

Tonopah Public Utilities (PWS NV000237)

**Water Conservation Plan
Update**

December 2019

140 S. Main Street
P.O. Box 151
Tonopah, Nevada 89049-0151
(775) 482-6643

<u>Table of Contents</u>	<u>Page</u>
Overview.....	1
Background/System Information.....	1
Physical Setting	1
Climate.....	2
Water Resources and Allotment	2
Wellhead Protection.....	2
Existing Water Utility System	2
Conservation.....	3
Water Management	4
Re-use of Effluent Water	4
Calculated Percentage of Loss.....	5
Drought Response Plan.....	5
Conservation Estimates	7
Educational Materials.....	8
Public Notice	8
Appendix A – Water Rights Information	
Figure 1 – Town Growth Areas	
Figure 2 – Tonopah Water System – North	
Figure 3 – Tonopah Water System – South	
Figure 4 – Tonopah Airport Water System	

Overview

The Tonopah Town Board approved the Tonopah Public Utilities Water Conservation Plan Update on July 8, 2020 after it was submitted to and approved by the Division of Water Resources (DWR) on June 25, 2020 pursuant to Nevada Revised Statute (NRS) 540.11. Pursuant to NRS 540.134.4(c) the Water Conservation Plan must be updated every 5 years. This Plan updates the plan approved in 2014 with the next planned update scheduled for 2024.

The purpose of this Plan is to document current conservation efforts and provide a strategy for future water saving measures and incentives. This Plan is mandated by NRS 540.131 and is compliant with NRS 540.121 through 540.151. The Water Conservation Plan will be posted on the Town web page <http://tonopahnevada.com> and copies are also available at the Town offices at 140 S. Main Street, Tonopah, NV 89049.

Background/System Information

The Tonopah Public Water System (PWS NV000237), owned and operated by Tonopah Public Utilities, serves customers within Tonopah and surrounding areas located within Nye and Esmeralda Counties. The existing service area in the Town of Tonopah is approximately six square miles. The complete service area including the Tonopah Airport, well field and transmission line is approximately 32 square miles. The terrain within the service area is mountainous. The estimated population served (in 2019) is 2259. All residential customers are metered, approximately 950. The approximately 228 commercial services are all metered. Residential and commercial customers are billed on a flat fee rate plus a per 1,000 gallon rate. The anticipated growth for the complete service area has been estimated on Figure 1.

The day to day operations of the system are overseen by the Utility Manager. Tonopah Public Utilities has four (4) other full-time employees in the field. The system requirements for operations is Grade 3.

Physical Setting

The Town of Tonopah is located approximately 211 miles northwest of Las Vegas and 231 miles southeast of Reno. The system is located in the Big Smoky Valley (Basin 137A) and Ralston Valley (Basin 141). Please see Appendix A which details Tonopah Public Utilities' water rights information. The entire water system (Town and Airport) is fed by ten (10) groundwater wells using submersible motors (Four (4) wells are currently off line and inactive). The existing water system (Town and Airport) currently utilizes nine (9) storage tanks totaling 4.105 million gallons. Full-time disinfection is in place. The Distribution system currently has five (5) pressure zones each controlled with Pressure Reducing Valves throughout Town.

A Sanitary Survey is completed every 3 years with the last one completed on November 14, 2019.

The original Water Conservation Plan for the system was developed in 1992 and last reviewed in 2014.

Climate

The Town of Tonopah has an arid, cold desert climate with cool winters and hot summers. There are an average of 38 days annually with measurable precipitation with an average annual precipitation of 5.14 inches. Average temperatures: summer 89 degrees; winter 46 degrees; and an average diurnal temperature variation of about 30 degrees.

Water Resources and Allotment

All water supplying the Town of Tonopah is derived from groundwater from the Ralston Valley Hydrographic Basin (Basin 141). The Town currently has a permitted duty with the State Engineer of approximately 4,122 acre feet with a permitted diversion of 8,500 GPM. Tonopah Public Utilities currently pumps water from two different areas characterized as the lower well field which consists of Wells 1 through 8 and the upper well field consisting of Wells 9 and 10.

Wellhead Protection

The Town of Tonopah Wellhead Protection Program was adopted by the Tonopah Town Board in May 2005 (2005 WHPP). The purpose of the 2005 WHPP is to provide a framework for the long term protection of the groundwater that flows to the Town's wells and thus the public drinking water supply. The plan is available for review at the Tonopah Public Utilities office.

Existing Water Utility System

The Town of Tonopah/Tonopah Public Utilities adopted a Water Master Plan in January 2015 (2015 WMP) which identified existing and projected water customers and corresponding water use, the condition and capacity of the existing water system and recommended improvements. The 2015 WMP is available for review at the Tonopah Public Utilities office.

The Town water system currently serves two separate areas via three very long transmission lines that include the Town of Tonopah and the Tonopah Airport. The locations of these overall facilities are generally illustrated in Figure 2, 3 and 4. The entire water system is fed by 10 groundwater wells referred to as Wells 1-10. Wells 1-4 are currently off line.

