

2025

Climate Adaptation Action Plan

Territorial Acknowledgement

The Municipality of Jasper respectfully acknowledges that the Municipality of Jasper is on Treaty 6 and 8 Territories as well as The Jasper House Métis District. This land is the Traditional Territory, meeting ground, gathering place, travelling route and home for the Dane-zaa, Aseniwuche Winewak As'in'î'wa'chî Ni'yaw, Nêhiyawak, Anishinaabe, Secwépemc , Stoney Nakoda, Mountain Métis and Métis.

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Public Recognition

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Introduction

Project Background

A Climate Adaptation Action Plan aims to enhance a municipality's resilience to changing climate conditions and enable a community to better adapt, manage, and prepare for climate hazards. The Municipality of Jasper is developing a five-year Climate Adaptation Action Plan, which will provide the foundation to guide climate adaptation efforts, including mitigation measures to reduce the severity of climate hazard impacts, and enhancing preparedness and resilience across the community. The goal is to reduce the impacts of climate hazards on our community.

In February 2023, through the Municipal Climate Change Action Centre's (MCCAC) Climate Resilience Capacity Building Program, the Municipality received \$80,000 to move forward with a climate resiliency capacity building project. In March 2023, the Municipality selected The Resilience Institute as the lead contractor in partnership with Associated Engineering and the Prairie Adaptation Research Collaborative to develop a Climate Risk Assessment Report. Action and implementation planning was outside the scope of that assessment.



To structure and advance Jasper's resilience journey, Associated Engineering recommended that the Municipality develop a Climate Adaptation Action Plan specifically targeting the highest risks as identified in their assessment.

 **Wildfires,**
 **wildfire smoke,**
 **extreme heat,**
 **freezing rain, and**
 **glacial recession**

are the highest risks that could impact Jasper's built, natural, social and economic systems. On February 27, 2024, Committee of the Whole received the Climate Risk Assessment Report for information and directed Administration to "return to a future Committee meeting with recommendations on developing a Climate Change Adaptation Action Plan".

To learn more about Jasper's local climate hazards please visit our [2024 Climate Risk Assessment Report](#).

As we all remember, in July 2024, over 20,000 people were evacuated from the town, campgrounds, backcountry areas and other facilities in and around the municipality of Jasper and Jasper National Park following an evacuation order issued on July 22, 2024. Two days following the evacuation order, the massive wildfire quickly moved from the surrounding forest and entered the municipality of Jasper, destroying around one third of the town's structures. This disaster caused severe disruption to Jasper's built, natural, social and economic systems, significantly impacting individuals and families, local businesses, the broader community, and the surrounding region.

On August 27, 2024, Committee of the Whole recommended that Council direct Administration to proceed with developing a five-year Climate Adaptation Action Plan with internal resources and present the plan at a future Committee of the Whole Meeting in spring 2025.

Two resources were used to develop this Climate Adaptation Action Plan. First, Climate Resilience Express: A Community Climate Adaptation Planning Guide, created by the Municipal Climate Change Action Centre (MCCAC) and the All One Sky Foundation, lays out four steps that provide a flexible approach to climate adaptation planning that can be tailored to a community's needs.¹ Second, ICLEI Local Governments for Sustainability (ICLEI) has an abundance of knowledge and guidance on climate adaptation planning, particularly their Milestone Framework.²

It is important to note that when the word "mitigate" or "mitigation" is used in Jasper's Climate Adaptation Action Plan, it is being used as per it's English definition of "to make something less harmful"³, for example, implementing and encouraging FireSmart principles or prioritizing wildfire prevention, and not necessarily in the sense of reducing climate change by reducing the flow of heat-trapping greenhouse gases into the atmosphere, as the term is now often used in climate literature.⁴

1 https://mccac.ca/wp-content/uploads/CRE_Planning-Guide_Final.pdf

2 <https://icleicanada.org/our-work/adaptation/>

3 <https://dictionary.cambridge.org/dictionary/english/mitigate>

4 <https://science.nasa.gov/climate-change/adaptation-mitigation/>

Scope

A climate adaptation action plan identifies a clear vision, goals, and objectives, as well as a list of adaptations, inclusive of financial implications, to help the community adapt to climate risks while meeting community needs. Drawing on the basic milestone framework prepared by ICLEI, see Figure 1 below, Jasper is completing milestone 3 - PLAN.

The impacts, as well as the results of Jasper's Climate Risk Assessment Report from milestone 2 - RESEARCH, are used to define, assess and prioritize the actions needed to prepare and adapt to Jasper's local priority climate hazards, and formulate a Climate Adaptation Action Plan. These priorities have been developed into short-, medium- and long-term actions to address significant impacts. The Climate Adaptation Action Plan includes an examination of the constraints and drivers that affect our ability to implement the actions.

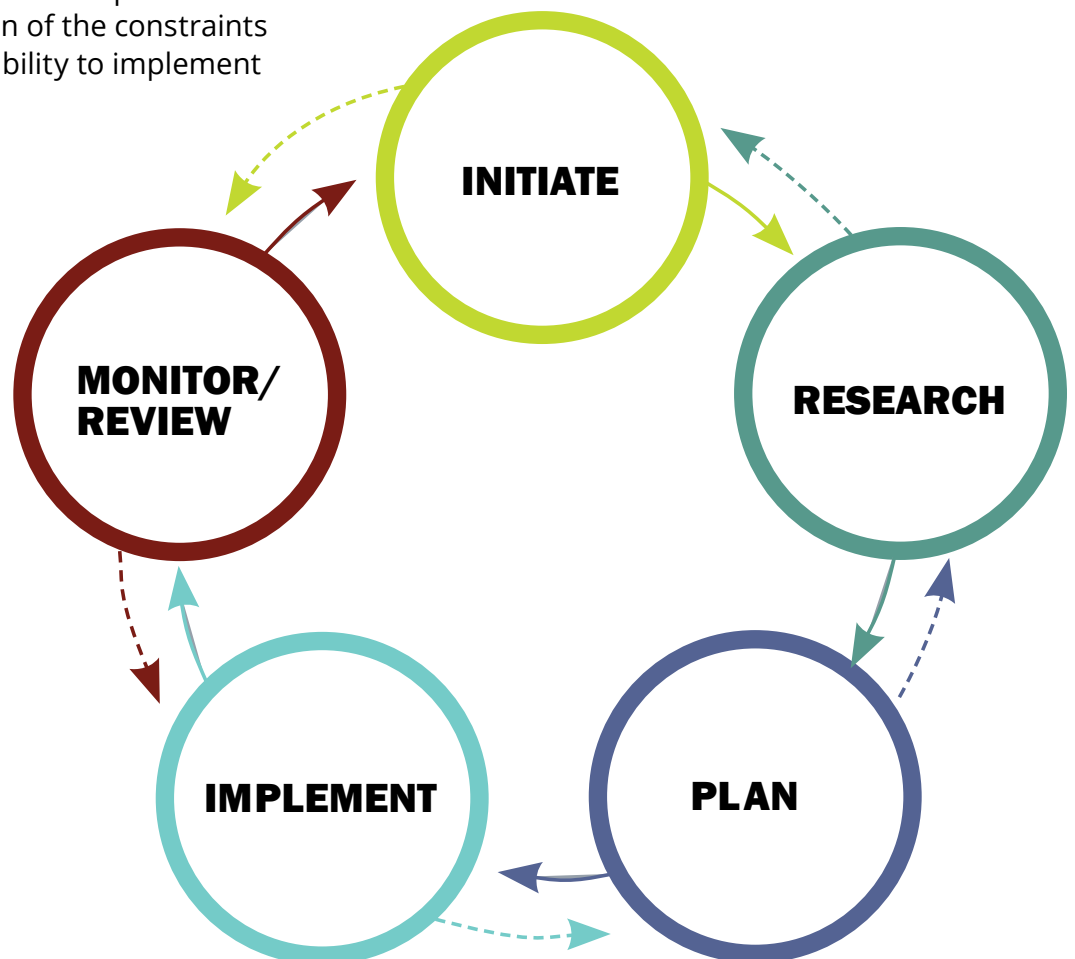


Figure 1 - ICLEI Basic Milestone Framework

Figure 2 below indicates the main activities in each of the five milestones. According to ICLEI, Canadian local governments should be familiar with the milestone process, as it is also central to the Partners for Climate Protection (PCP) program offered in partnership by the Federation of Canadian Municipalities and ICLEI.⁵

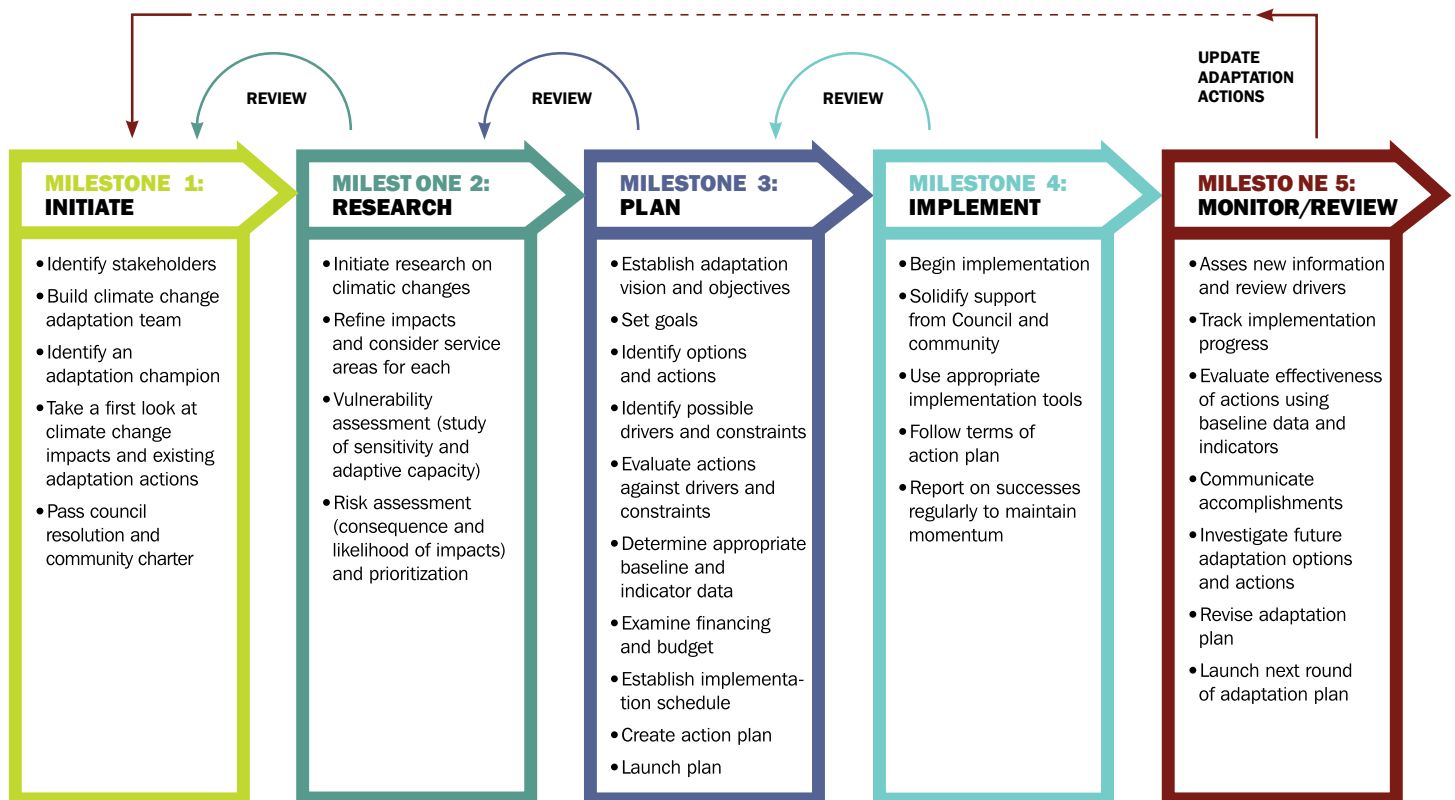


Figure 2 - ICLEI Milestone Framework

5 <https://icleicanada.org/wp-content/uploads/2019/07/Guide.pdf>

Figure 3 below illustrates the MCCAC's Climate Resilience Express' four-step approach to climate adaptation planning. The scope of this Plan falls under Step 3 "Action plan" of MCCAC's framework.⁶

