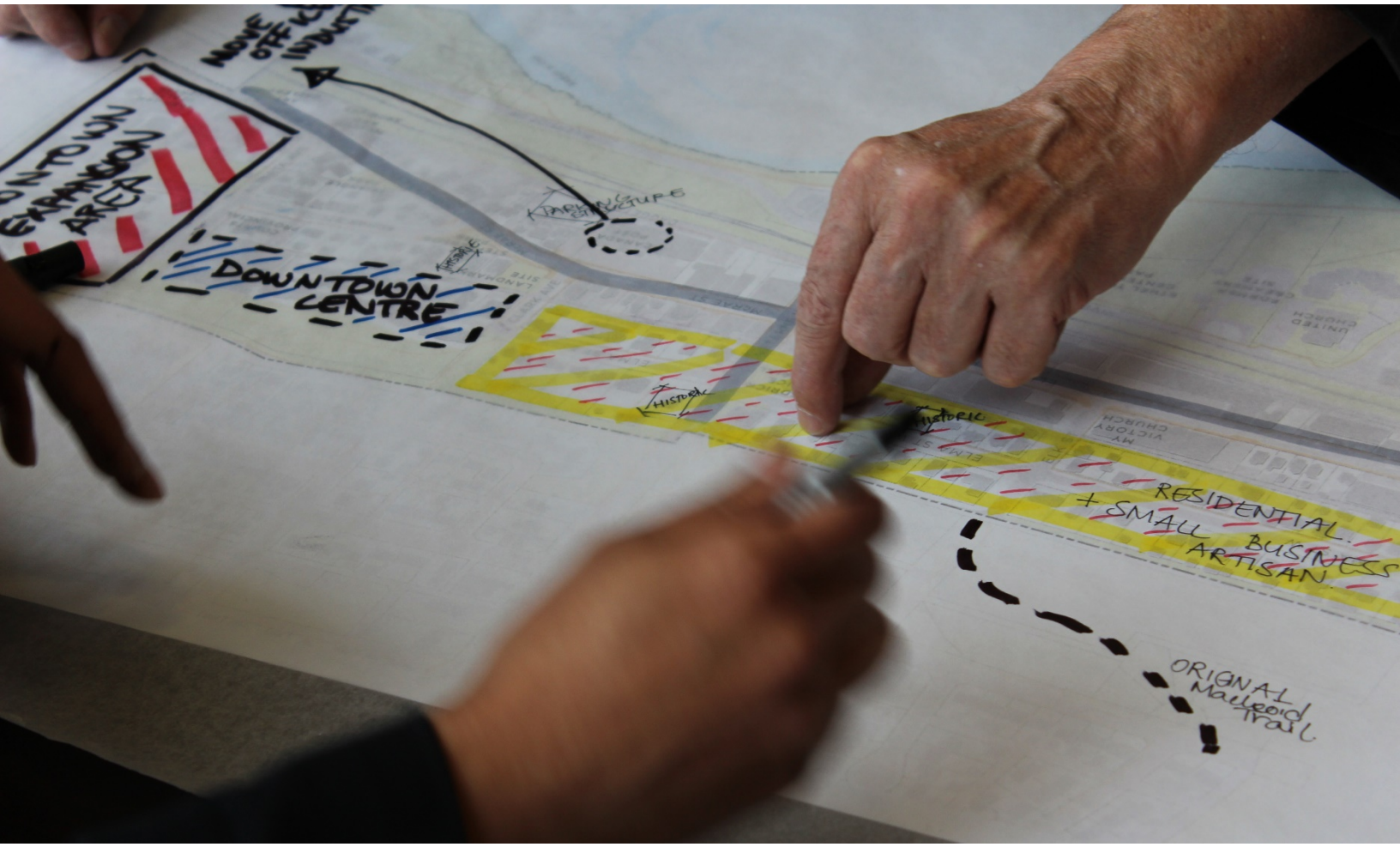
The Town needs to remain flexible to ensure that climate actions are responsive to community needs, market conditions, and innovations in technology. For the sake of transparency, and to encourage ongoing discussion, the Town will provide a progress update to the community on an annual basis. In addition, the Town will do a refresh of the *Climate Action Plan* in 2025 and 2030. At this time, the community will be engaged to determine what changes need to be made to stay on track to achieve the 2050 goals and targets.

Table 2: Targets and indicators by priority action area

INDICATORS BY PRIORITY AREA	SOURCE DOCUMENT
BUILDINGS	
Targets: • **Build 100% of new construction to a 'green' standard by 2033** • **Build 20% of new construction to a zero carbon energy levels of performance by 2033, such as Passive House or equivalent**	
• Number of developments integrating energy efficient solar technologies • Number of developments with green roofs, green spaces, and gardens	*Downtown Urban Design Master Plan*
• Number of households participating in energy efficiency programs	*Community Sustainability Plan*
• Number of public facilities assessed for climate risk • Percentage of new construction built to a 'green' standard • Percentage of new construction built to Passive House levels of efficiency	Potential new indicators
TRANSPORTATION & LAND USE	
Targets: • **Increase percentage of trips made using transit or active transportation by 25% by 2030** • **Reduce the distance driven by residents (vehicle km travelled) by 25% by 2033**	
• Percentage of trips made using active transportation	*Active Transportation Strategy*
• Ridership on new on-demand transit lines • Number of protected bike lanes	*Community Sustainability Plan*
• Percentage of land that has mixed uses • Number of amenities within 800m walking distance from a variety of homes	*Municipal Development Plan*
• Percentage of trips made using transit • Vehicle km travelled by electric vehicles • Percentage of different housing types	Potential new indicators

INDICATORS BY PRIORITY AREA	SOURCE DOCUMENT
WASTE	
Targets: • **Recycle, reuse or compost 95% of waste by 2050**	
• Tonnes of diverted waste by sector • Amount of organic waste collected by sector	*Waste Management Plan*
ENERGY SUPPLY	
Targets • **Use 100% renewable energy at corporate facilities by 2050**	
• GHG emissions saved through the renewable energy program	*Community Sustainability Plan*
• Percentage of renewable energy used at corporate facilities	Potential new indicator
ECOSYSTEMS & LOCAL FOOD	
Targets • **Increase native plant species across the town by 30% by 2030** • **Increase the area of protected riparian areas by 25% by 2030** • **Increase naturalized areas in new and existing developments by 25% by 2030** • **Increase local community food assets by 75% by 2033**	
• Amount of native and non-invasive plants in the community • Percentage of canopy cover	*Urban Forest Management Master Plan*
• Percentage of developments with green roofs, green spaces, and gardens • Percentage of developments incorporating natural habitats and landscape elements • Number of permeable pavers and number of bioswales and rainwater infiltration in neighbourhoods	*Community Sustainability Plan*
• Number of riparian areas protected or restored • Watershed health • Area treated for invasive species • Area for natural asset valuation • Amount of natural land protected • Number of local food assets	Potential new indicators
HEALTH, WELLNESS & PREPAREDNESS	
Targets • **Return 50% of previously developed area within the floodway to naturalized area to allow for changing river flows and patterns by 2050** • **Upgrade 80% of all vulnerable infrastructure by 2050**	
• Sheep River floodplain data • Length of structural and non-structural flood mitigation infrastructure built or maintained	*Climate Resilience Express Action Plan*
• Number of flood events	*Water Conservation, Efficiency & Productivity Plan*
• Impervious and/or pervious area per land use	*Stormwater Management Master Plan & Flood Mitigation Plan*
• Percentage of developed land in the floodway returned to naturalized area • Percentage of Town infrastructure reviewed with a climate lens • Number of residents engaged through emergency preparedness outreach • Number of public emergency planning exercises conducted • Number of days where cooling centres are open and operable • Number of attendees to cooling centres	Potential new indicators

INDICATORS BY PRIORITY AREA	SOURCE DOCUMENT
WATER CONSERVATION & MANAGEMENT	
Targets • **Achieve a 20% reduction in outdoor use of potable water (summer daily peak) by 2030** • **Achieve and maintain an annual potable water system loss rate of less than 5% by 2030** • **Achieve and maintain lowest per capita gross water and residential potable water consumption rates in Canada by 2050** • **Meet or exceed Provincial guidelines for both drinking water quality and surface water quality on an ongoing basis**	
• Note that many indicators for water quality and conservation already exist and are monitored through the *Water Conservation, Efficiency and Productivity Plan*	*Water Conservation, Efficiency & Productivity Plan*
MAINSTREAMING & CORPORATE LEADERSHIP	
• Number of staff aware of local climate projections and using them in their work • Number and/or percentage of capital infrastructure projects assessed for climate risk • Number of outreach events focused on climate risk and community preparedness • Number of long-term infrastructure plans including a climate risk assessment	Potential new indicators



6. CONCLUSION

Residents and businesses throughout Okotoks are already feeling the effects of climate change, which is only going to increase in the future. It is essential to start immediately on key initiatives, while keeping the big picture in mind to help make wise investments moving forward.

The *Climate Action Plan* is Okotoks' roadmap to becoming a leading community on climate change mitigation and adaptation. It builds on the many things that already been accomplished to make the town a great place to live and do business, and sets the Town on a path for a future where everyone can continue to thrive. By working together with utilities, community partners and industries and other levels of government, the Town of Okotoks can lead the transition to a low-carbon and resilient future that benefits everyone.