The Town water system consists of nine Hydraulic Pressure Zones that include three booster pumping stations, seven storage tanks, eight downstream pressure regulating stations, a transmission and distribution system as well as appurtenances such as service meters, main line flow meters, upstream pressure relief valves and fire hydrants.

The Airport water system consists of two Hydraulic Pressure Zones, one booster pumping station, three storage tanks, a transmission and distribution system, one downstream pressure regulating station as well as appurtenances such as service meters, main line flow meters, valves and fire hydrants.

The 2015 WMP identified that the historical annual average day usage varied over a 9 year period (2004-2013) from 459 GPD/customer to 479 GPD/customer and averaged 469 gallons per day per customer. Customer and system usage history is contained in the 2015 WMP.

Conservation

Conservation incentives are measures that increase awareness and encourage conservation. TPU has long supported water conservation practices due to the desert environment.

- Nye County has adopted Tonopah Town Ordinance 22.28 – Water, Sewer, and Reclaimed Water Regulations which can be viewed at www.tonopahnevada.com/tonopah-public-utilities. The Ordinance applies to structures which are renovated as well as all new construction. Copies of the Ordinance are furnished to local suppliers and contractors.
- Encouraging reduction in lawn sizes and use of arid and semiarid plants by implementing a buy-back incentive program that provides the customer a one-time rebate of \$.50/square foot of lawn space that is removed and replaced with desert landscape.
- All meters 8" and larger are tested annually, and replaced if under-registering by more than 5%.
- All residential meters are tested every ten years, and replaced if under-registering by more than 5%. All residential meters have recently been replaced as part of the Tonopah Public Utilities Flowmeter Replacement, Furnish and Install Project (PWP NY2018-304).
- The plumbing code, which specifies low-flow fixtures, is required.
- Tonopah Town Ordinance 22.28 Water, Sewer, and Reclaimed Water Regulations includes a provision that water service can be shut off for wasting water. This is enforced by visual inspection for runoff, following-up on citizen reports, and review of use at metered services. Typically, a verbal or written warning is issued, followed by a shut-off when cooperation is not forthcoming.
- All commercial customers are metered and pay a metered water rate charge based on usage.
- A residential metering program has been in place for over thirty (30) years. These meters are read monthly.

- Tonopah Public Utilities estimates an additional 5% water savings with the low flow fixtures, meter checkups, meter replacements and informational handouts for new accounts. This savings would equate to a savings of 9.5 gallons per person per day.

Evaluation Estimates

An audit comparing water production with metered amounts will be performed prior to the implementation of measures/incentives. Additional audits will then be done every year thereafter. Results from the initial audit will be compared with those of the subsequent annual audits in order to determine the effectiveness of the measures/incentives.

As a plan element is activated (e.g. mailing literature or declaring a drought stage), production figures will be compared to same-month historical data to estimate the plan element's effectiveness. This information will be utilized as a basis for any future water conservation plan revision and plan elements.

Usage amounts measured will include summer use, average use per connection, and per capita use. If there is a decrease in usage as a result of a particular measure/incentive, that measure/incentive can be expanded or improved upon, if possible. If it is discovered that a particular measure/incentive is ineffective, it will be discontinued and a new one can then be implemented to take its place.

In addition to changes resulting from audits, updates, and modifications to conservation measures/incentives there will be changes made to meet changing conditions (e.g. customer growth and demand, changing use, new technologies, etc).

Plan to identify and reduce leakage

- The Tonopah Public Utilities has in place a capital improvement plan to replace distribution lines at the anticipated life-cycle end.
- Tonopah Public Utilities audits production vs. sales on a monthly basis to determine the amount of unaccounted water and infrastructure leakage index. Tonopah Public Utilities also compares current to historical same-month production. When production increases unexpectedly, a leak survey is initiated.
- It is our written policy to repair leaks in a timely manner. All large leaks are repaired immediately and small leaks (less than 1 gallon per minute) within 72 hours after proper marking via 811 Call Before You Dig.

Public Awareness

The Tonopah Public Utilities efforts to enhance public awareness of the need to conserve water include the following:

- New customers are provided with literature on conservation when they open a water service account.
- Periodically, educational literature is placed on water bills, or displayed on the Town's message board. Educational materials are also available at Tonopah Public Utilities office.

Lawn sizes and use of arid and semiarid plants

Town owned areas, Residential area and Commercial area customers are encouraged to promote the use of drip irrigation and climate-appropriate plant materials.

Water Management

Tonopah Public Utilities monitors and records water levels at all well and storage tank sites utilizing a SCADA system. Low levels trigger an alarm to the water operator.

Tonopah Public Utilities actively monitors unaccounted-for water losses. Production versus sales and authorized usage allows the determination of unaccounted for water losses. Current-to-historical comparisons are examined and evaluation methods are examined to locate leaks, if significant differences are found.

