

WATER USE & PRESERVATION ELEMENT

Of the Grand County General Plan

February 2026



GRAND COUNTY
— U T A H —

In cooperation with the Grand Water and Sewer Service Agency, the Thompson Special Service District, and the Arches Special Service District.

Disclaimer on Water Data and Assumptions

The **sole purpose** of this element is to fulfill **Utah Code §17-79-403(2) (v)**, which requires a water use and preservation component that addresses:

- (A) the effect of permitted development or patterns of development on water demand and water infrastructure;
- (B) methods of reducing water demand and per capita consumption for future development;
- (C) methods of reducing water demand and per capita consumption for existing development; and
- (D) opportunities for the county to modify the county's operations to eliminate practices or conditions that waste water.

This document should not be used for any other purpose, including but not limited to assessing water capacity.

The water supply, demand, and conservation assumptions in this Water Use and Preservation Element are based on the best available data at the time of creation, including information from the Conservation Plans and Master Plans of the Arches Special Service District, the Grand Water & Sewer Service Agency, the Thompson Special Service Water District, and other local and state sources.

These assumptions are intended for general planning purposes only and should not be interpreted as a guarantee of water availability for individual development or uses. The respective water providers maintain detailed operational, capacity, and conservation data.

Readers are advised to consult the adopted water conservation plans and master plans for each district or provider for the most current and authoritative information regarding system capacity, demand projections, and implementation measures, including but not limited to:

- **Grand Water & Sewer Service Agency (GWSSA) Water Conservation Plan**
- **Arches Special Service District (ASSD) Master Plan**
- **Thompson Special Service Water District (TSSWD) Master Plan**
- **Moab City Water Conservation Plan**
- **Castle Valley Water District Water Management Plan**
- **San Juan Spanish Valley Special Service District Water Conservation Plan**
- **Utah Division of Water Resources Regional Conservation Goals Report**

This element is a policy-level planning document meant to guide coordination between land use and water management. It should be used alongside the most recently adopted and approved conservation and infrastructure plans for each service agency.

1. INTRODUCTION

Grand County, situated in Utah's red rock desert, faces unique water challenges due to its dry climate, unpredictable rainfall, and increasing tourism. The county primarily depends on groundwater from the Glen Canyon Aquifer and surface water stored in Ken's Lake Reservoir for drinking water and irrigation. As one of Utah's driest counties, Grand County must plan carefully for future population growth, tourism expansion, and the long-term sustainability of its water resources. In line with Utah Senate Bill 110 (2022) and Senate Bill 76 (2023), this element addresses water-use considerations in land-use planning to promote sustainable growth. Grand County's Water Use and Preservation Element complies with Utah Code §17-79-403(2)(v), making water use, preservation, conservation, and efficiency central to land use planning.

2. GRAND COUNTY WATER PROFILE

2.1 System Overview

The Grand Water & Sewer Service Agency (GWSSA) provides drinking and irrigation water to Spanish Valley and nearby unincorporated areas of Grand County. The system features four production wells drawing from the Glen Canyon Aquifer, an EPA-designated Sole Source Aquifer. It also diverts surface water through Mill Creek via the Sheley Tunnel into Ken's Lake Reservoir. Additionally, it has about 4.5 million gallons of drinking water storage spread across three tanks. Each year, the system supplies approximately 3,631 acre-feet of drinking water rights and 7,823 acre-feet of irrigation or secondary water rights.

The Arches Special Service District provides culinary water within its service area. The water is sourced from groundwater aquifers, mainly the Slick Rock Member of the Entrada Sandstone and the Moab Member of the Curtis Formation. Demand varies with a mix of permanent residents, seasonal occupants, visitors, and commercial or industrial activities, depending on land-use patterns. Peak-day and peak-hour conditions impact capital planning, pumping and storage capacity, and system reliability needs.

The Thompson Special Service Water District serves a small community and relies on limited sources and storage. The water district currently depends on two springs in Thompson Canyon for its drinking water supply. System reliability depends on the continuous operation of production, storage, and distribution components, as well as the District's ability to prevent and quickly repair leaks and line breaks.

The Cisco area presents unique water planning challenges due to its remote location, lack of an existing municipal water system, limited historic development, and absence of readily available perfected water rights sufficient to support new growth. Historically, water availability has been a primary constraint on sustained settlement in Cisco, and no centralized culinary water infrastructure currently exists to serve significant residential, commercial, or industrial development. Any future development in the Cisco area would require the identification, transfer, or change of existing water rights, as well as substantial investment in conveyance, storage, and treatment infrastructure.

