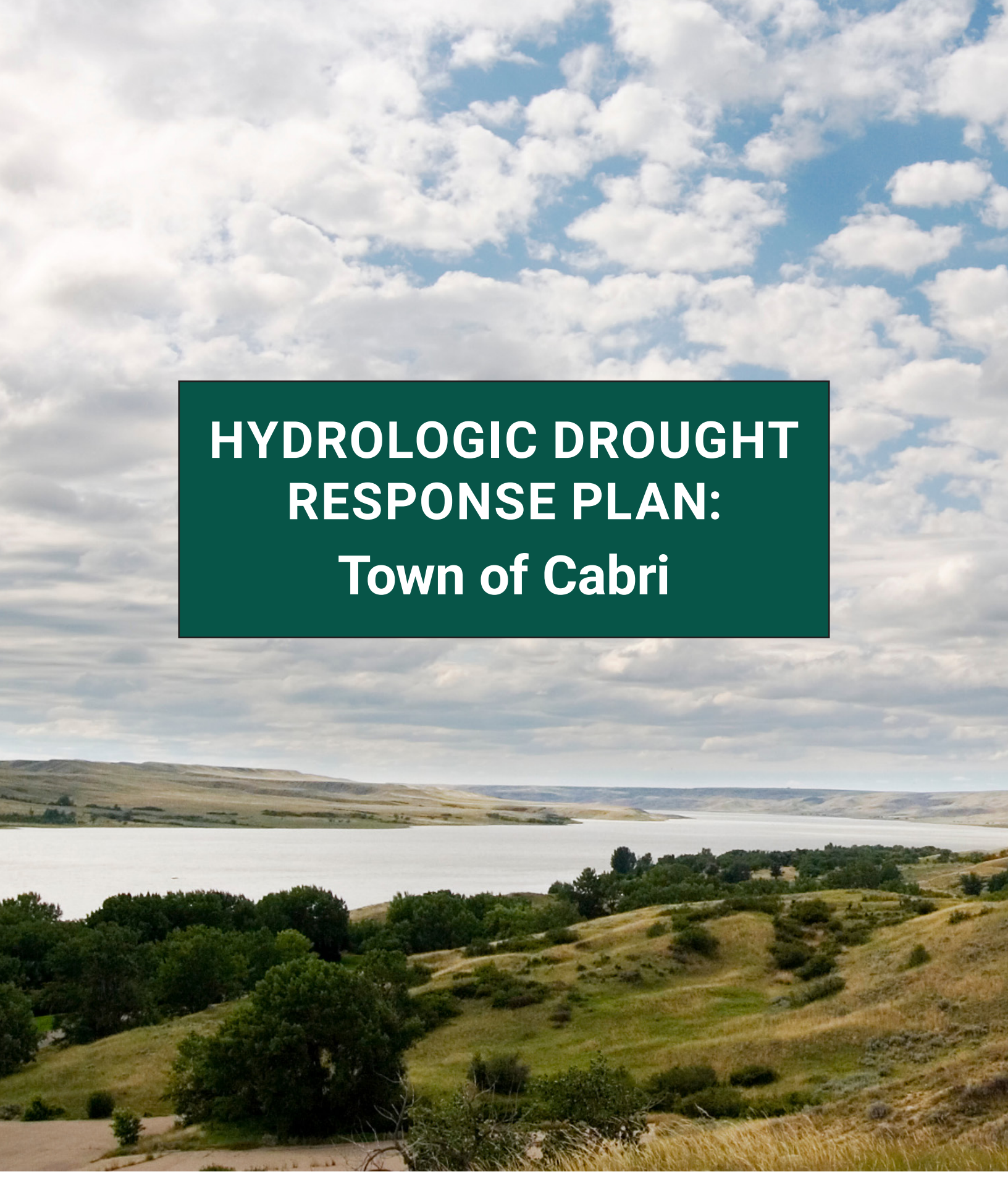

HYDROLOGIC DROUGHT RESPONSE PLAN: Town of Cabri

Prepared by the **Saskatchewan Association of Watersheds** (SAW) and the **Town of Cabri Drought Response Committee**