Tonopah Public Utilities maintains a leak detection program by responding to customer observations, monitoring SCADA on a daily basis, monitoring changes in customer usage, and using water leak detection listening devices when there is an area of concern,

All large leaks are repaired immediately and small leaks are repaired after 72 hour wait mandated by 811 is completed.

The policy of Tonopah Public Utilities with respect to meter calibration checks is as follows:

Residential meters, 5/8 and 3/4 inch: A sample of 2% of the meters is checked against small portable tank filling using a volume of not less than twenty-five gallons. The meters selected are representative of the age and condition of meters system wide. The accuracy is tracked and used to adjust asset condition in the system's Fiscal Sustainability Plan and subsequent Capital Improvement Plan.

Commercial Meters, 1-inch and 1.5 inch are sent out to a calibration service every three years with a new or freshly calibrated meter being installed at each interval. Off-spec meters are repaired before being placed back into inventory.

Commercial Meters, 2 inch and larger are sent out to a calibration service every two years with a new or freshly calibrated meter being installed at each interval. In some instances a portable magnetic or ultrasonic meter may be used to conduct an in-situ calibration check instead of removing the meter. Off-spec meters are repaired within three months of discovery.

A capital improvement plan is in place, is currently being funded through rates, and there are plans to replace distribution lines at their anticipated useful life. Lines that historically require an above average number of repairs will be prioritized for earlier replacement. This plan also includes replacement of meters as needed.

The Tonopah Public Utilities distribution system currently has five (5) pressure zones, pressure isolated by pressure reducing control valves. The system design is such that water pressure is in the range of 50 to 80 pounds per square inch throughout the system.

Reuse of Effluent Water

Treated wastewater, otherwise known as effluent, is typically discharged from the wastewater treatment plant into the ground via a series of infiltration basins. A small component of the effluent undergoes additional physical and chemical treatment consisting of finer screening and disinfection, producing reclaimed water for reuse. The reclaimed water is of sufficient quality to be safely used for construction purposes that includes dust control, soil compaction and flushing wastewater collection lines. The reclaimed water is delivered to Users at a Truck Fill Station located south of the Cemetery. The Truck Fill Station consists of a cardlock facility, a truck fill stand-pipe and a catch basin. Wastewater collected from the area is treated at the Tonopah Public Utilities' treatment facility located west of Town. In the easterly section of Town there are individual septic systems within the utilities service area. The effluent flows from the treatment facility into eight (8) rapid infiltration basins. A small component of the effluent undergoes additional physical and chemical treatment consisting of finer screening and disinfection at the Reclaimed Water facility. The use of reclaimed water is a water conservation measure in that it eliminates the need to use potable water for that same use. This reclaimed water is of sufficient quality to be safely used for construction purposes that includes dust control, soil compaction and flushing wastewater collection lines. Reclaimed water is delivered to Users at a Truck Fill Station located south of the Cemetery. The Truck Fill Station consists of a cardlock facility, a truck fill stand-pipe and a catch basin.

Calculated Percentage of Loss

TPU produced 174,286,601 million gallons in 2019 and sold 128,620,560 million gallons in the same year. The percentage of annual water loss is 36%. The last calculated percentage of water loss was 41% in 2018.

TPU hopes to improve the current annual water loss within the next five years by 5% each year with a goal to bring our annual water loss to about 10%. TPU intends to reach that goal by increasing the amount of hydrant meters used by construction companies, in lieu of water load counting, to get a more accurate count of their water usage. TPU has recently completed a meter replacement program that replaced all active residential and commercial meters that were upwards of 40 years old. The expectation is that water usage will be more accurately captured going forward. TPU has also made a change in the meter read program to read well meters on the same day as meter route is read.

Drought Response Plan

Nevada is an arid state and the Town of Tonopah is continuing to grow and water requirements are increasing. The area is subject to drought cycles; therefore, it is necessary to have a drought contingency plan. The objective of this plan is to manage the available resources to insure a continued supply of potable water during periods of drought. Tonopah Public Utilities monitors water levels continuously by utilizing the SCADA system. Well levels are physically monitored quarterly with a water level meter and all results are reported to the State Engineer.

In the event a water scarcity condition exists or is likely to exist, Tonopah Public Utilities shall proclaim the existence of a drought or emergency condition. Tonopah Public Utilities shall also declare water use restrictions appropriate for the proclaimed drought or emergency stage within the service area, each described as follows:

Stages 1, 2, 3 and 4 shall correspond to the U.S. Drought Monitor (www.droughtmonitor.unl.edu) intensity categories D1 – Moderate Drought, D2 – Severe Drought, D3 – Extreme Drought, and D4 – Exceptional Drought respectively.

Stage 1 – Warning Stage (U.S. Drought Monitor Intensity D1-Moderate)

In Stage 1, the warning stage, Tonopah Public Utilities would increase monitoring of its water supplies and would begin creating public awareness of the water supply situation and the need to conserve.