2.2 Sources and Recharge

Recharge for these sources mainly originates from the La Sal Mountains, where winter snowpack helps replenish both groundwater and surface water. In contrast, the valley floor receives about 8–10 inches of annual precipitation, leading to minimal direct recharge. Protecting upland recharge zones and monitoring aquifer levels are essential for the long-term stability of the water supply.

The region is working to reduce reliance on groundwater by developing water infrastructure for the Colorado River, which is essential for future water supply. To secure water from the Colorado River, Grand County, Utah, needs to build infrastructure to divert and transport water—using existing water rights—while complying with strict interstate, federal, and state water policies. This involves constructing pipelines, possibly utilizing the Grand Water & Sewer Service Agency to facilitate connections, and following Utah Division of Water Rights policies.

Key actions include:

- **Infrastructure Development:** Building diversion and transport infrastructure, which is considered necessary to access the river for the upper Spanish Valley and Moab.
- **Cooperation and Joint Projects:** Working with neighboring San Juan County, which owns water rights in the Colorado River, to develop a shared system for delivery.
- **Water Rights & Permitting:** Filing, maintaining, and finalizing water rights through the Utah Division of Water Rights, specifically within the [Lower Green River Division](#).
- **Conservation and Demand Management:** Participating in state-run programs like the [Utah Demand Management Pilot Program \(DMPP\)](#) to ensure sustainable use and avoid future mandatory cuts.
- **Adherence to Compacts:** Operating within the frameworks of the 1922 Colorado River Compact, 1944 Mexican Treaty, and 1948 Upper Colorado River Compact.

The region is focusing on reducing reliance on groundwater by developing this infrastructure, which is crucial for the future water supply.

Grand County, UT, uses the FEMA Building Resilient Infrastructure and Communities (BRIC) grant program, among others, to fund water infrastructure upgrades, with the 2025 budget outlining specific allocations for stormwater mitigation. These grants support projects that lower hazard risks, such as water transmission lines, new wells, and reservoirs.

3. WATER USE CONDITIONS

All connections within the GWSSA service area are metered. In 2024, the total culinary demand was approximately 988 acre-feet for around 4,099 residents. Irrigation and secondary deliveries totaled about 1,490 acre-feet. Current indoor and outdoor water use averages approximately 184 gallons per person per day (GPCD), already aligning with the regional conservation goal of staying below 214 GPCD by 2030. The system's measured loss is roughly 7.75% of culinary production (around 83 acre-feet annually), primarily due to leaks, fire flows, and meter inaccuracies. GWSSA actively monitors inflow and billed water monthly, uses Neptune 360 meters to identify continuous usage, and expedites repairs.

4. OUTDOOR WATER USE & SUSTAINABLE LANDSCAPES

Outdoor water use significantly impacts overall demand, especially for irrigated landscapes, parks, and tourism-related lodging. Grand County promotes water-efficient landscapes that follow Localscapes and xeric design principles.

The County encourages:

- Waterwise plant palettes and drip irrigation.
- Limiting turf in new developments, particularly in commercial and common areas.
- Using Ken's Lake/secondary water for outdoor irrigation where available instead of culinary water.
- Public outreach in partnership with USU Extension (Moab) and GWSSA to perform audits and educate property owners.

These efforts connect landscaping standards directly to community-wide water savings.

5. THE EFFECT OF PERMITTED DEVELOPMENT ON WATER DEMAND AND WATER INFRASTRUCTURE (§403(2)(v)(A))

Grand County anticipates steady, long-term population growth alongside seasonal fluctuations in visitation. To evaluate long-term water supply needs, this plan projects total annual demand for culinary and irrigation purposes through 2060. The Baseline Scenario assumes current watering practices, landscaped areas, and system efficiency stay the same. The 20% Reduction Scenario expects widespread adoption of water-efficient landscaping, proactive leak management, and ongoing rate-based conservation. The 30% Reduction Scenario involves strong measures, including strict turf limits, high-efficiency irrigation technology, and full use of secondary irrigation in growth zones. These reduction scenarios show how conservation can keep total demand stable despite population growth.

Grand County assesses how permitted development and growth patterns impact water demand and infrastructure. Higher-density residential and tourism-oriented developments boost seasonal irrigation needs, increasing pressure on wells, storage tanks, and Ken's Lake. The County requires evidence of a sufficient water supply and infrastructure capacity for subdivision and site plan approvals, in accordance with §17-27a-707.

Table 1. Projected Total Water Demand (2025–2060)

Year	Baseline Demand (AF/yr)	20% Reduction (AF/yr)	30% Reduction (AF/yr)
2025	2400	1920	1680
2030	2550	2040	1785
2035	2700	2160	1890
2040	2850	2280	1995
2045	3000	2400	2100
2050	3150	2520	2205
2055	3300	2640	2310
2060	3450	2760	2415

Table 1: Baseline Demand assumes continuation of the current landscape and usage patterns. The 20% and 30% Reduction scenarios mirror the state model approach, showing how aggressive conservation can hold long-term demand nearly flat even as population grows.

