

# Manhattan Town Water System

## *Water Conservation Plan*

### Background / System Information

The Manhattan Town Water public water system (PWS NV0000165) serves customers within the town and adjacent county areas. The total service area is approximately two square miles. The estimated population served (in 2013) is one hundred and nine. Residential customers have meters but they are billed at a uniform rate because most meters are unreadable. Meters are being installed on new residential services, and on existing services at change of ownership or remodeling. The three commercial services are all metered. Residential customers are billed on a flat rate basis; commercial customers are billed on a flat rate basis also.

The system is located in the mountains between Smoky and Monitor Valleys. Water is supplied from one drilled well using a submersible pump. Aboveground storage consists of a two hundred and fifty thousand gallon water tank. The system is fully chlorinated. Wastewater collected from the area is managed through individual septic systems. There is no reclaimed water system within the Manhattan Town Water service area.

The original Conservation Plan for the system was developed before 1991, and modified before 2003. The plan is to be reviewed at five-year intervals, with modifications to meet changing system conditions.

### Plan Elements

This plan describes the drinking water conservation and drought management efforts in the Manhattan Town Water System, along with implementation schedules. The plans components conform to Nevada regulations as outlined by the Nevada Department of Conservation and Natural Resource, Division of Water Resources. Plan elements address the following areas:

- Increase public awareness of the need to conserve water.
- Encourage reduction in lawn sizes and use of arid and semiarid plants.
- Identify specific water conservation measures.
- Propose plan to identify and reduce leakage.
- Increase reuse of effluent where applicable.
- Provide a drought contingency plan.
- Implementation schedule.

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- Plan effectiveness matrix. Each conservation measure specified an estimate of the amount of water to be saved is stated in terms of gallons of water per person per day (gpcpd).
- Variable pricing analysis.
- Water savings in gallons/person/day. *Note: How the rates that are proposed to be charged for the use of water in the plan or joint plan will maximize water conservation, including, without limitation, an estimate of the manner in which the rates will affect consumption of water (expressed in terms of gpcpd).*
- How will the rate structure impact conservation. *Note: How the rates that are proposed to be charged for the use of water in the plan or joint plan will maximize water conservation, including, without limitation, an estimate of the manner in which the rates will affect consumption of water (expressed in terms of gpcpd).*
- Incentives to encourage water conservation.
- Incentives to retrofit plumbing fixtures
- Incentives for water conserving landscaping

### **Public Awareness**

The Manhattan Town Water System strives 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. Examples include materials from the Turf Institute, American Water Works Association, and USDA Agricultural Extension.
- Periodically, educational literature is placed in water bills, or messages appear printed in quarterly newsletter. Educational materials include tips on Conservation landscaping, 5 basic ways to conserving water, 25 things you can do to prevent water waste and water leak loss calculators.

### **Lawn sizes and use of arid and semiarid plants**

The Manhattan Town Water System encourages the public to practice scientific turf management, makes literature and resources such as the Turf Institute, available to customers. The Manhattan Town Water System has no public turf areas.

### **Specific water conservation measures**

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- There is a 4-inch water meter on the Manhattan Town Water System Wellhead. Since the system uses a flat rate this meter is used for water right usage and leak detection.
- There are meters at each customer's location but are not read because of their age and the billing cycle is done by flat rate.
- The plumbing code, which specifies low-flow fixtures, is not enforced.
- The Nye County code 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.
- Commercial customers have meters but at the present time are on a flat rate basis.
- A residential metering program has been implemented, requiring water meters to be installed on all new construction and anytime a property changes ownership. These meters are not being read currently.

#### **Plan to identify and reduce leakage**

- The Manhattan Town Water System has been upgraded to include a new water tank and replacement of all major transmission and distribution lines.
- Currently, the Manhattan town Water System has no way to do a water audit as meters are not being read and because most meters are unreadable. The SCADA system can pick up excessive water usage and call an operator when needed.
- 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 48 hours.

#### **Reuse of effluent**

Currently, there are no plans in place to reuse effluent within the service area.

#### **Drought contingency plan**

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Nevada is an arid state and Nye County 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 our plan is to manage the available resources to insure continued supply of potable water during periods of drought. We monitor water levels at our Well Sites and record the information. We work with other local water purveyors to insure adequate supplies are available.

When the Manhattan Town Water System has found that a water scarcity condition exists or is likely to exist and has proclaimed the existence of a drought or emergency condition, it shall also declare an appropriate drought or emergency stage for its service area which may be Stage 1, Stage 2, Stage 3, or Stage 4, described as follows:

### **Stage 1 Drought or Emergency**

1. Water from the Manhattan Town 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 Manhattan Town Water System are considered a waste of water and as such are not permitted.
3. Water from the Manhattan Town 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 Town will shut off the water until it is fixed.

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4. During a Stage 1 Drought or Emergency, lawn watering, including landscaping and the watering of a garden, will **NOT** be permitted between the hours of 1:00 pm and 5:00 pm

Note: Compliance is voluntary at this time as meters are not being read and/or are not readable.

### **Stage 2 Droughts or Emergency**

1. Water from the Manhattan Town 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 Manhattan Town 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 washed or hosed down with water supplied through the Manhattan Town potable water system unless required by health and safety requirements.
4. No washing of vehicles with hoses is permitted with the Manhattan Town water supplied through the Manhattan potable water system, except with hoses equipped with automatic shut off device or at facilities designated on the Manhattan Town billing records as a commercial vehicle wash.
5. Water used for watering vegetation, including lawns, landscaping, and gardens is limited as follows:
  - a. Residences with even numbered addresses: Monday, Wednesday, & Saturday;
  - b. Residences with odd numbered addresses: Tuesday, Thursday & Sunday;
  - c. Commercial and Industrial Customers: Tuesday and Friday; and Sunday;
  - d. All watering of lawns, landscaping, and gardens is prohibited between the hours of 1:00 pm and 5:00 pm
6. No use of water for and decorative purpose is permitted.

