

**RESOLUTION 08-2019**  
**Water Conservation Plan**  
**November 2019**

**BE IT HEREBY RESOLVED**, by the City Council of North Ogden City, State of Utah, as follows:

**WHEREAS**, North Ogden City has a Water Conservation Plan (in accordance with U.C.A. 73-10-32) that establishes conservation planning efforts identifying water supply inventory for both present and future water requirements and establishes implementation procedures;

**WHEREAS**, the City Engineer and Culinary Water Systems Superintendent have reviewed and recommend the adoption of the Water Conservation Plan,

**WHEREAS**, the City Council has reviewed the recommendation,

**WHEREAS**, a public hearing was held on November 12, 2019

**NOW THEREFORE BE IT RESOLVED**, North Ogden City hereby adopts the **Water Conservation Plan**, dated November 12, 2019 for the geographic City boundary. The plan was updated by Jones and Associates Consulting Engineers.

**PASSED AND ADOPTED** by the City Council of North on City on November 12, 2019

  
Mayor

ATTEST:

  
City Recorder, S. Annette Spendlove



North Ogden City Corporation

# Water Conservation Plan



October 2019



Updated By  
JONES & ASSOCIATES  
*Consulting Engineers*



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## SECTION I - SYSTEM PROFILE

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### SERVICE AREA

North Ogden City currently serves all areas within the City boundaries and plans to eventually serve the areas identified for future annexation (See Map 1). The current City boundary includes approximately 7.40 square miles. The proposed annexation boundary includes an additional 2.05 square miles.

North Ogden currently provides culinary water to approximately 17,430 people through 6,395 connections. This water is intended for indoor, sanitary, and commercial uses. Water for outdoor and landscaping needs is provided and managed by Pineview Water Systems and Mountain View Irrigation Inc.

Table 1.1 below lists each type of connection and the total number of each.

**Table 1.1 - Number of Connections**

Connection Type	Total
Residential / Domestic	6,252
Commercial	111
Institutional	22
Industrial	10
	<b>6,395</b>

### SUPPLY

North Ogden City obtains its water from four wells and four springs. The City does not contract with any outside agency for supplemental water. The City does not allow culinary water to be used for irrigation. Secondary or irrigation water is supplied and managed by Pineview Water Systems and Mountain View Irrigation and is not included as part of this Plan.

Table 1.2 below shows a breakdown of the current water sources, as of December 2018.

**Table 1.2 - Existing Water Sources**

Source	Volume (Acre-Feet)	Total (Acre-Feet)
Wells	604.1	604.1
Springs	1,182.2	1,182.2
		<b>1,786.3</b>

### STORAGE RESERVOIRS

The adopted storage level of service for the City is approximately 400 gallons per Equivalent Residential Unit (ERU). The City has six storage reservoirs in service that together can hold 5,500,000 gallons of

water (See Table 1.3). Per the North View Fire District Marshall, of this amount, 1,320,000 gallons has been designated as fire storage.

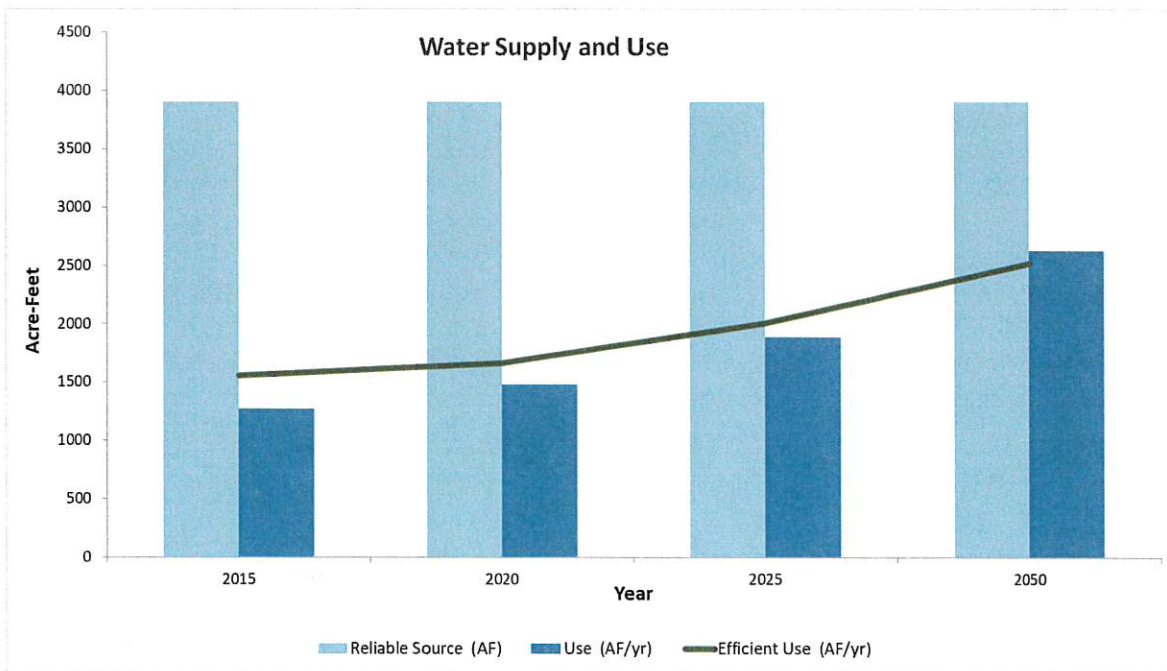
**Table 1.3 - Storage Reservoir Capacity**