1. Water from Tonopah Public Utilities water system allowed to pool, pond, or run-off of applied areas is considered a waste of water and as such is not permitted.
2. Leaks occurring on the customer side of each meter in the water system are considered a waste of water and as such are not permitted.
3. Water from Tonopah Public Utilities water system which runs down the street due to excessive watering or poorly maintained sprinklers is considered a waste of water and as such, is not permitted. If a sprinkler system is broken and left on for more than two (2) hours, the water will be shut off by the Tonopah Public Utilities until it is fixed.
4. During Stage 1, warning stage, lawn watering, including landscaping and the watering of a garden, will NOT be permitted between the hours of 11:00 am and 5:00 pm.

Stage 2 – Alert (U.S. Drought Monitor Intensity D2-Severe)

Stage 2, the alert stage, shall include restrictions listed in Stage 1, as well as:

1. No hard surfaces including sidewalks, driveways, parking areas or decks may be washed or hosed down with water supplied through Tonopah Public Utilities potable water system unless required by health and safety requirements.
2. No washing of vehicles with hoses is permitted with Tonopah Public Utilities water supplied through Tonopah Public Utilities potable water system, except with hoses equipped with automatic shut off device or at facilities designated on Tonopah Public Utilities billing records as a commercial vehicle wash.
3. Water used for watering vegetation, including lawns, landscaping, and gardens shall be limited as follows:
 - a. Residences with even numbered addresses: as identified by Nye County Planning, Wednesday & Saturday.
 - b. Residences with odd numbered addresses: as identified by Nye County Planning. Tuesday & Sunday.
 - c. Commercial and Industrial Customers, as identified by Tonopah Public Utilities, Tuesday & Friday.
 - d. All watering of lawns, landscaping, and gardens is prohibited between the hours of 11:00 am and 5:00 pm
4. No use of water for decorative purpose shall be permitted.

Stage 3 – Emergency (U.S. Drought Monitor Intensity D3 – Extreme)

Stage 3, the emergency stage, shall include restrictions listed in Stage 1 and Stage 2, as well as:

1. Water from Tonopah Public Utilities' potable water system used for general construction or maintenance activities, including dust control, compaction and concrete curing, shall be considered a waste of water and as such is not permitted.

Stage 4 (U.S. Drought Monitor Intensity D4 – Exceptional)

Stage 4 shall include restrictions listed in Stage 1, 2, 3, as well as:

1. Water from Tonopah Public Utilities water system allowed to pool, pond, or run-off of applied areas is considered a waste of water and as such is not permitted.
2. Leaks occurring on the customer side of each meter in Tonopah Public Utilities water system are considered a waste of water and as such are not permitted.

3. No hard surfaces including sidewalks, driveways, parking areas or decks may be washed or hosed down with water supplied through Tonopah Public Utilities potable water system unless required by health and safety requirements.
4. No washing of vehicles with hoses is permitted with Tonopah Public Utilities water supplied through Tonopah Public Utilities potable water system, except with hoses equipped with automatic shut off device or at facilities designated on Tonopah Public Utilities billing records as a commercial vehicle wash.
5. Water used for watering vegetation, including lawns, landscaping, and gardens shall be limited as follows:
 - a. No watering from November through February;
 - b. Watering will only be allowed one day per week during March, April and May.
 - c. Watering will be allowed two days per week from June 1st through August 15th:
 1. Residences with even numbered addresses: as identified by Nye County Planning, Wednesday & Saturday.
 2. Residences with odd numbered addresses: as identified by Nye County Planning, Tuesday & Sunday.
 3. Commercial and Industrial Customers, as identified by Tonopah Public Utilities, Tuesday & Friday.
 - d. One day per week August 16th through October;
 - e. All watering of lawns, landscaping, and gardens is prohibited between the hours of 11:00 am and 5:00 pm
6. No use of water for decorative purpose is permitted.
7. Water from Tonopah Public Utilities' potable water system used for general construction or maintenance activities, including dust control, compaction and concrete curing, is considered a waste of water and as such is not permitted.
8. During a Stage 4 Drought or Emergency, the planting or installing of new lawns shall be prohibited from June through September.

Conservation Estimates

During the Stage 1 phase of the conservation plan, it is estimated that conservation measures could be expected to provide a 5-10% reduction in water consumption.

During the Stage 2 phase of the conservation plan, it is estimated that conservation measures could be expected to provide a 10-15% reduction in water consumption.

During the Stage 3 phase of the conservation plan, it is estimated that conservation measures could be expected to provide a 15-20% reduction in water consumption.

During the Stage 4 phase of the conservation plan, it is estimated that conservation measures could be expected to provide a 20-30% reduction in water consumption.

Educational Materials to Promote Conservation

Landscape guides are useful to water customers who need information regarding water friendly landscapes. There are excellent landscape guides available online which are well suited to the Tonopah area.

One guide created by Truckee Meadows Water Authority (TMWA), can be found at: http://www.tmwalandscapguide.com/landscape_guide/interactive/incex.php.