Photo credit: Andrew Jarman

APPENDIX A: ACRONYMS & GLOSSARY

Acronyms

AEP: Alberta Environment and Parks
AUMA: Alberta Urban Municipalities Association
BOMA: Building Owners and Managers Association
CAP: Okotoks' 2021 *Climate Action Plan*
CCHIP: Climate Change Hazards Information Portal
CDD: Cooling Degree Days
CPR: Canadian Pacific Railway
CSP: Okotoks' 2014 *Community Sustainability Plan*
CRPB: Calgary Metropolitan Region Board
DLSC: Drake Landing Solar Community
EMP: Okotoks' 2018 *Environmental Master Plan*
EV: Electric vehicle
FCM: Federation of Canadian Municipalities
GHG: Greenhouse gas
HDD: Heating Degree Days
HEPA: High-efficiency particulate air
HRVA: Hazard, vulnerability, and risk assessment
ICI: Industrial, commercial or institutional buildings
IPCC: Intergovernmental Panel on Climate Change
LCR: Low-carbon resilience
LED: Light emitting diode
LEED: Leadership in Energy and Environmental Design
MDP: Okotoks' *Municipal Development Plan*, updated for 2021
MERV: Minimum efficiency reporting value
NDP: New Democratic Party
PACE: Property Assessed Clean Energy
PCP: Partners for Climate Protection
PV: Photovoltaic cells, in relation to solar energy systems
REC: Renewable energy credits
RCP: Representative Concentration Pathways
SCAN: Safe Communities Alert Network
UCP: United Conservative Party
UNDRR: United Nations Office for Disaster Risk Reduction

Glossary

Adaptation: Adjusting decisions, activities, and actions based on observed or expected climate conditions, with the goal of moderating the negative impacts of climate change and capitalizing on beneficial opportunities.

Carbon neutral: A state where the net effect of human activity is zero, after accounting for carbon emissions and carbon removal.

Carbon offset: a credit for emissions reductions given to one party that can be sold to another party to compensate for its emissions.

Climate: Longer-term trends in atmospheric conditions over years or decades.

Climate change: Variations in climate over long time periods that have been observed and are projected to occur in the future (30-year periods typically).

Co-benefits: Positive spinoffs of climate change mitigation and adaptation actions that improve the community, such as cleaner air, improved public health from active travel, and expansion of green space

Complete community: Areas that offer a mix of housing to accommodate people at all stages of life, a good range of jobs, and easy access to stores and services to meet daily needs.

Equity: With respect to climate change, ensuring that the burdens of climate impacts and actions are fairly shared across the community, and that the benefits of action are enjoyed by all, including future generations.

Extreme weather: Unpredictable, unexpected, and severe weather for a given location, including occurrences such as heat waves and droughts.

Greenhouse gas (GHG): Gases that trap heat in the atmosphere and contribute to climate change by absorbing infrared radiation (e.g. carbon dioxide, chlorofluorocarbons, methane).

Low-carbon resilience (LCR): An approach to climate action that considers synergies and trade-offs between mitigation and adaptation.

Mainstreaming: Successfully integrating climate considerations into corporate and/or municipal operations.

Mitigation: Actions taken to prevent or reduce the cause, impact, and consequences of events. For climate change, measures taken to limit GHG emissions and associated global warming.

Natural assets: Ecosystem features that provide beneficial services to the community.

Renewable energy: Energy from sources that are naturally replenished in a human lifetime, including carbon neutral sources like sunlight, wind, rain, tides, waves, and geothermal heat.

Renewable energy credits (REC): Market instruments that represent one megawatt hour of clean, renewable energy that can be put emissions reductions in another location.

Representative Concentration Pathways (RCP): Internationally recognized scenarios that describe a number of possible GHG emissions scenarios for the next century, based on factors that drive human-caused emissions.

Resilience: The capacity of a social, environmental, or economic system to cope with a hazardous event, trend, or disturbance, and rebound after an event occurs.

Sequestration: The removal of carbon from the atmosphere through long-term storage (in plants, soils, etc.).

Weather: The atmospheric conditions at a specific location at a specific time, which generally occur over a short time period and change frequently.

Zero carbon energy: Energy that is produced without emitting carbon into the atmosphere.

Zero waste: Designing and managing products and systems to avoid and eliminate the generation of waste, conserve and recover all resources, and not burn or bury materials.

APPENDIX B: CLIMATE PROJECTIONS & IMPACTS

All climate projections in the CAP are based on the Representative Concentration Pathway 8.5 (RCP8.5) or 'business-as-usual' climate scenario, as established by the IPCC[12]. This scenario assumes that countries around the world are unable to achieve global, coordinated action on reducing GHG emissions, and is recommended by most institutions for climate change adaptation planning. Using this conservative, 'worst-case' scenario means Okotoks will also be more than prepared for the climate impacts that would be experienced under RCP4.5 and RCP2.6 as well.

The table below summarizes relevant climate projections for Okotoks based on the latest climate science. It then links these to high-risk impacts to be avoided or prepared for, as identified in the 2018 *Climate Resilience Express Action Plan* and the 2019 *Climate Risk and Resilience Assessment*. Where not otherwise indicated, projections are derived from the *Climate Resilience Express Action Plan*.

Table 3: Climate trends, specific projections, and potential impacts of climate change in Okotoks

Climate Trend	General Climate Projections & Anticipated Impacts
Warming Temperatures	***Projections*** • The average annual temperature in Okotoks is anticipated to increase by +3.4ºC above the 1961-1990 baseline by the 2050s, with the average summer temperature increasing +3.7ºC • In the past (1976-2005), Okotoks experienced approximately two weeks of very hot days (above 30°C), which is projected to increase to 27 days by the 2050s and 47 days by the 2080s[13] • The hottest summer daytime temperature in the past (1976-2005) was 31.9ºC and is protected to increase to 33.8ºC by the 2050s and 37°C by the 2080s[14] • Cooling Degree Days (CDD) (a measure of demand for air-conditioning in a building) is going to increase significantly by the 2050s (approximately 5.5x) and 2080s (approximately 11x) [15] • Mean winter temperature is anticipated to increase by +3.6ºC above the 1961-1990 baseline (-8.7ºC), which will increase the absolute mean winter temperature in the 2050s to -5.1ºC • Heating Degree Days (HDD) (a measure of demand for heating in buildings) will decrease 22% by the 2050s and 33% by the 2080s ***Impacts*** • Potential health impacts for community residents during extreme heat events • Extended dry periods from higher temperatures and reduced rain in summer • Strain on the urban forest and increased temperatures and extreme heat • Increased risk of grass fire from lightning and drier conditions overall
Shifting Precipitation Patterns	***Projections*** • Okotoks can expect to see more days of rainfall in every season except for summer • Annual precipitation is expected to increase 7% by the 2050s and 12% by the 2080s • By the 2050s, anticipated changes to total precipitation amounts by season are:

[12] United Nations Intergovernmental Panel on Climate Change (IPCC). (2013). *Anthropogenic and Natural Radiative Forcing. In: Climate Change 2013: The Physical Science Basis.*
[13] Prairie Climate Centre. (2019). *Climate Atlas of Canada.*
[14] Environmental & Climate Change Canada. (2020). *Climate Data Canada Portal.*
[15] Town of Okotoks. (2019). *Climate Risk & Resilience Assessment.*

	○ **Spring:** Increasing by 22% by the 2050s ○ **Summer:** Decreasing by 6% by the 2050s ○ **Autumn:** Increasing by 10% by the 2050s ○ **Winter:** Increasing by 23% by the 2050s • The amount of rain falling on the wettest days of the year is also expected to increase substantially (e.g. +21% by the 2050s) ***Impacts*** • Increased risk of riverine and overland flooding caused by increased precipitation in spring, winter, fall, and extreme precipitation events • Increased wear and tear on buildings and infrastructure • Increased risk of water supply shortage due to increased temperatures, drier conditions, and increased water demand
Changing Growing Seasons	***Projections*** • Projected increases in average temperatures in spring, summer and fall will result in increases in both the length and the warmth of the growing season in Okotoks. • By the 2050s, the area surrounding Okotoks is projected to experience an average increase of approximately 285 (growing) degree days (from 909 to 1,194) [16] • In addition, the number of frost days (where the daily minimum temperature is less than 0°C) is projected to increase from 166 historically (1981-2010 average) to 1.3x by the 2050s and 1.5x by the 2080s[17] ***Impacts*** • Potential implications for the viability of crops commonly harvested in Okotoks • Increased challenges with invasive species
More Frequent & Severe Extreme Weather Events	***Impacts*** • In line with the above climatic trends, extreme weather events that were once rare in Okotoks will become increasingly common over time; residents can expect the following: ○ Increased risk of severe wind gusts and hailstorms with an increase in intensity of summer storms ○ Increased likelihood of ice storms and freezing rain, due to increased temperatures and less precipitation as snow ○ Increased frequency and severity of heat waves and droughts

[16] Town of Okotoks. (2018). *Climate Resilience Express Action Plan.*
[17] Town of Okotoks. (2019). *Climate Risk & Resilience Assessment.*

APPENDIX C: ENGAGEMENT SUMMARY

The following pages summarize the results of *Climate Action Plan* engagement in 2021, conducted by Ethelo. These results have been considered alongside engagement completed for the other plans that are captured within the *Climate Action Plan*.

