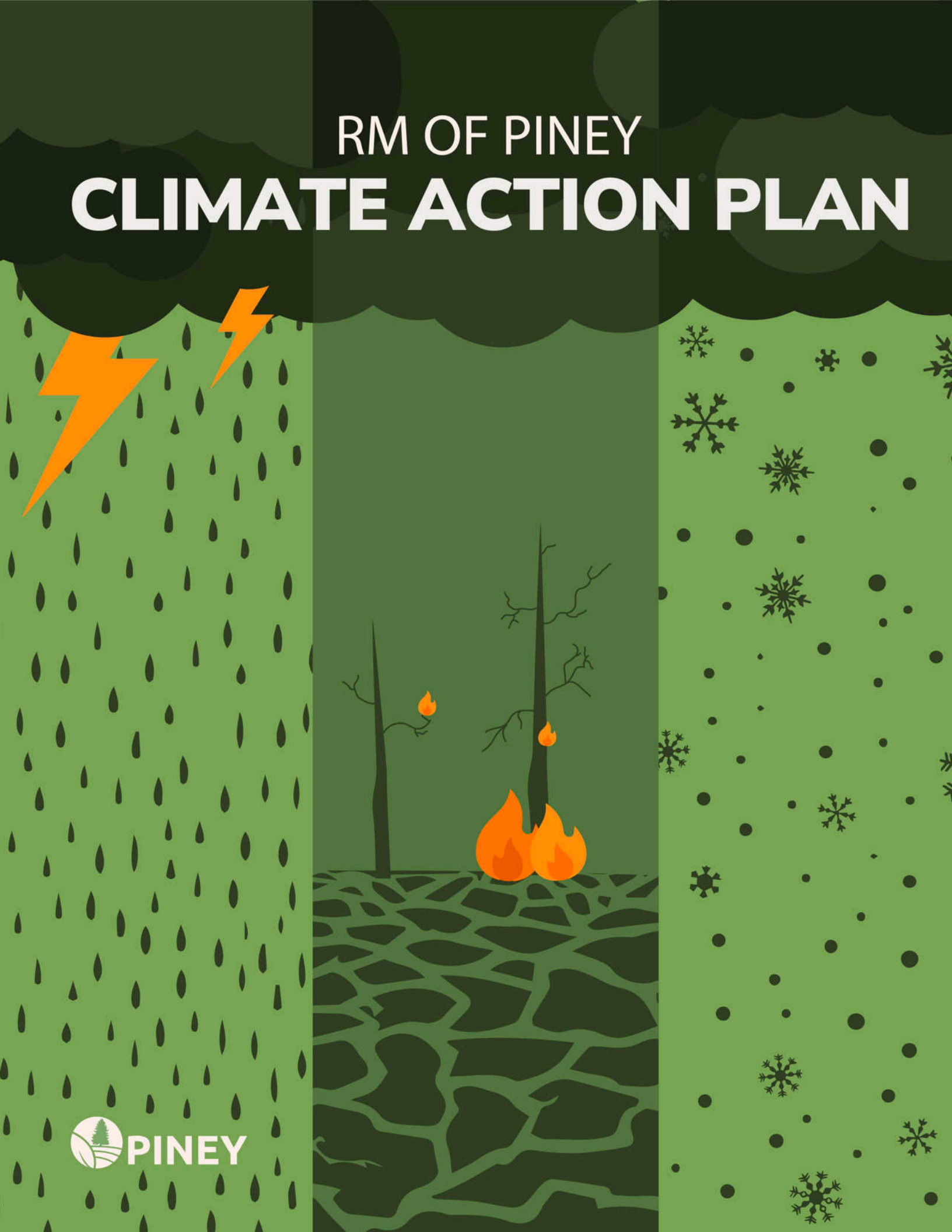
RM OF PINEY

# CLIMATE ACTION PLAN



PINEY


Pinoy
BADGER
MENESINO
SPRAGUE
CARRICK
MIDDLEBRO
WOODRIDGE
SANDILANDS
WAMPUM
VASSAR
PINEY
ST.LABRE
SOUTH JUNCTION

# LAND ACKNOWLEDGMENT

We begin this report by acknowledging that the land on which we gather, on which our Municipality operates, on which we reside and on which this report was drafted is part of the Treaty Lands of the people of Treaty 1 and Treaty 3.

Since time immemorial, Indigenous peoples have respectfully lived with the natural world, and have a deep connection to the land, water, and ecosystems. Indigenous people, through intergenerational experience and observation, were among the first to notice climate change and have critical knowledge for navigating and adapting to climate change. This connection is central to their cultures, languages, and livelihoods (Climate Atlas of Canada, n.d.). We acknowledge that Indigenous peoples are disproportionately impacted by climate change and yet contribute little to climate change. We seek to learn from and engage with Indigenous peoples on climate change.

> **We are grateful to have the opportunity to work on this land, and by doing so, give our respect to its first inhabitants.**

# FUNDING ACKNOWLEDGMENT

Many thanks are due to the RM of Piney residents, employees, volunteers, staff, schools and community organizations for their invaluable input, dialogue and time. Your support and dedication helped to make this plan what it is. Funding for this project was provided by the Manitoba Government.

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# EXECUTIVE SUMMARY

The RM of Piney Climate Adaptation Action plan is the culmination of a highly participatory climate change risk, hazard and impact process. Over the course of 8 months the Municipality engaged with stakeholders to identify climate change risks and explore how the risks are predicated to change. Stakeholder prioritized the impacts and identified strategies and goals that would help mitigate and adapt to climate change and ensure the municipality is more resilient.

**The plan identifies seven priority areas.:**

| | |
|---|---|
| 1 | Wildfire risk management (evacuation plans, removal of under growth, promoting tree planting strategies (different trees to reduce fire spread). |
| 2 | Water management (shortages, quality, drought conditions). |
| 3 | Emergency preparedness. |
| 4 | Increased climate change awareness / education. |
| 5 | Reduce GHG emissions. |
| 6 | Support economic sector and advancements of climate change reducing technologies. |
| 7 | Integrate climate action into municipal plans and documents. |

**Each priority area identifies objectives, actions and steps to help the municipality decrease its impact on climate change while adapting and mitigate to a changing climate. This plan will ensure that the municipality is prepared and resilient in the face of a unknown future.**



# INTRODUCTION

## Climate determines how we design, build and live in our communities. Climate change impacts all aspects of life in the municipality – from human health to infrastructure to food security.

Globally, there are more severe weather storms and systems. Locally, the RM of Piney has also experienced more intense storms, rising temperatures, heightened wildfire risks, drought conditions and flooding. In order to ensure that the RM of Piney is prepared and ready to adapt to a changing climate, the RM of Piney has created this climate adaptation action plan.

This plan identifies local climate risks and hazards, examines how the hazards are predicted to change and identifies climate goals to make the municipality more resilient and prepared in the face of a changing climate.



# CONTEXT & BACKGROUND

## Climate vs Weather

As this report is looking at climate, it is important to explore the difference between weather and climate. Weather refers to the short-term fluctuations in atmospheric conditions – such as events that happens over a few hours or a day or a week. Climate, on the other hand, refers to weather conditions averaged over an extended period of time, typically 30 or more years. This report focuses on climate change and weather averages over an extended period of time.

## Climate is Changing

Scientists have concluded that climate is changing. This change includes rising global temperatures which are recorded to be 1.1°C above pre-industrial levels. 2023 was recorded as being the warmest year on record (IPCC, 2023). In North America the 2023 annual temperature was 2.01°C above the 1910-2000 average (NOAA National Centers for Environmental Information, 2023). In Canada, the average (mean) annual temperature increased by 1.7 °C from 1948 to 2016, which is about double the global rate with temperatures in northern Canada rising by 2.3°C over the same period (Government of Canada, n.d.). Locally, temperatures have also increased. Since 1917, temperatures in the RM of Piney have risen by 2 °C. (Government of Canada, 2024).

Warming temperatures have resulted in more frequent and intense extreme weather events that have impacted habitats and people throughout the world (IPCC, 2023). The impacts include; longer lasting droughts, wildfires that spread faster and wider, and changes in precipitation patterns and seasons. These impacts transform nature and damage habitats. Changing climate impacts all aspects of human and natural habitats from infrastructure stability to crop yields to droughts to invasive species to adversely affecting public health.

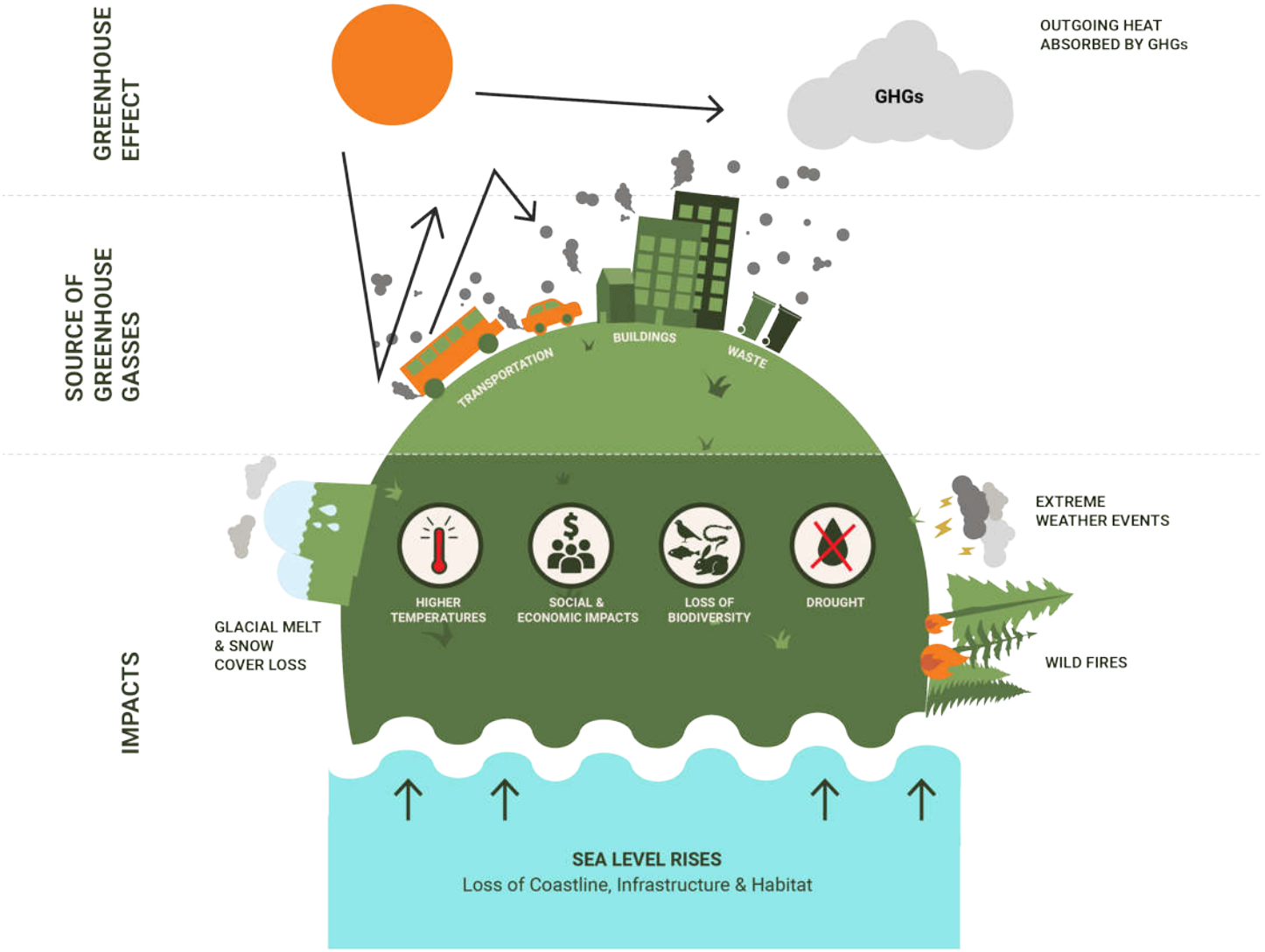
While increases of 1°C or 2°C may not seem significant, “Every increment of warming results in rapidly escalating hazards. More intense heatwaves, heavier rainfall and other weather extremes further increase risks for human health and ecosystems. In every region, people are dying from extreme heat. Climate-driven food and water insecurity is expected to increase with increased warming (IPCC, 2023).”