Hydrologic Drought Response Plan: Cabri

INTRODUCTION

Pre-season and regional drought information is provided by the Water Security Agency (WSA) in two main reports – the Conditions at Freeze-Up Report and the Spring Runoff Outlook. The Conditions at Freeze-Up Report provides information on the precipitation and current moisture conditions during the late fall/early winter. Information on precipitation and conditions leading into freeze-up provide valuable information for this plan. The report can provide a suggestion of potential above or below normal runoff conditions for the spring; however, more accurate information regarding spring runoff is provided in the Spring Runoff Outlook report. The Spring Runoff Outlook report is issued in early February or March each year. Spring runoff depends on the moisture conditions leading into winter, snowpack water content and how quickly snow melts. The report provides information on the potential of runoff in the province by watershed, which provides an important outlook for moisture conditions going into the growing season. Looking at the Hydrological Drought Map for the South Saskatchewan River Watershed is an important regional preparedness step. The Conditions at Freeze Up Report and Spring Runoff Outlook Report can be found here: https://www.wsask.ca/lakes-rivers/provincial/.

The Hydrologic Drought Response Plan has been developed for those who rely on the Town of Cabri for their water supply. A Drought Response Committee (DRC) has been established to deal with any current or future drought conditions, and the DRC will adhere to the Drought Response Plan. The committee includes a coordinator, elected officials, the Town Administrator/Chief Administrative Officer (CAO), and town employees. The Town of Cabri Hydrologic Drought Response Plan describes the monitoring required to determine drought levels, the specific actions that the Town will take to reduce impacts of the drought, and who will be responsible for completing identified actions. The plan also outlines the provincial agencies who will provide support to Cabri during emergency situations.

The Town of Cabri Hydrologic Drought Response Plan is living document, that should be reviewed every four years and updated as needed with any changes to Town Administration and Council.

TOWN OF CABRI · SAW Saskatchewan Association of Watersheds · Water Security Agency

LOCAL INDICATORS

Cabri relies on two surface water sources for their water supply, including an intake from Lake Diefenbaker and a reservoir on Antelope Creek. It is crucial to monitor the water levels in Lake Diefenbaker, as low levels or certain wind conditions can prevent Cabri from pumping water from the intake to the reservoir. In 2012, the WSA released the Lake Diefenbaker Management Strategy which outlines that water levels may be adjusted based on the previous fall and summer's water conditions (https://www.wsask.ca/wp-content/uploads/2021/02/DiefenbakerReservoirOperationsContextandObjectives.pdf). Since then, WSA provides annual updates to the strategy in the Spring Runoff Outlook Reports.

During the open-water season, 10-day forecasts for the entire Saskatchewan River Basin are published at: https://www.wsask.ca/lakes-rivers/provincial/. Table 1 includes drought indicator levels for Lake Diefenbaker during the open water season, which should be used to compare the current lake levels to the drought indicators for each month. Runoff into Antelope Creek reservoir can be very low even in non-drought periods, and water quality can deteriorate during droughts. Therefore, it's essential to also monitor water quality for the community.

In addition to this, the WSA should work with the Town of Cabri to determine optimal water levels for the Town's reservoir. This information will then supplement the drought indicator information provided in Table 1.

Table 1. A six-level indicator based on water levels in Lake Diefenbaker (measured in metres).

Thresholds	April	May	June	July	August	September	October
Level 0	551.58	552.03	553.17	554.60	555.33	555.38	555.34
Level 1	551.26	551.50	552.72	553.68	554.45	555.16	555.06
Level 2	550.87	551.22	551.85	553.51	553.78	553.70	553.36
Level 3	550.04	550.52	551.72	553.28	553.04	552.86	552.63
Level 4	549.77	550.21	551.69	552.15	552.11	551.83	551.50
Level 5	<549.77	<550.21	<551.69	<552.15	<552.11	<551.83	<551.50

DROUGHT RESPONSE PLAN

The roles and responsibilities of the DRC are outlined in Table 2, which details the specific duties and functions of each committee member in managing different drought level conditions for the Town of Cabri. This table serves as a guide to ensure that all DRC members are clear about their roles and responsibilities and can act quickly and efficiently when a drought level is declared for the community. For each drought level, the specific actions required from each committee member are provided in Table 3.

In addition, Table 4 outlines potential water conservation actions that can be implemented during a drought. These actions are designed to reduce water consumption, minimize waste, and maximize the efficient use of available water resources. Table 5 highlights the specific monitoring activities by month that need to be considered to assess the ongoing situation and inform decision-making. These activities are crucial for tracking the progression of drought conditions and ensuring that timely interventions are made by the DRC based on real-time data.

Table 2. Drought Response Committee (DRC) roles and responsibilities.