Resilient Okotoks: Climate Action Plan

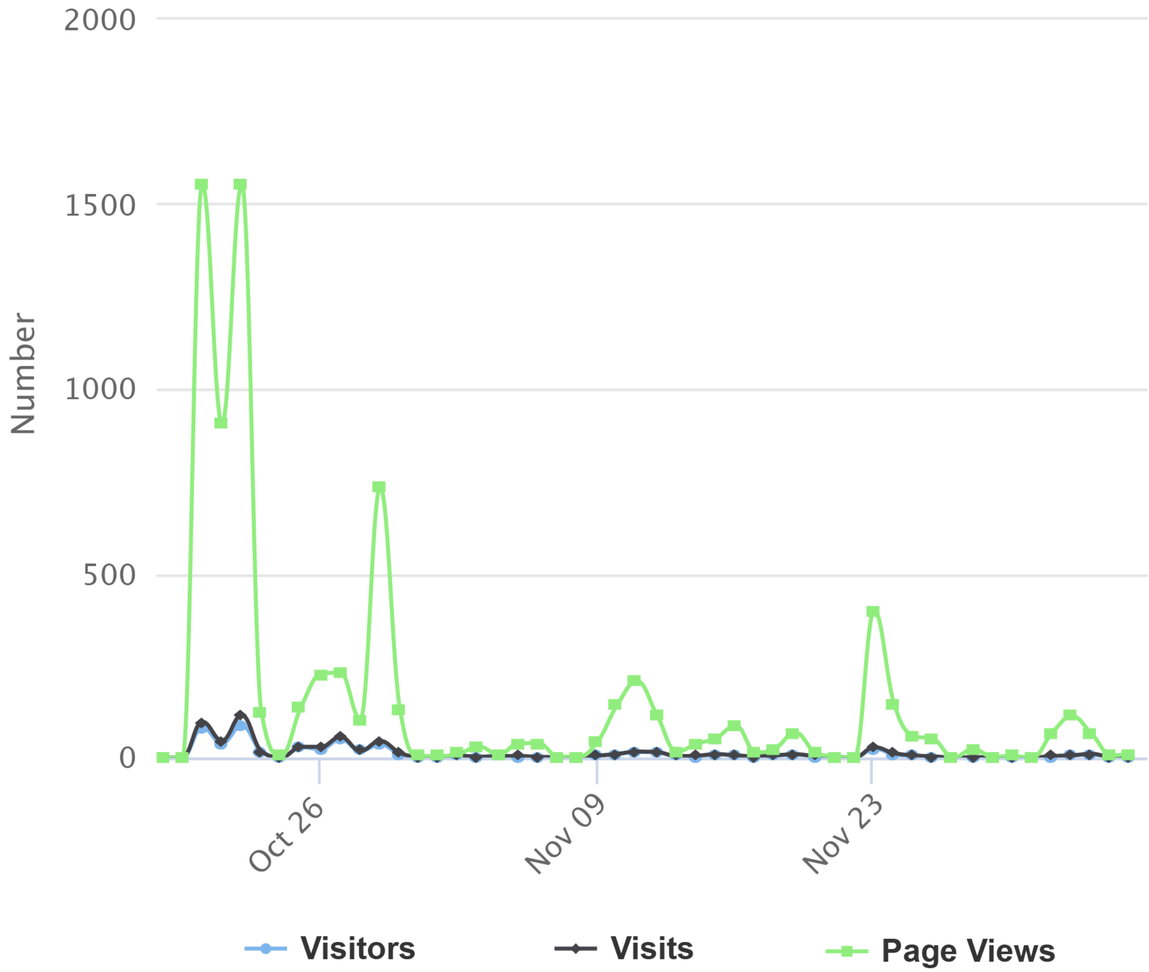
Introduction

From October 20 to December 4 2020, the Town of Okotoks used a carbon emission simulation exercise called Carbon Budget to gather public feedback to help shape which climate solutions are going to be implemented, to strategically respond to and mitigate climate change. The purpose of this program was to give residents a say in ensuring solutions are implemented in a fair, effective way, and that guarantees community buy-in.

- The process educated residents on aspects of the Town's various proposed solutions, such as their associated difficultly level and the potential efficacy of implementing each solution.
- Ethelo used the results to generate a particular set of climate actions that are predicted to have the most community support.

Participation

- Number of visitors: **502**
- Number of respondents: **184**
- Page views: **7,604**
- Average time on platform: **11 minutes**



Overview

The Ethelo platform identifies the policy options with the least polarization. The platform takes into account not only participant's likes, but also their dislikes, and uses these to identify where there is community consensus and where there is potential conflict.

No Support Moderate Support Total Support

Most Supported	Section
Energy Efficient Retrofits	40% = 4,800 tons GHG
Waste Diversion	50% = 3,750 tons GHG
Personal Electric Vehicles	40% = 57,350 tons GHG
New Construction Standards	50% = -30,000 tons GHG

To see the full engagement analysis, please see the back-end results page here.

Most Supported

Section: Most Supported

1. Energy Efficient Retrofits

By 2030, how much energy will we be able to save due to retrofits in standing buildings?

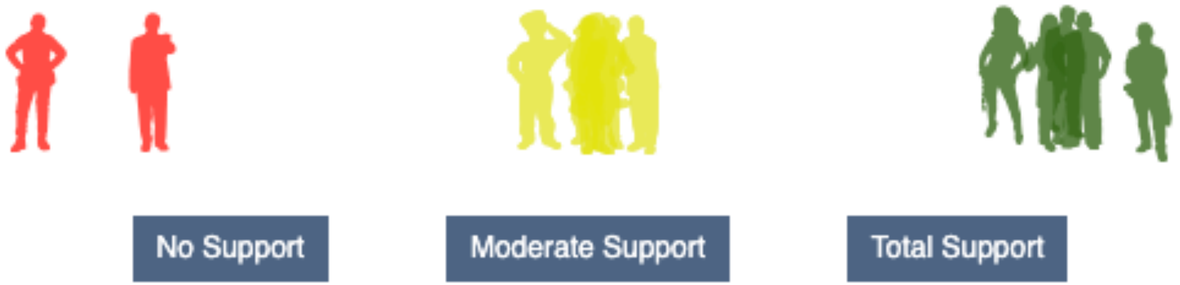
40% = 48,000 tons GHG

Section: Most Supported

2. Waste Diversion

How much do you think Okotoks can and should increase waste diversion by 2030?

50% = 3,750 tons GHG



3. Renewable Heating

What percent of buildings need to install renewable heating by 2030?

40% = 34,000 tons GHG

4. Personal Electric Vehicles

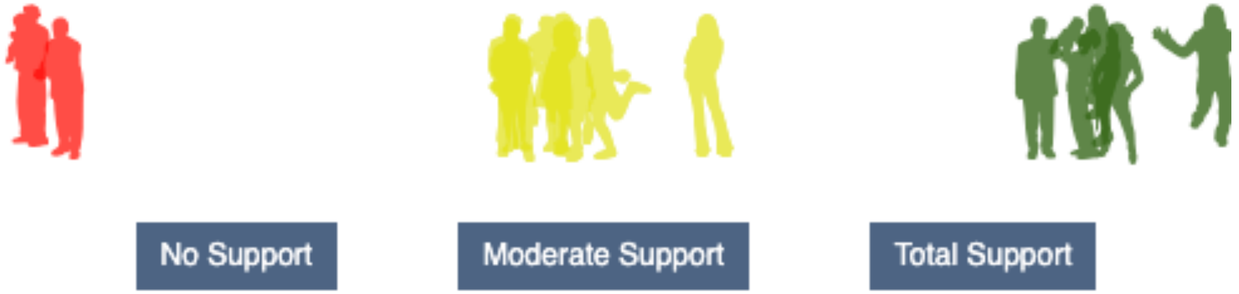
How many gas vehicles do you think we can and should replace with electric or alternative fuel vehicles in the next 10 years?

40% = 57,350 tons GHG

5. New Construction Standards

What percentage of new builds should be emissions free in the next 10 years from new buildings in Okotoks? (emissions will go UP if the answer is less than 100%)

50% = -30,000 tons GHG



Priorities

Emergency Preparedness

Rank 3 out of 5*

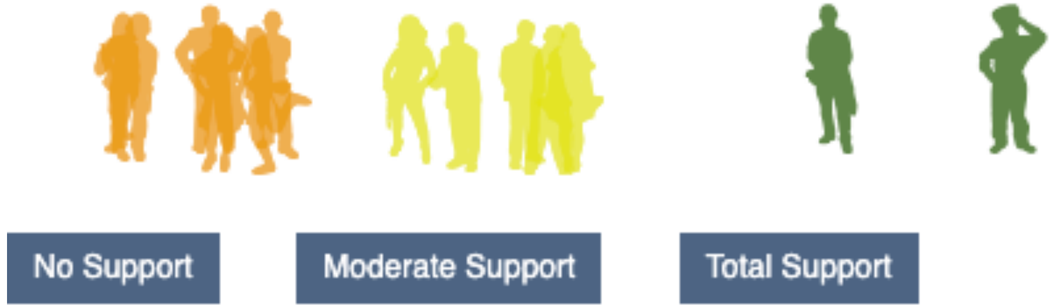
69% of people ranked establishing emergency preparedness plans for vulnerable populations at least 3 out of 5.