Note: Compliance is voluntary at this time as meters are not being read and/or are not readable.

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### **Stage 3 Droughts or Emergency**

1. Water from the Manhattan Town 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 Manhattan Town 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 washed or hosed down with water supplied through the Manhattan Town potable water system unless required by health and safety requirements.
4. No washing of vehicles with hoses is permitted with the Manhattan Town water supplied through the Manhattan Town potable water system, except with hoses equipped with automatic shut off device or at facilities designated on the Manhattan Town billing records as a commercial vehicle wash.
5. Water used for watering vegetation, including lawns, landscaping, and gardens is limited as follows:
  - a. Residences with even numbered addresses: Wednesday & Saturday;
  - b. Residences with odd numbered addresses: Tuesday & Sunday;
  - c. Commercial and Industrial Customers: Tuesday & Friday;
  - d. All watering of lawns, landscaping, and gardens is prohibited between the hours of 1:00 pm and 5:00 pm
6. No use of water for and decorative purpose is permitted.
7. Water from the towns 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.

Note: Compliance is voluntary at this time as meters are not being read and/or are not readable.

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#### **Stage 4 Droughts or Emergency**

1. Water from the Manhattan Town 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 Manhattan Town 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 washed or hosed down with water supplied through the Manhattan Town potable water system unless required by health and safety requirements.
4. No washing of vehicles with hoses is permitted with the Manhattan Town water supplied through the Manhattan Town potable water system, except with hoses equipped with automatic shut off device or at facilities designated on the Manhattan Town billing records as a commercial vehicle wash.
5. Water used for watering vegetation, including lawns, landscaping, and gardens is limited as follows:
  - a. No watering from December through February;
  - b. Watering will only be allowed one day per week during March, April & May.
  - c. Watering will be allowed two days per week from June 1st Through August 15th:
    1. Residences with even numbered addresses: Wednesday & Saturday;
    2. Residences with odd numbered addresses: Tuesday & Sunday;
    3. Commercial and Industrial Customers: Tuesday & Friday;
  - d. One day per week August 16th through September;
  - e. All watering of lawns, landscaping, and gardens is prohibited between the hours of 1:00 pm and 5:00 pm

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6. No use of water for and decorative purpose is permitted.
7. Water from the towns 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 is prohibited from July through September.

Note: Compliance is voluntary at this time as meters are not being read and/or are not readable.

### **Implementation schedule**

All of the plan elements listed are currently in place. The plan is to be reviewed every five years, and updated, as system needs change.

Even though all residential services have meters, approximately 50% either cannot be read (because they are too deep) or are unreadable.

### **Plan effectiveness metrics**

Historical well production will be compared to estimate population each year to determine the gallons per capita per day (gpcpd) consumption. For 2013, the gross production less commercial sales, divided by the estimated population, is 63 gpcpd. When average annual consumption is significantly greater than 150 gpcpd, plan revision will be considered, to include additional conservation measures. At the present time, well production, less commercial sales, provides a gross gpcpd estimate. The same calculation applied to winter sales, provides an estimate of non-irrigation household use. More accurate determination of water loss and conservation components will become available if residential metering is enacted.

When a plan element is activated, such as mailing literature or declaring a drought stage, production in terms of gpcpd will be compared to same month historical data to estimate effectiveness. It is estimated that public awareness alone will be the major driver of conservation, by raising awareness of individual account use. Public awareness alone, without a rate structure change, but with the public education elements, can be expected to provide a ten percent reduction in water use, or 6 gpcpd.

### **Variable pricing analysis**

The present residential water rate structure is a flat rate. Commercial accounts numbering five are also billed at a flat rate. There are no plans to

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change the rate structure only to promote conservation. Rates are scheduled to be reviewed annually and adjusted, to meet budgeted costs. Each time rates are altered; the water usage patterns will be analyzed to determine price sensitivity. The amount of water conserved as a result of actual price changes, in terms of gpcpd, will be used in future analyses. The feasibility of charging variable rates for the use of water to encourage conservation of water is considered remote at this time due to strong feelings of the customers.

### **Water savings in gallons/person/day**

Water savings in gpcpd is determined by estimating the average number of residents during the year. It is estimated that there are one hundred and nine residents during the summer months and forty-five residents during the fall and winter months. When the Manhattan Town Water System determines to replace system meters and go to a metered rate a more accurate account will be feasible.

### **Rate structure impact on water conservation**

The impact of a structured water rate cannot be determined at this time as the customer's meters for this system are not currently being read and have never been read. This analysis will have to be determined at a later date when old meters have been replaced and are read on a regular basis.

### **Incentives to encourage water conservation**

At this time Manhattan Town Water does not offer financial incentives to conserve water. However all residents are aware that water is scarce in this desert climate and are generally good about not wasting water.

### **Incentives to retrofit plumbing**

Incentive to retrofit existing plumbing will be accomplished through flyers containing information and educating the public of how much water can be saved by replacing residential water fixtures with more water efficient ones.

### **Incentives for water conserving landscaping**

There are currently very few residential properties with turf. Most outside watering is for trees and very small lawns. Incentive for limiting properties with large turf areas will be done education through fliers.

### **Summary**

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Manhattan Town Water has been on a very limited water supply source for many years and has, out of necessity conserved as much water as possible. Manhattan Town Water will continue to educate its customers on the need to conserve thru fliers and messages sent with their water bill.

This Water Conservation Plan was prepared by Jack E. Osburn, Utilities Superintendent for Nye County

Date: \_\_\_\_\_ Signed: \_\_\_\_\_

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