Name	Capacity (gal)
Randall Reservoir	500,000
1050 East Reservoir	500,000
North Ogden Canyon	1,000,000
Rice Creek Reservoir	2,000,000
Northview Reservoir	500,000
The Cove Reservoir	1,000,000
<b>Total</b>	<b>5,500,000</b>
<b>Excluding Fire</b>	<b>4,180,000</b>

**WATER SUPPLY & USE**

As illustrated in graph 1.1 below, the City’s water supply verse projected use provides a sufficient amount of water through the year 2050.

**Graph 1.1 - Water Supply and Use**



## FUTURE WATER SOURCES & COST PROJECTION

The North Ogden City Capital Facilities Plan, completed in 2017, indicates that build-out could occur as early as 2037. The study also indicates that based on appropriated water rights, the City has an annual water supply of 3,905 acre-feet. This exceeds the projected annual water use, or needed supply, at build-out of 2,627 acre-feet. It is not anticipated that any additional water rights will need to be acquired. However, water rights in excess of the anticipated use are being held in reserve for unforeseen growth and source redundancy. This means that should a source need to be taken offline for any reason other sources will have the right to divert additional water to cover the deficiency.

## WATER MEASUREMENT & BILLING

**Meters:** All of the connections to the water system are metered and read monthly using the automated Master Meter System. Table 1.4 below shows the City’s current metered connections.

Table 1.4 – Metered Connections

Connection Type	Percentage of System	Reading Frequency	Replacement Schedule*
Residential	98%	Twice / Day	As Needed
Commercial	1.74%	Twice / Day	As Needed
Industrial	>1%	Twice / Day	As Needed
Institutional	>1%	Twice / Day	As Needed
Government	>1%	Twice / Day	As Needed

**New Development:** All new developments are required to follow Title 12, Subdivision Regulations, of the City Code. As part of the approval process, the City Engineer checks the available water resources against the current Capital Facilities Plan. If the water model indicates that the proposed subdivision can be served, then the subdivision is allowed to proceed through the approval process. Along with this, the Developer must obtain a “Will-Serve” letter from the secondary water provider for needed irrigation water.

During construction of the subdivision, City staff oversees and inspects the water system to ensure the installation meets City Standards. Contractors are required to check out temporary meters from the City to account for water used for construction activities.

## SYSTEM WATER LOSS CONTROL

As reported in the 2014 Water Conservation Report, there was an average yearly system loss of 34.3% between 2003 and 2013. Table 1.5 below shows the annual metered source, annual use, and percentage loss for the past five years. The average loss over the past five years is 34.66%. This is only slightly higher than the average reported over a ten year period (2003-2013).

Table 1.5 – Annual Information

Year	Population	Annual Source (AF)	Annual Use (AF)	% Difference
2014	18,000	1,998.2	1,340.3	32.93%
2015	20,000	2,022.4	1,267.9	37.31%
2016	20,300	1,806	1,195.8	33.79%
2017	20,500	1,994	1,244.4	37.59%
2018	17,430	1,776.3	1,213.6	31.68%

The City monitors the amount of water taken at each of its sources. The amount of water produced from year to year from the wells and springs will vary depending on groundwater and snowpack conditions. The largest discrepancy in the available source verse the source used can be contributed to leaks, tank overflows/spills, meter reading errors and software reporting problems.

Losses are controlled through the following means:

**SCADA System:** Each storage reservoir is equipped with a SCADA system that provides continual monitoring of water storage. In the event there are issues with the pressure or levels of water, the District’s designated employees are immediately alerted and able to quickly resolve the issue.