*1 is not at all important, 5 is very important

Resilient Buildings

Rank 3 out of 5*

63% of people ranked establishing resilient building plans for vulnerable populations at least 3 out of 5.



*1 is not at all important, 5 is very important

Energy Benchmarking

Rank 3 out of 5*

55% of people ranked implementing energy benchmarking standards at least 3 out of 5.

*1 is not at all important, 5 is very important

Transportation Demand Strategies

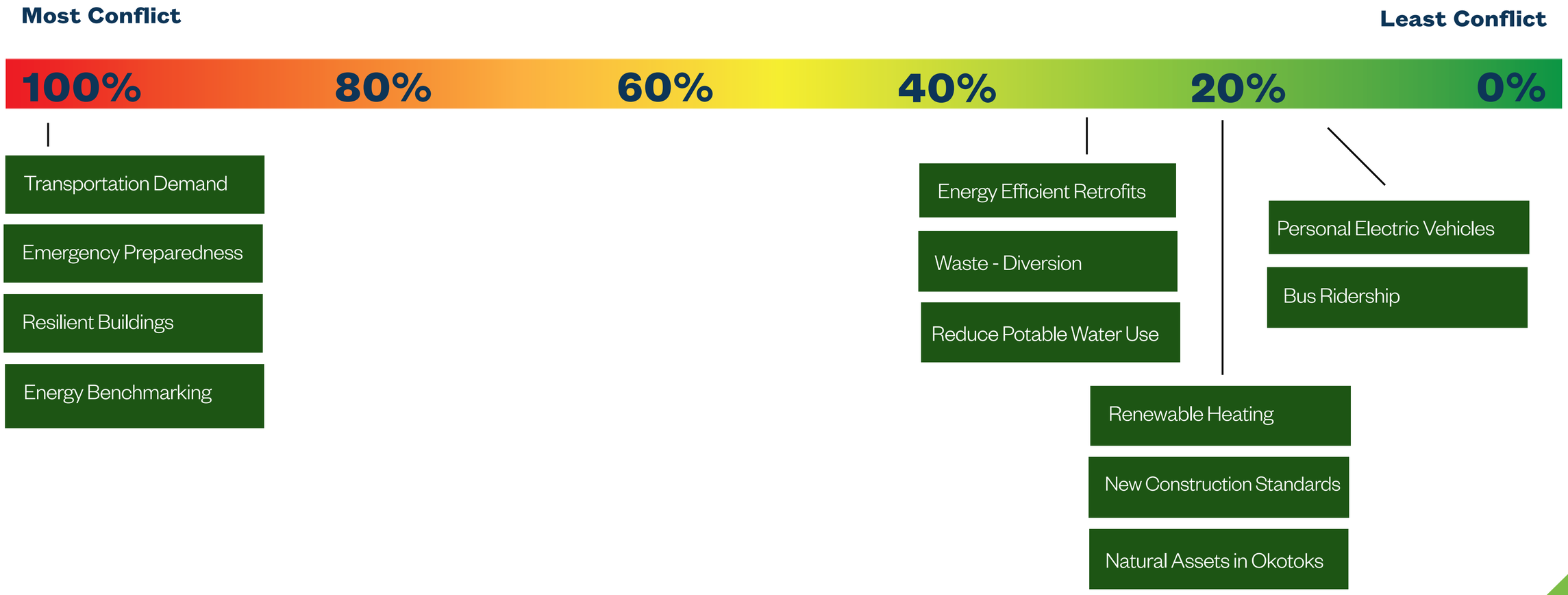
Rank 2 out of 5*

70% of people ranked implementing Transportation Demand Strategies at least 2 out of 5.

*1 is not at all important, 5 is very important

Conflict

Conflict*

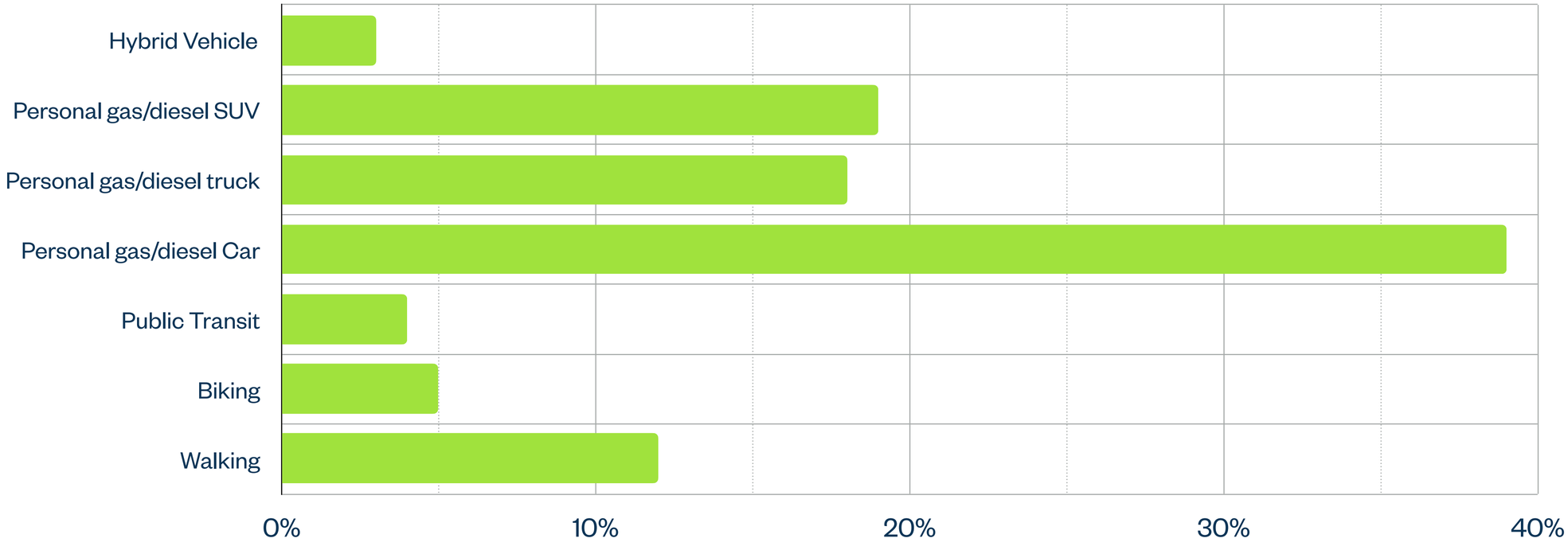


*Conflict is a measure of the level of disagreement in a group. Higher conflict scores represent internal resistance and risk of failure.

Survey Overview

Transportation

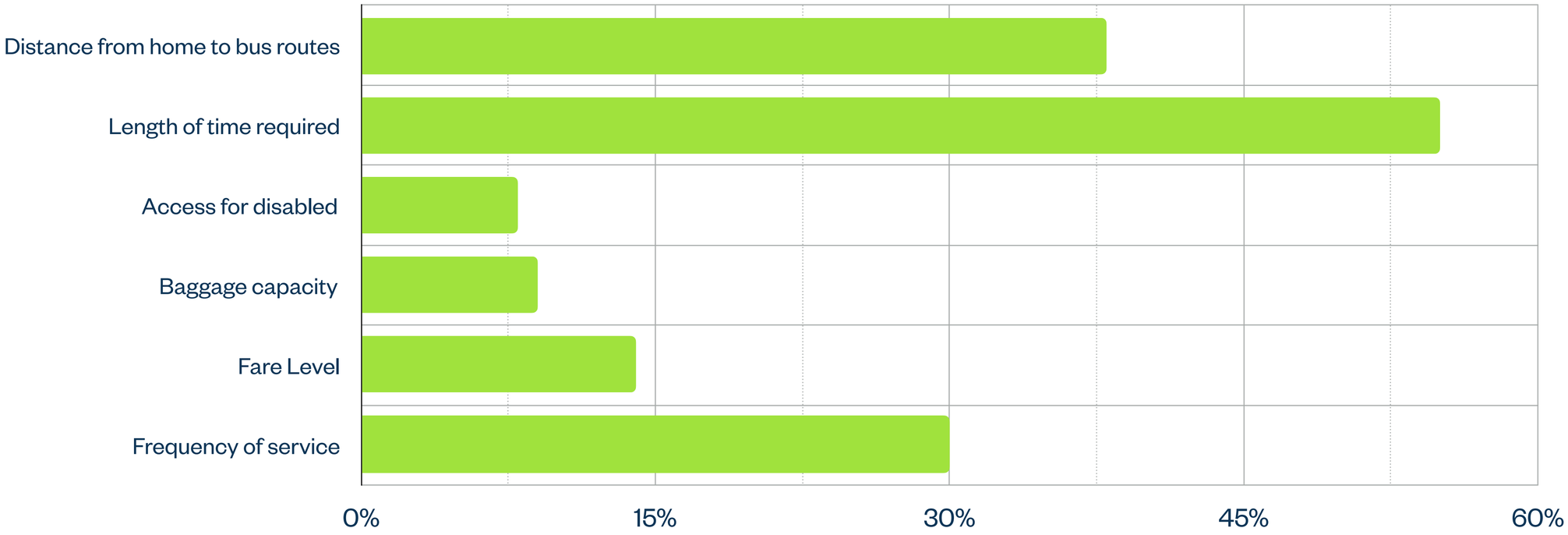
What are your main modes of transportation currently?