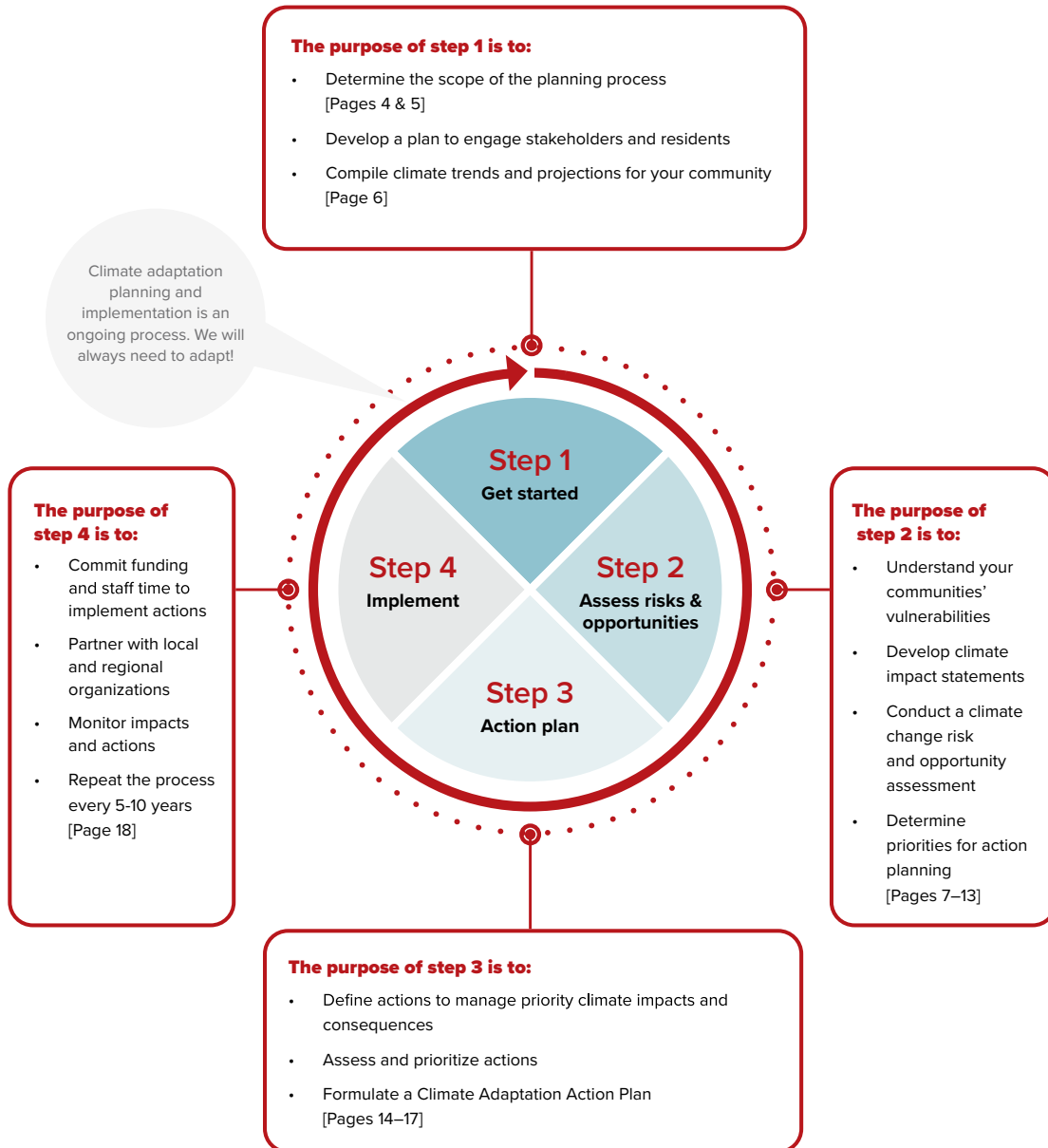


Figure 3 - Climate Resilience Express' four step approach to climate adaptation planning

⁶ https://mccac.ca/wp-content/uploads/CRE_Planning-Guide_Final.pdf

The Role of Governments in Climate Adaptation

As the Municipality of Jasper knows, local governments are already dealing with the impacts of climate hazards in their communities.

As local governments are responsible for key service areas that are affected by climate hazards (i.e. infrastructure, parks and recreation, health and transportation), they are on the front lines and have a responsibility to respond through strategic adaptation planning.

Municipal decision makers have a unique opportunity to develop a tailored approach to anticipate, plan, prepare for and reduce the negative impacts of climate hazards in their communities.

There are many reasons that local governments are well positioned to plan for climate hazards:

- Preparing for climate hazards is a matter of risk management and good governance.
- Local governments can tailor climate adaptation strategies to their local circumstances and to the unique set of climate hazard impacts they expect to face.
- Anticipatory adaptation planning can increase future benefits and reduce future risks associated with climate hazards by decreasing vulnerabilities.

ICLEI identifies five key mechanisms available to local governments to utilize and drive local climate adaptation actions:

1. land use and urban planning;
2. licensing and regulation;
3. facilitation, advocacy and leadership;
4. community service delivery, community development and civic engagement; and
5. workforce development.

Through these mechanisms local governments can use direct and indirect influences to support and foster communities that can mitigate and adapt to climate hazards. Table 1 lists some benefits and challenges associated to climate adaptation planning.

Benefits of Adaptation Planning	Challenges of Adaptation Planning
• Insurance against future risk • Reducing vulnerability • Creating opportunities • Lower long-term costs • Reduced risk	• Degree of uncertainty • Nature of scientific information (constantly changing) • Benefits of advance planning may only appear when impact occurs • Limited resources and/or political support

Table 1 - ICLEI Benefits and Challenges of Adaptation Planning

Costs of Inaction

The National Research Council's National Guide for Wildland-Urban Interface (WUI) Fires (the Guide) recommends how to build and maintain wildfire-resilient buildings.⁷ It details how to build with non-combustible materials and to control surrounding vegetation. The Institute for Catastrophic Loss Reduction and SPA Risk LLC prepared, for The National Research Council of Canada, an Impact Analysis for Mitigating Wildland-Urban Interface Fires. The impact analysis shows that satisfying the Guide's recommendations can cost less than \$5 per square foot for typical residential construction in WUI areas in Canada and, according to The Institute for Catastrophic Loss Reduction and SPA Risk LLC, \$1 spent to make a new home fire-resistant can ultimately save owners, tenants and society up to \$34 as follows:⁸

- \$10 in reduced fire damage to buildings
- \$8 worth of life safety and avoided cases of PTSD
- \$7 in reduced personal property damage
- \$7 in lower insurance premiums
- \$1 less dislocation cost ("additional living expense")
- \$1 less indirect business interruption and environmental impacts

7 <https://nrc-publications.canada.ca/eng/view/ft/?id=3a0b337f-f980-418f-8ad8-6045d1abc3b3>

8 https://www.iclr.org/wp-content/uploads/2021/05/WUI-NRC-Summary_2021_E2.pdf

Figure 4 illustrates Canada's costliest natural disasters in terms of insurance payouts (in 2023 \$ CAD), caused by extreme weather events, which resulted in billions of dollars in damages as well as unprecedented human and ecological impacts.

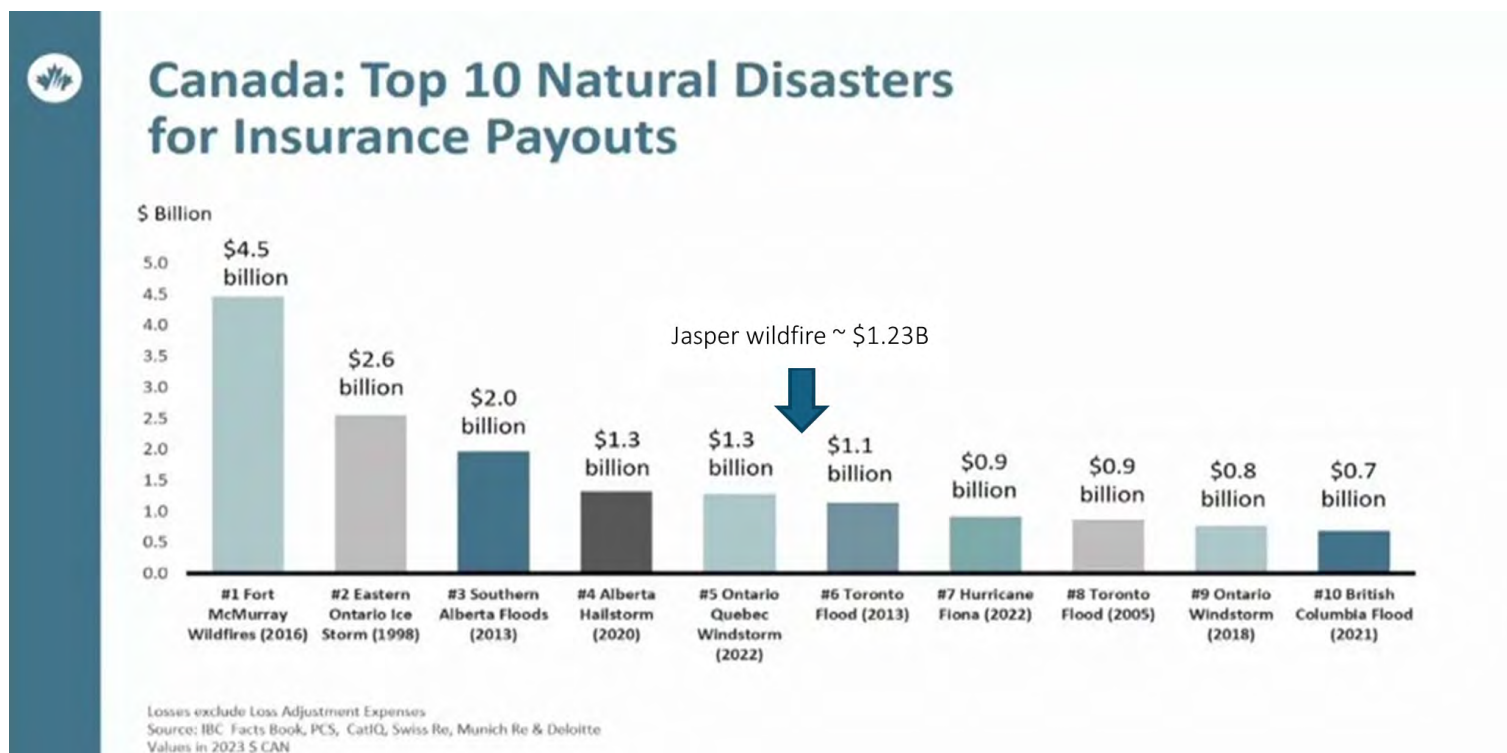


Figure 4 - Canada's Costliest Natural Disasters (Source: IBC Fact Book, PCS, CatIQ, Swiss Re, Munich Re & Deloitte)