Figure 1. Projected Water Demand Scenarios (2025–2060)

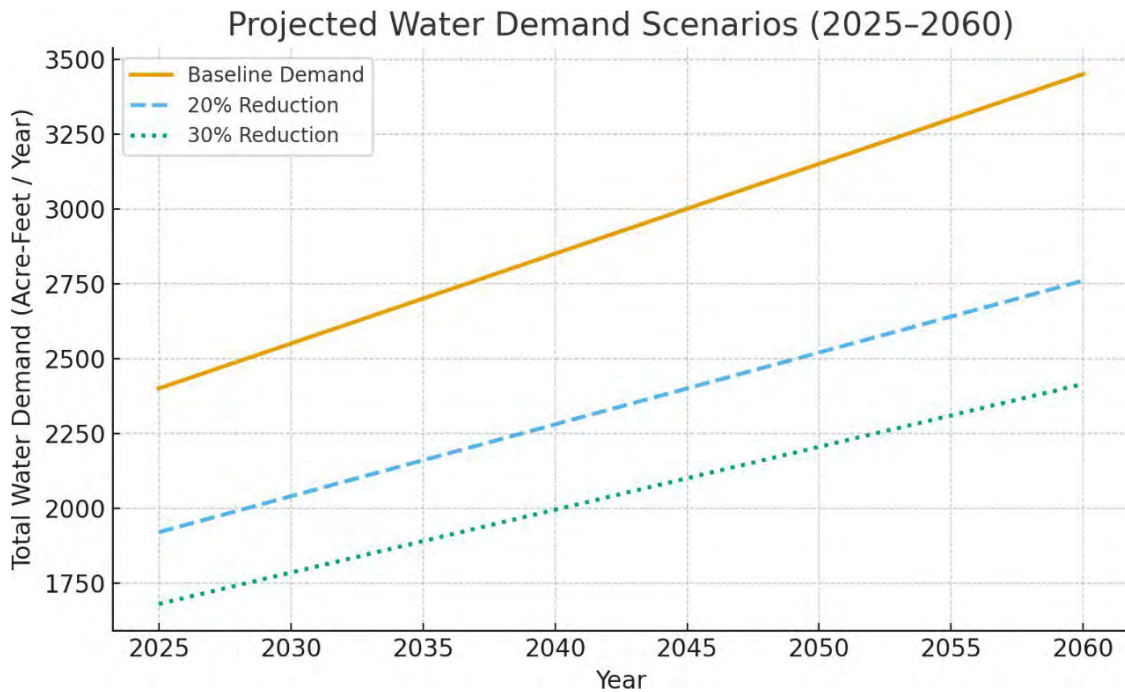


Figure 1 illustrates three planning scenarios: Baseline (no significant change in behavior), 20% Reduction (expanded metering, rate pressure, and waterwise landscaping), and 30% Reduction (aggressive turf limits, smart irrigation, and drought-driven restrictions).

6. METHODS OF REDUCING WATER DEMAND FOR FUTURE DEVELOPMENT (§403(2)(v)(B))

Existing Practices:

- Tiered culinary rate structure with high upper tiers to discourage excessive outdoor use.
- Full metering of culinary and irrigation connections.
- Monthly leak detection and inflow/outflow audits using Neptune 360.
- Public education through social media, billing inserts, and school outreach.
- Critical Water Year/drought response program linked to Ken's Lake storage.
- Landscape standards that limit high-water turf in new developments and promote xeriscaping.

New / Emerging Practices:

- Increasing the highest rate tiers to reduce discretionary outdoor use.
- Seeking a Colorado River diversion to help stabilize Ken's Lake supply for non-potable irrigation.
- Establishing a Water Conservation Committee to monitor targets and suggest policy updates.
- Introducing elementary school water curriculum in partnership with local groups (e.g., Canyonlands Field Institute).
- Expanding rebate programs for turf conversion and smart irrigation controllers.

Future development will incorporate design and regulatory measures to minimize water consumption, including:

- Requiring secondary irrigation metering for all new subdivisions.
- Enforcing turf area limits and waterwise landscape standards.
- Implementing high-efficiency fixtures, dual plumbing, and smart controllers.
- Linking impact fees and site plan approval to conservation benchmarks.
- Mandating water availability certifications during zoning or plat approval.