## What is Causing Climate Change?

Scientific evidence unequivocally concludes that human activities have caused global warming, primarily through the emission of greenhouse gases. The Intergovernmental Panel on Climate Change concludes that "It is unequivocal that human influence has warmed the atmosphere, ocean and land (IPCC, 2023).

## What are Greenhouse Gases?

Greenhouse gases are created through the burning of fossil fuels. In 2019 fossil fuels constituted 84% of the worlds energy supply with energy consumption rising and setting all-time highs (Rapier, 2020). Greenhouse gases (GHGs) cause temperatures to rise by acting like a greenhouse and trapping heat in the earths atmosphere. With greenhouse gas levels higher than they have ever been the earth is warming at a more alarming rate than every before.



## Why Now?

If global warming in not limited, scientists warn that there will be irreversible impacts to humans and nature such as extreme heat, lack of precipitation, drought-like conditions, impacts on biodiversity including species loss and extinction, and natural disasters such as wildfires (IPCC, 2023). Furthermore rising temperatures are creating more intense and severe weather and impacting all aspect of human life.

Temperatures will only cease rising if humans stop adding greenhouse gases to the atmosphere. Until then, heatwaves are set to worsen. A failure to tackle climate change would see heat extremes escalate even more dangerously (Abnett, 2022).

The RM of Piney has experienced the impacts of a changing climate such as severe and frequent storms, warmer weather and shifting seasons. Proactively identifying the impacts and consequences of a warming climate will help the Municipality be prepared and more resilient to the impacts of a warming climate.

## Need for Climate Adaptation Action Plan

**What will a climate adaptation action plan do?**

1. **UNDERSTAND**
   This plan will allow the Municipality to understand how climate is predicted to change and assess the impact future climate change will have on the municipality.
2. **PREPARE**
   The climate adaptation action plan will help the municipality be prepared for the future changes.
3. **REACT**
   The plan will help the municipality reduce its greenhouse gas footprint and react to the causes of climate change through mitigation and adaptation.
4. **REDUCE**
   The climate action plan will identify ways that the RM contributes to Climate change and provide direction to reduce impacts that contribute to climate change.
5. **EDUCATE AND ENGAGE**
   The plan will help educate and engage stakeholders on the causes of climate change, the impacts of climate change on the municipality and identify how the Municipality can be prepared for climate change.
6. **CREATE A JOINT PATH FORWARD**
   Climate change affects this entire region. We need to work together to identify ways to address and make this area more resilient. This plan will help move the RM forward.

## Project Background

Globally, Climate has been changing. Temperatures have been rising, and extreme weather systems have been more common. The RM of Piney has experienced some of the side effects of this changing climate, such as more intense and frequent storms, heightened wildfire risk and changing seasons. In 2023 the Province of Manitoba offered climate risk assessment training. The process showed how climate modelling can be used to identify the impacts of climate change, predict how they will change and how these risks and impacts can be prioritized. Based on its wide geographical expanse and risk for wildfires the Rural Municipality of Piney deemed it important to be proactive and assess climate change risks so that the municipality was prepared. The RM of Piney utilized the climate risk assessment process and engaged with stakeholders to identify and prioritize local climate risks. The plan contains goals and actions that will mitigate and adapt to a changing climate.

**This plan is intended to ensure that the municipality is:**

- Aware of the changes.
- Understands how the climate is predicted to change.
- Grasps the impacts of these changes.
- Has strategies to adapt and mitigate to the changes.

## Municipality Role

### Why should the RM of Piney Act?

While climate change is a global issue, it requires multiple local municipal partners to address. Municipalities are best poised to respond to impacts of climate change because they are at the front line.

## Mitigation and Adaptation

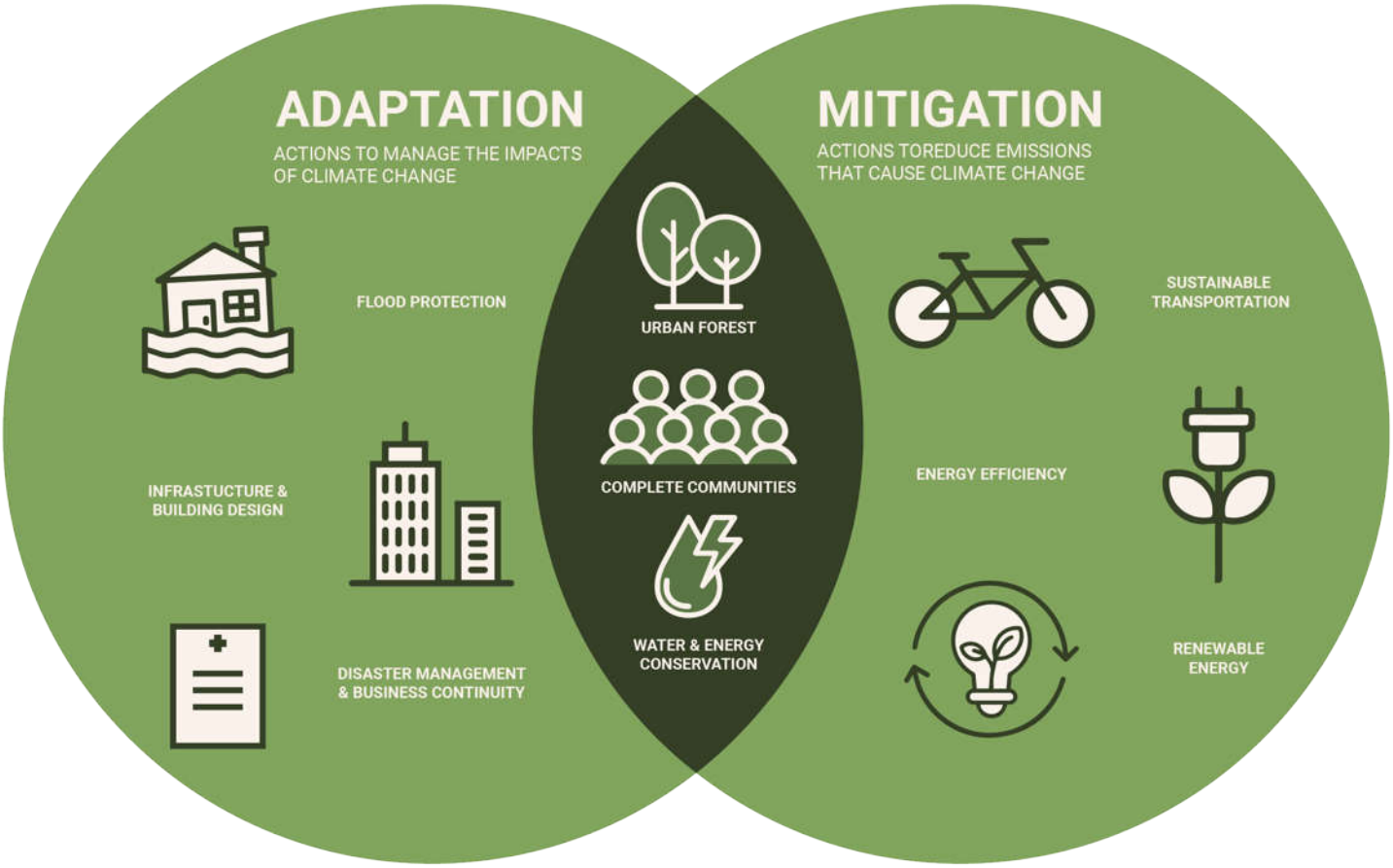
There are two interconnected methods to address climate change in this plan:

**Adaptation**

How can we work within the changes

**Mitigation**

How can we reduce the causes of climate change




**This plan will look at actions and initiatives that both mitigate and adapt to climate change.**

# CLIMATE CHANGE ADAPTATION ACTION PLAN VISION, MISSION AND OBJECTIVES

## Vision

To create a safe, healthy and prosperous environment to live, work and plan in; and to encourage sustainable development that will complement and enhance the way of life for all residents.

## Mission

To identify climate change risks, hazards and strategies through stakeholder engagement and education that will ensure this region is prepared to adapt to and address climate risks and hazards.

## Objectives of the Project

| | |
|---|---|
| 1 | **UNDERSTAND**<br>This plan will allow the Municipality to understand how climate is predicted to change and assess the impact future climate change will have on the municipality. |
| 2 | **PREPARE**<br>The climate adaptation action plan will help the municipality be prepared for the future changes. |
| 3 | **REACT**<br>The plan will help the municipality reduce its greenhouse gas footprint and react to the causes of climate change through mitigation and adaptation. |
| 4 | **REDUCE**<br>The climate action plan will identify ways that the RM contributes to Climate change and provide direction to reduce impacts that contribute to climate change. |
| 5 | **EDUCATE AND ENGAGE**<br>The plan will help educate and engage stakeholders on the causes of climate change, the impacts of climate change on the municipality and identify how the Municipality can be prepared for climate change. |
| 6 | **CREATE A JOINT PATH FORWARD**<br>Climate change affects this entire region. We need to work together to identify ways to address and make this area more resilient. This plan will help move the RM forward. |

# COMMUNITY PROFILE

The Rural Municipality (RM) of Piney is located in south east Manitoba immediately north of the United States of America and covers an area of 608,997 acres or 2,400 square kilometers. The RM of Piney is bordered by the RM's of Stuartburn, Reynolds and La Broquerie as well as Buffalo Point First Nation and the North West Angle. It is an intricate mixture of forests, agricultural land, parks, recreation and a number of small communities. The area is rich in history and culture. It offers a rural lifestyle with many amenities such as; Provincial Forests, Parks, Ecological Reserves, and a quiet safe country setting. Approximately 75% of the land base within the RM of Piney is either Provincial Forest or Crown land.