In 2024, Canada's costliest insured catastrophic losses, caused by extreme weather events, resulted in an estimate \$8.5 billion dollars in damages. The Jasper wildfire, was the third most costly event of the year and stands as the second costliest fire event in Canadian history, with insured damage now estimated to be \$1.23 billion (an increase from initial estimates of \$880 million), according to Catastrophe Indices and Quantification Inc. (CatIQ).⁹

According to ICLEI, as mentioned in The Cost of Doing Nothing Primer Document¹⁰, and as seen in Jasper the following are some examples of direct costs as a result of extreme weather events:

- Damage to hard infrastructure and buildings
- Increased wear and tear resulting in increased operations and maintenance costs
- Physical and mental health impacts
- Damage to ecosystems

⁹ <https://www.ibc.ca/news-insights/news/insurance-bureau-of-canada-provides-jasper-wildfire-recovery-update>

¹⁰ <https://icleicanada.org/wp-content/uploads/2022/11/CODN-Primer.pdf>

The below are examples of indirect costs as a result of extreme weather events:

- Disruption/interruption of service delivery
- Workers not able to get to work
- Rising insurance premiums
- Long-term physical and mental health impacts

Heat events are responsible for the greatest loss of life in terms of weather-related natural disasters according to data compiled from the Canadian Disaster Database (CDD, 2022). Figure 5 below shows the top seven deadliest weather-related natural disasters across Canada between 1900 and 2021.¹¹

According to ICLEI, appropriate allocation of resources to adapt municipal assets, infrastructure and services will reduce risk and build resilience. The following four ICLEI Canada National Impact Statements relate to the Municipality of Jasper’s local climate.

1. Increasing frequency of extreme weather events leading to damage to homes, infrastructure, power outages, safety and additional clean-up costs.
2. Increasing winter precipitation and freezing rain events leading to dangerous road and sidewalk conditions and increased liability for injury and property damage.
3. Increasing frequency of extreme heat resulting in negative health outcomes, particularly to vulnerable populations, from reduced air-quality and increased heat-stress.
4. Increasing frequency of extreme weather events resulting in loss of ecosystem services.

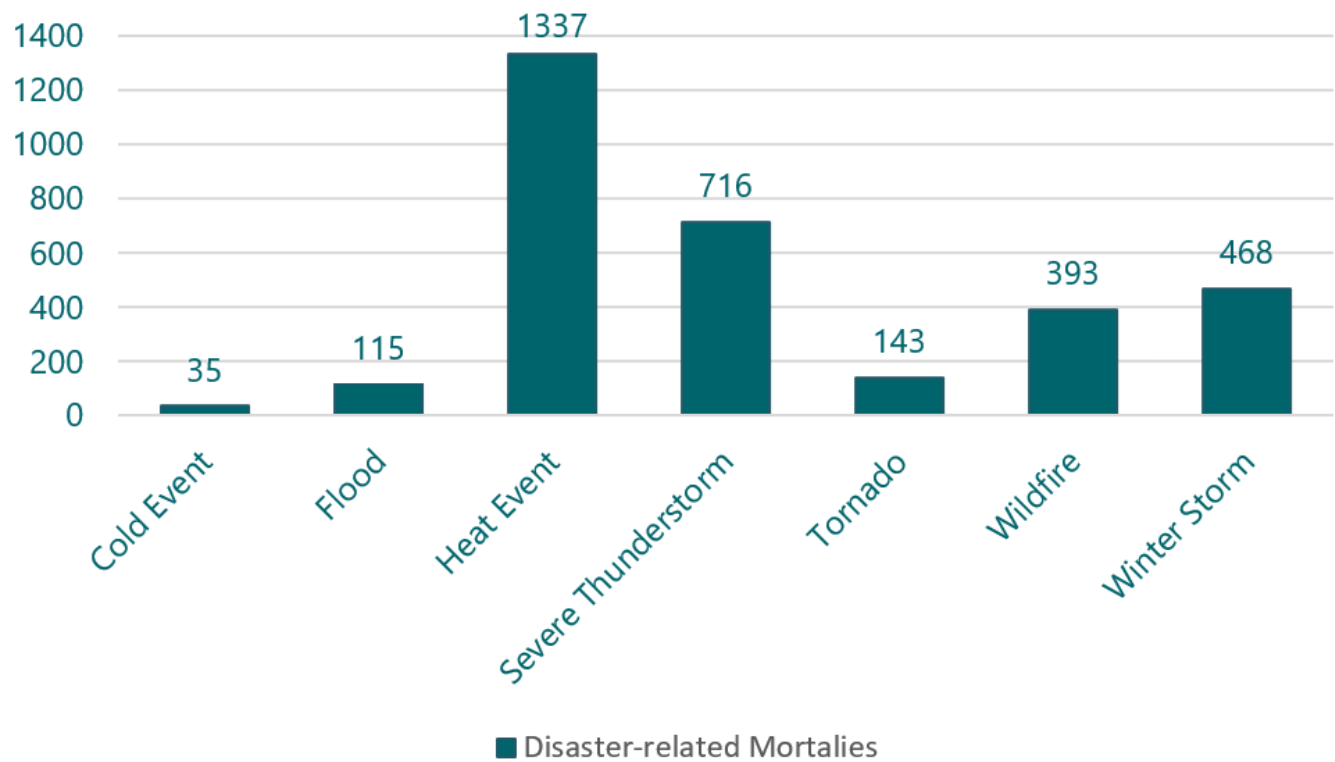


Figure 5 - Sum of Disaster-related Mortalities in Canada by Category (Source: CDD, 2022)

¹¹ <https://icleicanada.org/wp-content/uploads/2022/11/CODN-Primer.pdf>

Vision, Principles, Goals and Objectives

Jasper is a municipality that anticipates potential climate related impacts and makes informed decisions that enhance the resilience of our community for the well-being of all and the preservation of our built, natural, social and economic systems.

Vision

A vision helps local governments embarking on the adaptation planning process to:

- Establish what a climate resilient community looks like.
- Articulate where we would like to see our community in the future.
- Serve as a reference point throughout the planning process and while implementing adaptation actions.

The vision statement above is a summary of the following text from the Jasper Community Sustainability Plan and Council's 2022-2026 strategic priorities that align with climate adaptation:

Jasper is a small, friendly and sustainable community set in the natural splendour of Jasper National Park.

Jasper is a community in which individual and collective actions respect and integrate the values of environmental stewardship, economic health, social equity, cultural vitality and participative governance.

Jasper residents value and promote quality services, affordability, eligible residency, controlled growth, and environmental responsibility. Community values emphasize the appreciation and preservation of Jasper's history, architectural scale and character.

~ Jasper Community Sustainability Plan¹²

Community Health:

Take proactive steps to reduce the risk of people becoming vulnerable and respond when they are vulnerable.

Recognize the fundamental importance of our tourism economy.

Relationships:

Communicate and engage with residents.

Environment:

Value the unique opportunities and responsibilities arising from our location inside a National Park and World Heritage Site.

Focus on prevention, mitigation, and preparation for natural disasters.

Include an environmental lens into our decision making and operational plans.

Organizational Excellence:

Proactively plan for and invest in the maintenance and management of our natural assets and built infrastructure.

~ Council Strategic Priorities 2022-2026¹³

¹² <https://jasper-alberta.ca/p/sustainability-plan>

¹³ <https://www.jasper-alberta.ca/p/strategic-priorities>

Principles

The following principles were considered to help guide the Climate Adaptation Action Plan:

- Balance of immediate and long-term needs
- Actions are within the Municipality's control and influence
- Responsive to community needs
- Recognizing existing work

Goals

Jasper's adaptation goals set the expectations of the Climate Adaptation Action Plan and are phrased in reference to our local climatic hazards that can threaten our community. The goals act as high-level intentions which our community will strive towards.

- Increase public awareness of Jasper's local climate hazards and its projected impacts on our community.
- Increase technical capacity to mitigate and prepare for climate hazards.
- Increase adaptive capacity of built, natural, human and economic systems in our community.

Objectives

Jasper's Climate Adaptation Action Plan was developed to identify appropriate, realistic and achievable actions. The Climate Adaptation Action Plan takes into account Jasper's unique standing as a Specialized Municipality within a National Park to address the risks of our local climate hazards and represents the path towards achieving our vision.

- Reduce the impacts of wildfires, wildfire smoke and extreme heat to public health and safety.
- Increase public awareness of the health risks associated with extreme heat and wildfire smoke.
- Create conditions to minimize health and safety risks to municipal staff working outdoors.
- Improve air quality and cooling systems at public facilities.
- Monitor, maintain and improve the diversity and resilience of urban trees and forests.
- Design, construct, and maintain infrastructure that is resilient to climate hazards.
- Continue to improve community preparedness and resilience to respond to climate hazards.
- Identify funding for climate resilience supportive projects/programs that take into account financial planning & priorities.
- Improve energy conservation.

Vulnerability Assessment and Risk Assessment

In February 2024, the Resilience Institute, with their project partners, the Prairie Adaptation Research Collaborative and Associated Engineering, provided the Municipality of Jasper with a [Climate Risk Assessment Report](#). This report met the criteria for ICLEI's Milestone 2 – Research.

Climate Hazard Descriptions

The climate hazards applicable to Jasper, as identified in Jasper's Climate Risk Assessment Report, are listed and described below. Jasper's top five priority climate hazards are underlined and highlighted in grey.

Climate hazards are weather related events that can cause harm, loss of life, injury, or other health impacts, as well as damage or loss to property, infrastructure, livelihoods, service provision or environmental resources, and may be referred to as extreme weather events.

- **Drought**: A prolonged period of abnormally low rainfall, leading to a shortage of water.
- **Lightning**: Occurrence of natural electrostatic discharges of short duration and high voltage within clouds, or between clouds and the ground.
- **Localized Flooding**: Rapid increases in water level, particularly in low lying areas and along drainage networks, seen during periods of short-duration high-intensity rainfall or rapid melting of snow or ice. Also known as pluvial flooding.
- **River/Creek Flooding**: River water levels exceeding the top of bank and spilling onto surrounding lands typically driven by longer duration heavy rainfall. Also known as fluvial flooding.
- **Wildfires**: A large, destructive fire that spreads quickly over forests or grasslands.
- **Wildfire Smoke**: A mix of gases and fine particles from burning trees and plants, buildings and other material.
- **Hail**: Pellets of frozen rain which fall as showers.
- **Freezing Rain**: Rain that freezes on impact with the ground or solid objects.
- **High Winds**: A period of abnormally strong, sustained winds.
- **Extreme Heat**: Summertime temperatures that are much hotter and/or humid than average.
- **Extreme Cold**: Winter temperatures that are much colder than average.
- **Heavy Snow**: A period of intense, sustained snowfall.
- **Freeze-Thaw Cycle**: The fluctuation of air temperature between freezing and non-freezing temperatures.
- **Ecoregion Shift**: A change in the climatic conditions of an area, affecting the health and presence of native ecoregions (ecological features and plant and animal communities).
- **Avalanches**: A mass of snow, ice, and rocks falling rapidly down a mountainside.
- **Glacial Recession**: A shrink in glacier size because more material melts, evaporates, or erodes than is replenished.¹⁴

¹⁴ https://jasper.municipalwebsites.ca/UploadFiles/Docs/MunicipalityofJasperClimateRiskAssessmentReportApril2023Final_bn-MHpG.pdf

Change in Climate Hazard Likelihood

As mentioned in Jasper's Climate Risk Assessment Report, under section 4 "Risk Assessment Results", risk is driven by the consequence of different climate hazards and their likelihoods. Many climate hazards will see an increase in how likely they are to occur between historical data and 2050. Particularly, for the region Jasper is in, the largest shifts in likelihood are for wildfires, wildfire smoke, freezing rain, extreme heat (days above +30°C), and glacial recession.