7. METHODS OF REDUCING WATER DEMAND FOR EXISTING DEVELOPMENT (§403(2)(v)(C))

Grand County and GWSSA will implement retrofit and incentive programs to reduce water use among existing users:

- Offer rebates for turf removal and efficient irrigation retrofits.
- Maintain a tiered water rate structure that discourages high consumption.
- Conduct public outreach campaigns promoting water-wise behavior.
- Expand metering upgrades to legacy secondary systems.
- Increase leak detection and customer notification frequency.

8. COUNTY OPERATIONAL IMPROVEMENTS TO ELIMINATE WATER WASTE (§403(2)(v)(D))

The County will lead by example by improving its own operations to eliminate waste:

- Retrofit County facilities with low-flow fixtures and smart irrigation systems.
- Replace ornamental turf at County buildings and parks with xeriscape.
- Implement internal policies for prompt leak repairs.
- Monitor County facility water usage annually to identify savings opportunities.
- Use public landscapes as demonstration sites for drought-tolerant design.

9. REGIONAL COLLABORATION

Grand County works closely with:

- Moab City – sharing messages, managing drought concerns, and discussing aquifers.
- San Juan Spanish Valley SSD – planning together for shared groundwater sources.
- Central Utah Water Conservancy District – getting funding help for conservation projects.
- Utah Division of Water Resources – providing yearly reports on water use, GPCD, and conservation efforts.

Regional collaboration is essential because the groundwater aquifer and Ken’s Lake storage serve multiple jurisdictions, and long-term security depends on shared monitoring, shared funding, and unified demand management.

10. GOALS, POLICIES & IMPLEMENTATION MEASURES

Goal	Policy	Implementation Measure
Ensure sustainable supply	Protect recharge areas of the aquifer and manage Ken’s Lake as a strategic irrigation source.	Require water availability review with every significant subdivision/zone change; track aquifer performance annually.
Reduce per capita demand	Drive indoor and outdoor efficiency through pricing, tech, and outreach.	Keep system-wide use below 214 GPCD; maintain leak loss below 8% of production.
Advance water-wise landscapes	Make low-water landscaping the community norm, not the exception.	Cap new turf areas, require drip irrigation in non- recreational landscapes, and showcase County demonstration sites.
Limit system loss	Detect and repair leaks rapidly; replace aging lines proactively.	Continue monthly inflow vs. billed audits and immediate leak response using Neptune 360 alerts.
Align land use with water	Tie development intensity to a realistic long-term supply.	Coordinate with GWSSA during entitlement, and require secondary irrigation where available.
Educate & engage the public.	Normalize a culture of conservation for residents, HOAs, hotels, and short-term rentals.	Continue school programs, media campaigns, and direct high-use customer outreach each season.

11. CONCLUSION

Grand County’s water future relies on integrating land-use planning, conservation policies, and infrastructure investment. By recognizing water availability as a growth limit—and promoting efficient outdoor water use, metering, leak prevention, and regional cooperation—the County can protect its limited desert water resources while supporting residents, agriculture, and a tourism-driven economy.

The Arches Special Service District (SSD) experiences seasonal and visitor-driven demand patterns that result in significant peak-day and peak-hour water usage. Development within the Arches SSD service area has a disproportionate impact on storage, pumping capacity, and distribution reliability during the summer months. Therefore, land use approvals within the Arches SSD should focus on landscape water budgets, restrictions on high-water turf, use of secondary irrigation where available, and phased service commitments tied to proven system capacity.

The Thompson Springs Special Service District functions as a small, rural water system with limited redundancy. Even slight increases in demand can significantly impact system reliability, storage reserves, and emergency response capabilities. Growth within the Thompson Springs SSD will be managed through allocation-based service connections, strict controls on system extensions, rapid leak detection and repair, and conservative drought response measures to safeguard existing users and public health.

While Grand County does not have authority to grant, approve, or deny water rights, the County can support responsible water-right change efforts in the Cisco area through coordinated land use planning, procedural clarity, and interagency collaboration. The County may assist by clearly articulating land-use assumptions, development phasing expectations, and infrastructure requirements in adopted planning documents, thereby providing context for state-level water-right review. Grand County may also facilitate coordination among applicants, state agencies, and affected stakeholders and may provide documentation of consistency with the General Plan, where appropriate. Development approvals in the Cisco area shall remain contingent upon the successful acquisition, perfection, and long-term reliability of legally recognized water rights and associated infrastructure.

12. PLANS REVIEWED

- 2020 Water Conservation Plan for Spanish Valley-Grand Water & Sewer Service Agency
- 2021 Water Conservation Plan Update-Moab City
- 2025 Water Conservation Plan-Grand Water & Sewer Service Agency
- Arches Special Service Water District Master Plan
- 2021 Thompson Special Service Culinary Water Master Plan
- 2026 Castle Valley Water Management Plan