

SECTION 6: WATER CONSERVATION

6.1 Introduction

The City of Moab will pursue a nuanced approach to conservation. The multi-pronged approach described in this Water Conservation Plan is comprised of policies, infrastructure improvements, investment in technologies and incentive programs, outreach and education, coordinated resource management, and on-going research and data refinement.

The ultimate goal is to better define and achieve conservation as a term and set of practices which become embedded in the community ethos and carry forward to a sustainable future.

6.2a Water Use Reduction Goal

In 2000, Governor Levitt proclaimed a conservation goal of 25% in GPCD by 2050 using 2000 water use as the indexing year. The conservation proclamation was aimed at municipal and industrial (M&I) users, agriculture was intentionally omitted from the goal. A few years later Governor Herbert decreased the timeline and proclaimed a conservation goal of 25% by 2025 using the same year, 2000, as the indexing year. The goals were not intended to reduce the total demand for M&I water, they were established to make room for new growth because a fair number of regions were reaching the limit of their water resources.

Since then, the Utah Legislature conducted a 2015 Legislative Audit, followed by a 2017 Follow-up Audit, then a Third-Party Review, and finally a 2017 Recommended State Water Strategy. Those efforts recommended the State develop regional water conservation goals. The Utah Division of Water Resources (UDWRi) was tasked with the project and developed the latest goals in their document [Utah's Regional M&I Water Conservation Goals](#). Grand County was put in the "Upper Colorado Region" which also includes Carbon, Emery and San Juan County.

The draft recommendations were for the Upper Colorado Region to reduce their per-capita water consumption by another 17% and the final recommendations were for 20% reduction from average regional 2015 usage (333 GPCD) by 2030. The 20% reduction for the region resulted in a recommended goal of 267 GPCD. *Moab is currently at 278 GPCD and has set a new goal of 230 GPCD by 2030.* The table below shows the percent reduction from the year 2000 as per the original call from Governor Levitt, which Moab would meet with the 267 GPCD regional goal and exceed with a new goal of 230 GPCD. The City will assess progress towards this goal annually when data is reported to the Division of Water Rights.

6.2b Water Use Reduction Challenge Goals

Additional conservation is possible, and desirable. After the City and its customers implement the easiest measures, education and outreach support from other stakeholders, cooperative efforts with regional water providers, supporting state legislation, and new funding sources becomes more important to meaningful adoption of other tools, and greater water conservation. In particular, State support is essential to successfully meet the State-set goals for our region. In recognition of this, the City will adopt stronger goals based on quantifiable State support, relative to the 2030 target date. The Moab water conservation goal of 250GPCD will decrease by 5 GPCD up to 230GPCD for each of the following actions:

1. State amendment of all relevant building codes to require WaterSense fixtures and EnergyStar washing machines and dishwashers
2. State amendment of all relevant residential building codes to require grey water pre-plumbing and associated landscaping
3. Consistent/ongoing funding from the State for approved conservation tool(s) including City actions, rebate programs, and planning efforts
4. Consistent/ongoing funding from the State for outreach and education efforts

Table 7. Percent Change in GPCD from 2000

Year	Population	Total AF	gallons per capita day	% change from 2000
2000	4779	1926.63	359.9	0.0%
2015	5251	1657.96	281.9	21.7%
2020	5341	1667.31	278.7	22.6%
2030	N/A	N/A	267	25.6%
2030*	5906*	1667*	230*	36%

6.3 Water Conservation Metric

The State has determined the metric for conservation goals at GPCD, or gallons per capita per day. The metric is a reasonable measure if only measuring municipal use. However, adding commercial, industrial, and institutional uses into the metric is problematic because the people who are using that water may not be living in the area where the water is being used – namely, tourists. Trying to determine whether metrics represent conservation or a change in economy are not represented using the current measurements.

The City of Moab has a tourism economy. There are over two million visitors per year, just to the National Parks, and more who never visit the parks. As such, the per capita metric does not include the numbers of visitors who use at least 16% of all commercial water, or 95AF, just on overnight accommodations. This does not include the amount of water used in other businesses catering to visitors such as restaurants and washing off highway vehicles. The City of Moab is interested in considering other metrics to determine their conservation goals. One which has potential is an Equivalent Residential Unit (ERU). It is already used for a variety of requirements associated with water supply and could be a metric which allows a comparison between economies and water conservation strategies.

6.4 Current Conservation Measures

Leak protection program / rebates

The leak protection program provides a rebate for the amount assumed to be lost due to a leak after the customer has fixed it. This is intended to provide an incentive for fixing leaks.

New Water Treatment Facility

The new Wastewater Treatment Facility uses only 20,000 gallons of water per month whereas the old one used two million gallons per month. This new facility has saved the City over 23.5 million gallons of water per year since it came online in 2017.

Outreach, Education

The City of Moab maintains a column in the *Moab Happenings* monthly newspaper and the monthly City Newsletter, e-mailed to those interested and those receiving e-bills for water service, devoted to issues of Sustainability. Water conservation is an important and frequent topic in these articles. In the past several years, the City has placed box ads in the two local weekly newspapers several times per year to educate readers about appropriate watering for outdoor landscaping and low-flow fixtures.

