6 - WATER USE + CONSERVATION

Facing the challenge of population growth and economic development, the county needs a deliberate and integrated approach to water management.This chapter outlines strategies to balance water needs with conservation efforts, aiming to preserve this essential resource for present and future generations while supporting sustainable development and maintaining the county's quality of life.

6.02 Need and Statutory Requirements

Millard County recognizes the critical importance of water resources in our arid region. Utah Code 17-27a-403 mandates counties develop a water use and preservation element as part of their general plan. This element addresses the relationship between land use decisions and water resources within county boundaries.

While Millard County does not directly provide water services, it plays an essential role in land use decisions that impact water resources through its planning authority. Water is essential for supporting residential, industrial, commercial, agricultural, and recreational needs throughout the county.

Millard County is committed to sustainable water use and management. We acknowledge that every development has a hydrologic cost, and our community operates within a hydrologic budget. Our planning approach considers new land uses in the context of their impact on existing networks, fiscal sustainability, and water supply.

Millard County's Resource Management Plan addresses several water-related issues, including water rights, watershed management, irrigation systems, and the protection of water quality. The plan emphasizes the importance of these resources for agriculture, economic development, and environmental sustainability, providing guidelines for their use and conservation in alignment with the county's overall development goals.

6.04 Effect of Permitted Development Patterns

The pattern of development in Millard County significantly influences water demand and infrastructure needs. Our primarily rural landscape, defined by agricultural and small urban centers, presents unique challenges and opportunities for water management.

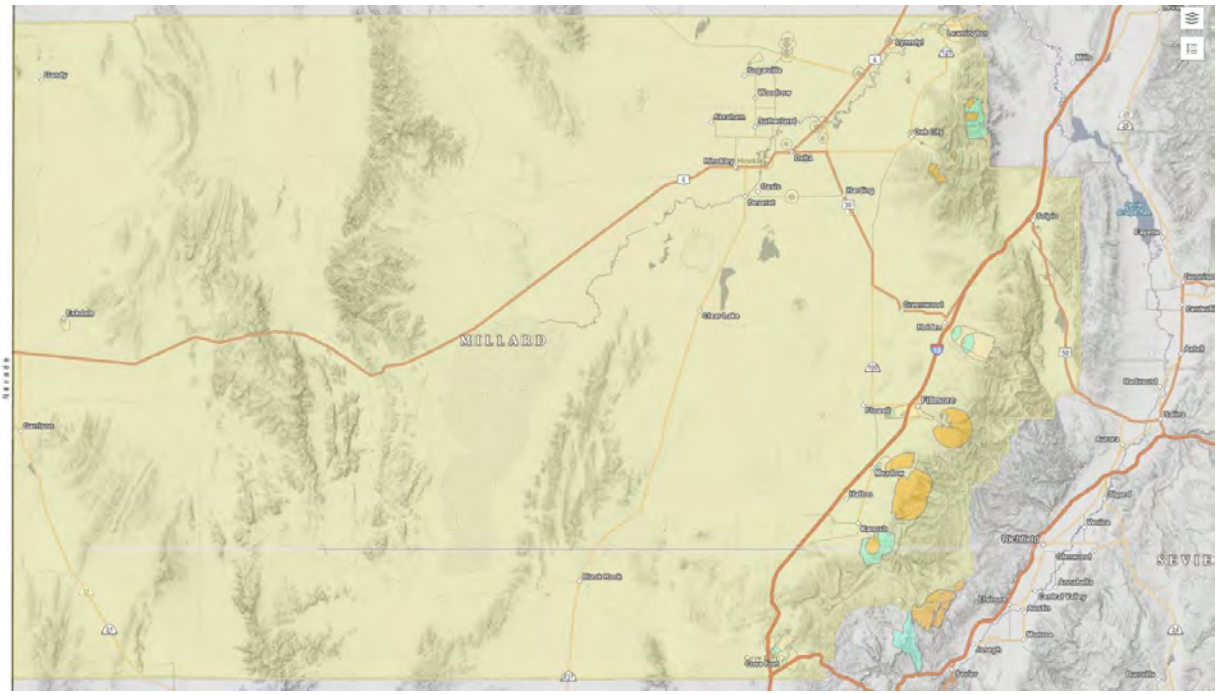
A. Agricultural uses, particularly irrigation, account for a significant portion of our water consumption.