**Internal Audit:** The City audits their system three ways:

1. An internal audit of 1% of all connections is completed annually by City staff. Employees verify meters are properly functioning and replace those that are not.
2. A “zero consumption” meter report is created every other month. Each meter is investigated and replaced as needed.
3. The meter reading software sends a meter read report twice per day. When readings indicate higher than normal outflows, the staff investigates, notifies the customer, and, if needed, repairs the issue(s). This helps to decrease the amount of time between the potential leak being identified and being repaired by either the City or the customer.

**Meters on Hydrants / New Line Flushing:** The City meters all fire hydrant and new subdivision connection flushing. This helps to ensure the water is accounted for and the City is paid accordingly. If a contractor is found using a fire hydrant without a meter, the City considers this to be theft of service and imposes a fine.

## INCREASING RATE STRUCTURE

The following table outlines the current water rate schedule adopted by Resolution and effective on June 25, 2019. The base allotment each month is less than 1,000 gallons. For every 1,000 gallons used thereafter, an additional fee is assessed on a tiered schedule that increases in correlation with the use.

**Table 1.6 - Water Rate Schedule**

Connection	\$ Base Rate / Month	Allotment (Gal)	Additional Fee / 1,000 Gal
Resident (Single Family & Multi-Family Per Unit)	\$14.97	<1,000 gal	-
		1,000 – 6,000	\$1.62
		6,001 – 12,000	\$2.62
		12,001 – 18,000	\$3.62
		18,001 – 999,999	\$4.62
Non-Resident (Single Family & Multi-Family Per Unit)	\$23.62	<1,000 gal	-
		1,000 – 6,000	\$2.70
		6,001 – 12,000	\$3.70
		12,001 – 18,000	\$4.70
		18,001 – 999,999	\$5.70
Non-Residential	\$23.62	<1,000 gal	-
		1,000	1.62

### \*Additional Rates:

- Leak rate per 1,000 gallons (as approved by Water Department Manager) \$1.25
- Water Zone 7 per 1,000 gallons \$0.19
- Water Zones 8 – 10 per 1,000 gallons \$0.27



## WATER USE

### Potable Water

Table 1.7 below shows the potable water inflow verse the water outflow for each type of use from 2005 through 2018.

**Table 1.7 – Potable Water Use\***

Year	INFLOW	OUTFLOW					% Diff.
	Total (AF)	Res.	Com.	Ind.	Inst.	Total (AF)	
2005	2311.8	1174.17	56.22	0	8.83	1239.21	46.4%
2006	2186.4	1144.0	0.07	0	0.01	1144.08	47.7%
2007	1933.6	1214.0	7.74	0	12.60	1234.34	36.2%
2008	1990.9	1177.0	61.17	0	9.08	1248.25	37.3%
2009	1969.7	1136.49	69.08	0	14.44	1220.00	38.1%
2010	1838.2	1125.84	46.84	0	21.25	1193.92	35.0%
2011	1848.5	1177.54	76.97	0	8.55	1270.06	31.3%
2012	1748.4	1219.82	111.29	0	36.77	1367.87	21.8%
2013	1918.8	1279.04	106.16	0	11.50	1396.71	27.2%
2014	1998.2	1193.46	109.0	0	37.83	1340.29	32.93%
2015	2022.4	1138.91	107.43	0	21.58	1267.92	37.31%
2016	1806.0	1086.19	94.57	0	15.08	1195.84	33.79%
2017	1994.0	1088.08	99.61	3.22	23.47	1214.38	37.59%
2018	1776.3	1107.63	77.01	4.62	24.38	1213.64	31.68%

\*Information obtained from Utah Division of Water Rights Water Records/Use Information

This analysis shows an average loss (deficiency) of 35.31% per year in the distribution system between 2005 and 2018. Further analysis indicates; however, that between 2005 and 2013 the average loss was 35.67% and between 2014 and 2018 was 34.66%. The slight decrease indicates that recent loss prevention efforts, as stated in the section above, are making a positive impact towards conservation efforts. The goal of the City is to reduce losses even further as additional improvements are made to the water infrastructure.

### Non-potable Water

The City does not provide or monitor non-potable water (secondary) as this is provided through and monitored by the Pineview Water Systems and Mountain View Irrigation Inc. Using culinary water for irrigation is prohibited, per City Code - Title 9, Secondary Water Systems.