*Support is the average value of the votes, where the value of a totally opposing vote is 0 and a totally supportive vote is 100

Transportation

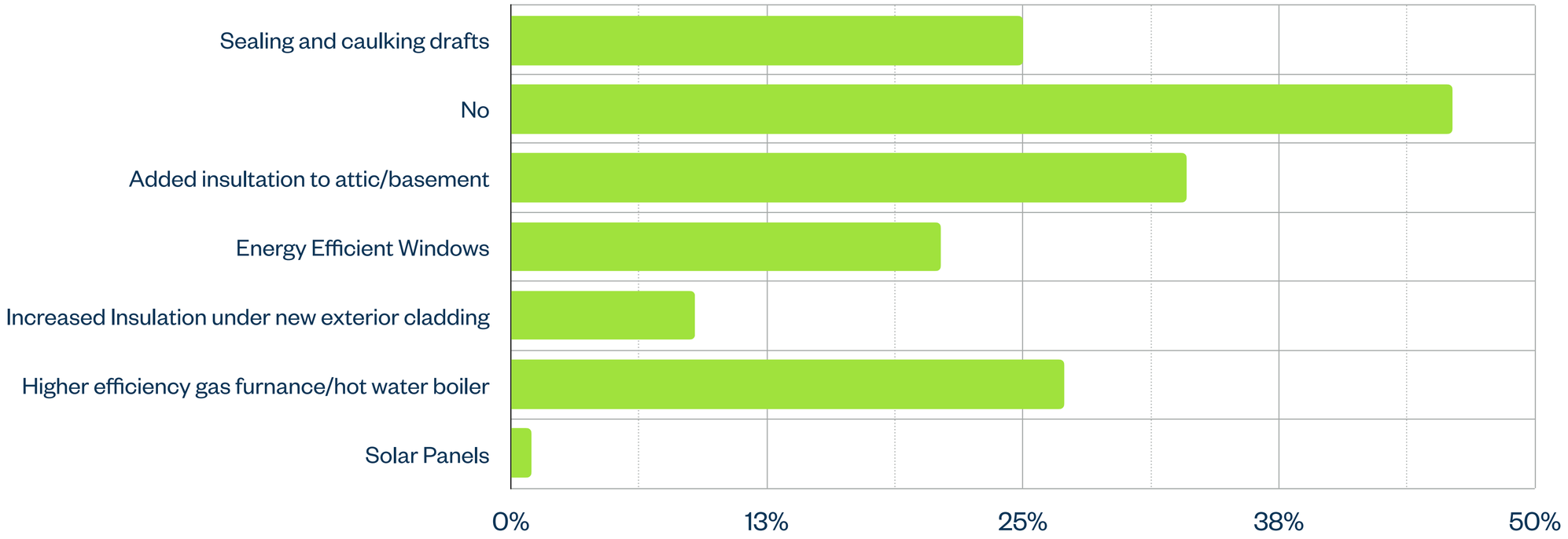
What are the major barriers for you around public transportation?



*Support is the average value of the votes, where the value of a totally opposing vote is 0 and a totally supportive vote is 100

Buildings and Energy

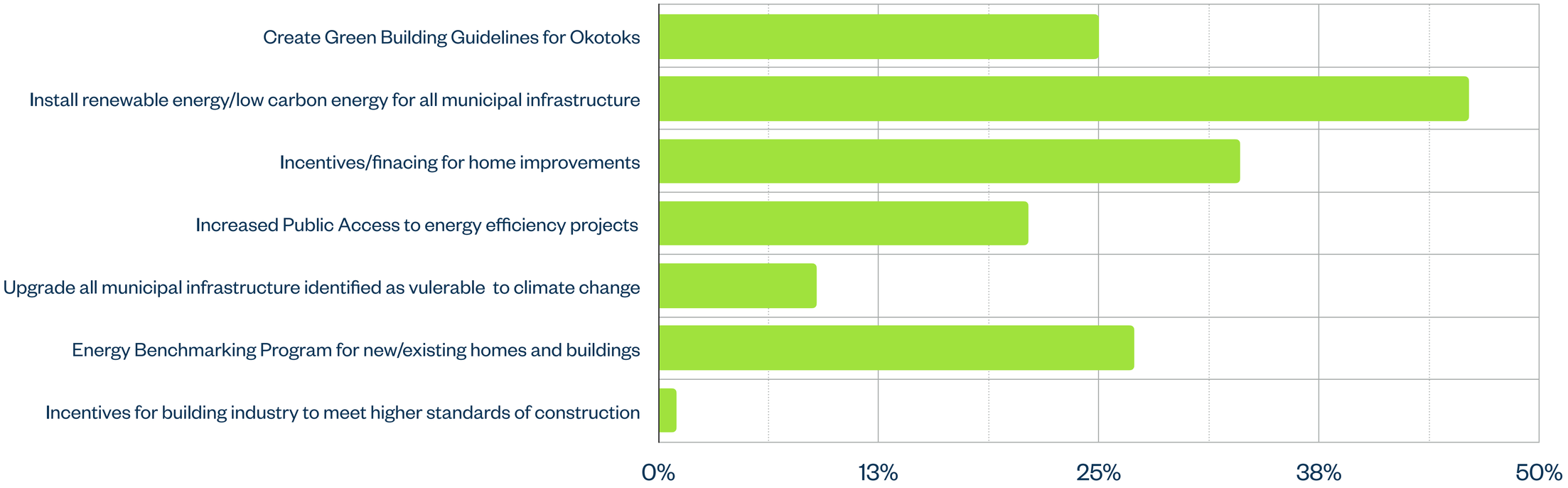
Have you taken steps to make your home more energy efficient?



*Support is the average value of the votes, where the value of a totally opposing vote is 0 and a totally supportive vote is 100

Buildings and Energy

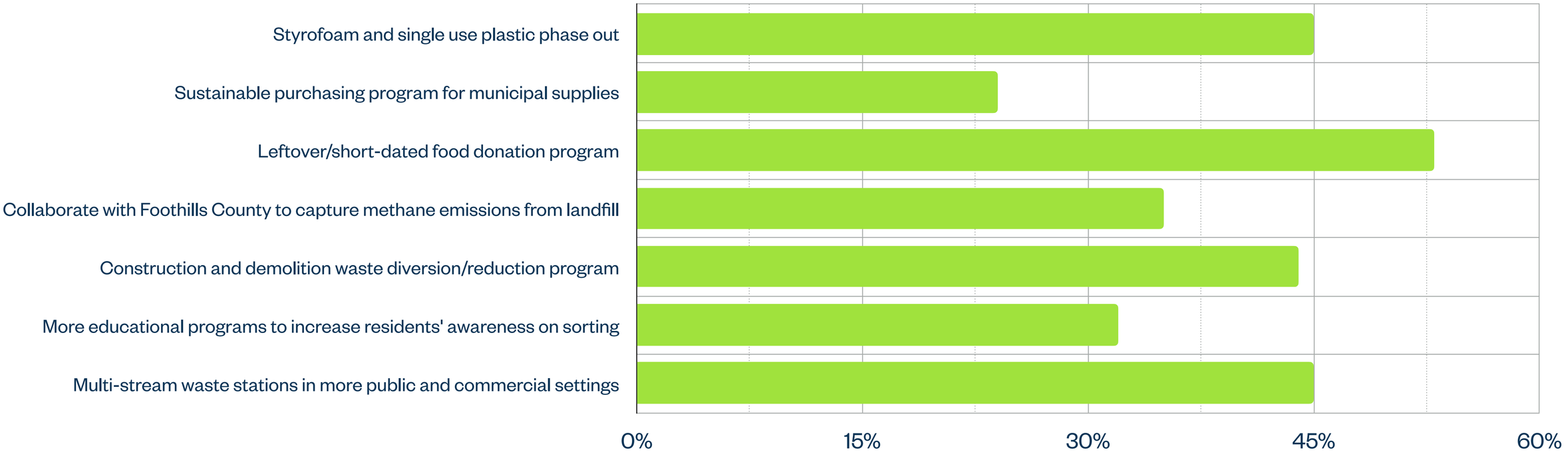
Which of the actions below do you identify as the three most important actions to improve residential, commercial, and/or municipal buildings over the next 5 years?