6.5 Current Conservation Ordinances and Standards

The City of Moab does not currently have any ordinances or standards addressing water conservation directly. However, the WaterNOW Alliance just awarded the City a grant for technical assistance to develop three things: 1) a greywater ordinance, 2) a landscaping ordinance, and 3) new development standards, which will be completed in early 2022. The City is looking forward to working with WaterNOW Alliance as well as Utah State University Extension experts to get smart, relevant, and up-to-date ordinances adopted as soon as possible. The City is also working on an Emergency Drought Management Plan.

6.6 New Conservation Measures for the Next Five Years

6.6.1 Planning Efforts

The City of Moab is spearheading an effort to bring all the water providers in the valley together to create a consensus-based Water Resource Management Plan. This group is called the Moab Spanish Valley Water Providers Coalition and consists of the City of Moab, Grand Water and Sewer Service Agency, San Juan Special Service District, and the Moab Irrigation Company. Grand County administration may or may not be part of this group. The state engineer's office has indicated that they do not believe a state-sanctioned Groundwater Management Plan is in order at this time, and that the valley aquifers have a few thousand-acre feet yet to be developed. However, the water providers in the valley disagree, and are interested in avoiding a crisis situation by undergoing a planning process prior to potential shortages. Undertaken now, this process will allow for community voices to be heard, experts to be consulted, and the best available science to be included – underpinned by the precautionary principle and a desire to create a sustainable water supply for all current and future residents.

The first meeting of this new coalition occurred at the end of July, 2021, with the intention to meet at least monthly until the process is complete. At this point, the group will evaluate their options and intentions moving forward and recommend policies.

6.6.2 Ordinances and Policies

When water saved via the easiest conservation measures is simply reallocated to accommodate increasing population growth, it can make it difficult to achieve further cuts during a future decrease in supply - whether that decrease is a temporary drought emergency or a longer term impact to supply. If, for instance, climate change reduces available water more than predicted, or, further investigations into aquifer supply reveal that we are already over-drawing, then the impact of additional demand would be much greater than anticipated, and have unwelcome consequences. Therefore, it is crucial to keep in mind that conservation should not simply be reallocation of saved water, but also include building excess capacity into the system now for resiliency in an uncertain future. A thoughtful Drought Emergency Plan is also a critical component of a sustainable water conservation program. The City intends to continue to support efforts to refine information about our supply, and to be conscientious conservers - keeping an awareness of the pitfalls of demand hardening* and the benefits of maintaining excess capacity in building long term system resilience."

**Demand hardening is the reduction in the ability to achieve further water reductions after the relatively easy and inexpensive water reductions have been implemented (Howe and Goemans 2007)*

A. Landscaping Code Amendments

The City's Water Conservation and Drought Management Advisory Board, which was formed as a result of the 2016 Water Conservation Plan, recommends developing landscaping code amendments which would have three main components. 1) Requiring new development to use waterwise landscaping and irrigation principles, limit or omit turfgrass, and include greywater systems (see below), 2) Instituting outdoor landscape watering rules for all customers during times of drought (see Drought Management Plan), and 3) Developing a recommended/required species list for any new development in Moab. This effort will be particularly helpful in conserving culinary water supply, which is currently being used as irrigation water on most properties in the City for lack of a secondary irrigation system.

A key component to the success of the landscaping ordinance is outreach to current residents and businesses to encourage adoption of waterwise landscaping and irrigation and abandonment of unused turfgrass. City staff is working on opportunities to improve existing demonstration landscaping around City Hall, as well as removing turfgrass and installing waterwise landscaping in a prominent location. These demonstration areas will serve to encourage current residents to do the same in their own homes and will provide inspiration and education to current and future residents.

These code amendments are planned for development in 2021 and adoption in 2022, and will consist of requirements for new developments and a best-practices guide for existing developments.

B. Grey Water

Residents began installing grey water systems as pilot projects with the Southeast Utah Health Department (SEUHD) a few years ago. The projects were successful and with the new information SEUHD collaborated with the Utah Division of Water Quality to re-write the rules associated with permitting grey water reuse in Utah. Since then, the SEUHD has permitted

several residential homes including affordable housing. The systems are relatively easy to install compared to most landscaping irrigation systems and inexpensive if installed during the building of a new home.

The City plans to take advantage of the local expertise and the willingness of new homeowners to embrace these systems. Grey water use will make the City more resilient to drought and conserve water by reusing grey water to irrigate landscapes instead of sending it to the Wastewater Reclamation Facility and discharging it out of the area. It is estimated that new residences with lots less than 0.25 acres could save 50% of the water they would have used for outdoor irrigation.

The City is developing code amendments that would require the indoor plumbing associated with grey water systems be installed during the construction or remodel of new single family and multi-resident housing, in conjunction with the associated landscaping component.

The City is also looking to make the City's water portfolio more resilient by developing grey water code for new commercial developments. This would require new commercial buildings to install either grey water or rainwater catchment systems that would provide all the water required for the landscaping associated with the new development.

