



Water Shortage Response Plan

March 2024

Environmental Services

1. Overview

The City of Lloydminster Water Shortage Response Plan (WSRP) is aimed at increasing preparedness and facilitating efficient management during periods of water scarcity. This plan encompasses several pivotal steps to guarantee readiness and resilience in confronting such challenges. The plan initiates a thorough risk assessment, evaluating potential factors contributing to water scarcity within our municipality. This assessment serves as a foundation for identifying vulnerabilities and formulating strategic responses.

This plan identifies a range of options for addressing water shortage scenarios, encompassing both immediate actions and long-term strategies. Furthermore, the plan emphasizes the importance of ongoing monitoring and evaluation to gauge the effectiveness of implemented measures and to identify areas for improvement. Regular assessments will be conducted to track water availability, gauge the efficacy of response actions, and adjust strategies as necessary.

1.1 Risk Conditions

The following conditions are circumstances in which the City of Lloydminster may need to initiate the Water Shortage Response Plan. In each of these situations, the public's access to safe, clean drinking water due to water shortages, becomes threatened. The items are ranked 1 through 7 based on a review of the severity of the shortage should conditions occur and at what frequency it may occur.

1. Conditions and levels of storage reservoirs
2. River flows in the basin compared to minimum flow requirements for aquatic environment protection.
3. Precipitation records, including rainfall and snowpack.
4. Extended hot and dry weather forecasts
5. Water supply forecasts provided by Alberta Environment and Sustainable Resource Development (ESRD).
6. River water quality assessments.
7. Groundwater table levels within the basin.

2. Options for Dealing with Water Shortage

2.1 Strategy

In an effort to mitigate and respond to water shortage crises, the following strategies can be utilized to conserve and restrict water flow to ensure water remains accessible for public health and safety purposes. The following strategies conserve and restrict water at different levels, however, have increasing impacts on Lloydminster stakeholders, and are therefore enacted in a particular order to ensure we are attempting to conserve water before causing harm or impacts on others.

1. Public education campaigns to promote water conservation.
2. Engagement with commercial and industrial sectors to develop water conservation plans.
3. Utilization of AMI (Advanced metering infrastructure) to minimize water loss and monitor water usage.
4. Implementation of water restrictions as necessary.
5. Enforcing water use restrictions for commercial and industrial users.
6. Potential redirection of raw water to the treatment plant if river flows are insufficient to meet city demands.

2.2 Data Collection and Analysis

Monitoring through data collection and analysis is a critical step for effective management and development of mitigation strategies during water scarcity. Understanding the current state of water supply enables the City to proactively manage resources and implement conservation measures. The City actively monitors the following parameters to identify trends and implement proactive mitigation measures as needed:

1. Water Supply Status (North Saskatchewan River)
2. Water production records and Forecasts (water demand) – Include water loss reporting.
3. Surface water elevations & Quality
4. Reservoir levels
5. Facilities data such as maximum sustained pump rates, pipeline capacities, etc.

2.3 Priorities for use of available water

Establishing clear priorities for use of available water resources during times of water scarcity enables the City to optimize water allocation strategies, balance competing needs, and minimise adverse impacts to the community. A clear set of priorities fosters understanding among residents and stakeholders, maximizing support for mitigation and conservation effort. By establishing a transparent framework, the City can effectively engage the community, promote responsible water usage, and collectively navigate the challenges of water scarcity.

The following are the City's priorities for use of available water, ranked in order of importance:

1. Health and Safety – Protect public health and firefighting capabilities.
2. Commercial, industrial - Maintain economic base, protect jobs.
3. Environment – Reduce losses to natural resources.
4. Landscaping – Maintain established trees and shrubs.

3. Implementation

The City of Lloydminster relies on data from Alberta Environment and Sustainable Resource Development (ESRD) via the Government website (www.alberta.ca) to assess the need for water diversion restriction from its primary water source, the North Saskatchewan River.

Key factors monitored by the City of Lloydminster to determine the stage of water restrictions include:

1. Conditions and levels of storage reservoirs
2. River flows in the basin compared to minimum flow requirements for aquatic environment protection.
3. Precipitation records, including rainfall and snowpack.
4. Extended weather forecasts
5. Water supply forecasts provided by ESRD.
6. River water quality assessments.
7. Groundwater table levels within the basin.

3.1 Public Engagement

Based on risk assessment and regulatory guidelines, the City of Lloydminster adopts an education-first approach to promote water conservation among citizens and businesses. This initiative utilizes various channels such as social media, news media, and the City of Lloydminster webpage to disseminate information about the importance of reducing water consumption.

During the educational phase, citizens and businesses receive water conservation information through utility bill notifications, door-to-door outreach, and mailers. This proactive communication aims to raise awareness and encourage voluntary efforts to conserve water.