Not all impacts have the same severity of consequence, and therefore, each impact was assessed individually through the risk assessment process. Different criteria were used to assess impacts to the built, natural, social, and economic systems.

Figure 6 is taken from the section "Determining Climate Hazards" in Jasper's Climate Risk Assessment Report and indicates the change in climate hazard likelihood for Jasper.

Change in Climate Hazard Likelihood

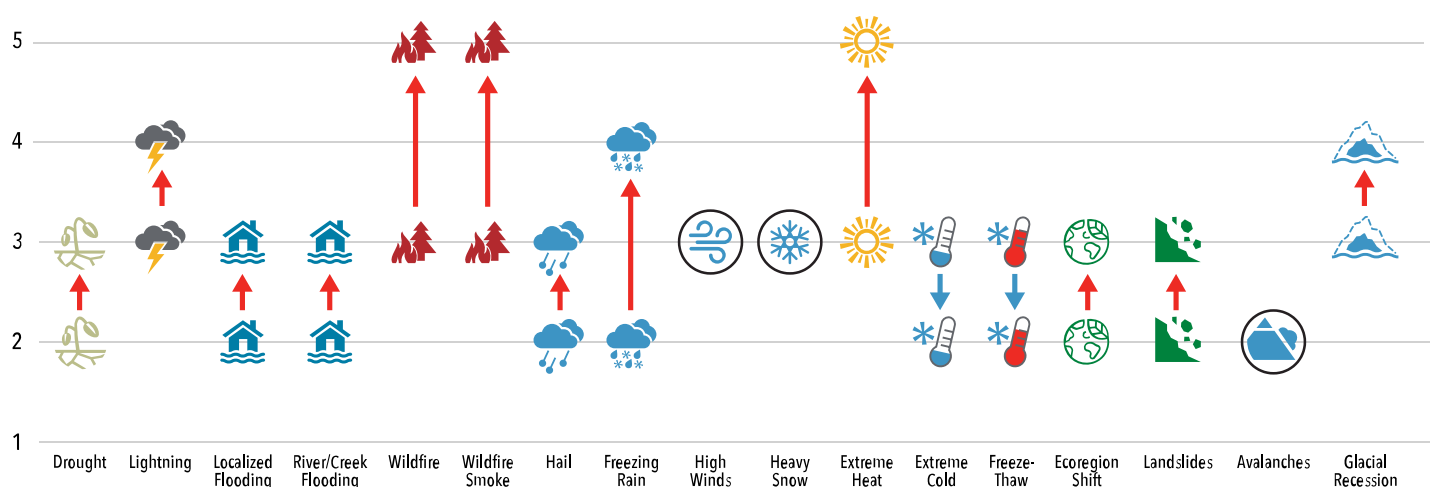


Figure 6 - Jasper's Change in Local Climate Hazard Likelihood

Local Climate Hazard Priorities

Based on the research conducted as part of the Climate Risk Assessment Report, the climate hazards presenting very high risks to the Municipality of Jasper in the 2050s are wildfire, wildfire smoke, extreme heat, freezing rain and glacial recession. A summary of some of the highest risk impacts of these hazards is shown in Table 2.

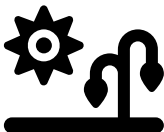
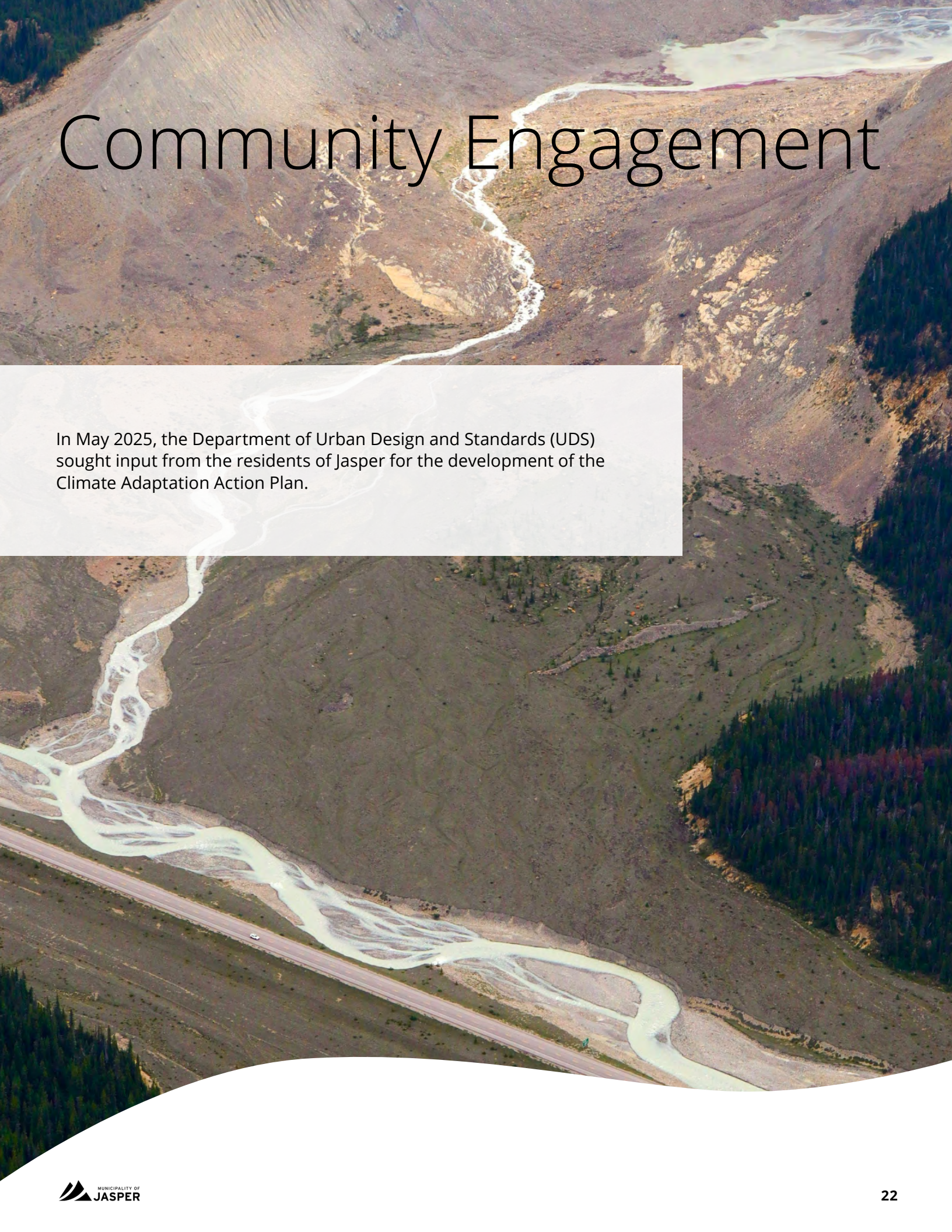
Top Hazards	Top Impacts
Wildfire 	• Risk of a Jasper developing a poor reputation within the international tourism market • Damage to building and community member homes • Power outages cause disruptions, especially for essential services
Freezing Rain 	• Increased risk of automobile accidents and injuries/death • Slow traffic flow, making tourism opportunities less appealing
Glacial Recession 	• Physical damage to infrastructure and the built environment • reduced water supply • Glacier-related tourism less appealing
Extreme Heat 	• Health impacts or death, especially for vulnerable populations (chronic health conditions, elderly, children) • Reduced participation in outdoor recreation • Increased wildlife/human interactions as animals seek out water and food sources
Wildfire Smoke 	• Serious health implications especially for those with respiratory problems • Impacts on tourism sector due to less interest in outdoor activities

Table 2 - Climate Impact Statements – Top Hazards

An aerial photograph of a wide river valley. A light-colored, braided river flows through a dark, rocky landscape. A paved road runs parallel to the river on the left side. The surrounding slopes are covered in dense evergreen forests. The sky is not visible.

Community Engagement

In May 2025, the Department of Urban Design and Standards (UDS) sought input from the residents of Jasper for the development of the Climate Adaptation Action Plan.

Although the participation rate was low due to time constraints, the community's initial input on the subject was important to understand and helped initiate community engagement. The results of the survey can be viewed in Appendix A.

Some interesting findings from the survey are listed below:

- 47% of respondents viewed Jasper's Climate Risk Assessment Report
- 92% of respondents would like to learn more about wildfires
- 73% of respondents claim having taken actions or are currently taking actions to implement FireSmart principles and are preparing an emergency plan.
- 87% of respondents are willing to implement adaptation measures to become more resilient to climate hazards
- 87% of respondents mention financial barriers as a main barrier to implementing adaptation measures
- Built and social systems scored higher priorities when asked which systems the respondents believed the Municipality of Jasper should prioritize.
- 73% of respondents answered yes when asked if the Municipality of Jasper should increase community access to areas of respite and recovery to escape wildfire smoke and extreme heat.
- 87% of respondents answered yes when asked if the Municipality of Jasper should continue to update municipal buildings to be more resilient to climate.
- 100% of respondents answered yes when asked if the Municipality of Jasper should continue to provide information or guidelines that encourage climate resiliency for homes, business and properties from climate hazards.
- 80% of respondents answered yes when asked if the Municipality of Jasper should provide incentives to help residents and businesses protect themselves and their property from climate hazards.
- 93% of respondents answered yes when asked if the Municipality of Jasper should deliver educational programs to residents to help support climate adaptation actions (e.g. FireSmart, climate resilient landscaping, passive homes, etc.).

Additionally, an interesting finding from the survey was how people would like to receive information. When asked how they would like to receive information about climate adaptation strategies, 92% of respondents chose “Social Media”, see Figure 7 below.