Further information can be found on the following sites:

Water

<http://www.awwa.org/>

<http://www.unce.unr.edu/>

Drought

<http://drought.unl.edu/>

http://www.usda.gov/wps/portal/usda/usdahome?navid=DISASTER_ASSISTANCE

Landscape

<http://www.usda.gov/wps/portal/usda/usdahome>

http://www.tmwalandscapguide.com/landscape_guide/interactive/index.php

<http://www.unce.unr.edu/publications/files/nr/2006/eb0601.pdf>

Education

www.wateruseitwisely.com

www.washoeet.dri.edu/

<http://environment.nationalgeographic.com/environment/freshwater/water-conservationtips/>

<http://water.epa.gov/polwaste/nps/chap3.cfm>

Institutional

www.lvvwd.com

www.snwa.com

<http://www.washoecounty.us/water>

<http://tmwa.com/>

<http://phoenix.gov/waterservices/index.html>

<http://www.water.ca.gov/>

Public Notice

As required by NRS 540.131, the updated Water Conservation Plan was presented to the Tonopah Town Board at their July 22, 2020 meeting and was approved unanimously.

Appendix A
Tonopah Public Utilities Water Rights Information

Permit/ Application No.	Status	Cert. No.	Priority Date	Source	Basin No.	USE	Acre Feet Annually	Owner
45148	Certificated	12818	29256	Underground	141	Municipal	110.48	Tonopah Public Utilities
45149	Certificated	12819	15970	Underground	141	Municipal	136.72	Tonopah Public Utilities
45150	Certificated	12820	29256	Underground	141	Municipal	139.91	Tonopah Public Utilities
45151	Certificated	12821	15970	Underground	141	Municipal	359.37	Tonopah Public Utilities
45221	Certificated	12822	6862	Underground	141	Municipal	83.5	Tonopah Public Utilities
54929	Permit		33030	Underground	141	Municipal	723.95	Tonopah Public Utilities
81425	Permit		37508	Underground	141	Q/M	856	Tonopah Public Utilities
81426	Permit		37508	Underground	141	Q/M	856	Tonopah Public Utilities
81427	Permit		37508	Underground	141	Q/M	856	Tonopah Public Utilities
81428	Permit		37508	Underground	141	Municipal	856	Tonopah Public Utilities