*Support is the average value of the votes, where the value of a totally opposing vote is 0 and a totally supportive vote is 100

Waste

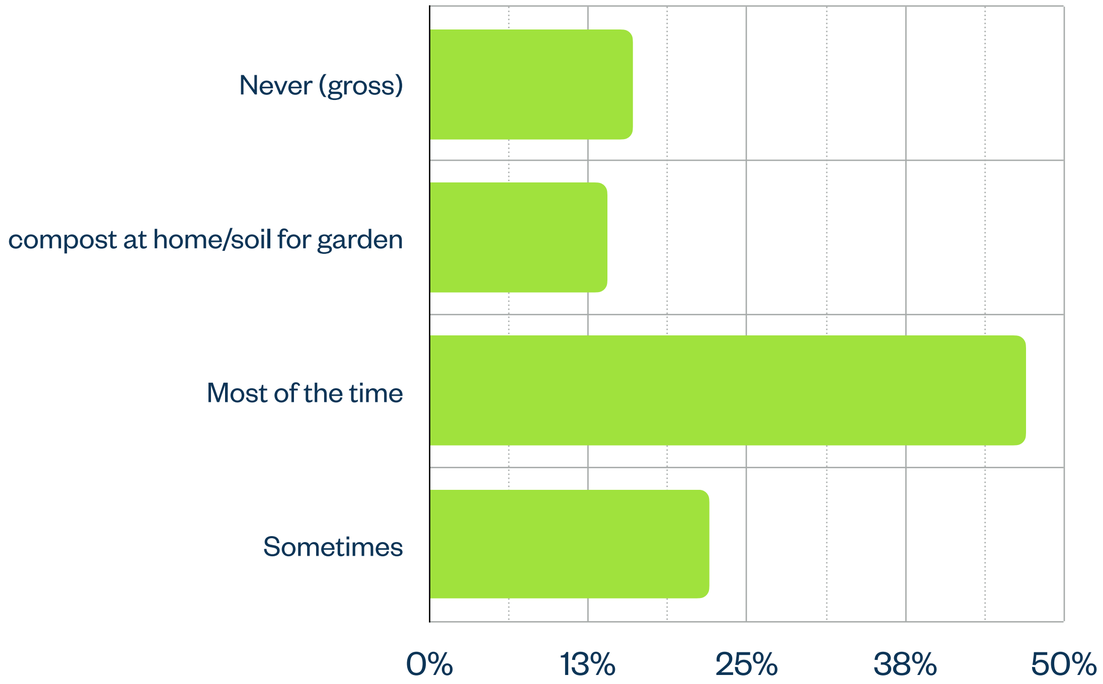
What are the three most important actions to reduce waste and associated emissions in Okotoks?



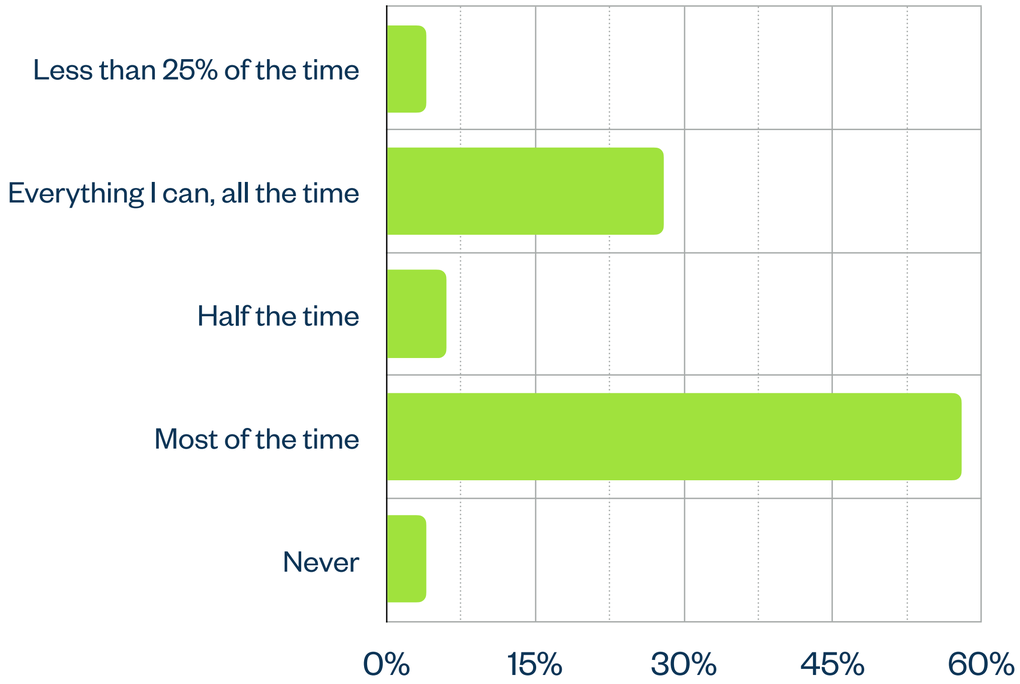
*Support is the average value of the votes, where the value of a totally opposing vote is 0 and a totally supportive vote is 100

Waste

How much do you compost?



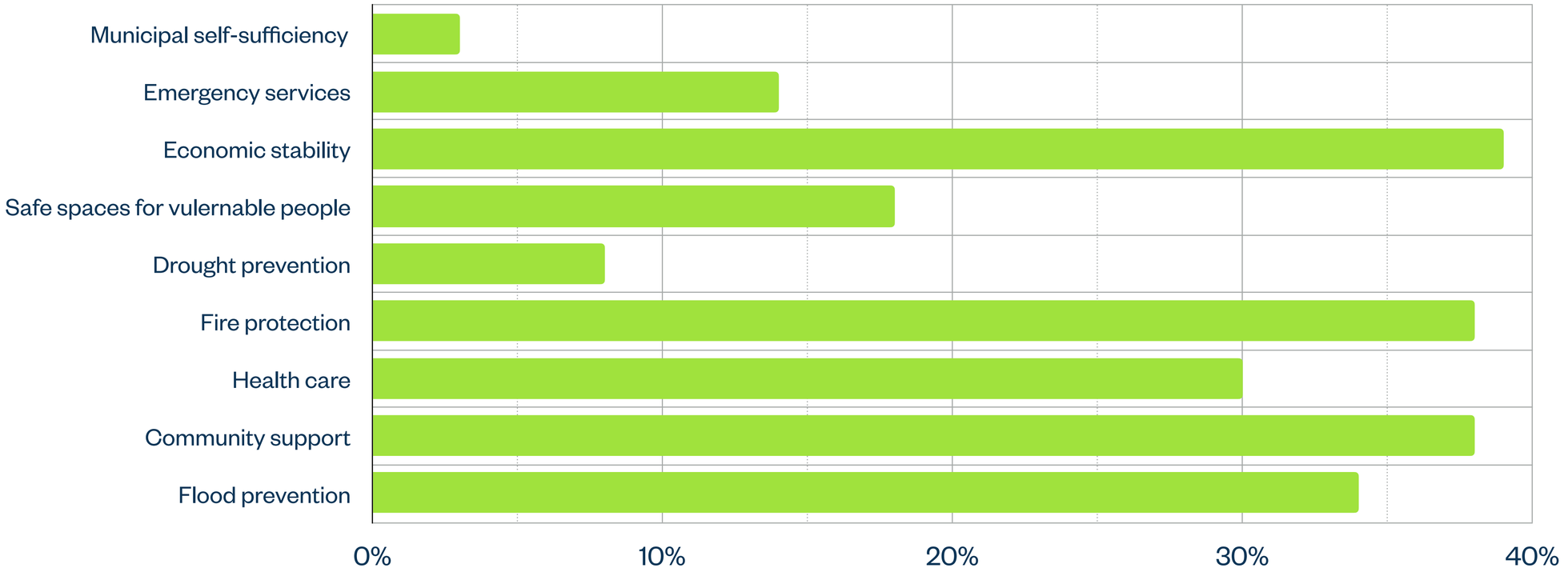
How often do you recycle?



*Support is the average value of the votes, where the value of a totally opposing vote is 0 and a totally supportive vote is 100

Health, Wellness and Emergency Preparedness

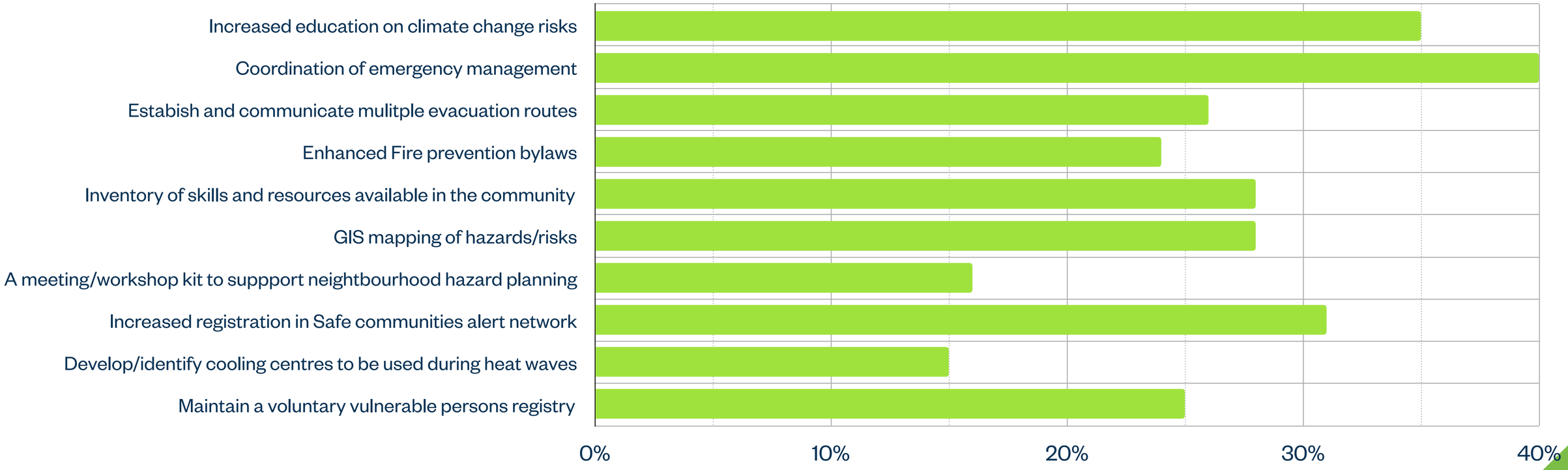
Where is Okotoks strongest in response to community or climate disasters?