Role	Description	Name/Contact
DRC Coordinator	Responsible for conducting and scheduling DRC meetings, contact between SPSA (Saskatchewan Public Safety Agency) and WSA, monitoring conditions, and providing recommendations to either escalate or deescalate the plan depending on current and expected conditions.	David Gossard P: 306 - 587 - 7679
Town Administrator/ CAO	Responsible for adding updates to council agenda, verifying that DRC members are checking drought indicators, to activate the plan when trigger point is identified, to organize public messaging, to coordinate between agencies, and update elected officials.	Janelle Desautels P: 306 - 587 - 2570 (Office) C: 306 - 587 - 3078
Water Treatment Operator (WTO)	Responsible for coordinating monitoring of the Town's water usage data and the process of reporting that data to the WSA, and for implementing certain actions identified in the plan during drought declarations.	Brenan Thoreson P: 306 - 587 - 7551
Elected Officials	Responsible for ensuring emergency bylaw is in place, coordinating with DRC, understanding the drought response plan, and for approving and signing the Declaration of Emergency if drought severity merits that level of response.	Lonny Kelsey P: 306 - 587 - 7551
Fire Chief/Official	Responsible for monitoring fire conditions, the amount of water available for fire control, developing policies for firefighting in drought, recommending fire bans early and often, coordinating emergency water access with producers and reviewing evacuation plans.	Lindsay Higginbotham C: 306 - 587 - 3070

Table 3. A description of the steps to take during the different stages of drought.

Drought Level & Description	Action Focus: Preparedness	Role Corresponding to Action
Level 0 Conditions are average or wetter than average	**1 - Monitor Drought Indicators** Compare Lake Diefenbaker levels to the drought indicator. **2 - Monitor Regional Drought Indicators** Check water levels in regional reservoirs. **3 - Information Sharing** Share the current level and maintain communication strategy for when the drought threshold is reached. **4 - Monitor Water Use** Is the water use within normal levels? If exceptionally high, evaluate the ability to supply water. **5 - Promote Water Conservation** Encourage water conservation through educational materials.	1 - Water Treatment Operator 2 - DRC Coordinator and CAO 3 - DRC Coordinator and CAO 4 - WTO 5 - DRC

Drought Level & Description	Action Focus: Monitoring & Water Conservation	Role Corresponding to Action
Level 1 The Drought Indicator data shows that drought conditions are now present	**1 - Continue Monitoring** Compare Lake Diefenbaker levels to the indicator. **2 - Drought Level Raised to 1** Community declares low level drought. **3 - Promote Voluntary Water Conservation** Encourage low water use. **4 - Monitor Water Use** Is the water use within normal levels? If exceptionally high, evaluate the ability to supply water. **5 - Monitor Fire Preparedness** Monitor fire water supplies and fire risk. Discuss mutual fire aid with neighbouring communities.	1 - WTO 2 - DRC Coordinator, WTO and CAO 3 - DRC Coordinator, CAO and Street Captains 4 - WTO 5 - DRC Coordinator, CAO and Fire Officials

Drought Level & Description	Action Focus: Water Conservation	Role Corresponding to Action
Level 2 Conditions are becoming severly dry.	**1 - Continue Monitoring** Compare Lake Diefenbaker levels to the indicator. **2 - Drought Level Raised to 2** Community declares drought. **3 - Implement Water Conservation** Encourage low water use. Implement odd-even watering days. **4 - Monitor Water Use** Is the water use within normal levels? If exceptionally high, evaluate the ability to supply water. **5 - Monitor Fire Preparedness** Monitor fire water supplies and grass fire risk. Discuss mutual fire aid with neighbouring communities.	1 - WTO 2 - DRC Coordinator, WTO and CAO 3 - DRC Coordinator, CAO and Street Captains 4 - WTO 5 - DRC Coordinator, CAO and Fire Officials

Table 3. A description of the steps to take during the different stages of drought, con't.