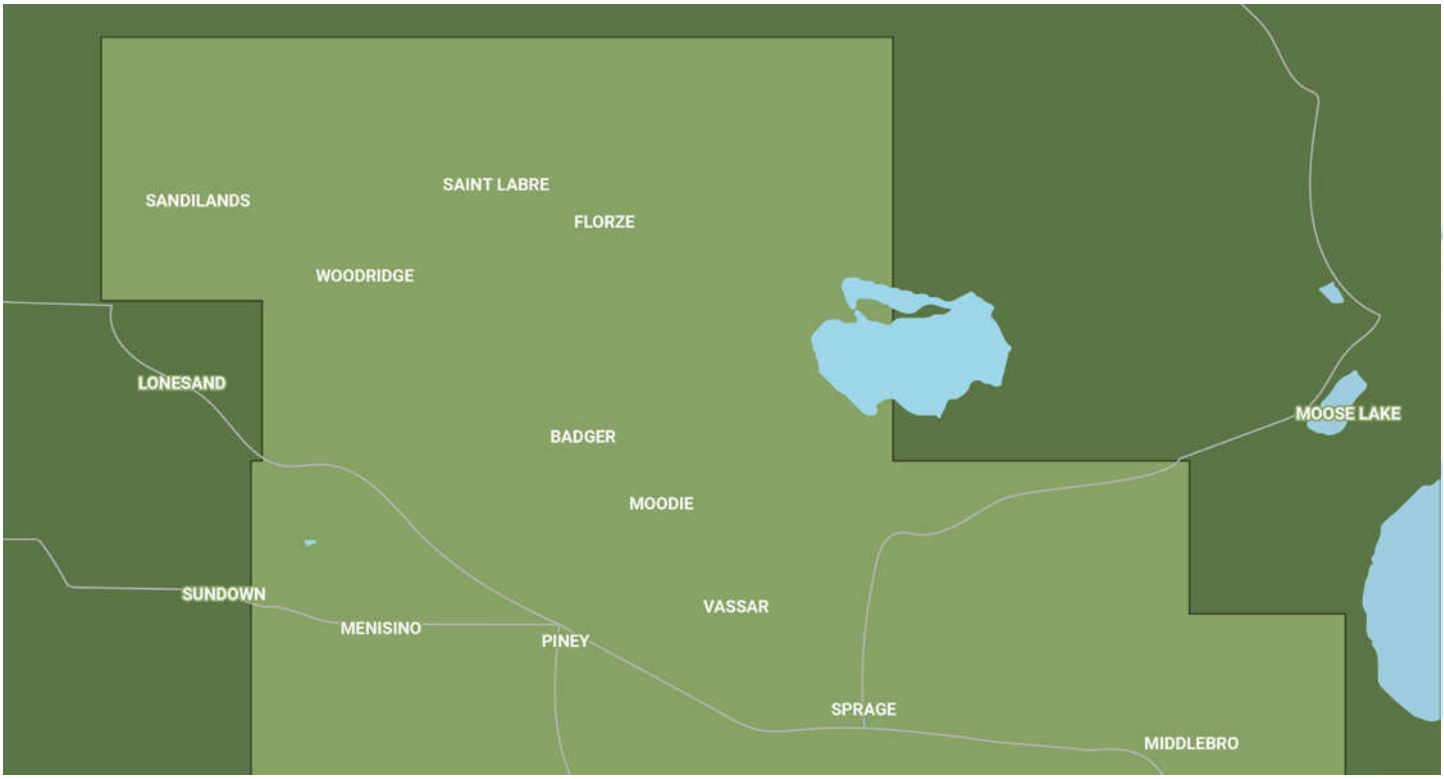


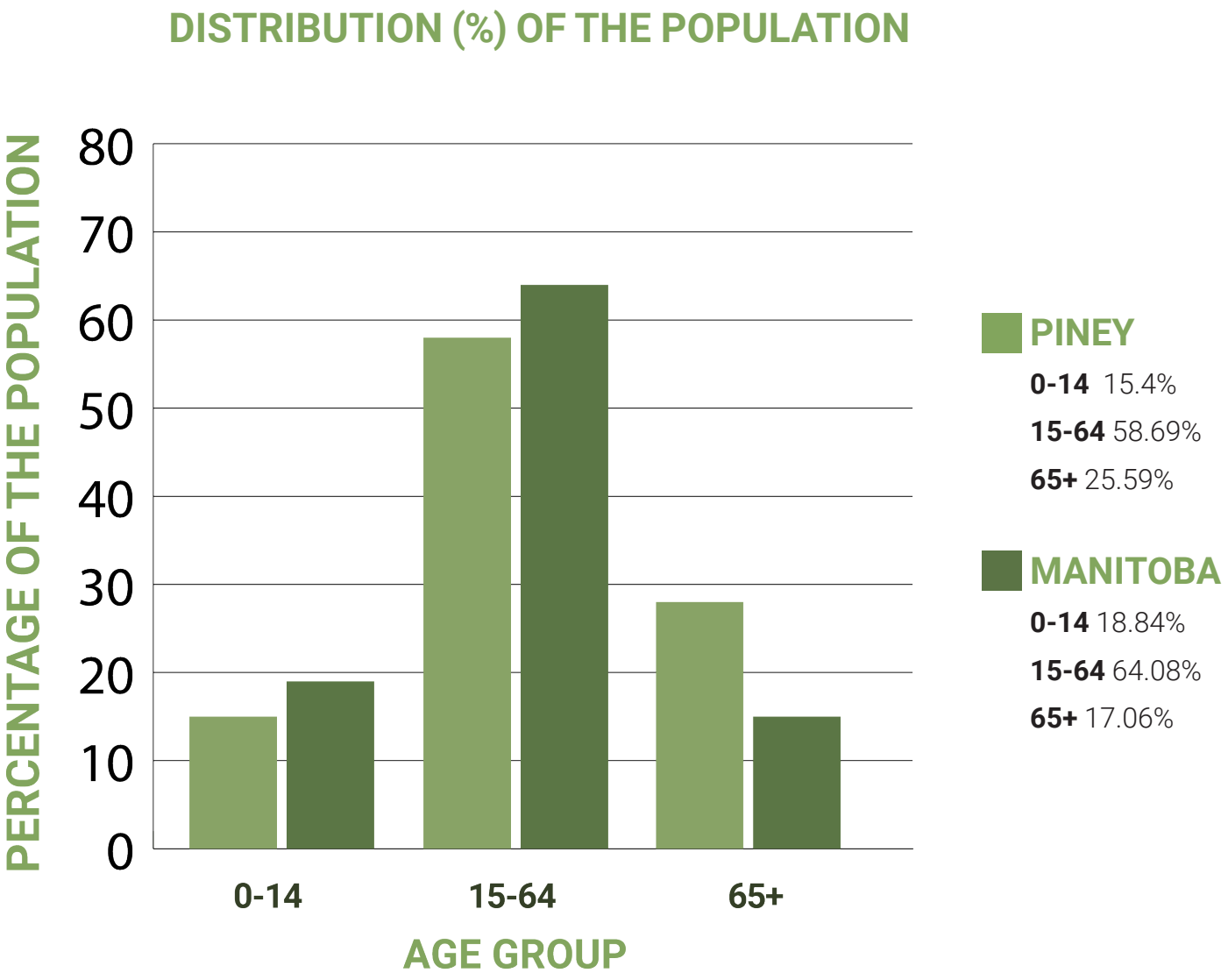

**Figure 2.0:** Rural Municipality of Piney Boundaries

## Community Character

The area was settled by hard-working Ukrainians who began farming this area and American immigrants who opened up this area to forestry due to the proximity to the United States border. The community is rich in resources from forestry to open space, agricultural land, peat moss, and gravel. The RM of Piney is ideally situation to major markets in Manitoba, Northern Ontario and the United States. It is rich in a variety of natural resources and a strong agricultural community. The municipality has many natural resources such as Whitemouth Lake, Moose Lake, Lake of the Woods, the Rat and Whitemouth Rivers, Sprague Creek as well as Sandilands, Cat Hills and Wampum Provincial Forests. All of these natural resources provide numerous recreation and leisure opportunities – as well as employment and tourism.

## Population

The municipality has a total population of 1843 according to the 2021 Census data. This increased by 6.8% from the previous census data. The rural municipality of Piney population is older than Manitoba as a whole with 25.5% of the population being 65 or older.



## Weather

The Rural Municipality of Piney is geographically located where the sun first rises in the southeast corner of Manitoba. The region enjoys a moderate climate with four unique seasons.

## Occupation

The Rural Municipality of Piney benefits from a diversity of industry sectors providing career opportunities. Consistently strong throughout our history, the top industry sector for employment across Piney is agriculture, forestry, fishing and hunting.

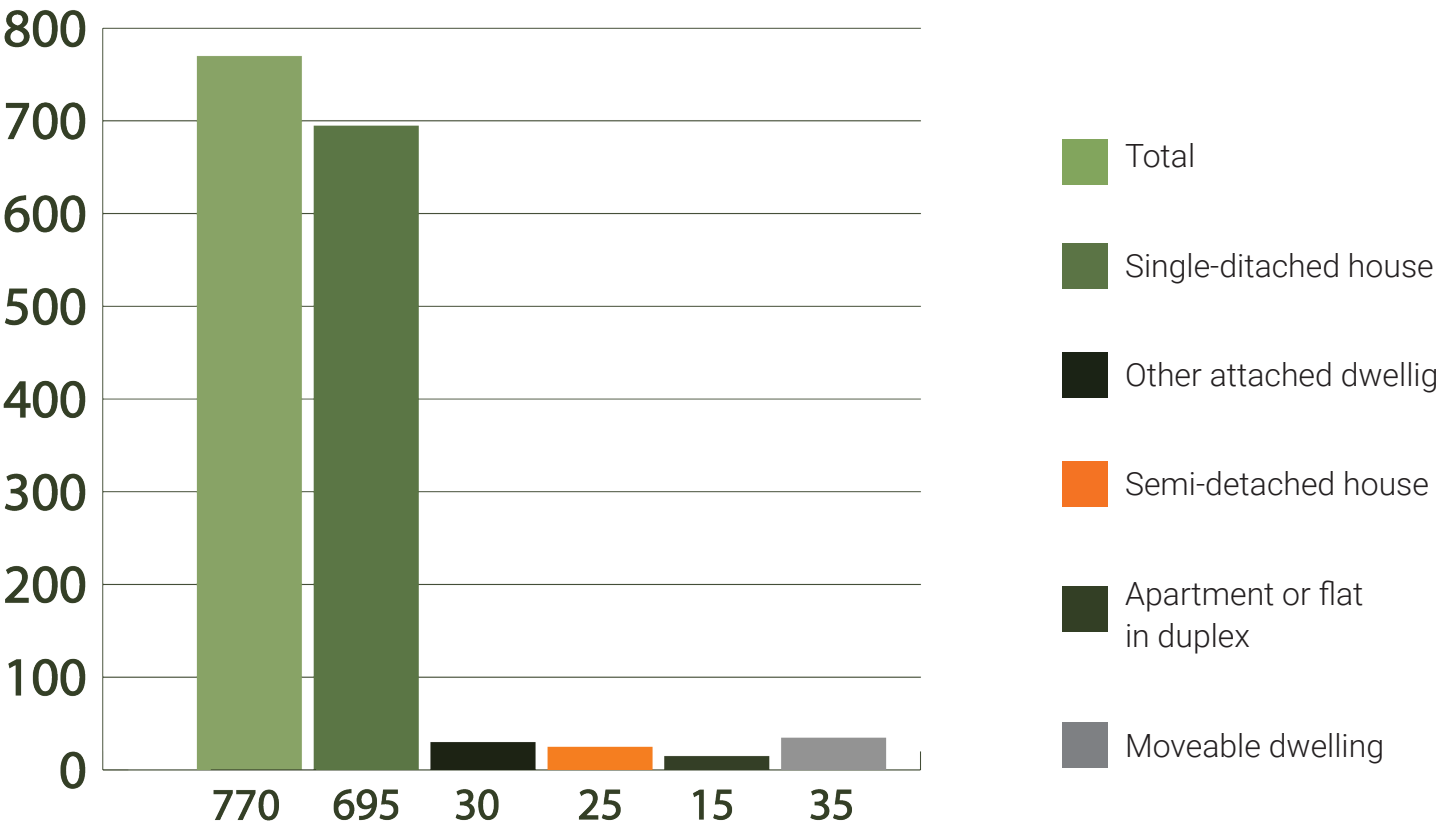
## Housing

The majority of residents reside in single family dwellings.

