City of Longmont

2021/2022 Water Supply & Drought Management Plan

Purpose:
The purpose of the City of Longmont's 2021/2022 Water Supply & Drought Management Plan is to manage the City's Water Supply and to anticipate, identify and respond to drought in the Saint Vrain Creek watershed area. This plan will evaluate the impact on raw water availability for the City of Longmont and recommend responses to the current water supply and demand forecast. This plan also formalizes the City's planning for future droughts.

Methodology and Responsibility:
The City of Longmont's Water Supply & Drought Management Plan will be managed by the Water Resources Divisions of the Public Works & Natural Resources Department, referred to as Division. Indicators of drought, as outlined in this plan will be monitored by personnel in the Division. The Division will recommend appropriate action, guided by the response plan as outlined in this plan, for response to differing levels of drought.

Ralph Price Reservoir February 9, 2021

Definition of Drought:
A drought is typically defined as single or multiple consecutive water years with below average stream flow. For the purposes of drought response planning, the droughts of interest would only include those droughts that, because of severity, directly impact and stress raw water availability for the City of Longmont.

Revision Date: April 22, 2021

City of Longmont
2021/2022 Water Supply & Drought Management Plan

"Conserving our Water to Preserve our Quality of Life"

I. City of Longmont's Drought Supply Policy:

The City of Longmont's raw water drought supply policy is outlined in the Raw Water Master Plan. This plan describes the City's policy of using the 1-in-100 year drought recurrence interval as the basis of planning for the City's raw water supply. This drought interval is based upon a drought of approximately 7 years in length with a total Saint Vrain Creek watershed deficit of 237,000 acre-feet. This plan also describes drought indicators and potential forecasting methodologies to be used to predict drought and determine its severity and impacts on the City's raw water supply.

The Saint Vrain Creek has historically experienced drought conditions and will continue to do so in the future. The annual average measured flow in the Saint Vrain Creek at the Lyons gaging station for the period 1896 to 1982 was 93,000 acre-feet. After the addition of diversions from the creek above the Lyons gaging station, the estimated virgin flow for this period is 124,000 acre-feet. A drought of seven years in length, with a total deficit of 237,000 acre-feet, would result in a deficit of approximately 34,000 acre-feet per year.

During 2020, the Saint Vrain River Basin experienced slightly above average stream flow conditions as a result of above average snowpack and average rainfall. Water Board recommended and City Council concurred in July of 2020 to remain at a Sustainable Conservation Level Drought Response for 2020. As a result of the above average stream flows during 2020, Longmont finished the 2020 irrigation season (October 31, 2020) with average storage in its local reservoirs at 70% of capacity. Current projections are that by July 15, 2021, select reservoir storage will be 95% of full. During 2021, the Public Works & Natural Resources staff will continue to implement demand management strategies outlined in this plan. Water Resources staff will continue to pursue opportunities to exchange additional water to supplement the existing water supply.

Prior Water Data	2020	2021
Total Water Supply Available	24,589 acre-feet	26,143 acre-feet
Total Treated Water Demand	17,485 acre-feet	17,835 acre-feet

Snow Pack as of April 22, 2021	South Platte River Basin	Colorado River Basin
	100%	77%

For 2021, Longmont expects to continue to utilize native basin water rights, trans-mountain water rights, and local storage water rights.

Description of Indicators and Forecasting Methods:

- **Natural Resources Conservation Service's Monthly Streamflow Forecast**
  Table A indicates how the Streamflow Forecast can be used to evaluate impacts upon Longmont's water rights on an average and dry basis. Based upon the streamflow forecast, the projected yield of direct flow and storage decrees will be used for calculation of raw water availability during drought conditions. This effort will focus on the April 1st and May 1st Streamflow forecasts as an indicator of drought in the upcoming irrigation season.

- **Natural Resources Conservation Service's Monthly Snowpack Survey**
  The Snowpack Survey will be used in validating and/or adjusting the Streamflow Forecasts. These surveys also provide real-time measurement of snowpack to assist in reviewing projections in the time between monthly streamflow forecasts.

- **Saint Vrain Creek Basin Reservoir Storage Levels**
  Total reservoir storage in the Saint Vrain Basin varies with the availability of water during the storage season (usually November through June). The total Saint Vrain Creek storage levels will be used in conjunction with target storage levels in Ralph Price Reservoir. When comparing storage levels in reservoirs with storage rights senior to Ralph Price Reservoir, water supply availability can be projected for the storage components of Longmont's water portfolio. An example of this information for Ralph Price Reservoir is shown in Table B.