## USE - GALLONS PER CAPITA PER DAY

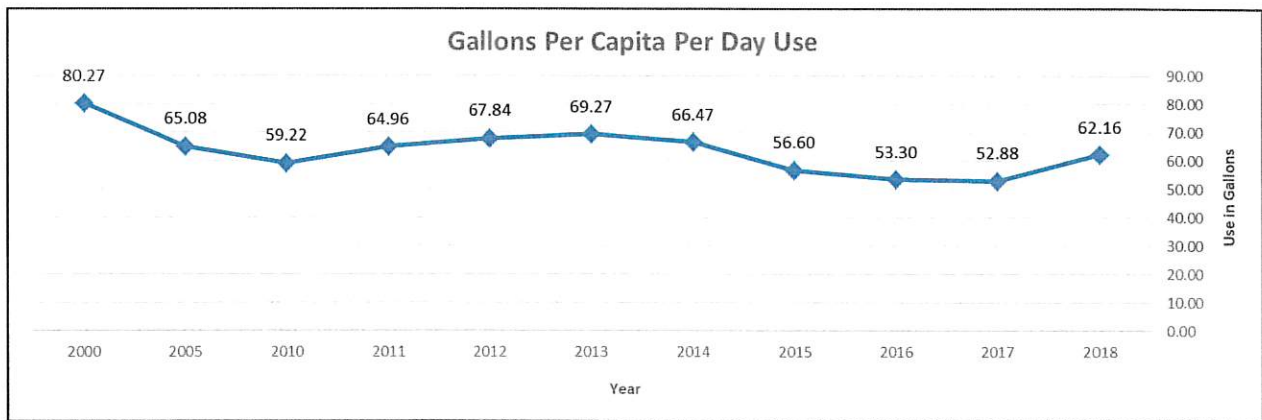
Table 1.8 below illustrates the gallons per capita per day by type of connection for 2018. The City does not provide or measure secondary water, this is done independently through the Pineview Water Systems and Mountain View Irrigation Inc. All City connections must utilize secondary water for outdoor use.

**Table 1.8 – 2018 GPCD by Use Type**

	Indoor (Winter Use)	Potable (Outdoor)*	Non-Potable (Secondary)*	Total
<b>Residential</b>	50.71	NA	NA	50.71
<b>Commercial</b>	60.61	NA	NA	60.61
<b>Institutional</b>	126.94	NA	NA	126.94
<b>Industrial</b>	129.94	NA	NA	126.94
<b>Total</b>	365.20	-	-	365.20

Graph 1.2 below illustrates the Gallons per Capita Per Day Use trend, indicating an overall decrease in water use and increase in conservation.

**Graph 1.2 – Gallons Per Capita Per Day**



## SECTION 2 – CONSERVATION PRACTICES

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### CURRENT CONSERVATION

North Ogden City places a high value on the conservation of water and is already practicing the following:

- The City is continuing to replace all water meters with radio-read meters. To date, approximately 80% of the City has been replaced, with the remaining slated to be replaced in Spring 2020. The new meters allow the City to obtain readings twice per day and detect possible leaks on each service as well as obtain accurate data for the water budget.
  - City employees monitor the water use daily and meters are read monthly. When excessive use is detected, the owner of the connection is notified through an informational door hanger. The City then works directly with the user to identify the issue(s) so that it can be repaired in a timely manner.
  - “Zero Consumption” readings are investigated every other month and faulty meters are replaced where necessary.
- Each year, the City audits 1% of all meters to ensure proper function and replaces them as needed.
- The City provides water conservation education and public outreach through:
  - Providing conservation tips on City’s Facebook page.
  - Utilizing the “My Water Advisor App” and encouraging all users to download and utilize it as a tool to track water consumption, receive real time notifications and alerts, and obtain consumption forecasts.
  - Providing a copy of the Annual Consumer Confidence Report with a utility bill.
- The City maintains memberships in supporting organizations such as American Water Works Association, Water Environment Federation and The Rural Water Association that educate our personnel and keep up to date on source protection, public education and current regulations.
- The City requires the use of secondary water for all outdoor uses.
- The current water pricing and billing system was updated and adopted by resolution in July 2019. The new pricing and billing is adequate to cover expenses in the water enterprise account and is tiered so as to discourage excessive water use. The City may consider additional water pricing and billing system updates as needed.
- The City continues to complete infrastructure projects identified in the Capital Improvement Plan.