## Amenities

The area boasts a number of recreational facilities, such as museums, halls, and recreation facilities which are spread throughout its expansive geographical base. Along with recreation facilities there are a number of other recreational opportunities that could be impacted by climate. This includes trails, birding, wildlife viewing, canoeing, kayaking, tubing foraging, fishing, hunting and geocaching.

## HOUSING

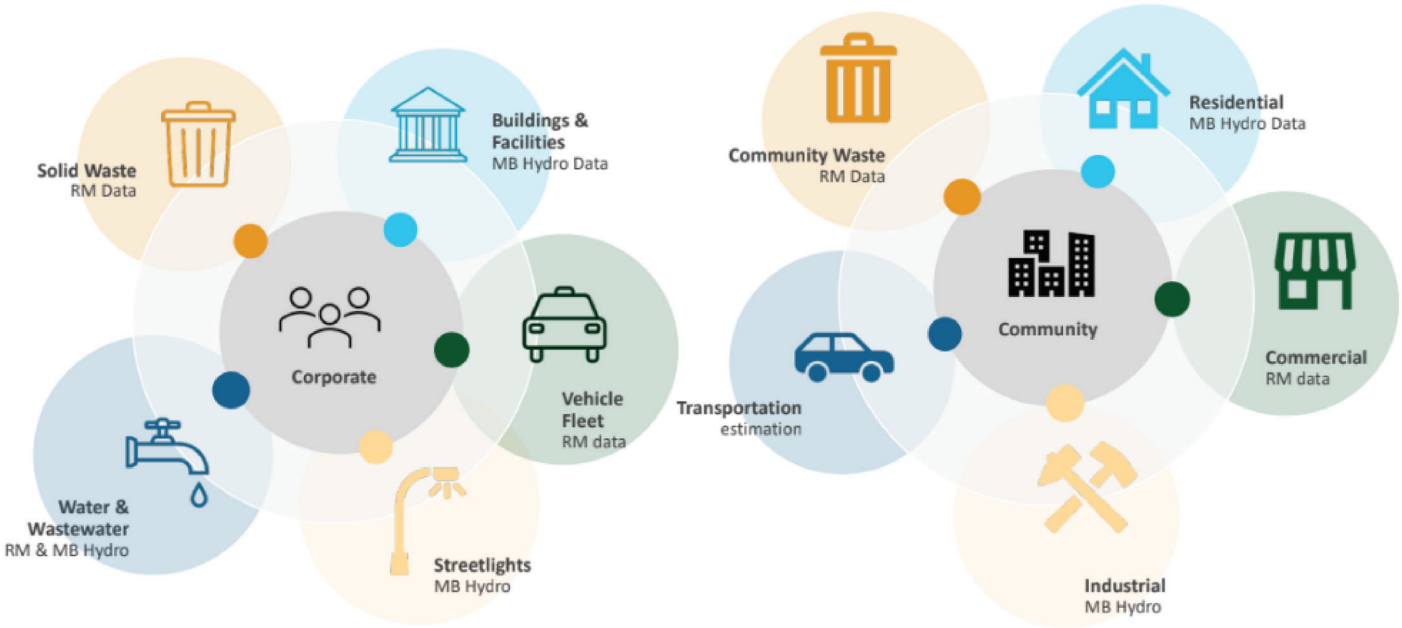


# RM OF PINEY GHG EMISSIONS

An inventory of GHG emissions was generated by Eco-West Canada for the RM of Piney in 2024, both at the corporate and community levels.

The Corporate inventory includes all consumption and emissions brought about by the operations of the municipal corporation. This includes the heating and powering of all Buildings and Water infrastructure, all Streetlights (though Manitoba Hydro has near-exclusive control over this sector), and the Vehicle Fleet.

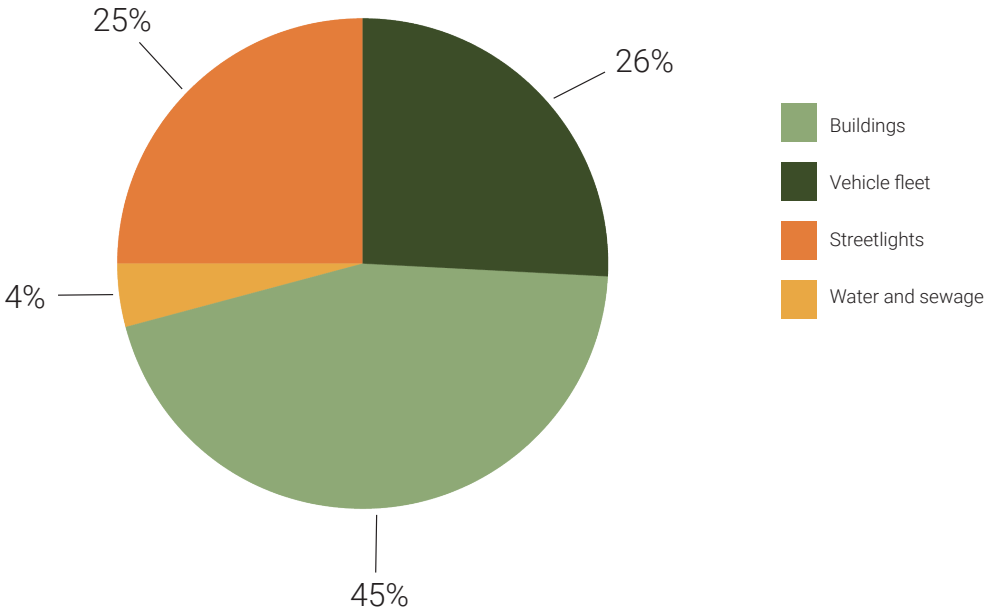
The Community inventory includes all consumption and emission brought about by the citizens of the municipality and its neighbours going about their daily lives. This includes the heating and powering of the Residential, Commercial and Industrial sectors, as well as vehicle Transportation sector and all Community waste.



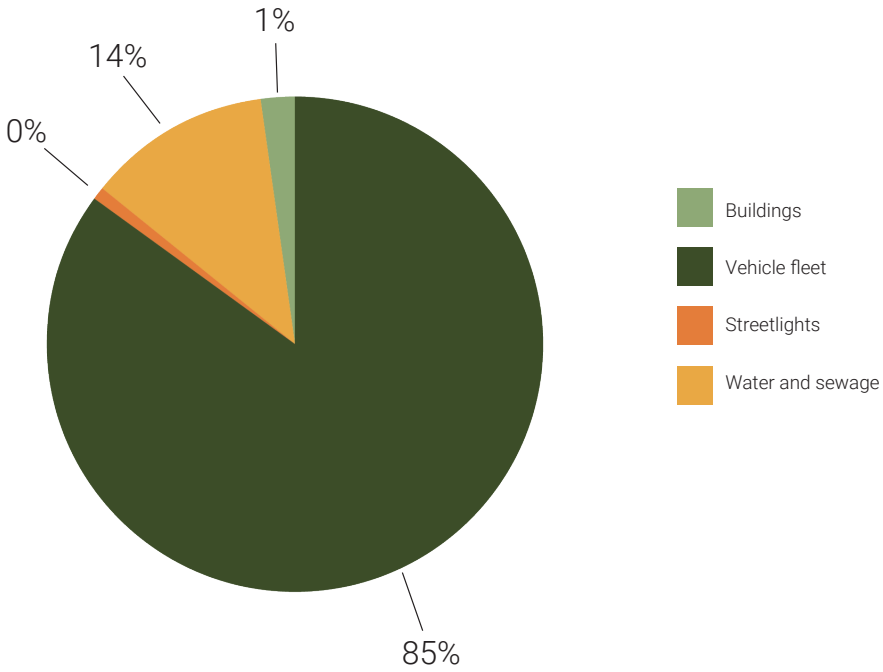
# CORPORATE EMISSIONS

The largest consumer of energy is the buildings sector, consuming 45% of all energy used by the community. The sector with the highest emissions, however, is the transportation sector.

