



AMERICAN WATER

Military Services

**Water Conservation Plan for
Hill AFB, Utah
PWS UT06024**

October 2019

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1.0 Introduction

American Water Operations & Maintenance, LLC (AWO&M) owns and operates the public water system at Hill Air Force Base (HAFB) and drafted this Water Conservation Plan (Plan) to comply with Utah code 73-10-32. Utah code 73-10-32 requires that retail water providers prepare a Water Conservation Plan that consists of a "...written document that contains existing and proposed water conservation measures describing what will be done...to help conserve water and limit or reduce its use in the state in terms of per capita consumption so that adequate supplies of water are available for future needs." The intent of this Plan is to outline actions that could be taken to reduce water consumption and to project long-term demand.

HAFB is a federal facility and is subject to federal requirements as well as state requirements. Executive Order 13693 requires federal agencies to reduce water consumption by "reducing agency potable water consumption intensity measured in gallons per gross square foot by 36 percent by fiscal year 2025 through reductions of 2 percent annually through fiscal year 2025 relative to a baseline of the agency's water consumption in fiscal year 2007."

AWO&M's goal for water conservation is to meet Executive Order 13693 requirements. AWO&M will also monitor a per capita consumption rate to maintain consistency with Utah monitoring.

2.0 System Description

In 2014 the Federal Government conveyed ownership of the HAFB public water system (System), UT06024, to AWO&M under contract SP0600-14-C-8290 (Contract). Under the Contract the Federal Government retained ownership of the water rights for the system, but conveyed ownership and responsibility for compliance, operation, and maintenance of sources, piping, valves, fire hydrants, pumps, storage structures, and all other pertinent System materials and equipment to AWO&M. The Contract defines points of demarcation where AWO&M ownership and responsibility terminates and the Government ownership begins. The points of demarcation are located outside of federally owned buildings and are similar to where a traditional municipal water system responsibility stops and a private land owner starts.

2.1 Utah Division of Drinking Water Classification:

The Utah Division of Drinking Water (DDW) regulates the HAFB public water system as a community water system that serves a population of 25,000 people. The System has an actual residential population of approximately 700 people, and serves approximately 2,400 industrial connections. The population used by DDW is based on the approximate number of people who work on the base and is the number that will be used to determine per capita water usage.

2.2 Water Sources:

The System has six available, active water sources; five groundwater wells and one wholesale connection to Weber Basin Water Conservancy District. The total source capacity is approximately 6,400 gallons per minute.

2.3 Water Storage:

The System has five water storage reservoirs and/or tanks with a total storage capacity of 7.95 million gallons.

2.4 Distribution System:

The distribution piping for the System consist of approximately 663,000 linear feet of main line ranging from 6-inch to 24-inch diameter piping. There are also approximately 2,100 valves and 700 fire hydrants. The System has four pressure zones set up to handle pressure increases caused by ground surface elevation change from east to west across the base.

The System serves one wholesale customer, Boyer Hill Military Housing (BHMH), public water system number UT06048. BHMH is a separate community water system that is outside of AWO&M's jurisdiction, therefore BHMH's water usage is removed from HAFB's water usage.

3.0 Water Usage

The System serves predominantly industrial facilities at HAFB which results in low per capita water usage when compared to water systems serving residential areas. HAFB also has large warehouse buildings that do not consume water. The combination of those two factors results in comparatively low water usage, however the goal of all water conservation programs is to reduce water consumption when compared to a base year and not when compared to other systems.

3.1 Current Water Usage:

The System water usage for 2018 was 568,195,000 gallons which is 43 gallons per square foot, and 62 gallons per person per day. The usage in 2018 is a reduction of 17.9% for gallons per square foot, and 15.6% for per capita usage.

3.2 Projected Water Usage:

HAFB is land-locked by surrounding roadways and steep slopes which will prevent the installation from growing geographically. The current HAFB master plan calls for demolition of existing single story facilities and construction of multi-story buildings in order to accommodate population growth. Increasing the population density will likely reduce the per capita and per square foot water usage. A Water System Master Plan developed in 2014 projected that annual water usage will increase by 7.6% at full installation buildout when compared to 2014 usage.

3.3 Water Loss Control:

The majority of the pipe currently in service within the System was installed during the 1940s. The pipe is cast iron with lead joints. The soil conditions on the base are non-corrosive and have preserved the pipe even though it is beyond its life expectancy. AWO&M performs annual distribution system leak detection surveys and has an active pipe replacement program to systematically replace aging infrastructure.