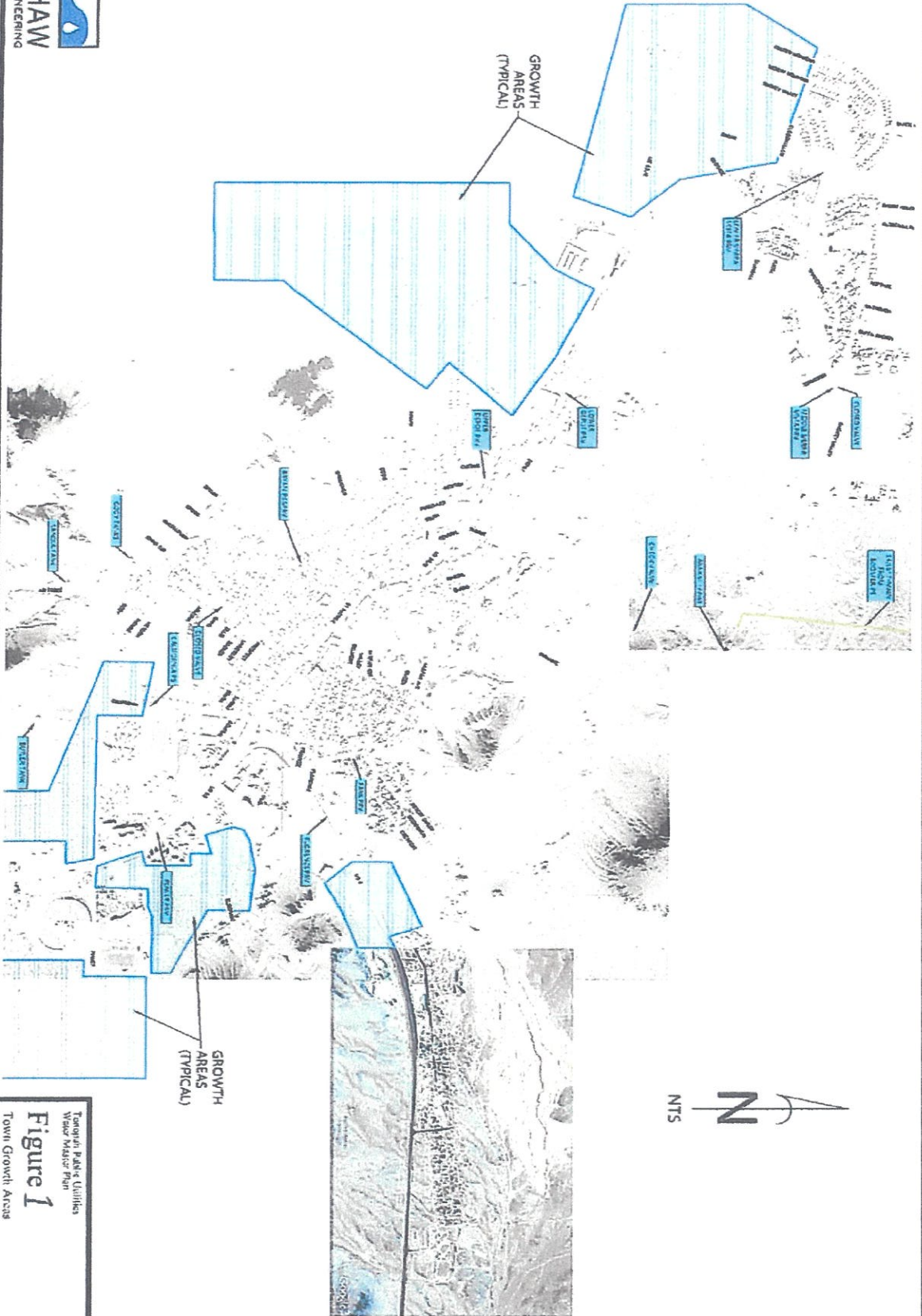
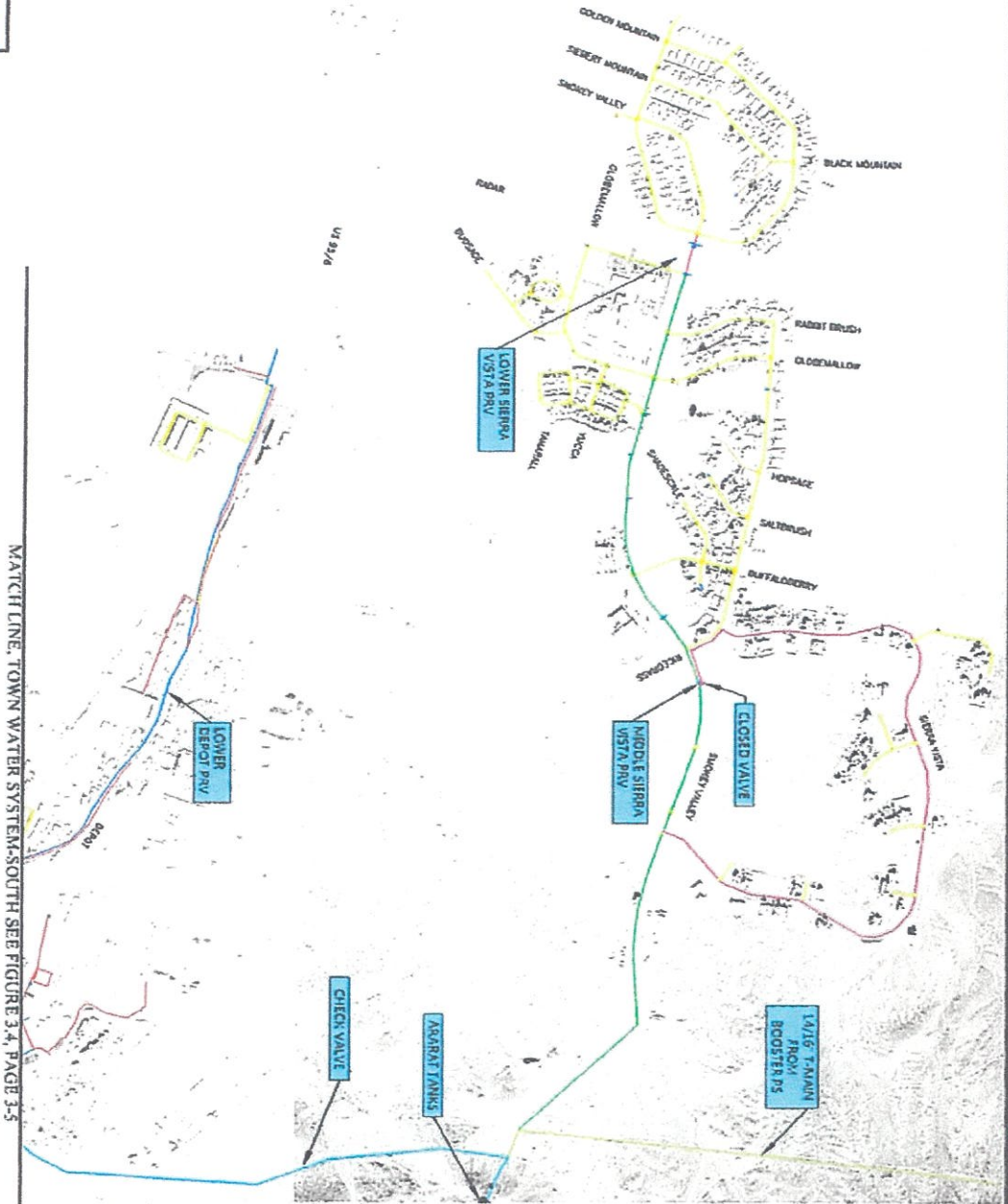


