

THE TOWN OF MANILA
CULINARY WATER
CONSERVATION PLAN
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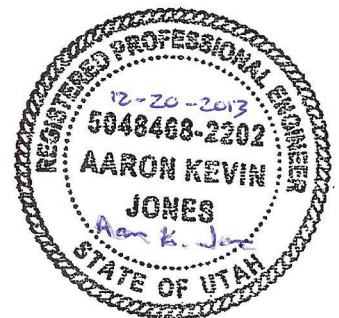


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1.0 INTRODUCTION

In response to the rapid growth the state of Utah has seen statewide in the recent past, and with the influx of tourists in the summer months, citizens and leaders of Town of Manila are concerned about the future cost and/or availability of a finite supply of water. Similar concerns have been demonstrated by the state legislature as shown by the Water Conservation Plan Act (House Bill 418) passed in the 1998 session and its revision (House Bill 153) passed in the 1999 session. This document constitutes the water conservation plan for the Manila water system. It is intended to address the concerns of both the Town of Manila and the State of Utah while being in compliance with the State of Utah Water Conservation Plan Act.

2.0 BACKGROUND INFORMATION

The Town of Manila is located along the northern edge of Daggett County, just south of the Wyoming border. The Manila water system serves 3,300. Leaders of the Town of Manila have always held the water needs of citizens as a top priority. As a result, a well-maintained and operated water system provides members with water where and when it is needed. According to the Manila water system data, the existing number of culinary connections is 841. Of the 841 connections, 792 are residential and 49 are commercial.

According to census and local population data, the Town of Manila is experiencing an average annual growth rate of 1.0%. As growth takes place, Manila's culinary water system must be improved to support that growth.

3.0 EXISTING RESOURCES

The Town of Manila currently owns 2517 ac-ft of water. This includes water used for both indoor and outdoor uses. Table 3-1 below summarizes the 2517 ac-ft or 4.07 cubic feet per second (CFS) of water right owned by Manila.

**Table 3-1
Town of Manila Culinary Water Rights Per Master Plan**

Water Right No.	Ac. Ft.	CFS Flow
3139	72.39	0.100
3151	53.20	0.500
3155	329.40	0.455
3183	85.48	0.234
3252	13.50	0.100
3260	10.86	0.015
3164	142.95	0.165
3042	361.98	0.500
3202	1447.96	2.000
Total	2517.7	4.07

The Town of Manila has two sources that are regularly used to supply to its culinary water system: Sols Canyon Well #1 producing 450 gpm (the main source), and Well #3 producing about 380 gpm. Sols Canyon Well #1 is located in Sols Canyon. Well #3 is located on the 180,000 gallon tank site. There are several other wells that are not currently being used and are held in reserve. These wells are Well #4, Well #5, and Cedar Hollow Well. Wells #4 and #5 are located by the schools, and Cedar Hollow Well (which was the source for the old county water system) is located less than a mile southwest of the county jail. Well #5 has a capacity of 35 gpm. Cedar Hollow Well has a capacity of 24 gpm.

The Manila water system currently has five concrete storage tanks with a total storage capacity of 2,130,000 gallons. Listed below in Table 3-2 are each of the existing water storage tanks with their corresponding capacity, age, and condition.

**Table 3-2
Manila's Water Storage Tanks**

Tank Name	Capacity (gal.)	Material	Age (yrs)	Condition
Sols Canyon Tank	180,000	Concrete	11	Great
1.3 MG Tank	1,300,000	Concrete	2	Great
Lower Tank	200,000	Concrete	34	Good
Storage Tank #1	350,000	Concrete	37	Good
Storage Tank #2	100,000	Concrete	43	Poor

The Manila water distribution system is fed by the transmission lines that extend from each of the previously mentioned water tanks.

Table 3-3 shows data obtained from Manila for the 2013 Culinary Water Budget Projections used to operate and maintain the culinary water system. Rates will adjust as necessary to fund necessary improvements. The table below shows an overall budget deficit, however, additional funds are transferred from other city accounts to balance the water system account.

Table 3-3
2013 Manila Water System Annual Culinary Water Budget

REVENUES	
Residential Sales	\$515,000
TOTAL REVENUES:	\$515,000
EXPENSES	
System Operation and Maintenance	\$399,000
Personnel Salaries and Benefits	\$90,000
Vehicle Expenses / Travel	\$19,000
Office Expenses (Water Portion)	\$15,000
Insurance	\$8,000
Professional and Technical Services	\$6,000
TOTAL EXPENSES:	\$537,000

4.0 CURRENT AND FUTURE WATER USE

4.1 Population Projection

Based on historic growth rates and the Governor's Office of Planning and Budget, it is projected that the Town of Manila will experience an average annual growth rate of 1% over the next 20 years. Based on this growth rate the Town of Manila water system will increase from 841 current active connections to 1061 active connections by 2035. During the summer months there are approximately 2,000,000 people that visit the area. This large spike of visitors particularly on holidays requires a much greater demand from the Manila water system, and must be accounted for in planning.