## CORPORATE ENERGY BREAKDOWN BY SECTOR



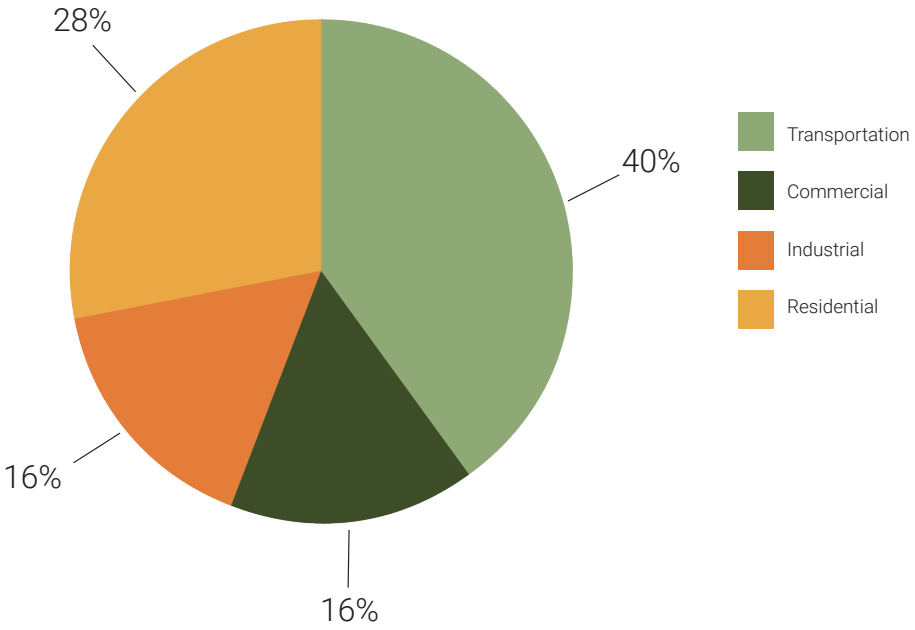

## CORPORATE CO2E EMISSIONS BREAKDOWN BY SECTOR



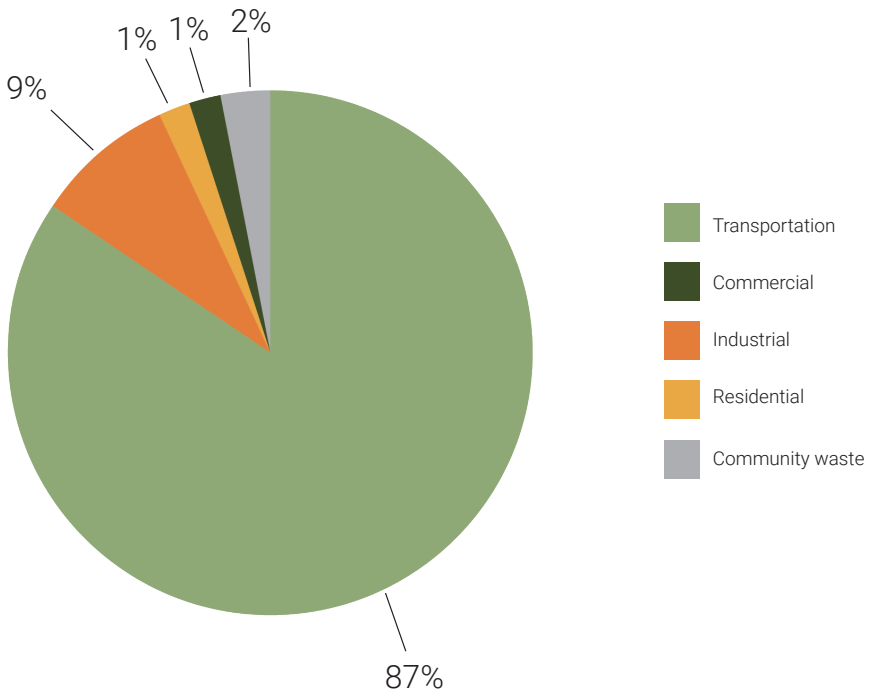
# COMMUNITY EMISSIONS

Community emissions include the residential, commercial, industrial, transportation and waste sectors. The transportation sector continues to be the sector that consumes the most energy and has the highest emissions.

## COMMUNITY ENERGY BREAKDOWN BY SECTOR




## COMMUNITY CO2E EMISSIONS BREAKDOWN BY SECTOR









# HOW CLIMATE IN THE RURAL MUNICIPALITY OF PINEY PREDICTED TO CHANGE

Climate change prediction models were used to identify how climate is predicted to change in the RM of Piney over the long term. The information from the models is summarized in the tables below.

| WARMER WEATHER AND AN INCREASING ANNUAL TEMPERATURE | | | | |
|---|---|---|---|---|
| **VARIABLE** | **RECENT PAST (1976-2005)** | **NEAR TERM FORECAST (2021-2050)** | **CHANGE** | **IMPACT SUMMER HEAT** |
| **HOT WEATHER VERY HOT DAYS (+30)** | 7.4 days | 21.1 days | Increase 13.1 days 177% increase | Summer heat affects health, recreation, water quality and quantity, ecosystem |
| **HOT WEATHER LONGEST SPELL +30** | 2.2 days | 5.7 days | Increase of 3.5 days 159% increase | Heat extremes. Effects health of people and animals, crops Increased risk of wildfires |
| **HOT WEATHER HEAT WAVES** | 0.9 | 2.9 | Increase of 2.0 222% increase | Heat extremes. Effects health of people and animals, crops increased risk of wildfires |
| **HOT WEATHER AVERAGE LENGTH OF HEAT WAVE** | 2.2 days | 4.5 days | Increase 2.3days 104% increase | Heat extremes. Effects health of people and animals, crops Increased risk of wildfires |
| **TEMPERATURE ANNUAL MEAN TEMPERATURE** | 2.6 C | 4.9 C | 2.3 C 88% increase | Warmer days |

The modelling data shows that the weather in the Rural Municipality of Piney is predicted to continue warming. By 2050 the average temperature will increase by 2.3 C, there are predicated to be longer hotter and dryer spells. Warming weather can lead to more intense storms. More intense storms can impact local infrastructure and buildings. It can also create power outages and impact emergency services. Concerns were identified with the Municipalities large geographic space, minimal cell service and the impact of emergency services to access the municipality.

The climate prediction models showed that temperatures would continue increase, there would be longer and more frequent heat waves and days above +30 C. With an aging and more vulnerable population the warmer weather can impact the physical health of individuals, causing heat stroke and other related health issues. Warmer weather also impacts natural habitats and ecosystems. This includes shifting animal habitats, more invasive species and, changes to the types of plants that grow in an area.

Warmer weather can result in drought like conditions and impact agriculture. The warming weather will impact the municipality's farming and agricultural community as well as the extensive forest coverage.

Warmer weather, will increase the risk of forest fires. While the municipality's large geographical footprint will create communication and emergency preparedness challenges.

| COLD WEATHER | | | | |
|---|---|---|---|---|
| **VARIABLE** | **RECENT PAST (1976-2005)** | **NEAR TERM FORECAST (2021-2050)** | **CHANGE** | **IMPACT** |
| **COLD WEATHER VERY COLD DAYS (-30)** | 17.1 days | 8.3 days | -8.7 days<br>50% decrease | Affects energy use, buildings, impacts animals |
| **COLD WEATHER FROST DAYS** | 190.6 days | 170.7 days | 19.9 days<br>10% less frost days | Affects buildings, increase invasive species |



The number of cold days and frost days are predicted to decrease. This can impact natural habitats and eco-systems. It can also result in more snowstorms ice storms and hazardous driving conditions. Cold weather decreases the impact of invasive species. Warming temperature has allowed many invasive species to thrive in the RM of Piney such as lyme disease wood ticks, pine beetles, asian beetles and box elder beetles. Invasive species negatively impact native species, spread disease and destroy crops. Some invasive species such as the pine beetle create conditions that cause wildfires to spread.

| PRECIPITATION | | | | |
|---|---|---|---|---|
| **VARIABLE** | **RECENT PAST (1976-2005)** | **NEAR TERM FORECAST (2021-2050)** | **CHANGE** | **IMPACT** |
| **PRECIPITATION MEAN SPRING PRECIPITATION** | 125mm | 135mm | 9 mm increase 7% increase | Water quality |
| **PRECIPITATION HEAVY PRECIPITATION DAYS (10MM)** | 14.1 days | 15.5 days | 1.4 days increase 10% increase | More precipitation at one time – less frequent |

The modelling shows more precipitation at one time and more spring precipitation but less precipitation in later summer. With hotter weather, the ground gets dryer and does not absorb water as quickly, this can lead to overland flooding and flooding of buildings. More rain at one time can wash out bridges and road infrastructure. It can create hazardous driving conditions. More spring precipitation and less precipitation also increases the risk of wildfires.



| AGRICULTURAL | | | | |
|---|---|---|---|---|
| **VARIABLE** | **RECENT PAST (1976-2005)** | **NEAR TERM FORECAST (2021-2050)** | **CHANGE** | **IMPACT** |
| **AGRICULTURE FROST FREE SEASON** | 126.5 days | 147.5 days | 21 days 16% longer | Changing growing and crop |
| **AGRICULTURE DATE OF FIRST FROST** | September 25 | October 7 | Frost starting 12.3 days later | More invasive species |
| **AGRICULTURE LAST DAY OF SPRING FROST** | May 18 | May 9 | Decrease 9 days of frost | |

The modelling shows changing seasons – as the number of frost free days increases and the frost seasons change. This impacts crops, invasive species and food security. Less colder weather also creates conditions for wildfires to start earlier and stay longer.



# RURAL MUNICIPALITY OF PINEY CLIMATE ADAPTATION ACTION PLAN

Based on the climate risks and hazards, the prioritization and research, this section of the report identifies how the RM of Piney can mitigate or reduce greenhouse gas and adapt to the impacts that the changing climate is having on the Municipality.

This section of the report identifies seven priority areas. Each priority area includes goals, actions objectives and steps which are broken into current goals and future goals. While priority will be given to the current goals, the future is uncertain and climate is constantly changing which may shift priorities. This plan is intended to be flexible in its application to ensure that the municipality is able to address the priority areas.

The climate adaptation action plan goals are intended to help the municipality mitigate climate change and adapt to a changing climate.

**The seven priorities areas are:**

| | |
|---|---|
| 1 | Wildfire risk management |
| 2 | Water management |
| 3 | Emergency preparedness |
| 4 | Increase climate change awareness/ education |
| 5 | Reduce GHG emissions |
| 6 | Support economic sector and advancements of climate change reducing technologies |
| 7 | Integrate climate action into municipal plans and documents |

**The following section explores the priorities area with goals, objectives, actions and steps for the municipality designed to adapt and mitigate to the impacts of climate change.**

# PRIORITY AREA 1

## WILDFIRE RISK MANAGEMENT

**What we heard:** Climate modelling and input from stakeholders showed hotter and dryer weather, drought like conditions, and more intense storms. All of these conditions increase the risk of wildfire. Wildfire risk and concerns were identified throughout the consultation process and ranked as a top priority. This priority area seeks to mitigate wild fire risk and be prepared in the event of a wildfire.

**Vision:** To reduce the potential for wildfires and be prepared in the event of one.

| WILDFIRE RISK MANAGEMENT GOALS | | |
|---|---|---|
| **OBJECTIVE** | **ACTION** | **STEPS** |
| **ENSURE THE MUNICIPALITY IS PREPARED IN THE EVENT OF A WILDFIRE** | Identify areas at risk of wildfires | • Look at historic and future trends<br>• Work with partners to create a GIS map that identifies areas that are high risk for wildfires |
| **PROTECT AREA FROM WILDFIRE RISK** | Encourage spacing and brush clearing between buildings | • Review land use and planning documents<br>• Add in spacing and clearing requirements to municipal documents |
| | Encourage fire resistant features and materials in buildings | • Research fire resistant features and materials<br>• Prepare a list<br>• Encourage use of features and materials in planning and land use documents |
| | Promote FireSmart landscaping © in yard sites | • Advertise and share information on FireSmart landscaping © |

| FUTURE WILDFIRE RISK MANAGEMENT GOALS | | |
|---|---|---|
| **OBJECTIVE** | **GOAL** | **STEPS** |
| **REDUCE THE RISK OF WILDFIRES** | Advocate for better forest management (i.e. tree planting practices)and the removal of fuels such as dead trees from forests that are at risk | • Identify high risk areas<br>• Prepare a plan to remove fuels<br>• Share knowledge and information with other land owners<br>• Write letters and arrange meetings with government and other stakeholders on the removal of undergrowth and wild fire fuels<br>• Research fire mitigation practices<br>• Create a list of fire mitigation practices |
| **PROTECT AREA FROM WILDFIRE RISK** | Incorporate fire mitigation practices in new developments | • Through subdivision processes ensure that fire mitigation practices are encourages (i.e. two road access) |
| **ENSURE THE MUNICIPALITY IS PREPARED IN THE EVENT OF A WILDFIRE** | Ensure road allowances are well brushed for fire breaks | • Identify priority areas for road brushing<br>• Create road brushing plan |
| | Prepare an inventory and mapping reliable water sources | • Look at mapping<br>• Work with partners to create a GIS map that identifies areas that are high risk for wildfire |

# PRIORITY AREA 2

## WATER MANAGEMENT

**What we heard:** Concerns about water shortages, water contamination, and increased water demand The climate risk assessment identified hotter and dryer weather, more frequent heatwaves and more intense storms. Water shortages, increased demand for water and water contamination were the climate consequences. To protect water and ensure that water is available the actions address long term water protection by reducing water usage and protecting water sources.