Drought Level & Description	Action Focus: Conservation & Mitigation	Role Corresponding to Action
Level 3 Conditions are becoming severely dry. Potentially serious ecosystem or socio-economic impacts are possible in some instances.	**1 - Continue Monitoring** Compare Lake Diefenbaker levels to the indicator. **2 - Drought Level Raised to 3** Community declares drought. **3 - Implement Water Conservation** Encourage low water use. Implement odd-even watering days and/or allow for domestic use only. Close the spray park. **4 - Monitor Water Use** Is the water use within normal levels? If exceptionally high, evaluate the ability to supply water. **5 - Promote Fire Preparedness** Monitor fire water supplies and grass fire risk. Discuss mutual fire aid with neighbouring communities. Implement fire bans.	1 - WTO 2 - DRC Coordinator and CAO 3 - DRC Coordinator, CAO and Street Captains 4 - Water Treatment Operator 5 - DRC Coordinator, CAO and Fire Officials

Drought Level & Description	Action Focus: Response & Mitigation	Role Corresponding to Action
Level 4 Conditions are extremely dry and adverse socio-economic and ecosystem impacts are likely.	**1 - Continue Monitoring** Compare Lake Diefenbaker levels to the indicator. **2 - Drought Level Raised to 4** Community declares drought. **3 - Implement Water Conservation & Restrictions** Minimize watering days. Tank-load water facility closed. Deploy Street Captains. Shut-down non-essential facilities (car wash, spray park). **4 - Monitor Water Use** Is the water use within normal levels? If exceptionally high, evaluate the ability to supply water. Communication with provincial agencies. **5 - Monitor Fire Preparedness** Monitor fire water supplies and grass fire risk. Implement fire bans.	1 - WTO 2 - DRC Coordinator and CAO 3 - DRC Coordinator, CAO and Street Captains 4 - WTO, DRC Coordinator and CAO 5 - DRC Coordinator, CAO and Fire Officials

Drought Level & Description	Action Focus: Response & Mitigation	Role Corresponding to Action
Level 5 Conditions are exceptionally dry and adverse socio-economic and ecosystem impact are almost certain.	**1 - Continue Monitoring** Compare Lake Diefenbaker levels to the indicator. **2 - Drought Level raised to 5** Community declares drought. **3 - Eliminate All Non-Essential Water Use** No watering days. Spray park closed. Tank-load water facility closed. **4 - Monitor Water Use** Is the water use within normal levels? If exceptionally high, evaluate the ability to supply water. Communication with provincial agencies. **5 - Monitor Fire Preparedness** Monitor fire water supplies and grass fire risk. Implement fire bans.	1 - WTO 2 - DRC Coordinator and CAO 3 - DRC Coordinator, CAO and Street Captains 4 - WTO, DRC Coordinator and CAO 5 - DRC Coordinator, CAO and Fire Officials

Table 4. A list of potential water conservation.		
Promote water conservation around the home.	Water in the evening or early morning to minimize evaporation.	Increase the fee for tank-load water and close during severe drought.
Implement “odd-even” watering days.	Promote xeriscaping and the use of drought-tolerant plants.	Restrict water for non-essential users during severe drought (e.g. car wash, arena, spray park).
Institute regular public messaging regarding the ongoing situation (newspaper, radio, social media, etc.).	Promote citizen involvement in water conservation practices and competitions (e.g. street-based water conservation competition).	Restrict outdoor watering to one day per week.

Table 5. Drought indicator monitoring schedule.		
January	**February**	**March**
1 – Monitor Lake Diefenbaker water levels on WSA website 2 – Monitor water usage to determine if it is within the range of expected volumes	1 – Monitor Lake Diefenbaker water levels on WSA website 2 – Monitor water usage to determine if it is within the range of expected volumes	1 – Monitor Lake Diefenbaker water levels on WSA website 2 – Look at the Spring Runoff Drought Outlook for the year 3 – Monitor water usage to determine if it is within the range of expected volumes
April	**May**	**June**
1 – Compare Lake Diefenbaker water levels to the drought indicator 2 – Monitor water usage to determine if it is within the range of expected volumes 3 – Review the 10-day forecasts for the Saskatchewan River system	1 –Compare Lake Diefenbaker water levels to the drought indicator 2 – Monitor water usage to determine if it is within the range of expected volumes 3 – Review the 10-day forecasts for the Saskatchewan River system	1 – Compare Lake Diefenbaker water levels to the drought indicator 2 – Monitor water usage to determine if it is within the range of expected volumes 3 – Review the 10-day forecasts for the Saskatchewan River system
July	**August**	**September**
1 – Compare Lake Diefenbaker water levels to the drought indicator 2 – Monitor water usage to determine if it is within the range of expected volumes 3 – Review the 10-day forecasts for the Saskatchewan River system	1 – Compare Lake Diefenbaker water levels to the drought indicator 2 – Monitor water usage to determine if it is within the range of expected volumes 3 – Review the 10-day forecasts for the Saskatchewan River system 4 – Pumping from Lake Diefenbaker to fill reservoir	1– Compare Lake Diefenbaker water levels to the drought indicator 2 – Monitor water usage to determine if it is within the range of expected volumes 3 – Review the 10-day forecasts for the Saskatchewan River system 4 – Pumping from Lake Diefenbaker to fill reservoir
October	**November**	**December**
1 – Compare Lake Diefenbaker water levels to the drought indicator 2 – Monitor water usage to determine if it is within the range of expected volumes 3 – Review the 10-day forecasts for the Saskatchewan River system 4 – Pumping from Lake Diefenbaker to fill reservoir and dewater lines	1 – Monitor Lake Diefenbaker water levels on WSA website 2 – Monitor water usage to determine if it is within the range of expected volumes 3 – Look at conditions in the Freeze-Up Report to judge drought conditions for next year	1 – Monitor Lake Diefenbaker water levels on WSA website 2 – Monitor water usage to determine if it is within the range of expected volumes