Commercial and industrial users are encouraged to take proactive measures, including topping up fire suppression ponds and implementing water-saving practices. In the event of potential water usage restrictions by the City of Lloydminster, these users are urged to reduce water consumption and comply with any imposed restrictions promptly.

3.2 Water Restrictions

In the event of a water shortage, the City of Lloydminster will enact a water restriction plan applicable to **ALL** City of Lloydminster Water Utility customers, including residences, businesses, organizations, water supply agreements, and City operations. These restrictions will be implemented across four stages, determined by ongoing risk assessments and monitoring.

Water restrictions come into effect when the demand for water surpasses the capacity of the treated water supply or if regulatory authorities reduce the permitted water diversion from our primary water source, the North Saskatchewan River.

During each stage of water restriction, city departments will conduct regular monitoring to identify any non-compliance. Upon detection of a violation, an educational approach will be taken initially. However, repeat offenders may face penalties in accordance with applicable by-laws (Utility Bylaw 26-2016).

This comprehensive approach ensures equitable enforcement of water restrictions across all sectors of the community, safeguarding our water resources during times of scarcity and promoting responsible water usage among all stakeholders.

3.3 Identifying triggers for each stage

Indicators Stage 1

Stage 1 may be implemented during times of hot and dry weather, or if poor water quality coming into the Water Treatment Plant require additional resources to ensure safety and quality standard are met; throughout these instances, if the following metrics are met, a Stage 1 water restriction would be initiated;

- Reservoir levels are below 90% full for 2 consecutive days

Indicators for Stage 2

Stage 2 water restrictions may be required for similar conditions as stage 1, however, restriction efforts have not been successful in maintaining full water reservoirs, indicators include:

- Reservoir levels are below 90% full at midnight on 5 consecutive days

Indicators for Stage 3

During stage 3 water restrictions, more severe water shortage events have occurred requiring the City to implement more drastic restrictions to ensure water supplies for human safety are maintained, these indicators include;

- Reservoir levels are below 70% full for 2 consecutive days

Indicators for Stage 4

During a stage 4 water restriction event, the water shortage event requires the City to take all available steps to ensure that water is available for human safety, this most drastic step includes the following indicators;

- Reservoir levels are below 50% at any given time.
- Unexpected malfunction of major system resulting in anticipated 24-hr water supply shortage

Indicators for each stage is evaluated on the basis that the Water Treatment Plant is running a **24-hour** operation.

It's important to note that the City of Lloydminster reserves the right to initiate any stage of restriction at any time based on risk assessment or diversion restrictions imposed by regulatory authorities. This proactive approach ensures a timely response to evolving conditions and helps maintain the integrity of the water supply system.

3.4 Activation

Each stage of water restriction is known to have an increasing amount of community impact meaning decisions to do so should not be taken lightly. Not only can this impact residents' financial investments and leisure pursuits, but it can also create anxiety for Lloydminster residents.

Therefore, the initial stage implementation of water restriction, and each escalation, thereafter, can only be declared by the **City Manager**.

City of Lloydminster staff will prepare and present evidence to the City Manager along with a suggestion of what stage should be implemented. Once the City Manager has implemented a Water Restriction, staff must report daily to the City Manager on the effectiveness of the restriction and requirements to continue or cease for the City Manager's decision.

Stages of Water Restrictions

Activity	Stage 1	Stage 2	Stage 3	Stage 4
Sprinklers	Yes 2 hr max. one day/week	Yes 1 hr max, one day/week	NO	NO
	Watering schedule based on house number: Even house number: Even days (2,4,6,8 etc.) Odd house number: Odd days (1,3,5,7 etc.) Watering is permitted between: 1 am – 9 am 7 pm – 11pm		NO	NO
Drip watering or hand watering	YES Any day/time	YES Any day/time	YES Any day/time	NO
Hoses with Spray Nozzle	YES Any day/time	YES Any day/time	NO	NO
Watering new grass (Sprinklers)	YES Any day/time	YES Any day/time	Yes As per Stage 2 sprinklers	NO
Outdoor washing such as cars, windows, exterior surfaces, sidewalks, driveways or walking paths.	NO	NO	NO	NO
Filling outdoor pools	NO	NO	NO	NO
Filling outdoor decorative features such as fountains.	NO	NO	NO	NO
Commercial car wash.	YES Any day/time	YES Any day/time	YES Any day/time	NO
Water use for construction	YES Any day/time	YES Any day/time	YES Any day/time	NO
Municipal parks and recreation such as sport fields and golf courses.	YES Any day/time	YES Any day/time	NO	NO
Public water parks	NO	NO	NO	NO
Fire fighting training that requires water	YES Any day/time	YES Any day/time	NO	NO
Municipal Water Main flushing and hydrant maintenance	YES Any day/time	YES Any day/time	NO Only permitted for unscheduled safety or public health reasons. No routine flushing	NO Only permitted for unscheduled safety or public health reasons. No routine flushing