*Support is the average value of the votes, where the value of a totally opposing vote is 0 and a totally supportive vote is 100

Health, Wellness and Emergency Preparedness

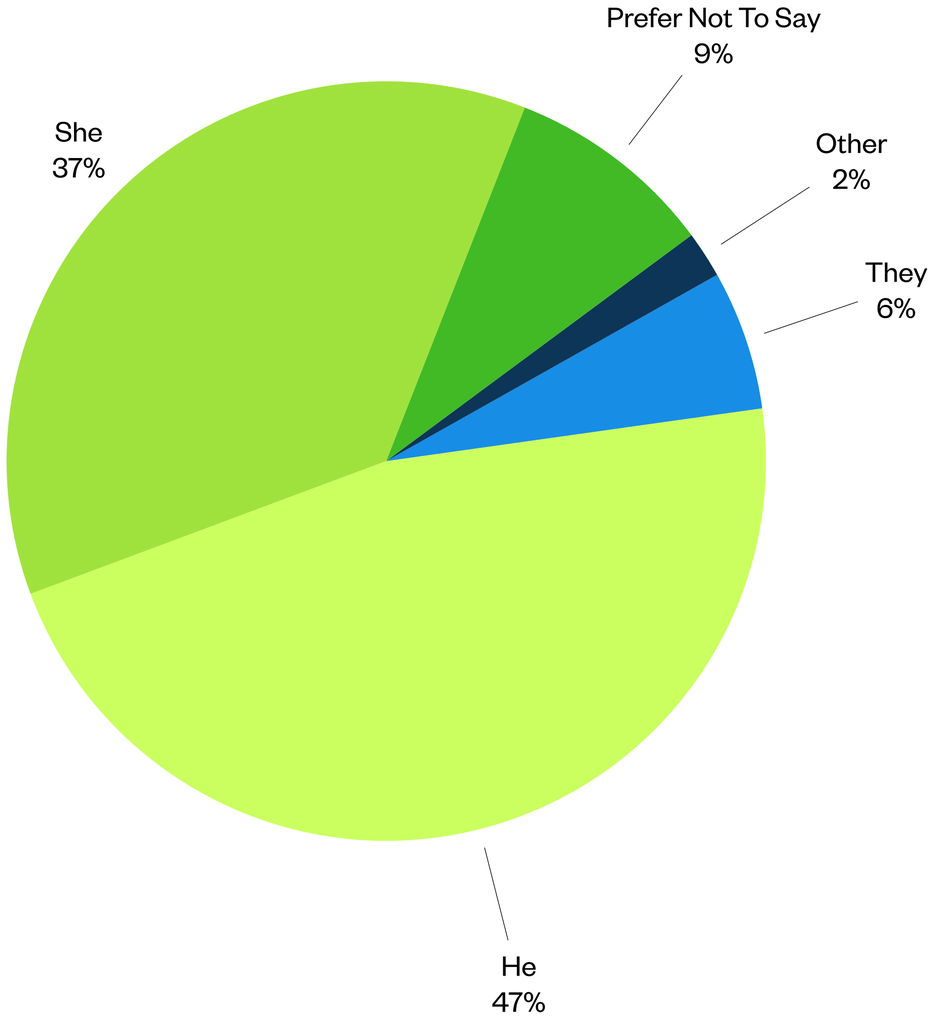
What are the three most important actions to maintain health and wellness of residents in case of emergencies and climate change?



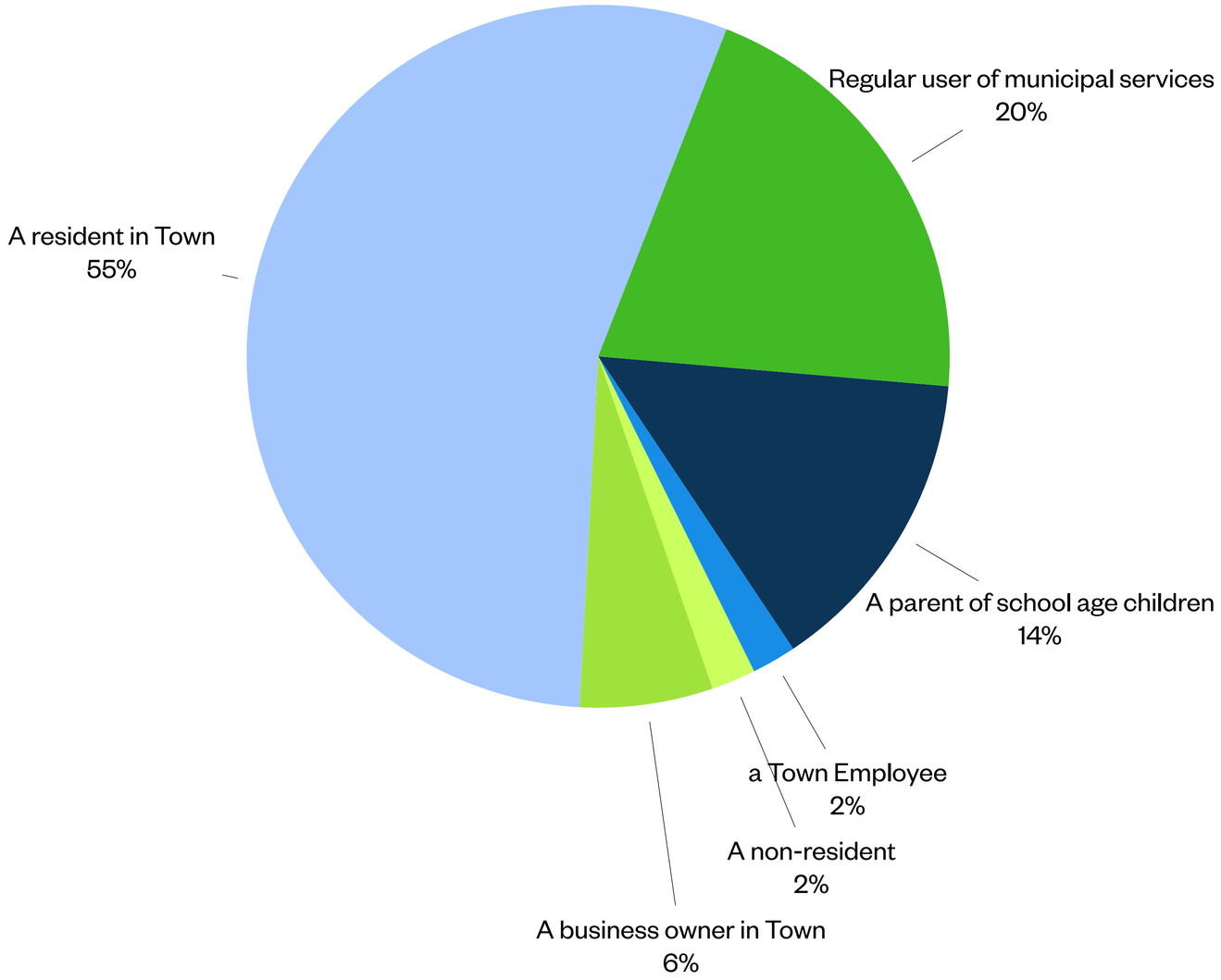
*Support is the average value of the votes, where the value of a totally opposing vote is 0 and a totally supportive vote is 100