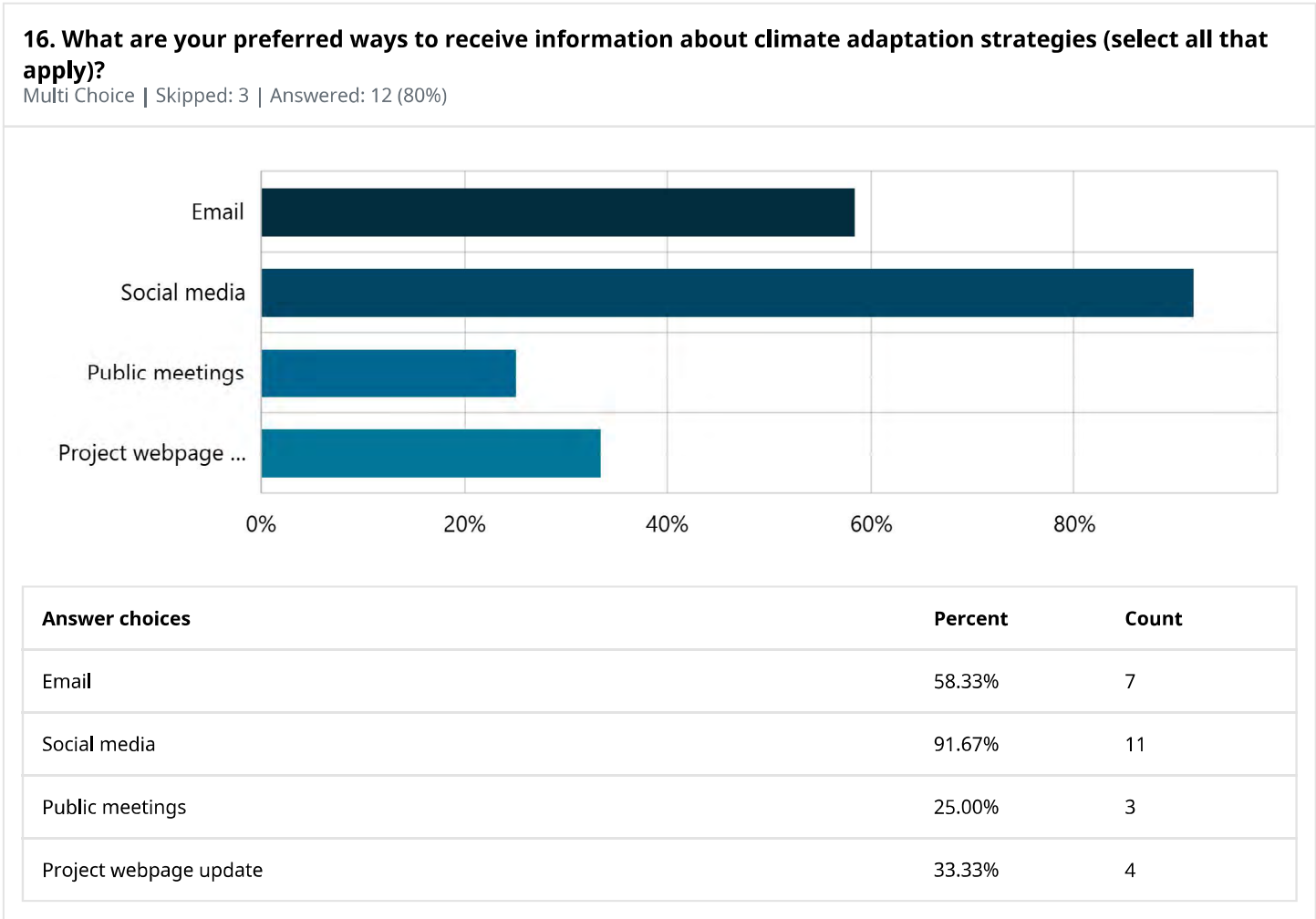
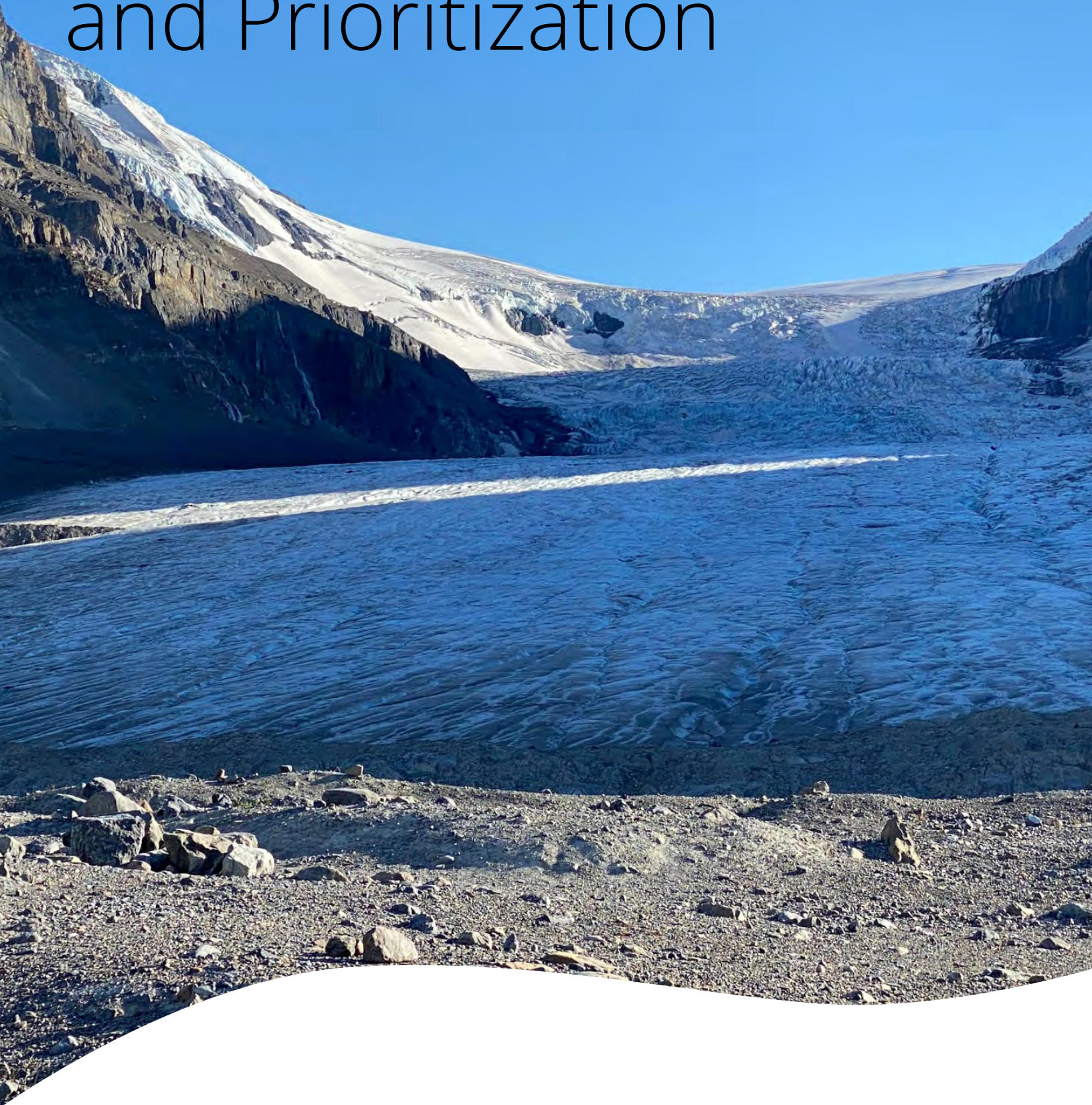


Figure 7 - Preferred Ways to Receive Information About Climate Adaptation Strategies

Action Identification and Prioritization



Identifying and Selecting Adaptation Options

Based on Jasper's high priority climate hazards identified through the risk assessment in Milestone 2 (wildfire, wildfire smoke, extreme heat, freezing rain and glacial recession) and the community's objectives, adaptation options were developed to mitigate, prepare and overcome the risks.

The options are broken down into short-, medium- and long-term timelines, and reflect our community's vision and previously identified objectives. Adaptation options include a wide range of actions and likely involve some combination of the following:

- Modifying policies, plans, practices and procedures
- Building new or upgrading existing infrastructure
- Improving community awareness and public education
- Varying and/or diversifying options

There are many factors that affect the type of actions our community can include in our final adaptation plan, including the resources that are available and the extent of our community's vulnerability to specific climate hazards.

Constraints that may influence implementation were considered when selecting adaptation actions, such as:

- Lack of available information
- Cost
- Staff capacity
- Number of departments involved
- Need for external resources
- Competing or short timelines
- Provincial or territorial legislation

Drafting the Climate Adaptation Action Plan

After having considered drivers and constraints, the actions identified in Appendix B were attributed descriptive information to move the Climate Adaptation Action Plan from a general list of adaptation actions to a more formalized plan for each action.

For each action it was important to identify the following parameters:

- System: what will be the system associated with implementing this action (built, natural, social, economic or general)
- Climate hazard: what priority climate hazard does the adaptation action relate to
- Priority: high, medium or low priority action
- Action type: plan, program, policy, project, partnership or engagement
- Responsible departments: this will be the departments involved with planning and/or charged with implementing the action
- Timeline: is the action implemented or initiated, in the short-, medium-, or long-term
- Cost: what is the anticipated scale of costs (\$, \$\$, \$\$\$)
- Partner: who is needed to support action implementation, both within the community and externally

Actions attributed a short-term timeline might include actions that can be done quickly, for a low cost or as part of routine operations. Whereas actions with a long-term timeline might require changes to by-laws, planning documents, or an increase to a departments operating budget.



The Climate Adaptation Actions by System



The Municipality of Jasper's Climate Adaptation Action Plan, see Appendix B, groups actions by systems affected by climate hazards (Figure 8), either the BUILT, NATURAL, SOCIAL, or ECONOMIC system. GENERAL is noted if an action contributes to multiple systems.



Figure 8 - Systems Affected by Climate Hazards

For each adaptation action the climate hazard addressed is indicated, followed by the descriptive information mentioned in the above section “Drafting the Climate Adaptation Action Plan”. The provided information indicated in the table should allow municipal decision makers to prioritize and plan for the implementation phase of the climate adaptation action plan.

Some examples of high priority, short term actions, which are aligned with MCCAC's Adaptation Actions to Implement Climate Resilience¹⁵, and can have a great impact on the Municipality's resilience, relate to:

- Wildfire prevention
- Backup power systems for critical infrastructure
- FireSmart building upgrades
- HVAC system upgrades
- Cooling centres and clear air shelters
- Park and public space management to include shade structures and cooling spaces
- Education campaigns and strategies

¹⁵ https://greenmunicipalfund.ca/resources/adaptation-actions-implement-climate-resilience?_cldee=mMI_5CuzCz_a_isl_ncFtBfTgoP-mtmFn8MrOZ1Y0YPhqgwjOa4wucSaycxXe9CrM&recipientid=contact-b466e4186439ef1180e5005056a3e2c0-cc34f8687f9844408ba98cd6b003313f&esid=f19abaa6-bc4a-f011-80e9-005056a3e2c0

Next Steps: Implementation, Monitoring and Evaluating



Jasper's Climate Adaptation Action Plan outlines 28 key actions meant to kickstart the Municipality on a path towards preparedness and resilience to climate hazards. The next step in the climate adaptation planning process is implementation, recall milestone 4 – IMPLEMENT in Figure 2, and following that is milestone 5 – MONITOR/REVIEW. For effective continuation of this Plan, the following items should be considered:

- Dedicate staff time and resources
- Commit funding
- Monitor and evaluate implementation results
- Regional collaboration

A successful aspect of implementation is reaching a point where integrating climate resilience into our community strategies, plans, policies, programs, projects, and administrative processes is routine and customary.

Glossary

Adaptation includes any initiative or action, taken in response to actual or anticipated climate hazard impacts, that lessens the effects on built, natural, and social systems.

Actions can include:

- monitoring;
- research, and other information gathering;
- education;
- capacity building;
- changes to infrastructure;
- creating new policies and regulations;
- developing economic, and other incentives;
- and ensuring governance considers climate hazards.

Climate is the average weather in a place over a long period of time, typically decades or longer.¹⁶

Climate hazards are weather related events that can cause harm, loss of life, injury, or other health impacts, as well as damage or loss to property, infrastructure, livelihoods, service provision, or environmental resources and may be referred to as extreme weather events.