4.0 Water Conservation

4.1 Water Conservation Program:

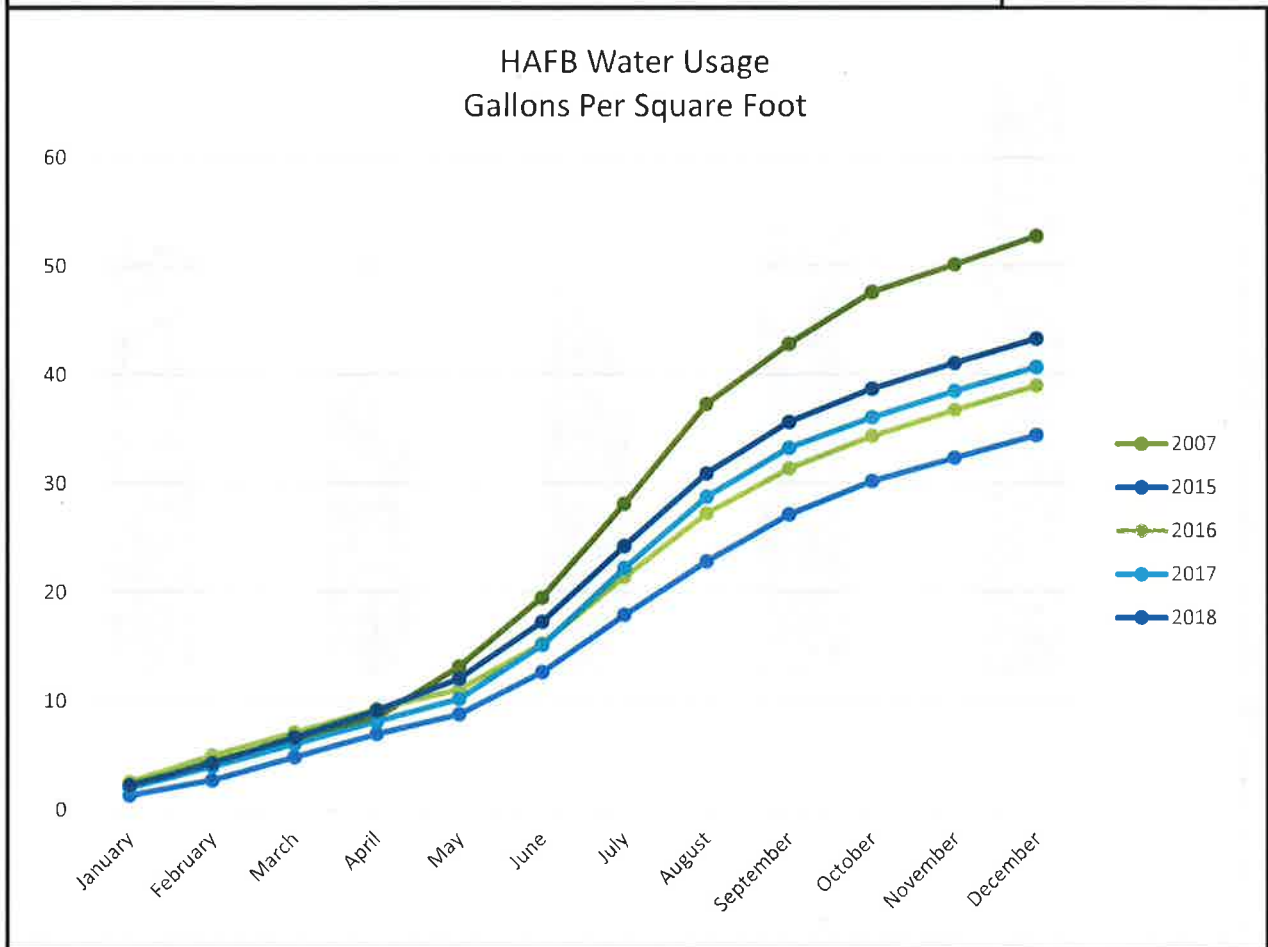
The largest demand for water at HAFB is for landscape irrigation. Prior to AWO&M assuming ownership of the System, the federal government had an active water conservation program the primarily focused on replacing grass landscapes with xeriscape. AWO&M's water conservation program will include the following:

- Support HAFB’s efforts to install water-wise landscapes
- Perform annual leak detection surveys to identify and repair water leaks
- Replace and/or rehabilitate old water mains with joint leaks
- Request funding for district water meters to quickly identify water leaks
- Present water conservation information annually at Water Working Group meetings

4.2 Water Conservation Metrics:

AWO&M will develop measures and track was usage based on the gross square footage of buildings at HAFB as outlined in Executive Order 13693. AWO&M will also monitor water usage on a per capita basis in order to provide consistent information to the State of Utah. Table 4.1 depicts monthly cumulative water usage per square foot for recent years compared with the base year of 2007.