B. Residential development, though limited, contributes to increasing demand for culinary water.

C. Industrial development, including mineral extraction and energy production, requires substantial water resources.

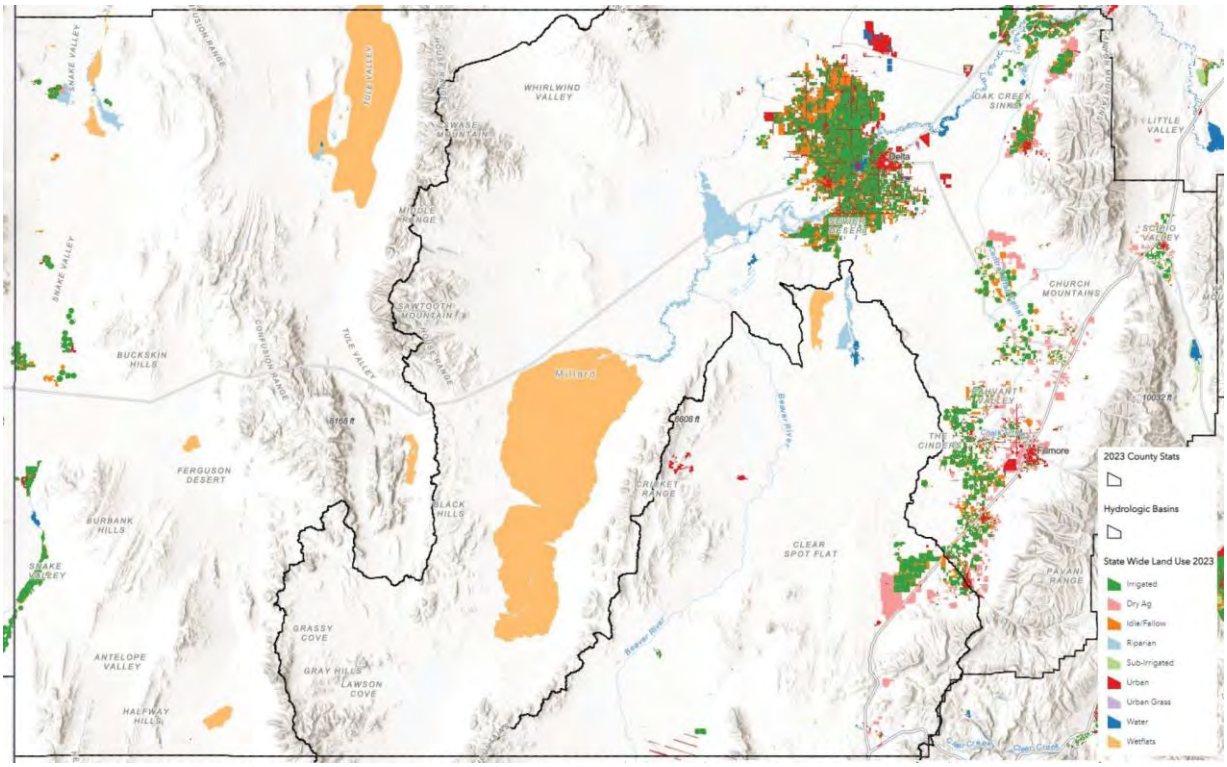
Each existing source also has source protection zones. These zones are established to protect each source from potential contamination and have varying restrictions depending on the proximity to the source and the source type (surface or underground). Any new development will be required to be a certain distance away from each source (typically Zone 1), and will have to meet certain requirements to develop in any other zone.