¹⁶ <https://orcca-craco.ca/wp-content/uploads/2023/09/008.pdf>

Disaster is severe alterations in the normal functioning of a community or a society due to hazardous physical events interacting with conditions of social vulnerability, leading to widespread negative human, material, economic, or environmental effects that require an immediate emergency response to satisfy critical needs and may require external support for recovery.¹⁷

Extreme Weather Event is an event that is rare within its statistical reference distribution at a particular place; it would normally be as rare as or rarer than the 10th or 90th percentile.¹⁸

Heat wave is a period of temperatures higher than what is normally expected (based on historic climate averages). Heat waves may span several days to several weeks.¹⁹

Resilience is the ability of a system to anticipate, absorb, accommodate, or recover from the effects of a hazardous event in a timely and efficient manner, including ensuring the preservation, restoration, or improvement of its essential basic structures and functions.

Risk is considered as the probability of a climate hazard multiplied by the consequence of that event.

Sensitivity is the degree to which the community will be affected when exposed to a climate hazard and reflects the ability of the community to function when a hazard occurs.

Systems are the built, natural, social/human or economic networks that provide services or activities within a municipality.²⁰

Urban heat island is an urban area that has consistently higher temperatures than surrounding areas. This effect is due to factors of the urban environment such as lack of vegetation, and low reflectivity of building and road materials.

Vulnerability is the degree to which a system is susceptible to, or unable to cope with, adverse effects, including climate variability and extremes. Vulnerability is a function of both the sensitivity and the adaptive capacity of a given sector.²¹

Weather is the state of the atmosphere at a given time and place, with respect to variables such as temperature, moisture, wind velocity, and barometric pressure.²²

17 <https://orcca-craco.ca/wp-content/uploads/2023/09/008.pdf>

18 <https://icleicanada.org/wp-content/uploads/2019/07/Guide.pdf>

19 <https://orcca-craco.ca/wp-content/uploads/2023/09/008.pdf>

20 <https://icleicanada.org/wp-content/uploads/2019/07/Guide.pdf>

21 <https://icleicanada.org/wp-content/uploads/2019/07/Guide.pdf>

22 <https://pievc.ca/wp-content/uploads/2021/10/Stantec-2021-Cold-Lake-PIEVC-CCVA.pdf>

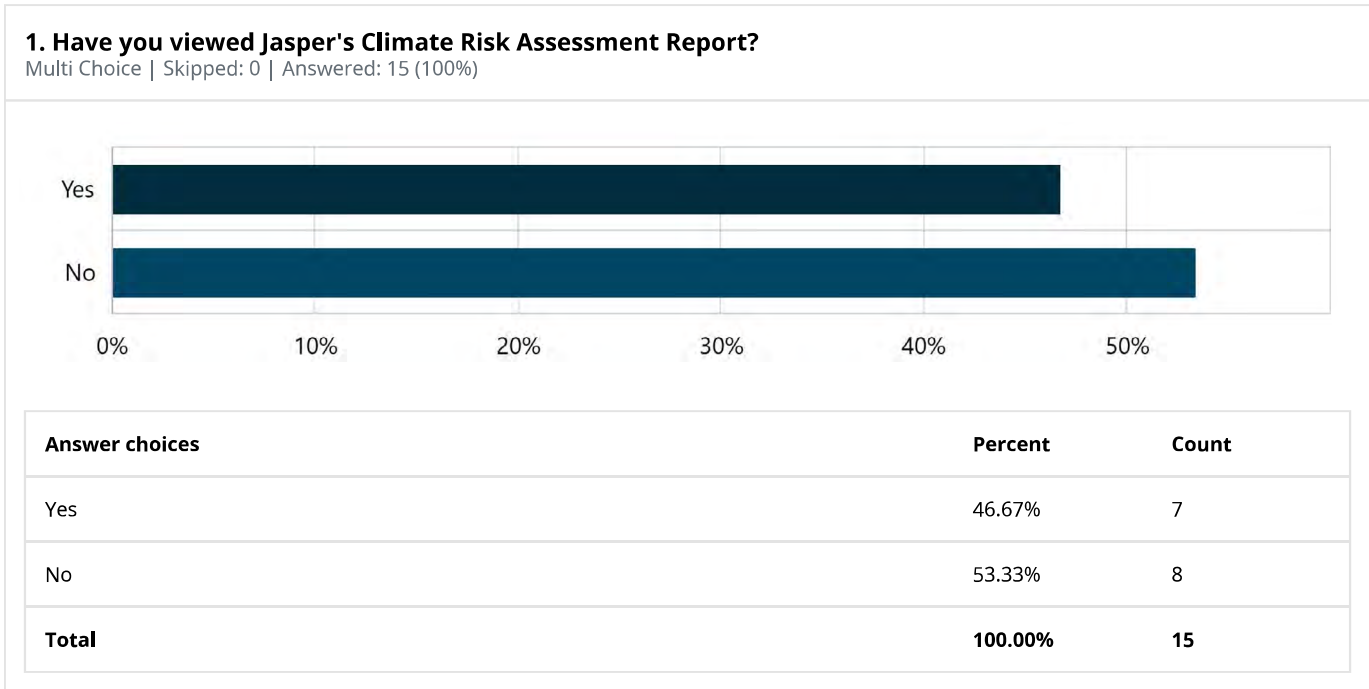
Appendix A - Climate Adaptation Action Plan Survey

Engage Jasper

Report Type: Form Results Summary
Date Range: 09-05-2025 - 15-05-2025

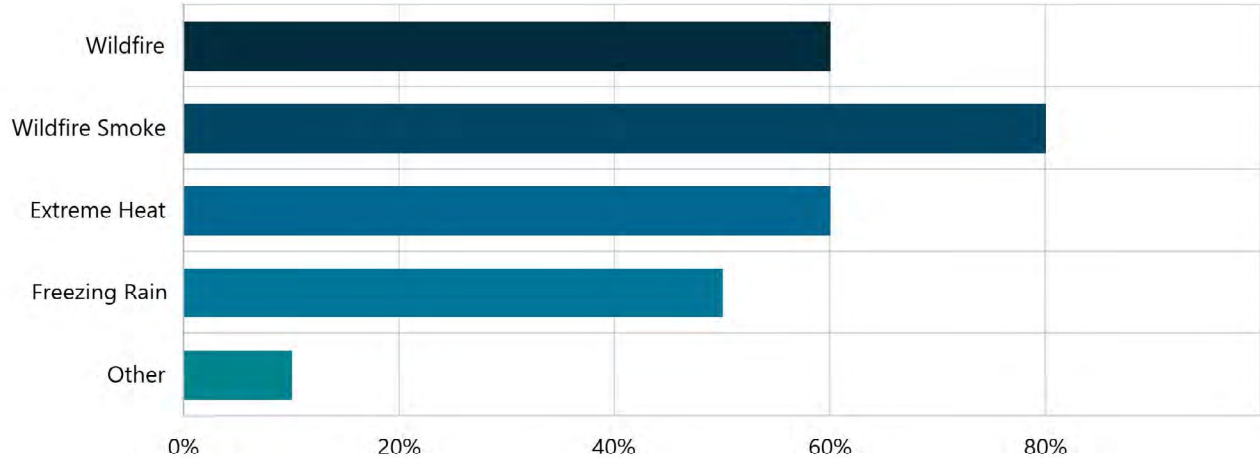
Exported 21-05-25 13:18:18
15 Contributors

Contribution Summary



2. Climate hazards are potential occurrences of weather-related events that may cause harm, damage or loss. They may also be referred to as extreme weather events. Which climate hazards do you feel prepared for? (select all that apply)

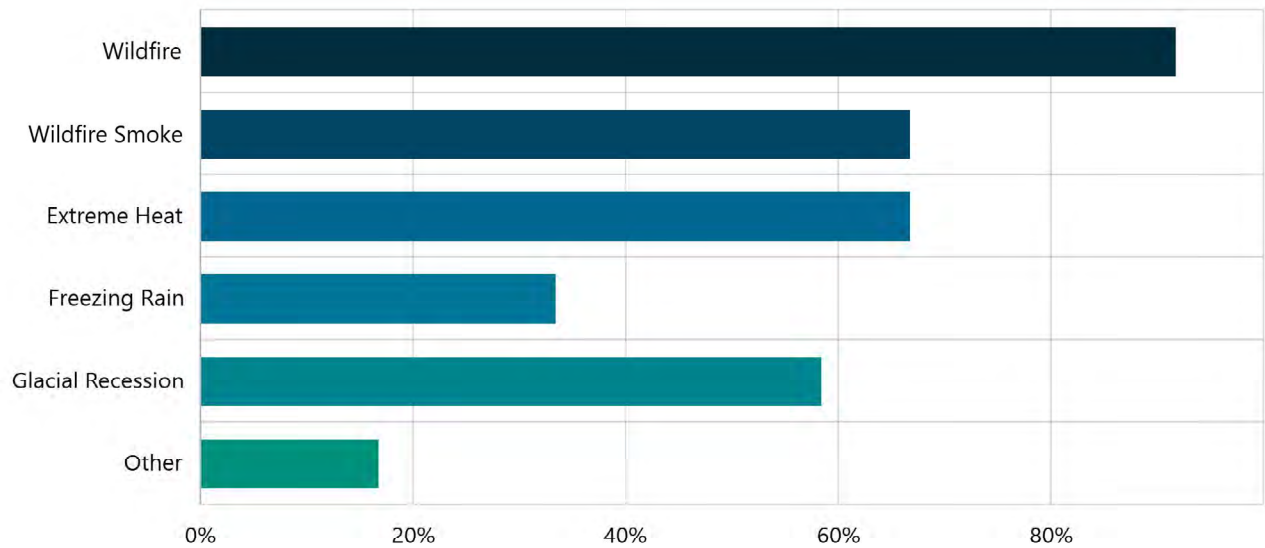
Multi Choice | Skipped: 5 | Answered: 10 (66.7%)



Answer choices	Percent	Count
Wildfire	60.00%	6
Wildfire Smoke	80.00%	8
Extreme Heat	60.00%	6
Freezing Rain	50.00%	5
Other	10.00%	1

3. Which climate hazards would you like to learn more about? (select all that apply)

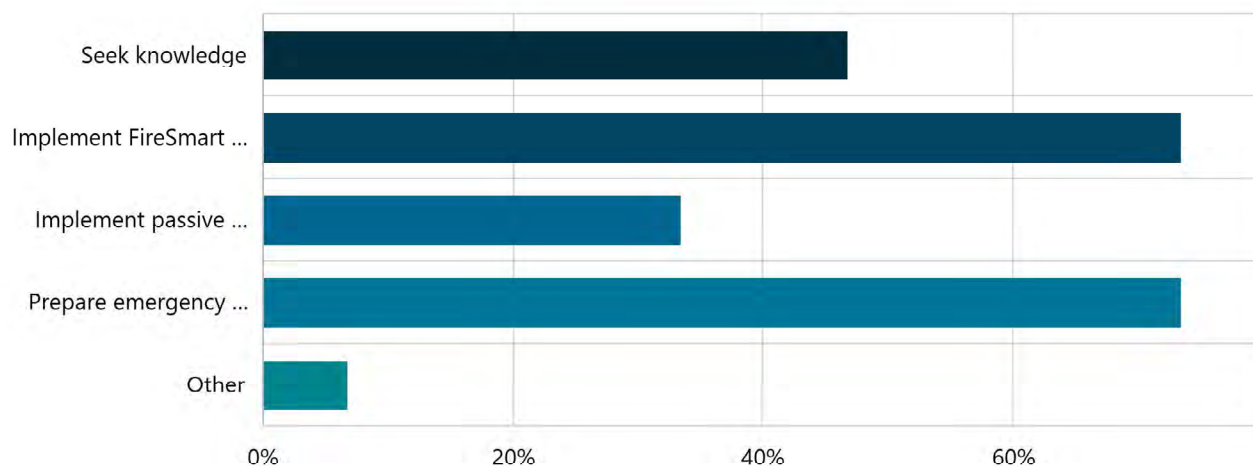
Multi Choice | Skipped: 3 | Answered: 12 (80%)