**Vision:** To protect water through water management.

| WATER MANAGEMENT | | |
|---|---|---|
| **OBJECTIVE** | **ACTION** | **STEPS** |
| **PROTECT AND PRESERVE SAFE CLEAN WATER FOR FUTURE GENERATIONS** | Support programs that protect water quality such as; erosion control, spills and environmental controls, and manure management | • Engage with Conservation district and other organizations<br>• Share information on programs<br>• Facilitate knowledge sharing |
| **ENCOURAGE WATER CONSERVATION** | Continue to support conservation district | • Maintain relationship with conservation district<br>• Advertise programs and training opportunities |
| | Explore ways to limit water usage during summer months to reduce water consumption | • Research ways to reuse water<br>• Identify technological methods for treating water for reuse<br>• Share tools and tips on reducing water usage<br>• Encourage drought friendly landscaping |
| | Develop a water capture program such as rain barrel and rain garden program and encourage use for gardens/ grass/ recreations | • Share findings of the water capture program<br>• Work with Conservation district and other groups to support development of water capture initiatives<br>• Advertise water capture programs |

| FUTURE WATER MANAGEMENT GOALS | | |
|---|---|---|
| **OBJECTIVE** | **ACTION** | **STEPS** |
| **PROTECT AND PRESERVE SAFE CLEAN WATER FOR FUTURE GENERATIONS** | Advocate for protection of aquifer and water | • Research ways to protect water provincial and federal government<br>• Write letters to support water protection<br>• Work with partners to protect water/aquifer<br>• Prepare a plan to address |
| | Promote community education on maintaining clean and safe drinking water | • Public awareness campaign<br>• Promote and share education opportunities |
| | Manage land use to retain excess water and mitigate potential drainage and flooding issues | • Consider drainage and water in subdivision process<br>• Explore methods to manage water<br>• Adopt practices to manage water |
| **PROTECT WATER FROM DEVELOPMENT** | Lobby province to develop 200-year flood elevation levels | • Communication to other levels of government over necessity for flood elevations<br>• Letter to the province |
| | Manage land use to retain excess water and mitigate potential drainage and flooding issues | • Consider drainage and water in subdivision process<br>• Explore methods to manage water<br>• Adopt practices to manage water |
| **ENCOURAGE WATER CONSERVATION** | Explore and research water reuse option (i.e. grey water reuse, sump pit water, eaves trough water) | • Research water reuse<br>• Identify steps to reuse water<br>• Support water projects |
| | Explore methods of farming, agriculture and natural resources practices that reduce water consumption | • Research alternative methods of farming/ natural resource<br>• Identify potential relevant projects<br>• Explore ways to initiate and enact projects<br>• Support pilot projects |
| | Promote public education programs and other water conservation programs | • Research public education programs<br>• Research conservation programs<br>• Share findings |

# PRIORITY AREA 3
## EMERGENCY PREPAREDNESS

**What We Heard:** As climate has been changing there are more intense and severe storms, and there is a need for the municipality needs to be prepared for when these storms or climate hazards happen.

The climate risk assessment identified more ice storms, tornados and tornado warnings, rain, and wind. It is important for the Municipality to recognize the potential storms, the climate consequences, how the changing weather may intensify the storm and to be prepared. The climate consequences included evacuations, education and awareness. This goal includes ensuring that the Municipality is prepared in case of an emergency.

**Vision:** To ensure the Municipality is prepared in the event of an emergency.

| EMERGENCY PREPAREDNESS | | |
|---|---|---|
| **OBJECTIVE** | **ACTION** | **STEPS** |
| **REDUCE RISK OF WILDFIRE** | Investigate how the RM of Piney can be recognized as FireSmart© by FireSmart© Canada | • Research FireSmart© practices<br>• Identify FireSmart© practices that RM can do quickly<br>• Work towards Piney becoming FireSmart©<br>• Become first Manitoba municipality to get FireSmart© designation |
| **ENSURE THE MUNICIPALITY IS PREPARED AND SAFE FROM THE IMPACTS OF A CHANGING CLIMATE** | Enhance Municipal Emergency Management Plan | • Update and review emergency management plan<br>• Create community specific emergency management plans<br>• Undertake annual review of emergency management plan<br>• Educate and inform public on the emergency management plan |
| | Undertake regular training and emergency management plan exercises | • Develop a training and wild fire emergency plan process<br>• Do yearly training/ review exercises |
| | Improve municipal wildfire training | • Develop a training and wild fire emergency plan process<br>• Do yearly training/ review exercises |

| FUTURE EMERGENCY PREPAREDNESS GOALS | | |
|---|---|---|
| **OBJECTIVE** | **ACTION** | **STEPS** |
| **ENSURE THE MUNICIPALITY IS PREPARED AND SAFE FROM THE IMPACTS OF A CHANGING CLIMATE** | Develop a fire recovery plan (before a fire hits) | • Prepare a "what if a fire hits how does the RM of Piney recover" plan<br>• Review other fire recovery plans<br>• Prepare a document that is specific to the RM of Piney and identifies how recovery will occur |
| | Enhance relationships and communication between the RM of Piney, adjacent municipalities, Manitoba Agriculture and Forestry, and other key stakeholders | • Participate in relationship building and collaboration to maintain effective working to promote effective integration of incident command when the need arises.<br>• Create a list of stakeholders<br>• Begin emergency planning discussions on a larger level |
| | Conduct an inventory of resources | • Review inventory of municipal resources and tools<br>• Research potential new municipal resources and tools<br>• Update inventory of municipal resources and tools<br>• Work towards attaining new municipal resources and tools |
| | Prepare a list of municipal buildings that can be opened in times of extreme heat, cold, and other natural disasters | • Prepare a list of municipal building that could be opened as places to cool or warm<br>• Rank or prioritize which buildings to open<br>• Work with organizations and groups to plan for building use during times of heat, cold, natural disasters<br>• Ensure buildings have necessary resources to serve in this function<br>• Support applications for grants and resources that ensure buildings can support during times of natural disaster |
| **ENSURE RESIDENT SAFETY** | Create a list of emergency social supports available for community members post emergency disaster | • Determine services necessary for different disasters<br>• Based on services create a list of services and supports to assist individuals post emergency situations (counselling, supports, etc) |

# PRIORITY AREA 4

## INCREASE CLIMATE CHANGE AWARENESS AND EDUCATION

**What We Heard:** The community consultation process indicated that the majority of those who participated did not know about climate change and what they could do to be a part of the solution. The responses pointed to a need for more climate change awareness and education.

The climate risk assessment identified a changing climate. More storms, more hot weather, changing growing seasons and shorter winters. This means education is needed on how to adapt to this changing climate and how to be a part of climate change solution.

**Vision:** Increase resident awareness of climate change impacts, consequence and build resident knowledge on how to adapt to and mitigate climate change.

| INCREASE CLIMATE CHANGE AWARENESS /EDUCATION | | |
|---|---|---|
| **OBJECTIVE** | **ACTION** | **STEPS** |
| **TO INCREASE KNOWLEDGE, AWARENESS AND UNDERSTANDING AROUND CLIMATE CHANGE RELATED IMPACTS** | Promote public awareness campaigns to provide education on a climate change related issues. Such as being safe during a heat event, how to recognize early symptoms of heat exhaustion, waste reduction, recycling, water conservation, community composting, and tornado preparedness | • Identify educational opportunities<br>• Create list of public awareness campaign topics<br>• Create a list of potential workshops<br>• Partner with schools and other groups to share climate change education opportunities<br>• Add relevant information into the newsletter<br>• Include climate change information on RM website and social media |
| **TO INCREASE KNOWLEDGE, AWARENESS AND UNDERSTANDING AROUND CLIMATE CHANGE RELATED IMPACTS** | Support youth education and awareness of climate change | • Identify educational opportunities<br>• Create list of public awareness campaign topics<br>• Create a list of potential workshops<br>• Partner with schools and other groups to share climate change education opportunities<br>• Add relevant information into the newsletter<br>• Include climate change information on RM website and social media |

| FUTURE INCREASED CLIMATE CHANGE AWARENESS /EDUCATION GOALS | | |
|---|---|---|
| **OBJECTIVE** | **ACTION** | **STEPS** |
| **CONTINUE TO RAISE AWARENESS, UNDERSTANDING AND KNOWLEDGE OF CLIMATE RELATED IMPACTS** | Continue to promote educate and public awareness of climate change, impacts of climate change and how individuals can help reduce impacts of climate changed | • Annual review of educational opportunities<br>• Update list of public awareness campaign topics and workshops<br>• Continue to partner with schools and other groups to share climate change education opportunities<br>• Offer workshops and education as opportunities emerge |



# PRIORITY AREA 5
## REDUCE GHG EMISSIONS

**What We Heard:** The climate is warming due to an increase of greenhouse gases (GHG) in our atmosphere. Throughout the climate risk assessment concerns were identified regarding warming temperatures, hotter and dryer weather, longer heatwaves, and drought like conditions. These conditions are a result of more GHG in the atmosphere. As part of the action plan, the RM of Piney seeks to mitigate/ reduce GHG being emitted within the RM of Piney.

The Piney GHG emission inventory showed that most Community emissions include the residential, commercial, industrial, transportation and waste sectors. Therefore this goals looks at ways that the RM of Piney can reduce GHG and capture GHG.

**Vision:** To mitigate the impacts of climate change through reducing GHG emissions.

| REDUCE GHG EMISSIONS | | |
|---|---|---|
| **OBJECTIVE** | **ACTION** | **STEPS** |
| **REDUCE GHG EMISSIONS BY ENCOURAGING ALTERNATIVE TRANSPORTATION OPTIONS** | Promote initiatives that support public or alternative transportation options (i.e. BPP rent and ride program) | • Continue working on SERTI<br>• Explore viable alternatives to private vehicle<br>• Work on actioning alternatives<br>• Support pilot projects that support public or alternative transportation options |
| | Expand active transportation options (paths, e-bikes, etc) | • Support initiatives in the non-motorized trail plan<br>• Create new trails and paths<br>• Provide opportunities for active transportation<br>• Support active transportation projects |
| **IMPROVE AIR QUALITY THROUGH CAPTURING CARBON** | Develop a tree program to increase shade and decrease urban heat island effect in order to mitigate the impact of more frequent and intense heatwaves | • Research tree grants<br>• Hire summer students to help plant trees |

| REDUCE GHG EMISSIONS | | |
|---|---|---|
| **OBJECTIVE** | **ACTION** | **STEPS** |
| **REDUCE GHG FROM HOUSEHOLD WASTE** | Reduce household waste through promotion of recycling programs and exploring new technologies for reducing waste | • Review best practices<br>• Explore community compost facilities<br>• Offer composting workshops<br>• Support education and promotion of programs to raise recycling awareness<br>• Explore new technologies specific to reducing household waste<br>• Install public garbage, recycling, and compostable bins |
| | Advocate government for improved and expanded recycling programs | • Identify gaps in current recycling programs<br>• Research new recycling options<br>• Apply for grants for new recycling opportunities<br>• Begin discussion and conversations on new alternatives |
| **REDUCE GHG BY USING SUSTAINABLE PRODUCTS IN MUNICIPAL BUILDINGS** | Upgrade municipal buildings and facilities to be more energy efficient | • Review current building products |