Figure 1
Town Growth Areas



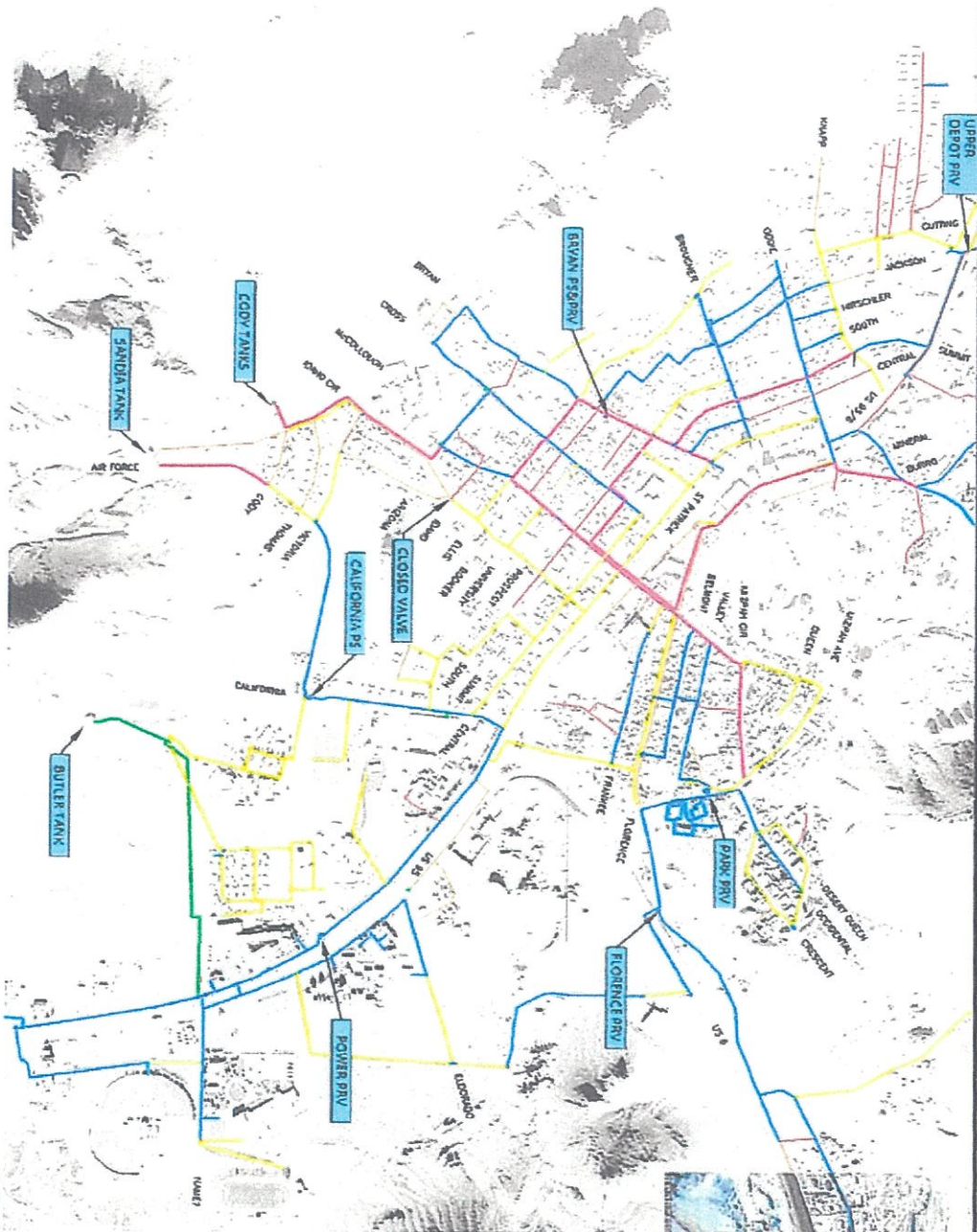
EXISTING PIPE LEGEND	
16"	Blue line
14"	Green line
12"	Yellow line
10"	Red line
8"	Orange line
6"	Light blue line
4"	Light green line
2" OR 3"	Light yellow line