## CONTACT

The following individuals are responsible for meeting efficiency goals:

### **Mayor & City Council**

505 East 2600 North  
North Ogden, UT 84414  
[cmm@nogden.org](mailto:cmm@nogden.org)

### **Public Works Director, David Espinoza**

165 East Lomond View Drive  
North Ogden, UT 84414  
[despinoza@nogden.org](mailto:despinoza@nogden.org)

### **Culinary Water Superintendent, Jason Reney**

165 East Lomond View Drive  
North Ogden, UT 84414  
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## EVALUATION OF EXISTING CONSERVATION EFFORTS

In the 2014 Water Conservation Plan, the City established four goals based upon the issues identified. The goals and status of each are provided below:

**Goal 1 – Education.** Continue to provide information and education regularly in newsletters. Participate in educational programs provided through the school district.

***Status: This is an ongoing goal. The City will continue to participate in educational programs with the school district.***

**Goal 2 – Add Meters to Unmetered Connections.** The City has added a meter to Green Acres park this last spring. The City will continue to plan for and install meters at Oaklawn Park and the shop building connections.

***Status: The goal is complete – all previously unmetered connections now have meters.***

**Goal 3 – Meter Reading System Update.** The city is in the process of updating the radio read meter system to a fixed base monitoring system over the next few years. This will correct the zero usage errors currently plaguing the system. Additionally the fixed base monitoring system will allow for instantaneous meter reading and data collection. Currently meter usage data is collected monthly. The new system will make it possible to see up to the minute usage. It will also give the city the ability to detect continuous flow meters which are indicative of leaks. These can even be reported to city personnel by notification/alarm so the city can follow up with residents to detect leaks earlier and conserve water.

***Status: The City is in the final year of the meter system update. The system has been successful for both reading the meters as the City employee drives past the home as well as***

*through fixed base communication. The remaining meters will be replaced Spring 2020.*

**Goal 4 – Weekly Meter Reading Audit.** Perform weekly read audits to compare water use and check for leaks. This will be possible once the fixed base monitoring system is installed.

*Status: This goal has been achieved and exceeded. The City performs a daily audit and is able to make contact within days of a leak happening. In addition to this, any meter that is registering as zero consumption is investigated and the meter repaired or replaced so accurate consumption can be captured.*

## **NEW BEST MANAGEMENT PRACTICES & IMPLEMENTATION PLAN**

In addition to continuing existing practices and implementing the Capital Facilities Plan, the City plans to also:

**Goal 1 – Education.** The City recognizes the importance of starting water conservation education early and the influence that children can have on their parents/guardians. Over the next five years, the City will annually teach three local elementary classes (fourth and fifth graders) about the water cycle and conservation.

**Goal 2 – Public Awareness, Incentives & Campaigns.** Over the next five years, the City will implement water conservation campaigns related to leaking/running toilets. Users will receive a free toilet repair flapper for flush valve for signing up for both paperless billing and the Meter Reading App. To increase awareness of this campaign, the City will hold contests for the ugliest toilet and biggest flushing toilet with the grand prize winner receiving a new toilet.

**Goal 3 – Reduce Water Use.** Over the next five years, the City will reduce overall water deficiency by 5%, bringing the average water loss down to 29.66%.

1. Install outlet meters on reservoir sites and overflow to better account for water use.
2. Reduce governmental water use at City building and parks by 5%.
3. Install remaining water meters and continue to read meters daily.

## PUBLIC INFORMATION, EDUCATION, & PROGRAMS

The City recognizes that conservation requires active participation from all users. To increase participation, the City utilizes a water tracking app; has a booth at the annual Cherry Days events; posts information on social media, the City's website, and through City newsletters; and works to educate high-use consumers individually.

**My Water Advisor App:** This free app is available to all consumers to track their water consumption wherever they are. The app features detailed consumption graphs, leak alerts, real time notifications, and consumption forecasts. Download is available from both the Apple and Google Play stores. Version 2.0 will be available early 2020.

**Cherry Days Booth:** In July of each year, the City holds its annual Cherry Days celebration. As part of the festival in the park event, the Public Works Department sets up a booth about Water Conservation.

**Social Media, Website, & Newsletters:** Throughout the year, the City posts conservation tips on the City's Facebook page and in City newsletters. The City's website has a page dedicated to water conservation and provides tips and checklists for consumers to download and print.

<https://www.northogdencity.com/publicworks/page/culinary>



## ORDINANCES & STANDARDS IN PLACE

The following ordinances and standards have been adopted and are currently in place:

- Water Shortage Plan, 2014
- Public Work Standards, 2017
- City Code, Title 12 Subdivision Regulations