| FUTURE REDUCE GHG EMISSIONS | | |
|---|---|---|
| **OBJECTIVE** | **ACTION** | **STEPS** |
| **REDUCE GHG THROUGH USE OF SUSTAINABLE PRODUCTS** | Promote home energy efficiency and retrofit programming, in collaboration with community organizations and Efficiency Manitoba | • Research Efficiency Manitoba programs<br>• Market and share programs<br>• Provide assistance to residents who want to apply for rebates and retrofits |
| | Encourage homeowners to apply for rebates for retrofits and upgrades through Efficiency Manitoba's various programs | • Research Efficiency Manitoba programs<br>• Market and share programs<br>• Provide assistance to residents who want to apply for rebates and retrofits |
| | Investigate opportunities to encourage energy efficiency upgrades when buildings are sold or undergo a major renovation | • Research energy efficient upgrades<br>• Provide costing benefits<br>• Research grants for retrofitting<br>• Provide incentives to include energy efficient upgrades<br>• Market and share programs<br>• Provide assistance to residents who want to apply for rebates and retrofits |
| **REDUCE GHG EMISSIONS BY ENCOURAGING ALTERNATIVE TRANSPORTATION OPTIONS** | Advocate to the Province of Manitoba to offer tax rebates for the purchase of zero emissions vehicles, electric bikes, and charging infrastructure | • Research benefits of EV/ electric bikes<br>• Market and share advantages<br>• Discussion with MLA and MP<br>• Advocate for refunds/ incentives |
| | Explore low emission fleet vehicle replacement program | • Explore car share<br>• Explore ride share<br>• Install EV charging stations in the municipality<br>• Explore potential for electrical vehicles<br>• Expand active transportation |
| | Explore, encourage and promote new low emission options (i.e. hydrogen powered vehicles, electrical, hybrid) | • Continue to promote and share new zero and low emission options |

# PRIORITY AREA 6

## SUPPORT ECONOMIC SECTOR AND ADVANCEMENTS OF CLIMATE CHANGE REDUCING TECHNOLOGIES

**What We Heard:**If we want to mitigate and adapt to climate change we need to explore, encourage and support the creation and adoption of new technologies and projects that are designed to reduce GHG and assist the municipality in adapting to a changing climate.

**Vision:** promote and encourage the adoption of new technologies and practices that will mitigate climate change and will help the Municipality adapt to a changing climate and the impacts that stem from this changing climate.

| SUPPORT ECONOMIC SECTOR AND ADVANCEMENTS OF CLIMATE CHANGE REDUCING TECHNOLOGIES | | |
|---|---|---|
| **OBJECTIVE** | **ACTION** | **STEPS** |
| **ENSURE A SUSTAINABLE FUTURE BY ENCOURAGING NEW TECHNOLOGIES AND ECONOMIC DEVELOPMENT** | Explore new technologies in the economic sector that reduce GHG in agriculture, business, resource development | • Research new technologies and pilot projects<br>• Support new initiatives and projects that advance climate change |
| | Promote new practices to minimize water use, crop damage, and invasive species transmission | • Research new technologies and pilot projects<br>• Support new initiatives and projects that use practices that minimize water usage, crop damage and invasive species transmission |
| **REDUCE GHG THROUGH NEW TECHNOLOGY** | Encourage pilot projects that reduce GHG | • Research new technologies and pilot projects<br>• Support new initiatives and projects that reduce GHG |
| **ENCOURAGE NEW BUSINESS START-UPS THAT MITIGATE RISKS OF CLIMATE CHANGE** | Encourage new business start-ups that mitigate risks of climate change | • Identify new business opportunities<br>• Support new initiatives and businesses that reduce GHG or mitigate climate change<br>• Share information<br>• Support new businesses that reduce impact on environment |
| **PROMOTE ECO-TOURISM AND RECREATION** | Encourage and seek out tourism and recreation opportunities that are eco-friendly and sustainable such as non-motorized tourism, conservation based tourism and telescope tourism | • Look for ways to promote eco-friendly tourism<br>• Partner with Sunrise Corner to market sustainable tourism<br>• Share tourism opportunities<br>• Support projects and initiatives that advance tourism and recreation that are sustainable, eco-friendly and minimize environmental footprint |

# PRIORITY AREA 7

## INTEGRATE CLIMATE ACTION INTO MUNICIPAL PLANS AND DOCUMENTS

**What We Heard:** In order to ensure that the RM of Piney is implementing the mitigation and adaptation goals, existing plans, policies and guidelines that govern land use, development and growth in the Municipality should be reviewed with a climate change lens

This will ensure that the strategies, actions and goals are cemented in existing by-law, plans and policies. This goal ensures that the RM is prepared for climate change and situated to react to emergencies if/ when they should happen.

**Vision:** Ensure that the RM of Piney is enacting its Climate Change Plan by integrating into existing plans.

| INTEGRATE CLIMATE ACTION INTO MUNICIPAL PLANS AND DOCUMENTS | | |
|---|---|---|
| **OBJECTIVE** | **ACTION** | **STEPS** |
| **TO ENACT CLIMATE ACTION INTO CURRENT PLANS AND BY-LAWS** | Review existing by-laws and plans to ensure climate adaptation action plan is considered in policies | • When by-laws are up for review ensure climate adaptation and mitigation is considered in policies<br>• Look for opportunities to promote climate change in all aspects of the municipality |
| | Design subdivisions with considerations to emergency preparedness | • Identify how developments can be prepared in the event of an emergency<br>• Ensure subdivisions have two access points (if possible)<br>• Determine measures to mitigate wildfire risks in new subdivisions<br>• Encourage wild fire reducing material |
| **ENCOURAGE HIGHER DENSITY TO PROTECT NATURAL SPACES AND REDUCE FOOTPRINT** | Encourage more multi-family dwellings through policy and ZBL amendments/ reviews | • Update plans to reflect more multi-family<br>• Encourage developers to build more dense<br>• Apply for grants/ initiatives that will increase density<br>• Participate in eco-friendly projects |
| | Encourage new business start-ups that mitigate risks of climate change | • Opportunities for more heating and cooling businesses agricultural sector – new crops benefits from longer growing season, new crops that can be grown |
| | Encourage higher density development | • Identify areas that are appropriate for density<br>• Encourage development in appropriate areas through incentives |

| FUTURE INTEGRATE CLIMATE ACTION INTO MUNICIPAL PLANS AND DOCUMENTS GOALS | | |
|---|---|---|
| **OBJECTIVE** | **ACTION** | **STEPS** |
| **TO ENACT CLIMATE ACTION INTO CURRENT PLANS AND BY-LAWS** | Consider specific building codes for the municipality that mitigate climate hazards | • Identify building code policies that mitigate climate hazards<br>• Promote new initiatives<br>• Review addition of initiatives to the RM building code |
| | Design subdivisions with considerations to emergency preparedness | • Research emergency preparedness in subdivision best practices<br>• Identify emergency preparedness practices that are appropriate<br>• Incorporate best practices into by-laws |
| | Planning for greater municipal services to provide for higher density development | • Identify municipal services that can increase density (i.e. new wastewater treatment, water provision, etc.)<br>• Promote and prepare for greater density projects<br>• Apply for grants to support the development of municipal services<br>• Encourage projects that include eco-friendly features such as compost toilets, solar power and using sun light for heating<br>• Identify areas that are appropriate for higher density development<br>• Research incentives and grants that can support higher density through potential incentives, guidance and support<br>• Support higher density projects<br>• Research municipal services/ grants that could support higher density<br>• Share list of grants with developers |
| | Encourage drought tolerant landscaping on public and private properties | • Research drought tolerant landscapes<br>• Promote and advertise drought tolerant landscaping options |
| | Explore preparing a hazard mitigation plan to identify specific actions to reduce the risk to a community for various disasters. This includes evaluating risks to people and property | • Research hazard mitigation plans<br>• Research grants that fund hazard mitigation plans<br>• Apply for grants to develop a hazard mitigation plan |

# IMPLEMENTATION

One of the key objectives of this climate adaptation action plan was to consult with stakeholders about climate change, its impact on the municipality and how the municipality could be prepared and ready to adapt to a changing climate. Stakeholders were engaged in each step of the planning process. In the initial on boarding survey respondents indicated that they did not have a high level of knowledge about climate change or what they could do to address climate change. Through education and discussion on climate change, this process increased stakeholder knowledge on climate change, as eighty-seven percent of those surveyed reported an increase in climate change knowledge because of this process.

The RM of Piney wants to build on this success and keep implementing the plan and encouraging the discussion around climate change and how the municipality can decrease greenhouse gas emissions and mitigate and adapt to climate change impacts. A number of projects have spurred because of this plan, including a scenario planning process to identify wildfire management, a sustainable eco-friendly tiny homes project and the South East Regional Transportation Initiative (SERTI).

The RM will continue to build partnerships and to fund and support the goals, initiatives and actions in the climate adaptation action plan. The intent of the climate adaptation action plan is to action the goals, encourage sustainable  development, reduce greenhouse gas emissions and ensure the RM of Piney is prepared and ready to adapt and mitigate to a changing climate.

**The Rural Municipality of Piney will action the goals by:**

- Applying for grants to do future studies, pilot projects, and plans that reflect the goals of the climate adaptation action plan.
- Updating current plans, policies and strategies as feasible to reflect the climate adaptation action plan.
- Creating partnerships and building relationships around the climate adaptation action plan goals.
- Sharing information and resources with other municipalities to encourage project and action the project goals.

The climate adaptation action plan is not intended to be static as climate is always changing as are technologies and advancement. This Plan will be reviewed and updated as goals are met and as new strategies emerge.

The RM of Piney remains committed to understanding climate change and its impact on the municipality and how they can reduce the municipalities footprint while ensuring the municipality is prepared in the face of a changing climate.



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# APPENDIX A

## RM OF PINEY CLIMATE CHANGE ADAPTATION ACTION PLAN PROCESS

The Rural Municipality of Piney climate change adaptation action planning process was based on the Climate Risk Training provided by the Province of Manitoba. This highly interactive process included using climate modelling to predict climate changes within the Municipality. Then through stakeholder engagement climate risks and impacts based on these changes were identified. Stakeholders then ranked the impacts based on magnitude and likelihood of the consequence. This information was used to collaboratively identify mitigation and adaptation strategies to address the more severe and likely consequences.

The strategies were used to create the Rural Municipality of Piney Climate Adaptation Action Plan Goals.