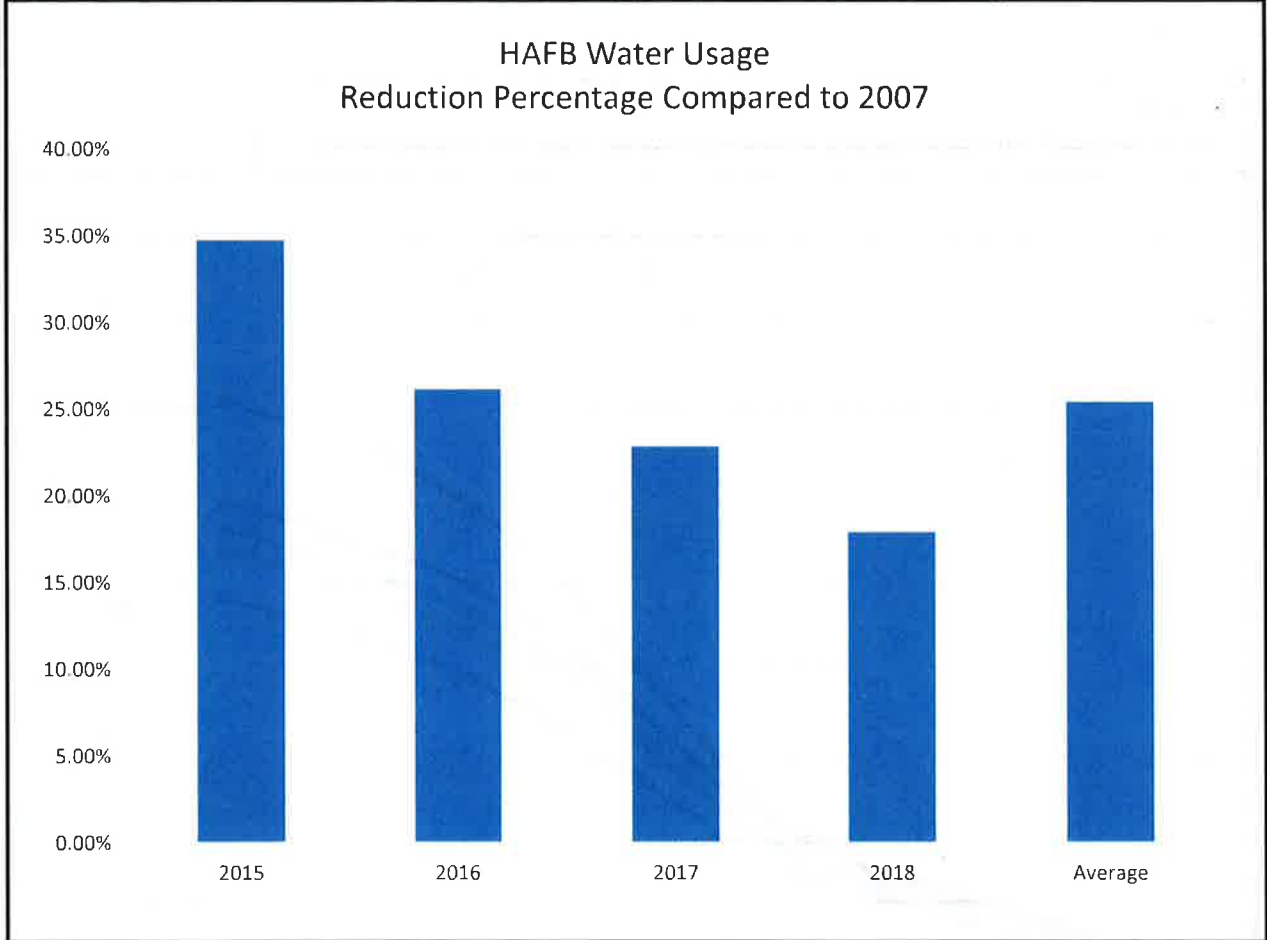
Table 4.1.
HAFB Annual Cumulative Water Usage Per Square Foot of Building Space.



4.3 Water Conservation Timeline:

Executive Order 13693 requires that federal agencies reduce water usage by 36% by fiscal year 2025 when compared to fiscal year 2007 by reducing water usage 2% annually. Table 4.2 shows the percent reduction of water usage at HAFB when compared to 2007. Since irrigation is the largest water use on base, there are years when HAFB has nearly met the 36% reduction goal, but are trending in the wrong direction in recent years. The table also shows the average water use reduction for years 2015-2018 and compared to 2007.

Table 4.2.
HAFB Annual Water Usage Reduction Percentage Compared to 2007



4.4 Water Conservation Evaluation:

AWO&M monitors water usage at the distribution system level, but does not have zone or district metering to identify usage patterns. AWO&M will continue to work with HAFB to attempt to secure funding for increased system metering.

5.0 Water Pricing Structure

AWO&M does not meter building specific water usage, or bill for water usage. HAFB pays all fees associated with the water commodity as lump sums and not based on usage. Therefore, there is no established rate structure.

6.0 Governing Body


HAFB has a unique water system dynamic in that AWO&M owns and operates the water distribution system and is responsible for regulation compliance; the Government owns the water commodity and all physical facilities. Approvals for projects and requirements for water conservation come through the base commander or the wing commander. AWO&M supports the HAFB's efforts to conserve water, but does not have authority to mandate them.

6.1 Conservation Regulations:

In 2004, the benefits of a water conservation plan led the Utah legislature to pass the Utah Water Conservation Plan Act (73-10-32, UCA). This act requires each water conservancy district and public water system with over 500 connections to submit a water conservation plan and update the plan every five years. By law, non-compliant water systems are ineligible for state loans or funding and their names are published in local and state circulated papers. For questions or to verify water conservation plan compliance status, please contact us at 801-538-7230, or email waterwise@utah.gov.

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HAFB Representative

X  STEVE CURTIS, VP

American Water Representative