MATCH LINE, TOWN WATER SYSTEM-SOUTH SEE FIGURE 3.4, PAGE 3-5

Figure 2
Tropical Pacific Utilities
Water Master Plan
Town Water System-North

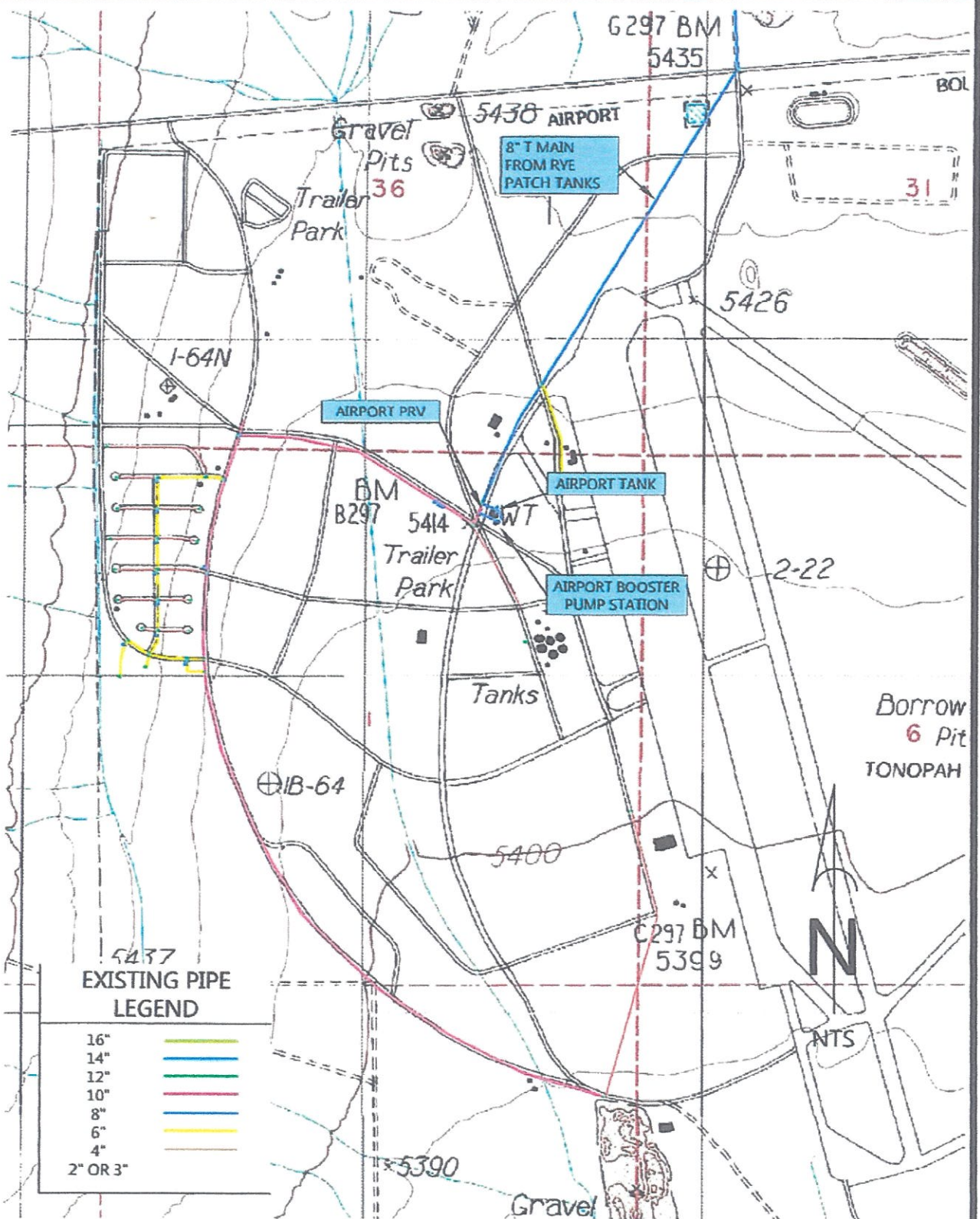
January, 2015



EXISTING PIPE LEGEND	
1.6"	Blue
1.4"	Green
1.2"	Yellow
1.0"	Red
8"	Orange
6"	Purple
4"	Light Blue
2" OR 3"	Dark Blue



Tucson Public Utilities
Water Master Plan
Figure 3
Town Water System-South
January, 2015



SHAW
ENGINEERING

Tonopah Public Utilities
Water Master Plan

January, 2015

Figure 4

Airport Water System

STEVE SISOLAK
Governor

STATE OF NEVADA

BRADLEY CROWELL
Director

TIM WILSON, P.E.
State Engineer



DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF WATER RESOURCES

901 South Stewart Street, Suite 2002

Carson City, Nevada 89701-5250

(775) 684-2800 • Fax (775) 684-2811

June 25, 2020

Tonopah Public Utilities
140 S. Main Street
Tonopah, Nevada 89049-01151

Re: Approval of Water Conservation Plan for Tonopah Public Utilities

Ladies and Gentlemen,

Thank you for your submittal of the Tonopah Public Utilities Water Conservation Plan, originally received by the Nevada Division of Water Resources on February 11th, 2020, with a revised copy received on June 24th, 2020, and subsequently approved on June 24th, 2020. The plan contains all the necessary statutory elements required under Nevada Revised Statute (NRS) 540.131 through 540.151. Your next update to the water conservation plan will be due five years from the date of this correspondence, as required by NRS 540.131(4)(c).

Thank you for your cooperation and water conservation efforts. If you have any questions, please contact me by e-mail at wboyer@water.nv.gov.

Sincerely,

A handwritten signature in cursive script, appearing to read "Will Boyer".

Will Boyer
NDWR Water Planning Section

WB/lb

cc: Bunny Bishop, email
Nicole Goehring, email
Will Boyer, email