4.2 Water Rights

According to the State of Utah Division of Drinking Water (UDDW) regulations, the Town of Manila is currently required to have a total 1,167 ac-ft of water per year available for the culinary water system. This includes water used for both indoor and outdoor uses. According to the projected growth, it is estimated that the Town of Manila will be required to have 1,581 ac-ft of water in 2035.

The Town of Manila owns 2517 ac-ft of water rights based on a flow of 4.07 CFS. (see Table 3.1). Therefore, no additional water rights will need to be purchased during the coming years to keep up with projected growth.

4.3 Source Capacity

The current UDDW required source capacity for the Town of Manila is 1,056 gpm. It is projected that the Town of Manila will be required to have a source capacity of 1,288 gpm in 2035. Currently the Town of Manila has a source capacity of approximately 830 gpm. This leaves the Town of Manila with a 226 gpm current peak source capacity deficiency. In addition, the aquifer from which the Town of Manila draws its water is maxed out for any new source development. There is also no additional water available because farmers won't sell the water they own to the Town of Manila. Also, current actual usage in Manila is about 10,500,000 gallons per month, or about 243 gpm. Therefore, the current source capacity is more than sufficient for the needs of the Town.

4.4 Storage Capacity

As mentioned in Section 3.0, the Town of Manila has 2,130,000 gallons of storage capacity. According to UDDW regulations, the existing storage requirement for Manila is 1,232,889 gallons, including indoor, outdoor and fire protection storage requirements. It is projected that 1,242,518 gallons of total storage will be needed by 2035, indicating a storage deficiency. Currently, one of the six existing concrete tanks in the Town of Manila is in poor condition. The 100,000 gallon tank is increasingly

becoming more of a maintenance issue. However, the Town has more than adequate storage without this 100,000 gallon tank.

4.5 Distribution System

The Town of Manila’s current distribution system requires a peak day demand of 1,056 gpm. The projected 20-year peak day demand is 1,288 gpm. The distribution system was analyzed to provide peak day demands in addition to 1000 gpm fire flow. Results of modeling the system indicate that the current transmission line from the tanks to the Town is inadequate for the fire flow regulations. The current system only allows between 500-650 gpm in certain portions of the system due to pipe size restrictions. As a result, upgrades to the distribution system are required. To help remedy this deficiency, it is proposed that the Town will replace some of its 3”, 4”, and 6” waterlines with 8” or larger water lines.

4.6 Treatment

Neither the existing sources nor the distribution system has any treatment. It is recommended to analyze if treatment is necessary.

5.0 SYSTEM PROBLEMS

The Town of Manila, in the past, has had serious problems when seasonal residents and tourists arrive. Approximately 50 percent of the connections are seasonal. With the influx of seasonal residents and tourists, a larger peak demand is required and there has been a shortage of water. This shortage of water was due to the lack of water storage and source capacity. Improvements have been made in the last few years that have resolved this issue.

Currently, some components of the Town of Manila culinary water system are inadequate and should be improved to meet both the current and future needs. There are existing lines that are small, and that could be replaced with a larger size of line.

**Table 5-1
Recommended Culinary Water System Improvements**

Analysis Description	Recommended Upgrade
Source Capacity	Rehabilitate an existing well
Replace Water Lines	Replace existing 3”, 4”, and 6” water lines with 8” waterline.

6.0 CONSERVATION ISSUES

The Town of Manila is located in northern Utah. Utah is a dry state and thus Utah residents must be sensitive about water conservation. For these reasons the Town of Manila has a responsibility to help citizens use water sensibly. Some of the common problems concerning water conservation throughout the State of Utah are:

- The general public lacks information and understanding of landscaping water requirements, efficient water use habits, and practices. Very few water users know how much water is required to maintain healthy landscaped areas and how to consistently use water efficiently outdoors. Most water use practices, whether for indoor use or irrigation are based on convenience rather than plant needs and water supply considerations.
- Although water pricing and billing systems are generally adequate to cover costs associated with the enterprise account, they typically have minimal incentives for residents and businesses to use water more efficiently.

7.0 CONSERVATION GOALS

As future growth occurs, and, if drought threatens the ability to supply water to the Town of Manila, the following goals have been identified to resolve the problems should they occur.

1. Reduce the Town's per capita water use. Based on obtained from the Town of Manila, the Town of Manila currently uses approximately 420 gallons of culinary water per connection per day during the peak summer months, and 160 gallons per connection per day during the winter season. Larger amounts of water are used to supplement the irrigation system during the summer with much lower water use during the winter. A large amount of this water is used for field irrigation during the warmest portion of the year.
2. Maintain a financially feasible water system. An alternate pricing system has already been implemented to encourage customers to use less water.
3. Continue a Public Conservation Education Program. Manila has a public education program to encourage water conservation.