**Climate Risk Plan Process Overview:**

### STEP 1

**Prepare**

- Project on boarding
- Prepare community profile

### STEP 2

**Understand/ Engage**

- Work with stakeholders to identify climate hazards and risks
- Work with stakeholders to understand how climate hazards are predicted to change
- Work with stakeholders to understand impacts of climate change for this region
- Work with stakeholders prioritize impacts

### STEP 3

**Research**

- Best practices for prioritized impacts

### STEP 4

**Imagine**

- Work with stakeholders to identify potential solutions to address

### STEP 5

**Climate Adaptation Action Plan**

- Create a Climate Adaptation Action Plan based on the stakeholder engagement and research

# APPENDIX B

## CLIMATE CHANGE PRIORITIZED IMPACTS

Based on the modelling, stakeholders prioritized following charts identify the impacts and how stakeholders prioritized the impacts of climate change.

| | RISK EVALUATION MATRIX MORE FREQUENT AND INTENSE HEATWAVES & WEATHER (HOTTER & DRYER/ HEATWAVES) | | | | | |
|---|---|---|---|---|---|---|
| MAGNITUDE OF CONSEQUENCES | VERY HIGH | | • Impact on plants/ animals | • Dehydration<br>• Hospitalizations<br>• Harder on EMS/ firefighter | • Heat stroke/ other health concerns | • Wildfire<br>• Wildfire evacuations<br>• Impacts on agriculture |
| | HIGH | | | • Fire bans | • Decreased Water quality/ quantity<br>• Food security<br>• Impact of farmers/ agriculture | • Water (shortages/ increased demand/ quality/ irrigation)<br>• Crops (wash out, dry) |
| | MODERATE | | • Pole fires | • Structural failures<br>• Derailments<br>• Demand to upgrade AC | | • Sparks start fires |
| | LOW | | • Loss of tourism Impact on plants/ animals | • Recreation canceled<br>• Event cancellation<br>• Road | • Road upgrades/ maintenance | |
| | VERY LOW | | | • Demand for water based recreation | | • Reduced work |
| | | VERY LOW | LOW | MODERATE | HIGH | VERY HIGH |
| | LIKELIHOOD OF CONSEQUENCES | | | | | |

| | RISK EVALUATION MATRIX<br>WILDFIRES | | | | | |
|---|---|---|---|---|---|---|
| MAGNITUDE OF CONSEQUENCES | VERY HIGH | | | • Loss of life<br>• Evacuation<br>• Hospitalizations | • Loss of towns/ buildings/ structures | • More emergency services (fire fighters) |
| | HIGH | | • Cannot get insurance | • Loss of buildings | • Loss of property<br>• Psychological fear | • Health concerns (asthma, breathing) |
| | MODERATE | | | • Increase insurance costs | • Loss of business | |
| | LOW | | | | • Residents move away<br>• Loss of trees/ habitat | |
| | VERY LOW | | | | | • Loss of tourism<br>• Loss of employment |
| | | VERY LOW | LOW | MODERATE | HIGH | VERY HIGH |
| | LIKELIHOOD OF CONSEQUENCES | | | | | |

| | RISK EVALUATION MATRIX MORE INTENSE WEATHER (WIND, TORNADO, RAIN, ICE, SNOW ETC.) | | | | | |
|---|---|---|---|---|---|---|
| MAGNITUDE OF CONSEQUENCES | VERY HIGH | | | • Loss of life | • EMS unable to respond/ road washout | • Loss of power/ communication<br>• Loss of human life |
| | HIGH | | • Trouble getting essentials<br>• Demand for medical services<br>• Safety<br>• Live wires<br>• Car accidents | • Hospitalizations<br>• Blocked roads<br>• Transportation routes<br>• Evacuations<br>• Unexpected isolations | • Damage to buildings<br>• Overland flooding/ spreading of noxious weeds<br>• Water quality/ wells contaminated | • Loss of power<br>• Impact on pipes/ infrastructure |
| | MODERATE | | • Business feel impact when people cannot drive<br>• Bridge/ structural damage<br>• Freezing pipes<br>• Pole/ power fires | • Slow EMS<br>• Disruption to supply chain<br>• Windows break<br>• Shingles<br>• Gutters<br>• Drainage<br>• Lack of education<br>• More demand for medical services | • Trees down/ wildfire risk<br>• Flooding basements | • More emergency service calls |
| | LOW | | • School/ business closures<br>• Recreation / event cancellation | • Loss Tourism<br>• Loss of wildlife<br>• Clean up/ where does it go? | • Increased road maintenance costs (snow clearing/ sanding<br>• Loss of habitat | • Damage to forest landscape<br>• Sump pump failure |
| | VERY LOW | | | • Vehicles lose paint/ damage | • Demand for water based recreation | • Damage to trees<br>• Fear |
| | | VERY LOW | LOW | MODERATE | HIGH | VERY HIGH |
| | LIKELIHOOD OF CONSEQUENCES | | | | | |

| RISK EVALUATION MATRIX DROUGHT (LESS FREQUENT PRECIPITATION BUT MORE PRECIPITATION AT ONE TIME) | | | | | | |
|---|---|---|---|---|---|---|
| MAGNITUDE OF CONSEQUENCES | VERY HIGH | | | • Fire Services | • EMS unable to respond/ road washout | • Wildfires<br>• Fire services |
| | HIGH | | • Impact local businesses (i.e. water plant) | • Poor air quality<br>• Health concerns (asthma/ breathing) | • Lack of water | • Crops/ livestock/ watering<br>• Lack of water |
| | MODERATE | | | • Increased hospitalizations<br>• Tornado<br>• More accidents | • Impacts on animals<br>• Road impacts | • Food security |
| | LOW | | | • Loss tourism | • Dust control not lasting<br>• Structural cracking | |
| | VERY LOW | | | | | • Spreading of weeds |
| | | VERY LOW | LOW | MODERATE | HIGH | VERY HIGH |
| | LIKELIHOOD OF CONSEQUENCES | | | | | |

**RISK EVALUATION MATRIX**
**IMPACTS ON AGRICULTURE & NATURAL RESOURCES**
**(LESS FREQUENT PRECIPITATION BUT MORE PRECIPITATION AT ONE TIME)**

| MAGNITUDE OF CONSEQUENCES | VERY LOW | LOW | MODERATE | HIGH | VERY HIGH |
|---|---|---|---|---|---|
| VERY HIGH | | | | | • Crop damage |
| HIGH | | | | • Invasive species | • Water shortages/ quality/ wells drying up |
| MODERATE | | | | | |
| LOW | | | | | |
| VERY LOW | | | | | |

**LIKELIHOOD OF CONSEQUENCES**

# APPENDIX C
## CONSULTATION SUMMARY

- Coffee with Council Public consultation sessions October 16, October 17 and October 18 – 33 individuals attended – overview of project/ share how climate is predicted to change, participatory process to identify local climate risks and discussion on impacts.

- Climate Change consultation at the Piney Regional Chamber of Commerce – 9 individuals – overview of project/ share how climate is predicted to change, participatory process to identify local climate risks and discussion on impacts.

- December 6th consultation at Schevchenko School – 295 students (+ teachers, EA and staff). Shared Climate change info, brought in Susan Lindsay from Climate Change Manitoba to share about climate change, its impacts, and raise awareness. Session included workshop with youth ages 12+ on designing a climate change initiative.

- December 7th consultation at Ross L Gray School – 107 students (+ teachers, EA and staff). Shared Climate change info, brought in Susan Lindsay from Climate Change Manitoba to share about climate change, its impacts, and raise awareness. Session included workshop with youth ages 12+ on designing a climate change initiative.

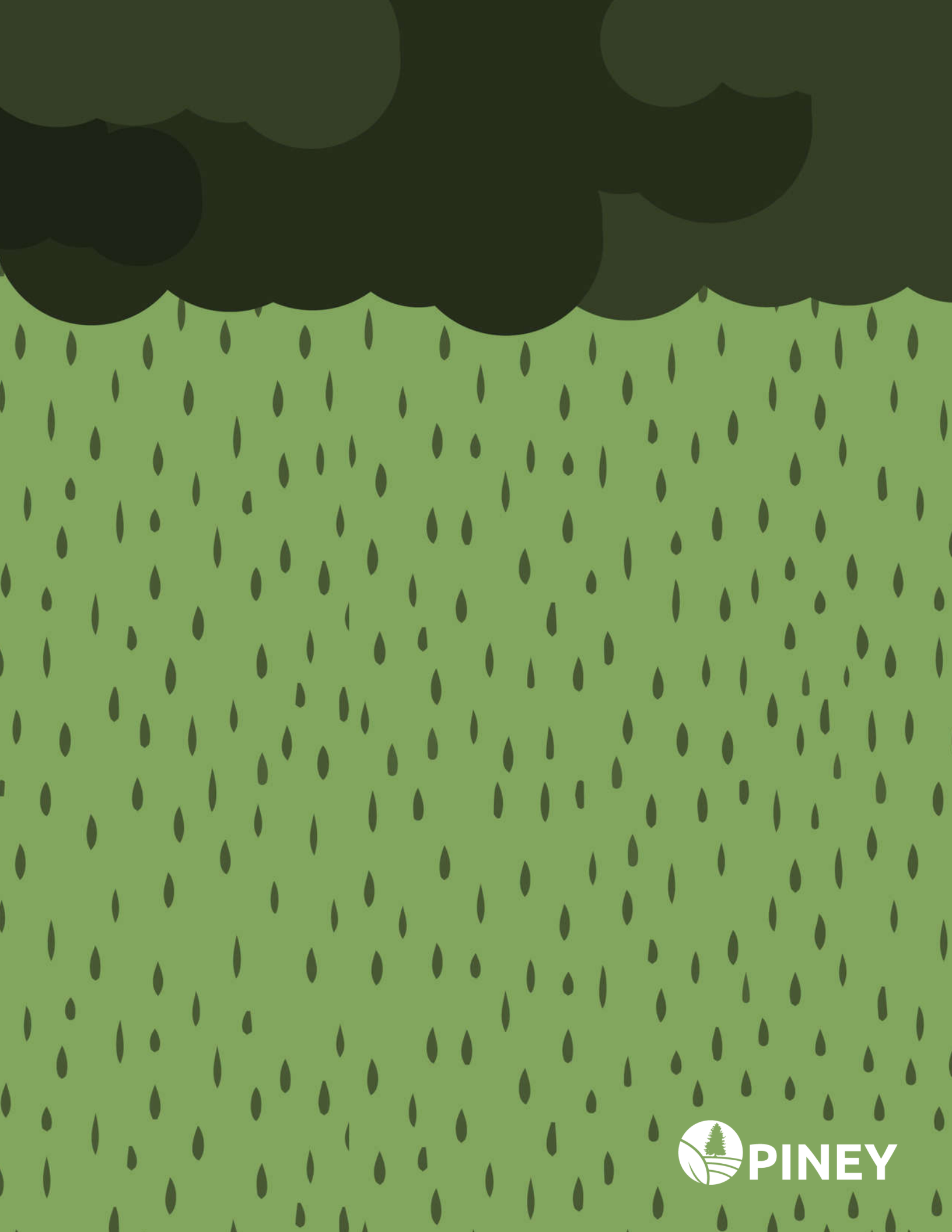
- December 13th consultation at Buffalo Point First Nation 5 individuals attended – overview of project/ share how climate is predicted to change, participatory process to identify local climate risks and discussion on impacts.

- Consultation with stakeholders to identify climate risk impacts and consequence and prioritize – 11 individuals participated
.
- Climate change survey – 230 responses.

- Coffee with Council Public consultation sessions February 26, 28 and March – 52 individuals attended –overview of project, share priorities areas of concern and discussion on impacts.

- Green Career symposium – 250 individuals attended. 86% reported increase knowledge of climate change since last year.


Pinney
MIDDLEBRO
BADGER
CARRICK
MENESINO
SPRAGUE
SANDILANDS
WOODRIDGE
VASSAR
WAMPUM
ST.LABRE
SOUTH JUNCTION


PINEY