- **Trans-Mountain Water Supply Availability**
  Colorado-Big Thompson Project (C-BT) Quota Declaration and Longmont carry-over of C-BT allocation from the previous year will be utilized in establishing trans-mountain water supply availability for 2021 and projections for later years. This trans-mountain water availability includes C-BT quota declarations, Upper Baldwin Ditch Replacement water, Carry-over C-BT water, Exchanged C-BT water, and Windy Gap water supplies. As of April 22, 2021, Longmont has a total trans-basin water supply yield of 17,356 AF.

- **Raw Water Availability for City of Longmont**
  Raw water availability will be updated and revised by the Division staff to estimate Water Treatment Plant demands and projected raw water availability for Longmont. An example of 2021 raw water availability is included in Table A. Projected demand in this table is based upon a Sustainable Conservation Level drought response assumption.

- **City of Longmont Treated Water Demands Greater than Normal**
  As drought conditions occur, water use often increases and raw water availability decreases. Treated water demand projections will be adjusted in accordance with this expected increase. Actual use as the drought progresses will be included in the evaluation of projected water demands.

- **City of Longmont Water Supply Projections for Multi-year Drought Projections**
  As an additional tool in evaluating the current year drought response level, Division staff will complete a multiple year water supply evaluation. The current and next water year of that projection will be used to determine the drought response level for the City.

II. Description of Drought Supply Response Levels:

Division staff is responsible for monitoring drought indicators and forecasting raw water availability. The following guidelines will assist Division staff and Water Board in advising City Council in determining the appropriate course of action to undertake in varying degrees of drought intensity. These will serve as a guideline only, with the experience and year-by-year specific details also guiding the City's actions in any given drought scenario. The City Manager, with the advisement of Division staff, will have the power to declare a specific response level in the case of an emergency. Division staff will compare raw water supply with projected demand and monitor the storage levels in Ralph Price Reservoir and the Saint Vrain Creek Basin. If the combination of supply and available storage exceed projected demand by more than 135%, the City's water supply will not be considered in a drought scenario. The City will continue to take water conservation actions at all times, especially during years of below average streamflow. Percent of water savings goal referred to hereafter shall be with respect to last year's actual demand.

Sustainable Conservation Level:
At the sustainable conservation level the City will continue to implement Best Management Practices to conserve the water resources of the City.

Target Water Savings Goal: Sustainable demand management at all times to insure reasonable water conservation practices are followed utilizing best management practices and that the overall goal of up to 10% water savings as outlined in the Raw Water Master Plan is realized.

This level will include a projection of the following indicators:

- Storage volumes in Ralph Price Reservoir greater than target levels for the Level One Drought Response in Table B; and
- Raw water supply availability projections for the current and next water year at a level greater than **135%** of projected water demand.

Level One Drought Response Targets:
At Level One, conditions will moderately impact the City's supply vs. demand.

Target Water Savings Goal: Sufficient demand management, 10% water savings, to insure demand does not exceed raw water availability.

This level will include a projection of the following indicators:

- Storage volumes in Ralph Price Reservoir lower than target levels in Table B.
- Raw water supply availability at a level of **120% - 135%** of projected water demand.

Level Two Drought Response Targets:
At Level Two, conditions will severely impact the City's supply vs. demand.

Target Water Savings Goal: 10% to 25%

This level will include a projection of the following indicators:

- Storage volumes in Ralph Price Reservoir lower than target levels in Table B.
- Raw water supply availability at a level of **105% - 120%** of projected water demand.

Level Three Drought Response Levels:
At Level Three, conditions will critically impact the City's supply vs. demand.

Target Water Savings Goal: To be determined at time of level three drought, goal dependent upon drought severity and water savings needs.

This level will include a projection of the following indicators:

- Storage volumes in Ralph Price Reservoir lower than target levels in Table B.
- Raw water supply availability at a level less than **105%** of projected water demand.

III. Description of Drought Response Action Plans:

Sustainable Conservation Level:
Upon determining that actionable drought conditions do not exist for the City of Longmont, any or all of the following may be performed:

- Continue public information concerning impacts to the City of Longmont's water supply to encourage that best management practices (BMP's) are followed. The City will continually promote a public water conservation campaign. BMP's include but are not limited to:
    1. No water being wasted.
    2. Time of day watering restrictions, such as no unattended irrigation between the hours of 10:00 a.m. and 6:00 p.m., will be encouraged.
    3. Use soil amendments and mulch in conjunction with appropriate plant selections.
    4. Check and replace leaky faucets and toilets.
    5. Wash only full loads of cloths and dishes.