8.0 CONSERVATION SOLUTIONS

In general it seems that it is more difficult to encourage or force conservation measures in smaller cities. This may be due to the fact that lot sizes are generally much larger than in metropolitan areas and with larger lot sizes come larger yards. The problems faced by the Town of Manila are common among many cities in Utah. This plan discusses solutions that Manila can implement to solve these problems. These measures, or combinations of them, may help Manila attain its water conservation goals as outlined above.

8.1 Public Education

Future water supply problems associated with the issues mentioned above may be avoided by educating the public on steps that can be taken to conserve water.

The Town of Manila has initiated a public education program designed to promote water conservation. This includes periodically sending flyers with their annual consumer confidence reports (required by the Division of Drinking Water) special mailings or monthly bills to help educate and give conservation tips to the water system users. They should try to build on the program to reach out to as many users and future users (children) as possible. This could include participating in elementary and middle school presentations on water conservation given by state or local water officials. Some examples of additional educational water conservation tips are:

- Water landscape only as much as required by the type of landscape, and the specific weather patterns of the Daggett County area.
- Do not water on hot, sunny, and/or windy days. Watering under these conditions could actually end up doing more harm than good to landscape, as well as wasting over 25% of the water.
- A single lawn sprinkler spraying five gallons of water per minute uses 50 percent more water in just one hour than the combination of 10 toilet flushes, two five-minute showers, two dishwasher loads, and one full load of laundry.
- Sweep sidewalks and driveways instead of using a hose to clean them off.
- Wash cars from a bucket of soapy (biodegradable) water and rinse while parked on or near grass or landscape so that all the water running off goes to beneficial use instead of running to waste.
- Check for and repair leaks in all pipes, hoses, faucets, couplings, valves, etc. Verify there are no leaks by turning everything off and checking the water meter to see if it is still running. Some underground leaks may not be visible due to draining off into storm drains, ditches, or traveling outside property boundaries.
- Use mulch around trees and shrubs, as well as in gardens to retain as much moisture as possible. Areas with drip systems will use much less water, particularly during hot, dry and windy conditions.
- Keep lawns well-trimmed and all other landscaped areas free of weeds to reduce overall yard water needs.

8.2 Water Use Regulation

Some water conservation measures, of a more regulatory nature, that may be used to alleviate the problems identified above are mentioned below.

- Require users not to water lawns from 10 a.m. to 6 p.m.
- Educate the public on the water supply situation.
- Instigate voluntary public conservation measures.
- Instigate mandatory public conservation measures.
- Enforce outside watering restrictions, watering times and quantities.
- Instigate rate structures that increase fees for overage and reduce base rate.
- Instigate emergency conservation measures.
- Strictly enforce all conservation policies with significant fines for non-compliance.
- Physically restrict water supplies to (in order of priority)
 - All outside irrigation systems on culinary system.
 - Park properties and other non-essential support facilities.
 - Commercial businesses, restricting the least impacted and largest users first.
 - Residential areas
 - Any other “non-life support” areas, insuring water supplies to hospitals, hospices, all other health care facilities, and controlled designated area water facilities.

8.3 Water Pricing Structure

A popular and practical solution to conservation issues involves implementation of a well designed water pricing program. The Town of Manila’s serves water to not only the residents of Manila, but also to residents in the County and in the state of Wyoming. Each of these customers has a different water rate structure. The overage rate is shown in Table 8-1. According to the Town of Manila, the peak average monthly cost of water usage is \$95.00.

**Table 8-1
Water Pricing Structure**

Town of Manila Residents	
0 to 12,000 gallons	\$37.00
Over per 1000 gallons	\$2.25
County Residents	
0 to 12,000 gallons	\$52.00
Over per 1000 gallons	\$2.25
Wyoming Residents	
0 to 12,000 gallons	\$61.00
Over per 1000 gallons	\$2.25

9.0 IMPLEMENTATION OF WATER CONSERVATION PLAN

The implementation of the Water Conservation Plan for the Town of Manila complete with steps organized to achieve the goals set in 7.0 and to alleviate problems outlined in 6.0 is shown in Table 9-1.

**Table 9-1
Implementation of Water Conservation Plan**

Goal	Steps Implemented	Evaluation Criteria	Time Frame for Evaluation
1*	Encourage more efficient private landscape irrigation.	A reduction in total water used by consumer.	Annually
2*	Implement Water Pricing Structure outlined in Table 8-3	A reduction in consumer water overages	Continuously
3*	Educate the public by mailing flyers and newsletter containing water conservation tips to customers with their water bill or separately on a semi-annual basis. **		Continuously
** Additional material for this program can be found at the website www.conservewater.utah.gov/tips/ or by contacting the Utah State Division of Water Resources.			

10.0 PERIODIC EVALUATION

This Water Management and Conservation Plan should be updated periodically by the Town of Manila in order to reflect new data and trends as well as gauge performance and progress. This will ensure efficiency of the plan. This plan may be updated and revised as needed to meet changing conditions and needs.