*** Failure to follow a restriction may result in a penalty based on applicable bylaws***

3.4.1 Commercial and Industrial water users' restriction of water use

During a Stage 4 water restriction, the following restrictions may be implemented for Commercial and Industrial water users:

1. Raw water users will be restricted to emergency use and minimal operating use only.
2. Bulk water sales will not be permitted unless for public health reasons.
3. All commercial car washes will not be permitted to operate.
4. Firefighting training activities that require water will not be permitted (Also in stage 3)

The City of Lloydminster must ensure continual engagement within the industrial sector on water usage, this includes preparedness, early notification, and connection throughout response. While a water restriction may be required suddenly and without warning, the earlier industrial customer can be notified the more steps they can take to enact water restriction efforts to support the City and avoid a full water restriction. Reference Water Stakeholder Contact List for key industrial water users.

These measures are essential to prioritize critical water usage and ensure the conservation of water resources during severe water shortage conditions. By implementing these restrictions, the City of Lloydminster aims to minimize non-essential water consumption and preserve water for essential needs and emergency situations.

If water supply from the North Saskatchewan River becomes insufficient for the City of Lloydminster, alternative sources of water may be utilized for treatment and distribution throughout the city. These alternative water sources include:

1. Utilization of all available raw water reservoirs
2. Utilization of storm ponds within the city.
3. Redirecting water flow from other sources of water throughout and around the city.

Implementing these measures may require the procurement of pipelines, pumps, and hoses to facilitate the redirection of water flow from alternative sources to the treatment plant, it may also include agreements with landowners and regulator bodies. This proactive approach ensure the City of Lloydminster can maintain a reliable water supply even in the worst-case scenario of diminished river flow or inadequate volume from the primary water source.

3.5 Schedule for carrying out Water Shortage Response Plan

The City of Lloydminster has outlined a schedule for implementing the Water Shortage Response Plan (WSRP) to effectively manage water scarcity situations:

1. Ongoing Monitoring and Risk Assessment:
 - a. Continuous monitoring of risk assessment and water conditions prior to, during, and after water restrictions.
 - b. Regular evaluation to identify potential triggers for water restrictions and assess the need for intervention.
2. Public Education:
 - a. Conduct public education campaigns to raise awareness about water conservation and the importance of efficient water use.
 - b. Disseminate information through various channels to educate residents about the impending water shortage and measures to mitigate its impact.
3. Industrial/commercial engagement and education:
 - a. Engage with industrial and commercial sectors to promote water conservation practices and encourage proactive measures.
 - b. Provide education and support to businesses to minimize water usage and prepare for potential water restrictions.
4. Implementation of water restrictions:
 - a. Implement water restrictions as deemed necessary based on risk assessment and monitoring data.
 - b. Procure necessary resources if required to enforce water restrictions effectively.
5. Re-diversion of additional water sources:
 - a. If the main water source becomes non-viable, initiate the re-diversion of additional water sources for treatment.

- b. Secure necessary infrastructure such as pipeline, pumps, and hoses to redirect water flow and ensure a reliable water supply.

3.6 Monitoring

Monitoring of water resources will be conducted by the City of Lloydminster (COL) utilizing a proactive approach. Advanced Metering Infrastructure (AMI) will enable the COL to monitor daily water usage efficiently. Additionally, the COL will regularly monitor reservoir levels and receive updates from regulatory authority to assess the necessity of water restrictions.

During periods of water restriction, the COL will continue to monitor water usage, reservoir levels and receive updates from regulators. Based on continual monitoring and assessment of these factors, the COL will adjust the stages of water restrictions as needed. This adaptive approach ensures that water restrictions are responsive to changing conditions, helping to effectively manage water scarcity while minimizing disruptions to residents and businesses.

3.7 Water Stakeholder Contact List

Stakeholder	Contact information
Manager, Water Treatment Plant	306-825-2437
Director, Environmental Services	780-874-3700
Supervisor, Distribution and Collection	780-874-3700
Manager, Distribution and Collection	
Alberta ESRD	403-221-8360
Saskatchewan Water Security Agency	866-727-5420
Wholesale Supply Stakeholder	
Alberta Central East Corporation (ACE)	780-846-2244
SaskWater Corporation	306-694-3207
Primary Industrial Water Stakeholder	
ADM	780-871-8216
Cenovus (Refinery)	780-871-6593
Cenovus (Upgrader)	306-825-1663
Cenovus (Emergency)	877-458-8080
Mikes Oilfield Service	780-875-1561
Payless Car Wash	780-875-1399
Co-Op Car Wash (4031 44 Street)	306-825-8188
Mr. Sparkle Car Wash	780-875-8777
Mr. Kleenz Carwash	780-875-0939
3Guys Truck Wash	306-825-9274
Sandstone Center Truck Wash & Storage	306-825-5122
Shell	780-875-7436
Husky Car Wash (5906 50 Ave)	708-875-3199