- Voluntary measures for raw water reduction in municipal and school use of water.
    1. Parks & Recreation will conserve water where possible and utilize BMP's.
    2. Golf courses will conserve water where possible and also utilize BMP's.
    3. School District will be encouraged to follow BMP's and conserve water where possible.
    4. City owned facilities will strive to set the benchmark for water use practice.
    5. Encourage all customers served by Longmont Water Utilities to implement BMP's for total water use.

- Division staff will prepare for implementing Level One policies in the event this level occurs. The Division will monitor drought response effectiveness, recommend adjustments, and report to public regularly. The Division will also continue training and assigning staff to monitor outdoor water use to insure sustainable conservation efforts are followed and prepare in the event that a Level One drought is determined.

Level One Drought Projection:
Upon determining a Level One drought exists, Longmont may perform any or all of the following efforts, utilizing the actual previous year's water use as the base year for comparison purposes:

- Increase public information about the drought severity and review and enactment of appropriate conservation efforts. Conservation efforts are outlined in the City of Longmont's Water Conservation Master Plan. The City will promote a public water conservation campaign emphasizing moderately dry conditions existing at that time.

- Voluntary water conservation by service customers.
    1. Encourage all customers served by the Longmont Water Utilities to implement a ten percent (10%) reduction in water use from historical levels.
    2. Water users who normally use raw water, well water or other sources of water for irrigation will be requested to not increase use of water through the potable water system during drought emergencies.
    3. Irrigation class tap customers may be required to reduce demand by 10%.
    4. Community garden users, as well as private garden users, will be encouraged to implement a ten percent (10%) reduction in water use from historical levels.

- Mandatory measures for raw water reduction in municipal and school use of water.
    1. Parks & Recreation will conserve water where possible, resulting in a net 10% reduction of historical annual use. Voluntary reductions apply to municipally owned critical sports fields and parks.
    2. Golf courses will conserve water where possible, resulting in a net 10% reduction of historical annual use.
    3. School District irrigation water lease reduction as appropriate, resulting in a minimum of 10% reduction of historical annual use.
    4. Saint Vrain Creek Corridor water lease reduced (or eliminated) to the extent that water is unable to be recaptured for use at the Water Treatment Plants.
    5. All other municipal water use will be reduced by 10% (Building use, Fire dept. etc.) of historical annual use.

- Raw water leases and bulk water sales.
    1. Surplus water rental reduced or eliminated.
    2. Historic lease back of raw water reduced or eliminated.
    3. No water leases are guaranteed during a Level One drought (except by existing contracts). If leases are approved the City may elect to increase the lease rate to recover investment costs and to discourage non-essential uses.
    4. Bulk water permits will be reviewed for use and total demand on system. Normal use of water through bulk permits will be allowed, but use of fire hydrants for irrigation will not be allowed.

- In drought years, there are many uses of water that will change compared to use during average and above average water years. Following are some examples of these changes in that water usage:
    1. Use of water in Golden Ponds will gradually change from primarily piscatorial to supply. In a Level One drought, water levels in the west pond will be allowed to equalize with the middle pond, with use of that amount. In addition, if the level of Golden Ponds lowers, water will not normally be replaced in this facility until the drought ends.

2. Union Reservoir water levels will be lower than normal, resulting in lowered ability to conduct late season recreational activities on the reservoir.

- Division staff will develop plans for implementing Level Two policies in the event this level occurs. The Division will monitor drought response effectiveness, recommend adjustments, and report to public regularly. The Division will also continue training and assigning staff to monitor outdoor water use in the event that a Level Two drought is determined.

- Time of day watering restrictions, such as no unattended irrigation between the hours of 10:00 a.m. and 6:00 p.m., will be evaluated for practicality of implementation.

Level Two Drought Projection:
Upon determining a Level Two drought exists, Longmont may perform any or all of the following:

- Continue public information about the drought severity and enactment of increasing conservation efforts. Conservation efforts are outlined in the City of Longmont's Water Conservation Master Plan. The City will promote a public water conservation campaign emphasizing severely dry conditions. As part of the conservation strategies, the City has developed a conservation rebate program, which will provide rebates for purchase of low volume toilets to replace high volume toilets.