Answer choices	Percent	Count
Wildfire	91.67%	11
Wildfire Smoke	66.67%	8
Extreme Heat	66.67%	8
Freezing Rain	33.33%	4
Glacial Recession	58.33%	7
Other	16.67%	2

4. What actions have you taken or are currently taking to prepare for climate hazards? (select all that apply)

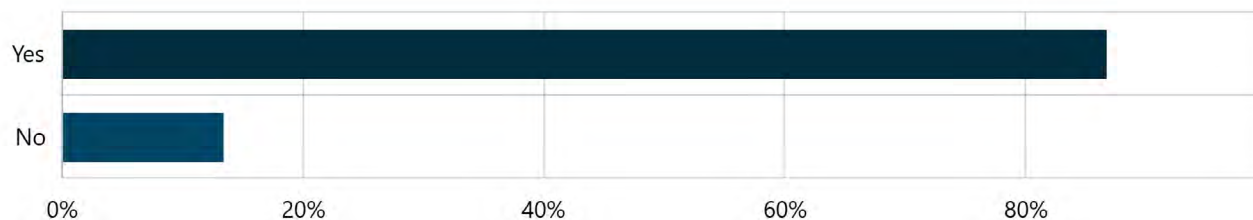
Multi Choice | Skipped: 0 | Answered: 15 (100%)



Answer choices	Percent	Count
Seek knowledge	46.67%	7
Implement FireSmart principles	73.33%	11
Implement passive house design principles (i.e. natural methods to maintain a comfortable indoor environment with minimal energy consumption, such as air flow and shading)	33.33%	5
Prepare emergency plan	73.33%	11
Other	6.67%	1

5. Are you willing to implement adaptation measures to become more resilient to climate hazards?

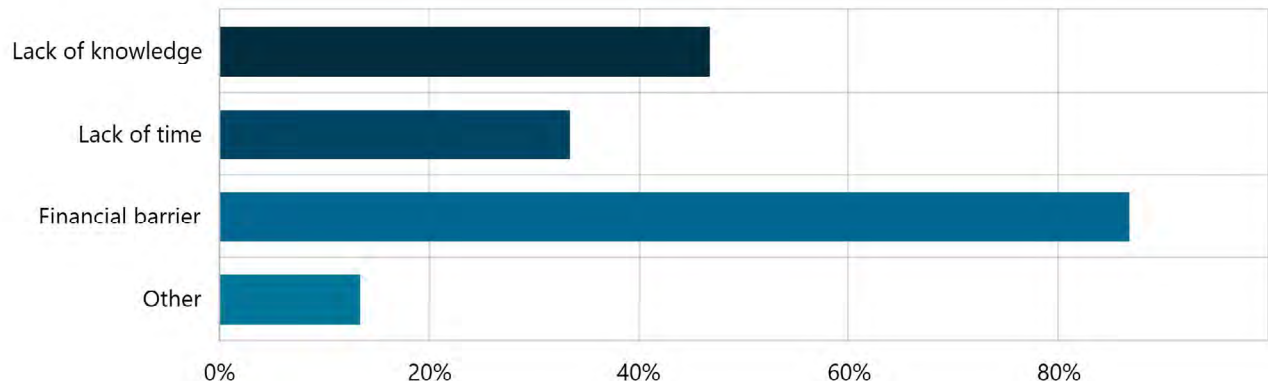
Multi Choice | Skipped: 0 | Answered: 15 (100%)



Answer choices	Percent	Count
Yes	86.67%	13
No	13.33%	2
Total	100.00%	15

6. What is a barrier to implementing adaptation measures? (select all that apply)

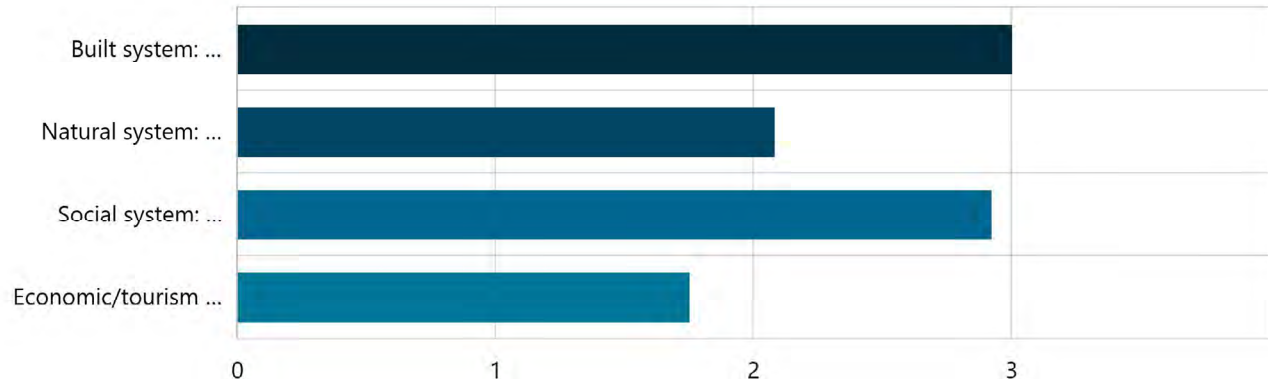
Multi Choice | Skipped: 0 | Answered: 15 (100%)



Answer choices	Percent	Count
Lack of knowledge	46.67%	7
Lack of time	33.33%	5
Financial barrier	86.67%	13
Other	13.33%	2

7. When planning for climate adaptation actions, which system do you believe the Municipality of Jasper should prioritize? Please rank the following options based on priority (#1 is the highest priority).

Ranking | Skipped: 3 | Answered: 12 (80%)



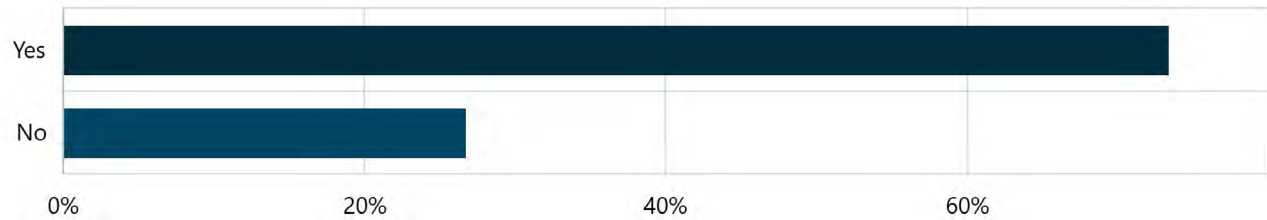
	1	2	3	4	Count	Score	Avg Rank
Built system: Human-made structures and facilities	50.00% 6	8.33% 1	33.33% 4	8.33% 1	12	3.00	2.00
Natural system: Ecological environment	16.67% 2	16.67% 2	25.00% 3	41.67% 5	12	2.08	2.92
Social system: People and the community	27.27% 3	63.64% 7	9.09% 1	0% 0	11	2.92	1.82
Economic/tourism system: Local economy and tourism environment	9.09% 1	18.18% 2	27.27% 3	45.45% 5	11	1.75	3.09

Score - Sum of the weight of each ranked position, multiplied by the response count for the position choice, divided by the total contributions. Weights are inverse to ranked positions.

Avg Rank - Sum of the ranked position of the choice, multiplied by the response count for the position choice, divided by the total 'Count' of the choice.

8. Should the Municipality of Jasper increase community access to areas of respite and recovery to escape wildfire smoke and extreme heat?

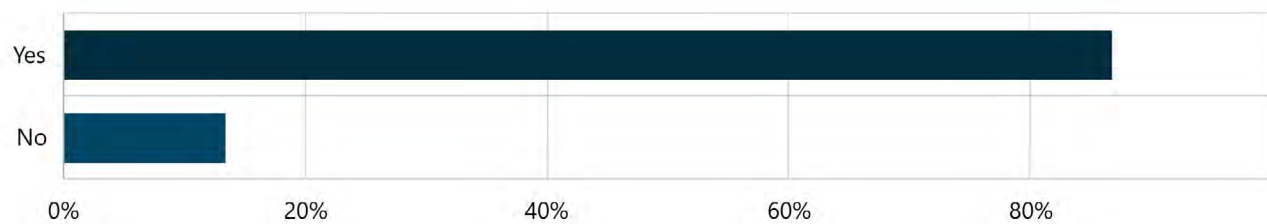
Multi Choice | Skipped: 0 | Answered: 15 (100%)



Answer choices	Percent	Count
Yes	73.33%	11
No	26.67%	4
Total	100.00%	15

9. Should the Municipality of Jasper continue to update municipal buildings to be more resilient to climate hazards?

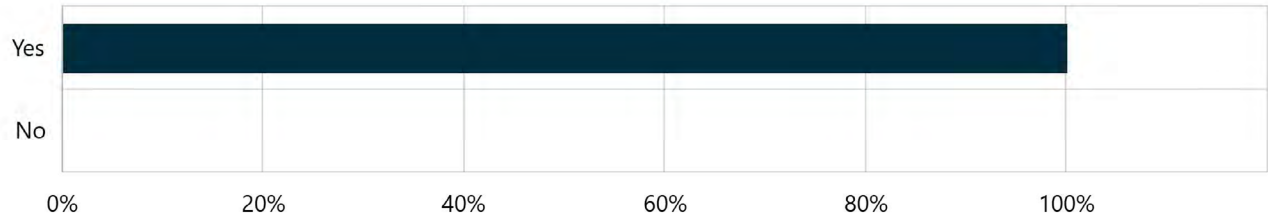
Multi Choice | Skipped: 0 | Answered: 15 (100%)



Answer choices	Percent	Count
Yes	86.67%	13
No	13.33%	2
Total	100.00%	15

10. Should the Municipality of Jasper continue to provide information or guidelines that encourage climate resiliency for homes, business and properties from climate hazards?

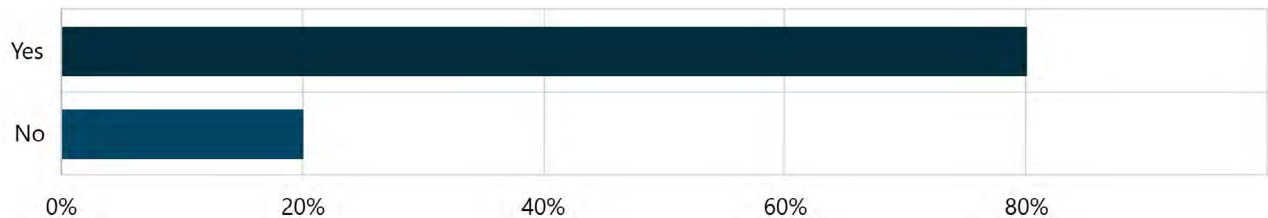
Multi Choice | Skipped: 0 | Answered: 15 (100%)



Answer choices	Percent	Count
Yes	100.00%	15
No	0%	0
Total	100.00%	15

11. Should the Municipality of Jasper provide incentives to help you protect yourself, your home, family, tenants, business from climate hazards?

