

**Warren Water District
Water Shortage Plan
March 2014**

INTRODUCTION

The Warren Water District (WWD or District) has purchased all water for distribution and sale to the members and customers of the District from Des Moines Water Works (DMWW) since the District began serving its members in the late 1980's. With the prolonged drought/dry conditions impacting central Iowa and the DMWW source water supplies, the DMWW developed a **Water Shortage Plan** in the Spring 2013 to "...manage system demand so customers do not experience pressure, quality, or availability issues during periods of extreme water demand or during other times when water availability may be limited due to raw water shortage, water quality events, or mechanical failures."

The WWD and other bulk purchasers of water were asked by DMWW to develop and submit similar water shortage plans since the Wholesale Water Service Master Agreement governing water purchases states the "...DMWW shall apportion such available water ratably among all consumers, including Participants [bulk purchasers] and DMWW's own direct customers, based upon relative consumption during the twelfth calendar month preceding such shortage." This means that when DMWW requests/seeks a certain percentage water reduction from its own direct customers, than a similar reduction is requested from its bulk purchasers.

The goal at each stage of the DMWW Shortage Plan is to reduce system demands to 80% or less of the "Current Capacity to Produce Safe Drinking Water". The stages of the DMWW Plan have been designed to create further reduction in demand as each stage is implemented; starting with a reduction of about 10% compared to traditional peak demand in Stage I and progressing to a reduction of more than 40% as compared to traditional peak demand in Stage IV.

Nominal capacity of the Des Moines Water Works system is 100 MGD. Winter demand in a typical year averages approximately 40 MGD. Outdoor water use is a large component of urban water use in the summer which increases demand to an average of approximately 60 MGD. The majority of the DMWW demand above 60 MGD is assumed to be turf irrigation. Heavy irrigation causes spikes in overall DMWW demand which can reach 90 MGD or more.

DMWW defines their current capacity to produce safe drinking water as the amount of water they can produce on any given day taking into consideration raw water availability and quality, seasonal treatment efficacy, and any mechanical or operational issues on that given day. The

number will vary seasonally and may vary day to day depending on specific water quality and operational conditions.

DMWW's current capacity will be evaluated on a daily basis during times of year when there is potential for a water shortage. The previous day's DMWW pumpage will be divided by the calculated current capacity to establish the percentage of current capacity to be used in implementation of their water shortage plan.

WARREN WATER DISTRICT BACKGROUND

Water use by the WWD's members varies significantly from that of DMWW's and other city urban customers in that turf irrigation is not a significant water use in the District. Rural water system rates are inherently higher than municipal rates due the lower density of members/customers served in a rural system. Urban communities' maximum day (summer time) water use can double or even triple (100 to 150% greater) that used during an average day (early spring or late fall). WWD's water use by comparison increases by 50% on a maximum day over an average day.

Members/customers tend to limit their water use to more essential domestic and agricultural needs. This does not mean the WWD can ignore DMWW's requests to reduce water usage. It does mean the WWD will need to focus water use reductions or restrictions in other targeted areas such as leaking plumbing fixtures, on using water most efficiently in watering cattle and hogs and other agricultural uses⁽¹⁾, in potentially limiting the growth of animal herds, and possibly requiring on-site water storage for livestock operations equivalent to 2,700 gallons or more for every 1,000 head of livestock.

STAGE I: Voluntary 10% Reduction in Water Use

Trigger:

When DMWW issues a Stage I water alert targeting a voluntary reduction in turf irrigation to achieve an overall 10% reduction in system water use, WWD will make a voluntary request of its members/customers to reduce water use by 10%.

WWD Goal:

A 10% reduction in system water use as compared to typical maximum day use.

Action:

- Encourage wise use of water by asking members/customers to check for leaks in toilets and make necessary repairs to toilets and any dripping faucets.
- Post a “Wise Water Use” message on the District website and in the monthly water bills.
- Suspend District end-of-line flushing.
- Send a letter to known high water users advising them of DMWW’s request to reduce water consumption stressing wise water use. Also inform them of possibility of mandatory water use restrictions if conditions worsen.