Demographics

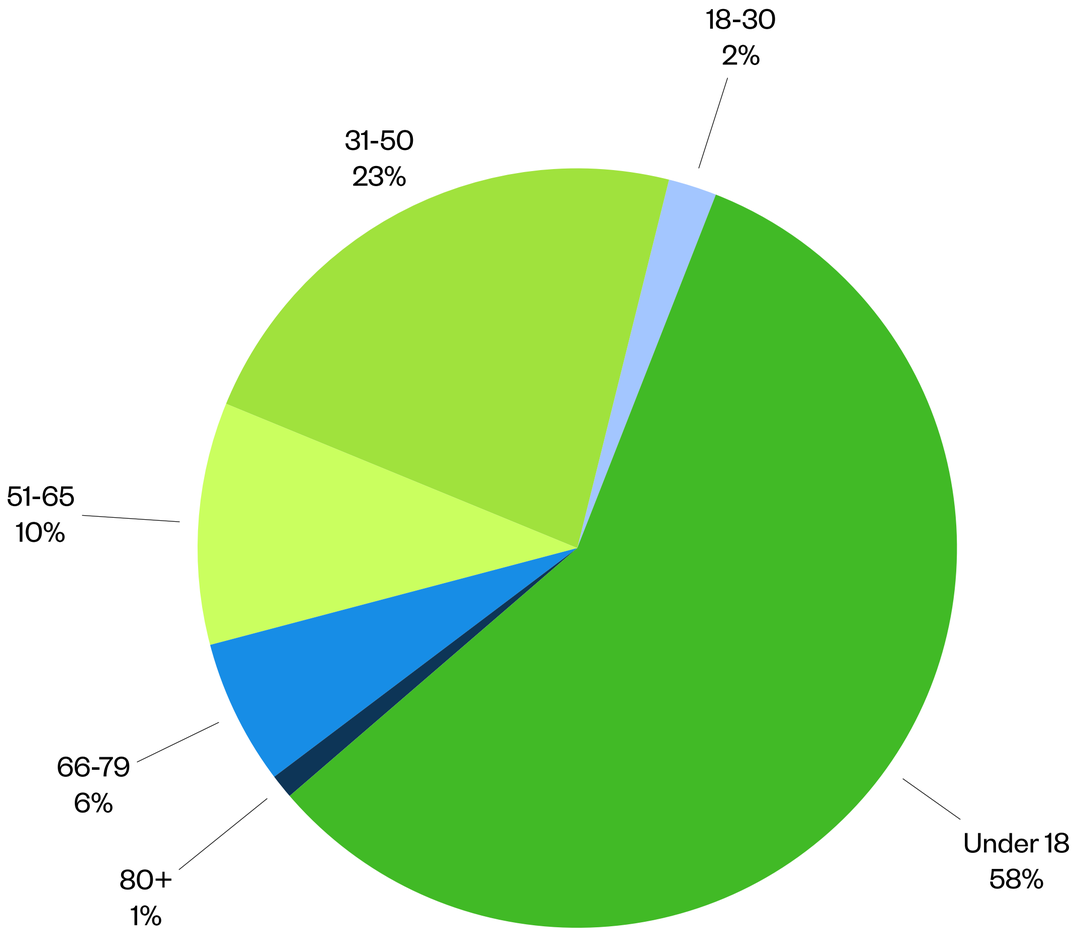
Gender Pronoun



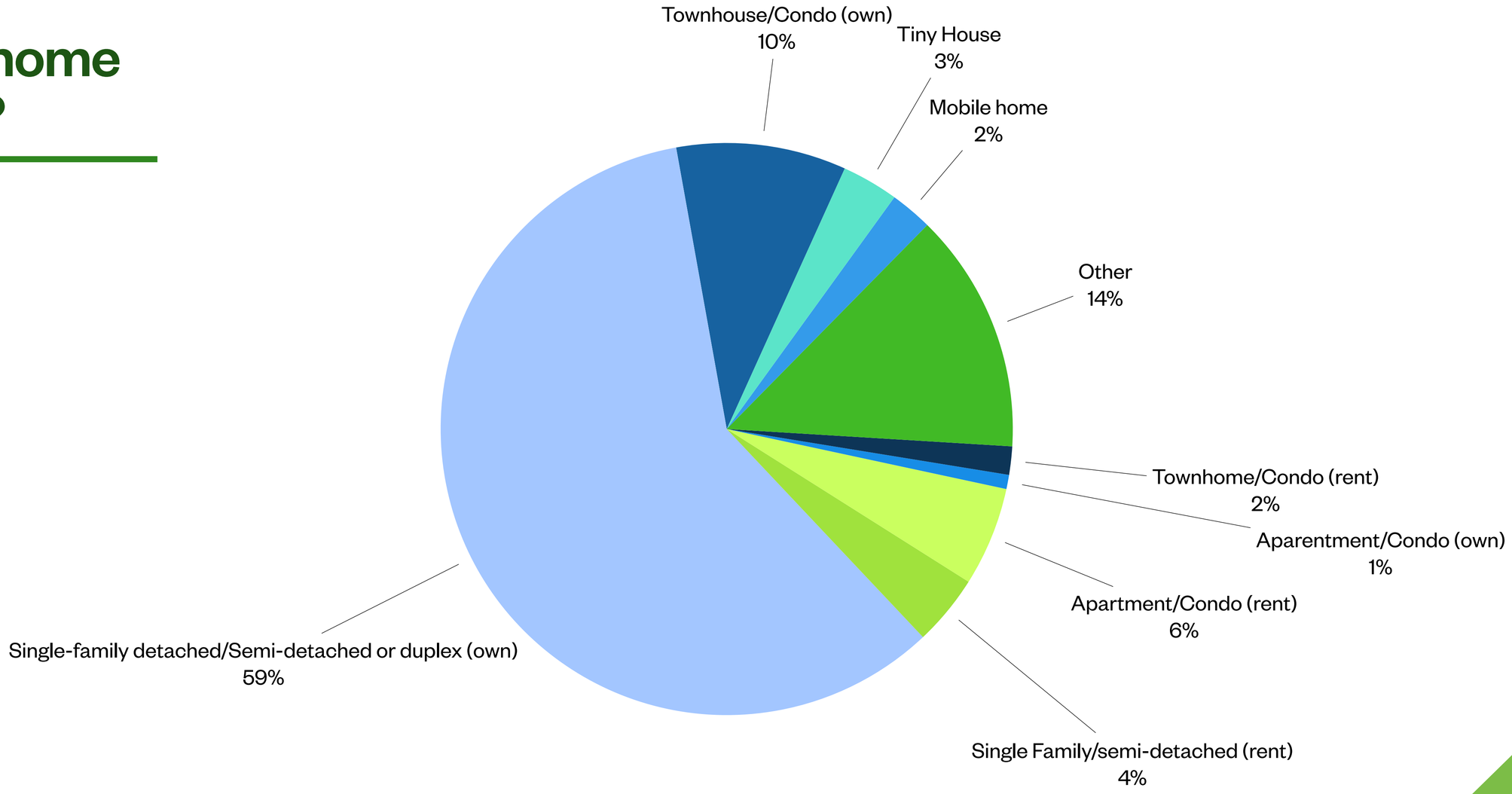
I am


Regular user of municipal services
20%
A resident in Town
55%
A parent of school age children
14%
a Town Employee
2%
A non-resident
2%
A business owner in Town
6%

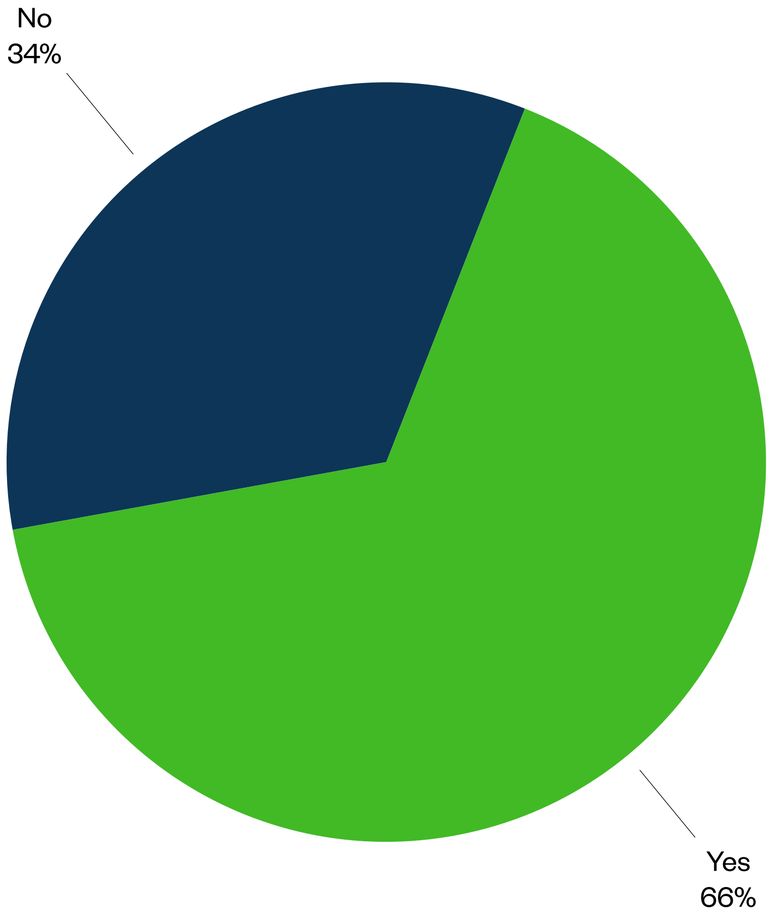
Age



What kind of home do you live in?



Would you like to be contacted about future sustainability initiatives?




Town of
OKOTOKS
Municipal Centre
5 Elizabeth Street
NO SMOKING

Thank you!