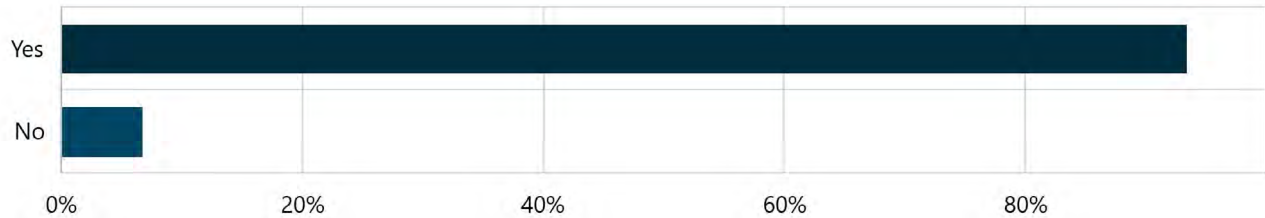
Multi Choice | Skipped: 0 | Answered: 15 (100%)



Answer choices	Percent	Count
Yes	80.00%	12
No	20.00%	3
Total	100.00%	15

12. Should the Municipality of Jasper deliver educational programs to residents to help support climate adaptation actions (e.g. FireSmart, climate resilient landscaping, passive homes, etc.)?

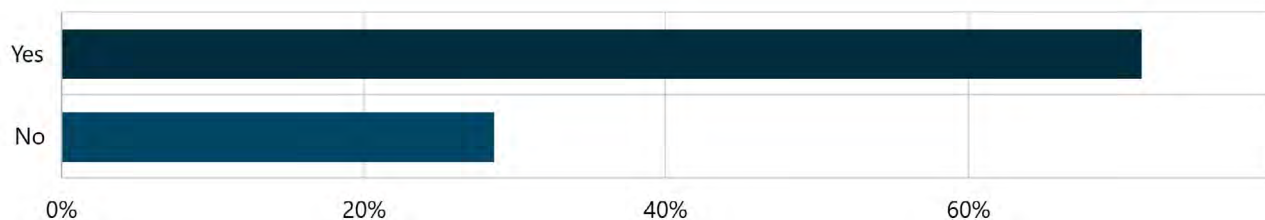
Multi Choice | Skipped: 0 | Answered: 15 (100%)



Answer choices	Percent	Count
Yes	93.33%	14
No	6.67%	1
Total	100.00%	15

13. Would you attend workshops hosted by the Municipality to build awareness and preparedness related to climate hazards?

Multi Choice | Skipped: 1 | Answered: 14 (93.3%)



Answer choices	Percent	Count
Yes	71.43%	10
No	28.57%	4
Total	100.00%	14

14. What actions can the Municipality of Jasper and residents of Jasper collaborate on to achieve community benefits?

Long Text | Skipped: 11 | Answered: 4 (26.7%)

Sentiment

No sentiment data

Tags

No tag data

Featured Contributions

No featured contributions

15. Are there any additional themes the Municipality should consider actions for to help our community mitigate the impacts of climate hazards?

Long Text | Skipped: 12 | Answered: 3 (20%)

Sentiment

No sentiment data

Tags

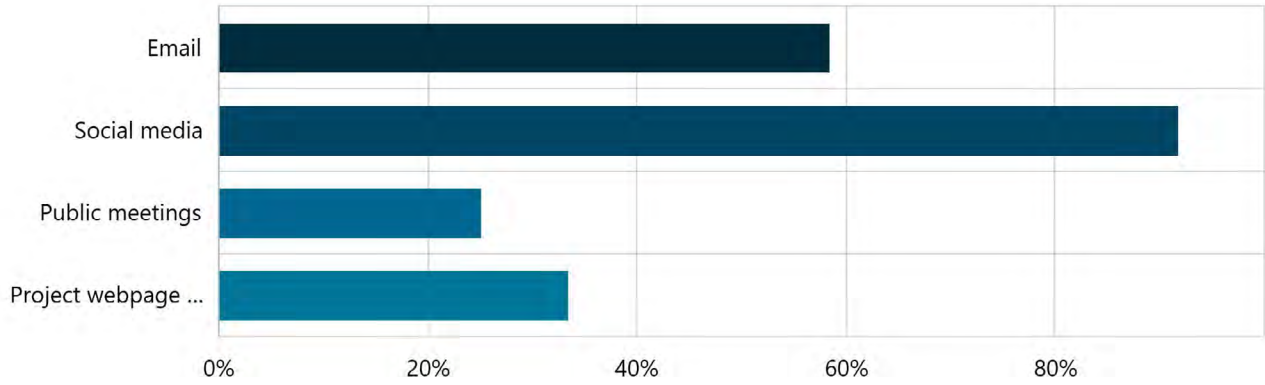
No tag data

Featured Contributions

No featured contributions

16. What are your preferred ways to receive information about climate adaptation strategies (select all that apply)?

Multi Choice | Skipped: 3 | Answered: 12 (80%)



Answer choices	Percent	Count
Email	58.33%	7
Social media	91.67%	11
Public meetings	25.00%	3
Project webpage update	33.33%	4

Appendix B - Climate Adaptation Actions by System

System	Action #	Action	CLIMATE HAZARD					Priority	Action Type	Departments	Timeline	Cost	Partner
			Wildfire	Wildfire Smoke	Extreme Heat	Freezing Rain	Glacial Recession						
BUILT	1	Create an inventory of cooling infrastructure and amenities throughout the Municipality.			YES			High	Project	Operations & Urban Design and Standards	Medium term	\$	Internal
	2	Use findings of cooling infrastructure inventory to inform future investments and plans. Consider the addition of cooling equipment (AC or heat pumps) in the development of new or retrofits of existing buildings.			YES			High	Policy	Operations & Urban Design and Standards	Medium term	\$	Internal
	3	Create cooling spaces that include shade trees and should include spaces and cooling centers where visitors can escape the heat.			YES			High	Program	Operations, Community Development & Urban Design and Standards	Medium term	\$\$	Other orders of Government, Residents & Businesses
	4	Identify back-up power priorities and create an inventory of where backup power can be installed and temporary generators can be shared.	YES		YES	YES		High	Plan	Operations & Urban Design and Standards	Short term	\$	Internal
	5	Explore non-combustion-based forms of backup power (e.g., on-site renewables, batteries).	YES		YES	YES		Medium	Plan	Operations & Urban Design and Standards	Medium term	\$	Internal
	6	Maintain ongoing dialogue between the Municipality, Parks Canada, and utility companies concerning changing risks to power infrastructure.	YES		YES	YES		Low	Partnership	Operations	Short term	\$	Other orders of Government
	7	Incorporate considerations of climate impacts into asset management plans and practices, eg. building ventilation will require more maintenance due to increased smoke events and continue FireSmart practices.	YES	YES	YES	YES		Medium	Program	Operations	Medium term	\$\$	Internal
	8	Review evacuation plans and identify ways to reduce the number of vehicles on the road to reduce congestion on the limited road infrastructure.	YES			YES		High	Plan	Protective and Legislative Services	Short term	\$	Internal
	9	Identify thresholds for when roads are closed due to poor conditions (like freezing rain) and communicate the potential for closures early.	YES	YES		YES		High	Plan	Protective and Legislative Services	Short term	\$	Other orders of Government
	10	Work with Parks Canada to develop early warning systems (time-lapse cameras, water level measurements) to protect infrastructure and keep people away from hazards.	YES	YES	YES	YES	YES	High	Plan	Protective and Legislative Services	Medium term	\$	Other orders of Government
	11	Improve air quality and cooling systems at public facilities	YES	YES	YES			Medium	Project	Operations	Medium term	\$\$	Internal
	12	Continue to integrate climate resilient building and landscape practices into the Land Use Policy and Architectural Motif	YES	YES	YES	YES		Medium	Policy	Urban Design and Standards	Medium term	\$	Other orders of Government
	13	Continue to integrate FireSmart principles to support community with recovery and resilience.	YES					High	Program	Protective and Legislative Services	Short term	\$	Residents

			CLIMATE HAZARD										
System	Action #	Action	Wildfire	Wildfire Smoke	Extreme Heat	Freezing Rain	Glacial Recession	Priority	Action Type	Departments	Timeline	Cost	Partner
NATURAL	14	Investigate ways to conserve water to reduce demands on the natural environment	YES		YES			Low	Plan	Operations & Urban Design and Standards	Long term	\$	Internal
	15	Collaborate with water users and interest groups (e.g., residents, commercial sector, environmental groups) to create a dialogue on water conservation and sharing.	YES		YES			Low	Engagement	Operations & Urban Design and Standards	Long term	\$	Residents & Businesses
	16	Continue to share information and revise messaging, with both residents and the visiting public, on the increased and changing risks of wildfire.	YES	YES	YES			High	Program	Protective and Legislative Services	Short term	\$	Other orders of Government
	17	Continue to share information and revise messaging, with both residents and the visiting public, on the increased and changing risks of wildlife/human interactions and ways to reduce encounters.	YES	YES	YES			High	Program	Protective and Legislative Services	Short term	\$	Other orders of Government
SOCIAL	18	Create opportunities for people to access cooling and clean air spaces, with special consideration for vulnerable populations (e.g., the elderly and people with medical conditions).	YES	YES	YES			High	Plan	Community Development	Medium term	\$	Internal
	19	Explore increasing publicly accessible outdoor cooling amenities (e.g., water misters, spray parks, water fountain/bottle filling stations, shade structures and tree planting and greening) to make spending time outside safer and more comfortable in hotter conditions.			YES			High	Project	Operations, Community Development & Urban Design and Standards	Medium term	\$\$\$	Internal
	20	Assess what standard operating procedures (SOPs) are in place for outdoor workers who are experiencing extreme heat, wildfire smoke or freezing rain conditions. Consider incorporating the option for working alternative hours.		YES	YES	YES		High	Plan	Operations & HR	Short term	\$	Internal
	21	Continue a public education campaign to improve community emergency preparedness and resilience to respond to climate hazards. Share information on evacuation plans and resources that could be accessed if residents and visitors are displaced.	YES	YES	YES	YES	YES	High	Engagement	Protective and Legislative Services	Short term	\$	Internal
	22	Increase public awareness and share information on how to avoid health risks associated with heat waves and wildfire smoke and ensure adequate resources are available to respond to people in distress.		YES	YES			High	Engagement	Protective and Legislative Services	Short term	\$	Internal
	23	Increase air quality monitoring capacity	YES	YES	YES			Low	Partnership	Protective and Legislative Services	Medium term	\$	Other orders of Government
	24	Foster awareness of climate resilience development through public education & outreach	YES	YES	YES	YES		Medium	Engagement	Urban Design and Standards	Medium term	\$	Internal
ECONOMIC / TOURISM	25	Engage with tourism operators and encourage them to adapt their business practices to address climate risks and contribute to Jasper's overall resilience (eg. effect of glacial recession on rafting and sightseeing seeing activities)	YES	YES	YES	YES	YES	Low	Engagement	Urban Design and Standards	Long term	\$	Businesses
	26	Understand government trigger points to issue travel advisories/restrictions to the region.	YES	YES	YES	YES	YES	High	Plan	Protective and Legislative Services	Short term	\$	Other orders of Government
GENERAL	27	Continue to support practices that reduce the severity of wildland fires	YES	YES				High	Partnership	Protective and Legislative Services	Medium term	\$\$	Other orders of Government
	28	Identify and pursue funding opportunities for climate resilience supportive projects and programs	YES	YES	YES	YES	YES	Medium	Plan	Operations & Urban Design and Standards	Medium term	\$	Other orders of Government