C. New Development Standards

In conjunction with the landscaping and greywater code amendments, the City will implement standards for new development that incorporate waterwise landscaping principles and water saving construction features. Landscaping will be required to be waterwise, using a recommended list of plants and features, limited areas of turfgrass and efficient irrigation. New construction will be required to use WaterSense labeled fixtures and appliances, and stub for greywater.

D. Emergency Drought Management Plan

The City intends to develop and adopt an Emergency Drought Management Plan to prepare for a situation of actual shortfall in water production. With thoughtful pre-planning, the City will be able to take the time needed for calculations, engage the public, and decide what measures make the most sense to conserve water when a drastic situation arrives. This may involve recommendations to install infrastructure for emergency shut-offs or secondary lines in all new construction so irrigation may be divorced from culinary uses. The City aims to adopt this plan within the next five years.

6.6.3 City Facilities Improvements

There are opportunities to improve municipal water efficiency which the City intends to complete as funds become available, beyond the infrastructure improvements bonded for and contained within the Capital Improvements Plan (mentioned in Section 1). There are three main City parks that use water for irrigating turfgrass – Rotary Park, Swanny Park, and Old City Park. In addition, the City maintains the ballfields outside City Hall and various other smaller areas. Improvements to the system involve four things:

- 1) installing smart timers and moisture meters for more efficient watering

- 2) removing grass where it is not needed
- 3) evaluating and fixing old systems to water where needed and not where it's not
- 4) replacing plants which have died and are still being irrigated, allow them to establish, and re-evaluate and reduce irrigation appropriately

In addition, there are opportunities to install green infrastructure and improve stormwater management to facilitate more infiltration and less runoff, as well as contribute to a greener streetscape. As City drainage features are renewed or repaired, green infrastructure can be incorporated into new designs and implemented where possible. If funding becomes available, the City will be able to develop a green infrastructure plan for areas where projects would be possible.

6.6.4 Outreach and Education

Successful water conservation in Moab will depend on both tangible and intangible elements. Efforts like replacing old fixtures and repairing leaks are opportunities to passively conserve water by updating systems. Behavior change is the intangible piece of the puzzle which will require a different approach. The City of Moab values the impact of education and outreach on water conservation and will be continuously working to develop a community spirit of water conservation without sacrificing quality of life or economic opportunities.

Planned outreach efforts include articles in the local newspaper, the City Newsletter, and Moab Happenings, changing the design of the water bill to include conservation-oriented metrics, creating and distributing door hangers at properties with inefficient watering systems to offer consultation and resources, educational mailings with best practices and goals, and providing resources from local landscape designers, USU extension, and other knowledge holders to assist residents and businesses in their water conservation efforts. Keeping the community informed about progress towards our conservation goals is a key component of the outreach and education effort, and an essential piece of meeting our water conservation goals.

6.6.5 Programs

If funding becomes available, the City can invest in programs to accelerate landscaping conversion and outdoor irrigation water savings. These may include the following:

- Turfgrass buy-back / rebate: providing cash payments or rebates for property owners to replace lawn with water wise landscaping (this is a common program to encourage lawn conversion)
- Conservation rebates: direct water-bill rebate rewards for meeting conservation goals on top of the tiered rates
- Smart timer and moisture meter incentives: providing smart technologies to assist property owners with efficient watering
- Penalty for failing to fix leaks: adopting a penalty in addition to the rebate for failing to fix a leak in a timely manner
- Incentives for functioning greywater systems: reduced sewer rates for homes with fully functioning and permitted greywater systems

6.7 Responsibility for Meeting Conservation Goals

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**NOTE: all positions are subject to change in personnel; responsibility will remain with the position not the person. Updated contact information can be obtained from City Administrative Assistant at info@moabcity.org, 435-259-5121

6.8 Action and Implementation Timeline

Year	Action
2021	<ul style="list-style-type: none"> ● Establish Moab/Spanish Valley Water Providers Coalition ● Work with USU to develop efficient watering schedule for City parks ● Adopt Water Conservation Plan Update
2022	<ul style="list-style-type: none"> ● Adopt Landscaping Ordinance and Greywater Ordinance ● Adopt new development standards including water wise elements ● Adopt Moab/Spanish Valley Water Providers Coalition Water Resource Management Plan ● Inform community of the newly adopted Water Conservation Plan Update ● Install smart timers for City parks, evaluate grass-removal areas ● Water-wise landscaping guide sent to all addresses in Moab City including information on watering turfgrass, resources for xeriscaping, and other ways to reduce use of water outdoors
2023	Implement incentive programs (when / if financially feasible): <ul style="list-style-type: none"> ○ promote fixture replacement and inventory old fixtures where possible; ○ campaign to reduce water waste in the home and improve efficiency; ○ offer smart timers; ○ implement turfgrass buyback program ○ Support pilot green infrastructure installation
2024	Update landscaping guide and outreach regarding landscaping and greywater ordinances and new development standards
2025	Work with USU Extension to develop demonstration xeriscape garden in Moab
2026	Evaluate GPCD goal progress and City water conservation progress and update Water Conservation Plan

*progress on GPCD goal will be calculated annually after data is reported to the Division of Water Rights and published on the City of Moab's website