- Mandatory water conservation by service customers.
    1. Require all customers served by Longmont Water Utilities, including community garden users, to implement a minimum ten percent (10%) reduction in water use.
    2. Implement a formal mandatory watering program to be followed by customers.
    3. No additional water use through the potable system to replace water normally used through raw water, well water or other water supply scenarios.
    4. Irrigation class tap customers will be required to reduce demand by a minimum of 20%.

- Mandatory measures for raw water reduction in municipal and school use of water.
    1. Parks & Recreation water reductions at a level between 20% and 90% depending upon severity of drought and overall response to demand reductions. To the extent possible, the identified critical sports fields, trees and non-turf landscaped areas will continue to be irrigated with a 10% reduction in application of water.
    2. Golf course watering will be reduced between 20% and 90% depending upon severity of drought and overall response to demand reductions.
    3. School District irrigation water lease reduction at a level between 20% and 90% depending upon severity of drought and overall response to demand reductions.
    4. Saint Vrain Creek Corridor water lease eliminated to the extent that water is unable to be recaptured for use at the Water Treatment Plants.
    5. All other municipal water use will be reduced to the maximum extent possible (Building use, Fire dept. etc.).

- Raw water leases and bulk water sales.
    1. Surplus water rental eliminated.

2. Historic lease back of raw water reduced or eliminated.
3. No water leases are guaranteed during a Level Two drought (except by existing contracts). If leases are approved, the City may elect to increase the lease rate to recover investment costs and to discourage non-essential uses.
4. Bulk water permits will be reviewed for use and total demand on system. Normal use of water through bulk permits may be allowed, but use of fire hydrants for irrigation will not be allowed.

- Division staff shall develop plans for implementing Level Three policies, including mandatory water use reductions. The Division will monitor drought response effectiveness, recommend adjustments, and report to the public regularly.

- The Division will continue to train and assign staff in monitoring, issuing warnings and imposing penalties for water waste and violations of any permits and noncompliance with any water restrictions.

Level Three Drought Projection:
Upon determining a Level Three drought exists, Longmont may perform any or all of the following:

- Continue public information about the drought severity and enactment of mandatory conservation efforts. Conservation efforts are outlined in the City of Longmont's Water Conservation Master Plan. The City will promote a public water conservation campaign emphasizing critically dry conditions.

- Mandatory Water Conservation by Service Customers.
    1. Mandatory water use reduction equal to projected water supply availability deficit for all customers, including community gardens, served by the Longmont Water Utilities. Outdoor watering restrictions will be set based upon severity of drought. Restrictions will result in severely cutting back or completely eliminating watering based upon severity of the Level Three drought.
    2. Water rates to be adjusted to provide clear financial incentive to limit outside water use using the increasing block structure. Adjust water rates to maintain revenue during the drought as needed.
    3. Impose a moratorium on new water taps.
    4. No additional water use through the potable system to replace water normally used through raw water, well water or other water supply scenarios.
    5. Irrigation class tap customers will be required to reduce demand by a minimum of 90%, or possibly eliminated.

- Mandatory measures for raw water reduction in municipal and school use of water. All outdoor watering of public facilities may be eliminated depending upon the severity of the drought at this level.
    1. Parks & Recreation water reductions, resulting in a reduction of 90 % of use. Minimal watering of critical sports fields and parks will occur. The primary intent of Parks and Recreation watering will be to maintain economic investments in non-turf

landscaping, trees and municipal facilities. Field use will be restricted or eliminated to protect facilities as needed.

2. Golf course watering will be limited to greens and tees.
3. School District irrigation water lease eliminated.
4. Saint Vrain Creek Corridor water lease eliminated to the extent that water is unable to be recaptured for use at the Water Treatment Plants.
5. All other municipal water use will be reduced to the maximum extent possible (Building use, Fire dept. etc.).

- Raw water leases and bulk water sales.
    1. Surplus water rental eliminated.
    2. Historic lease back of raw water eliminated.
    3. Bulk water permits and sale of water through fire hydrants will not be allowed. Hydrant use for irrigation will not be allowed.

- Division staff will continue to further develop plans for responding to the drought. The Division will monitor drought response effectiveness, recommend adjustments, and report to public regularly. Division staff will continue to monitor and enforce watering restrictions as necessary.

Website Links:

City of Longmont Public Works & Natural Resources Department:
http://longmontcolorado.gov/departments/departments-n-z/water

Snow Survey Data:
https://www.nrcs.usda.gov/wps/portal/nrcs/detail/co/snow/?cid=nrcs144p2_063182

Reviewed by:

Longmont Water Board on April 19, 2021