PROCESS FOR DECLARING DROUGHT

When drought conditions are detected, the DRC convenes to assess the severity of the situation and declare the appropriate drought level based on the current conditions. These conditions should be reviewed on a bi-monthly basis to ensure that the response remains aligned with the evolving situation. If the conditions worsen, the DRC may elevate the drought level to reflect the increased severity. Conversely, if conditions improve, the drought level may be lowered gradually, and eventually, the drought declaration may be lifted. Any decision to reduce or remove the drought level must be based on substantial and sustained improvement in conditions. This precaution ensures that any decrease in the drought level does not inadvertently undermine the community's resilience to future droughts. It is critical that the DRC ensures the community is adequately prepared for ongoing or potential future drought impacts before adjusting the drought level.

Throughout the duration of the drought, it is expected that there will be heightened support from provincial agencies, including the WSA and the Saskatchewan Public Safety Agency (SPSA). These agencies play a vital role in providing resources, expertise, and assistance to mitigate the impacts of the drought for the Town. If the level of drought exceeds Cabri's capacity to manage, a State of Emergency may be declared. In such a case, it will be necessary to consult with the relevant provincial agencies to coordinate a more extensive response and mobilize additional resources to address the crisis effectively. This collaborative approach ensures that the community receives the necessary support to manage the situation appropriately. Table 6 provides a list of emergency contacts that should be contacted in the event of a severe drought event, ensuring that communication flows smoothly and that appropriate assistance is mobilized quickly. Table 7 includes a list of drought preparedness planning resources for the Town of Cabri. These resources offer valuable tools, guidelines, and references to help the committee and community better prepare for and respond to drought situations, ensuring long-term resilience and effective drought management.

Table 6. A list of emergency contacts to use for efficient communication.

Contact Name	Role	Phone No.
SPSA - Saskatchewan Emergency Planning 24 Hour Line Contact: Kelly Sawchuk (ESO) P: 306 - 941 - 8465	Support for community in an emergency, guidance for declaring a state of emergency, and agency responsible for provincial disaster assistance program https://www.saskpublicsafety.ca/emergencies-and-response.	P: 1 - 800 - 667 - 9660 P: 911 - Dispatch directly (second choice)
WSA and Sewage Works Upset Reporting Line	Respond to infrastructure failures and loss of supply.	P: 1 - 844 - 536 - 9494
WSA- Environmental Project Officer (EPO) Contact: Logan Forester	Check water quality, helping communities manage the safety of their water supply. WSA liaises directly with the Saskatchewan Health Authority for public safety and public facilities.	P: 306 - 778 - 8267

Table 7. A list of resources for drought preparedness schedule.

Resource	Website Link
WSA – Conditions at Freeze Up and Spring Runoff Report	https://www.wsask.ca/lakes-rivers/provincial/
WSA – Current Reservoir Conditions	https://www.wsask.ca/water-security-agency-drought-preparation/ [last updated June 2024]
WSA – Stream and Reservoir Conditions for South Saskatchewan River Watershed and Lake Diefenbaker	https://www.wsask.ca/hydrographs/south-saskatchewan-river-watershed/ [check real time flow and levels data for Lake Diefenbaker at Gardiner Dam 05HF003 and Antelope Creek 05HC005]
Agriculture and Agri-food Canada – Canadian Drought Monitor	https://agriculture.canada.ca/en/agricultural-production/weather/canadian-drought-monitor/current-drought-conditions [shows drought across Canada, updated monthly]
North American Drought Monitor – Canada, USA, and Mexico	https://www.ncei.noaa.gov/access/monitoring/nadm/maps [see the broader regional drought situation across the border]