Enforcement:

There will be no enforcement at this stage.

STAGE II: Voluntary 15% Reduction in Water Use**Trigger:**

When DMWW issues a Stage II water alert targeting further voluntary reduction in outdoor water use to achieve an overall 25% reduction, WWD will make a voluntary request of its members/customers if overall maximum day use hasn’t already been reduced by 15% after the Stage I alert.

WWD Goal:

A 15% reduction in system water use as compared to typical maximum day use.

Action:

- Request members/customers to once again make sure all of their plumbing fixtures are leak-free.
- Recommend washing only full loads in dishwashers and washing machines.
- Encourage shorter showers or bathing in partially full bathtubs.
- Contact franchise and bulk sales community city clerks or public works supervisors to insure the plumbing fixtures in public buildings and parks are leak-free.
- Pay extra attention to road ditches which are greener than other nearby areas for possibility of a water main or service leak.

Enforcement:

There will be no enforcement at this stage.

STAGE III: Target 20% Reduction in Water Use

Trigger:

When DMWW issues a Stage III alert they are seeking an overall water use reduction of 40%. They plan to achieve this primarily by banning turf irrigation and the use of automatic irrigation systems in the urban core of the Des Moines metro area. WWD will make a further request by issuing a Stage III alert for water use reduction by its members/customers if the DMWW has not achieved its 40% reduction goal by eliminating turf irrigation.

WWD Goal:

A 20% reduction in system water use compared to typical maximum day use.

Action:

- Impress upon the WWD members/customers the need for continued vigilance in making sure they are using water wisely and to implement ways to reduce water use.
- Notify high water users (those using 20,000 gallons or more monthly) of the DMWW continued emphasis to reduce water use system-wide. Make personal contact with anyone using MORE water than during the previous billing/meter read period to understand the water needs of that member/customer. Document any non-essential water use and put that member/customer on notice they will be expected to reduce their usage by 20% or face possible penalty as may be approved by the Board of Directors.

STAGE IV: Non-Essential Outdoor Water Use Prohibited

Trigger:

DMWW has initiated Stages I, II, and III alerts and failed to achieve an adequate reduction in consumption. Overall DMWW system demand continues to exceed 90% of its current capacity to produce safe drinking water, system demand continues to generate areas of low pressure, or there are other indications that without further reductions in demand, a shortage could occur.

Anticipated Impact:

It is anticipated that DMWW will initiate a Stage IV alert during the peak outdoor water use season. In a typical year outdoor water use can account for as much as 50% of demand on a peak day. Assuming this is the case, prohibiting outdoor water use will result in a 50 MGD reduction in total demand. At peak demand 50 MGD equates to approximately a 50% reduction.

WWD Goal:

A 25% reduction in water use as compared to typical maximum day use after implementing one or more of the previous Stages of the Water Shortage Plan.

Action:

- Mandatory measures will be implemented as follows:
 1. Discontinue all outdoor water usage (including filling pools, watering lawns or gardens, hose-washing of vehicles or paved surfaces, dust control, etc.), except for commercial greenhouses, cattle, hog, and poultry operations, and crop dusting.
 2. Discontinue all public agency watering activities (including landscapes, flower beds, grasses, and annual plantings).
- Establish water shortage penalties for violators of the listed mandatory measures and any others that the Board of Directors might implement.
- Assess value and necessity for conducting intermediate drive-by meter reading to aid in detecting adherence to water reduction measures.

Enforcement:

Customers who do not comply with water use restrictions will be subject to termination of service. Customer's property will be tagged for termination 48 hours prior to terminating service. Water service will be restored upon receipt, in writing, that the customer understands and will comply with the mandatory conservation measures. The current service charge will be assessed to restore service. Any subsequent violation will result in termination of service and assessment of fees as the Board of Directors may implement.

(1) Agriculture-related water links:

<http://www.extension.iastate.edu/Documents/Drought/EmergencyWaterStorage.pptx>

<http://www.pork.org/filelibrary/WaterConservationFactSheet.pdf>

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

<http://www.ipic.iastate.edu/>