Exhibit 6.04.1 County Groundwater Protection Zones



Millard County area groundwater protection areas. Source: Utah Department of Environmental Quality.
(click for source information)

Exhibit 6.04.2 County Water-Related Land Uses



Millard County area water-related land uses, 2023. Source: Utah Division of Water Resources.
(click for source information)

6.06 Reducing Water Demand for Existing Development

To reduce water demand in existing developments, Millard County will focus on:

A. Educational programs to promote water conservation practices.

B. Incentives for retrofitting older homes and businesses with water-efficient fixtures.

C. Encouraging the adoption of drought-tolerant landscaping in established areas.

D. Supporting agricultural water optimization projects.

6.08 Reducing Water Demand for Future Development

Millard County will strive to implement strategies to reduce water demand from new development. These strategies include:

A. Implementing water-efficient building codes for new construction.

B. Requiring water-wise landscaping in new developments.

C. Encouraging municipal infill development to reduce infrastructure needs and water use.

6.10 Potential Modifications to Local Government Operations

Millard County will lead by example in water conservation efforts by:

A. Auditing and optimizing water use in county facilities.

B. Implementing water-efficient landscaping on county properties.

C. Incorporating water conservation measures in all county construction projects.

D. Training county staff on best practices for water conservation.

6.12 Consultation with Public Water Systems

Millard county does not directly provide water to its residents and businesses. However, its land use regulation and decisions make a strong impact on water use and conservation.

During the development of this plan, the County sent invitations to the water providers to share their operational data, plans, etc. This information was incorporated into the general plan. (***Refer to Appendix B.06 for more information***).

Millard County has consulted with water service providers throughout the county to understand current operations and coordinate on water management strategies. According to Utah Division of Drinking Water records, there are 6 active public water systems within county boundaries.

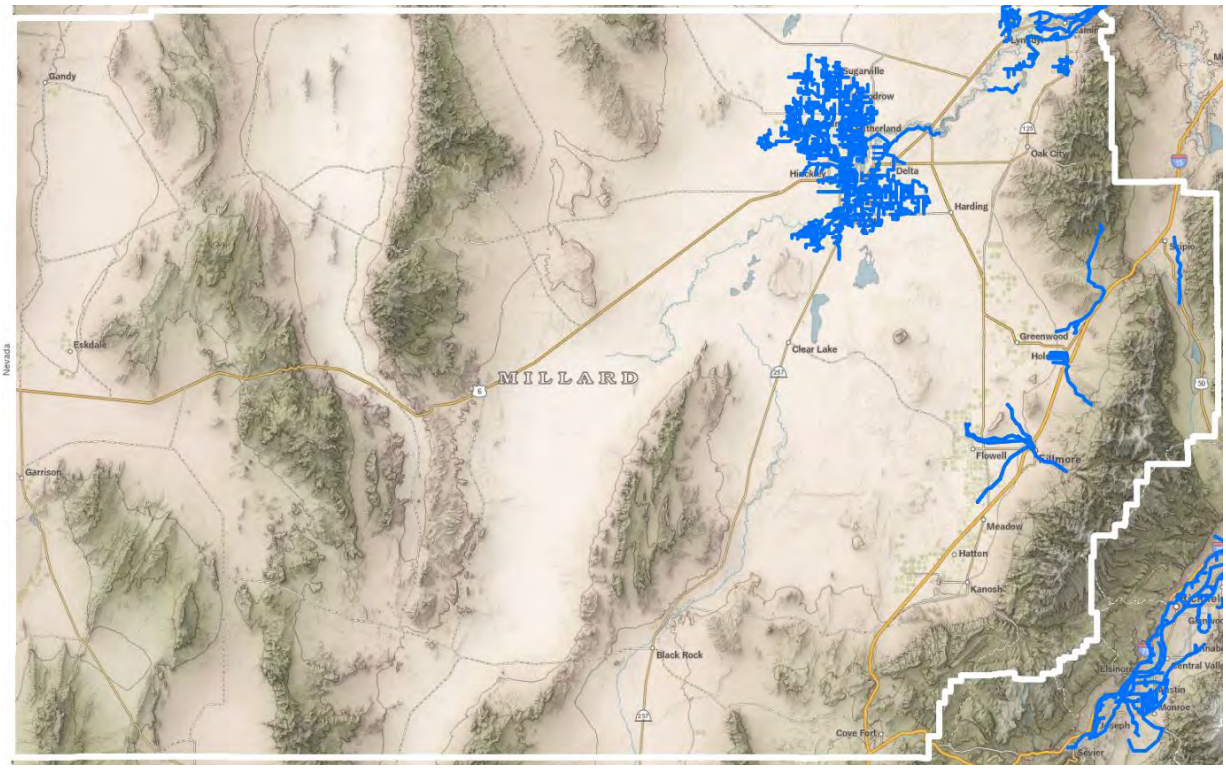
Consultation Process: The county conducted outreach to major water providers through surveys and direct outreach that focused on:

- Current water source capacity and infrastructure
- Storage and distribution capabilities
- Conservation opportunities and challenges
- Coordination needs for development review

Key Findings:

- Combined production capacity: 2,285 gallons per minute
- Total storage capacity: 966,000 gallons
- Service area coverage: 337 connections

Exhibit 6.12.1 Millard County Canals



Millard County area canal locations in 2025. Source: Utah Geospatial Resource Center.
(click for source information)

6.14 Culinary Water

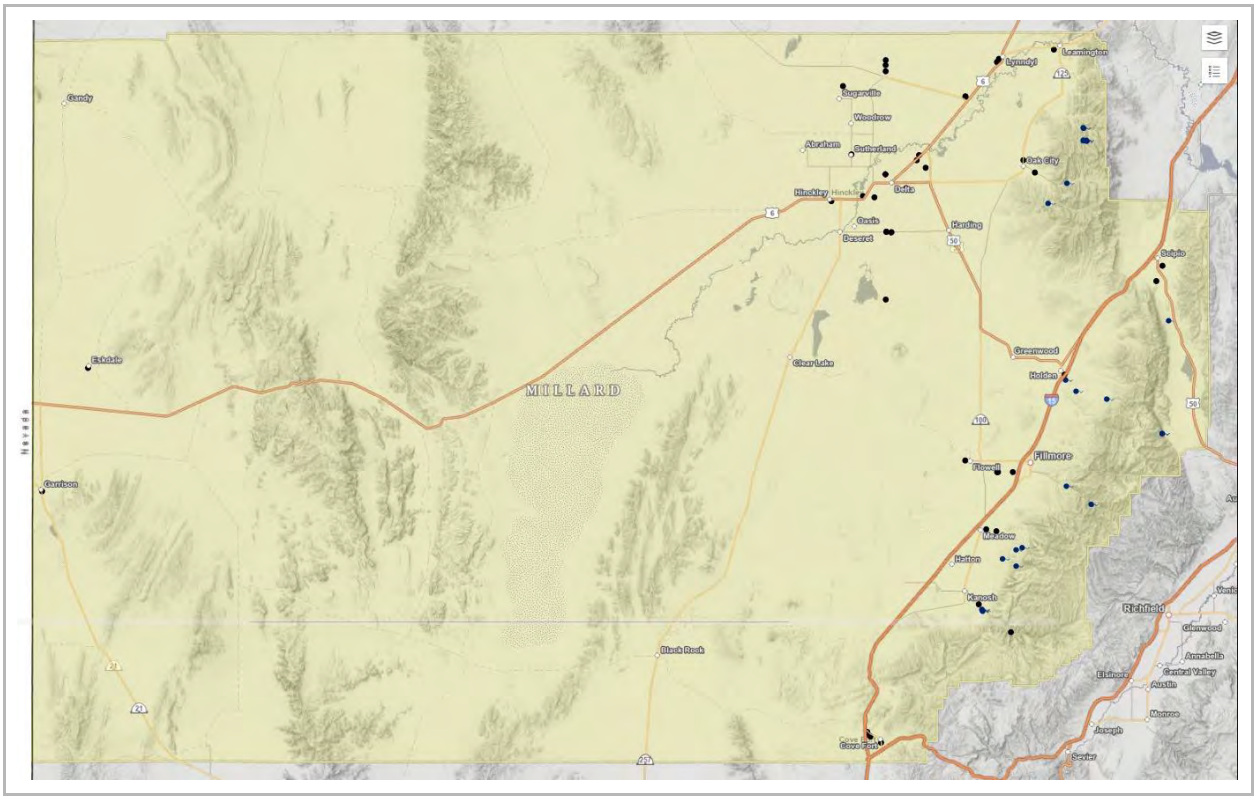
A. Water quality and availability will determine the type, level and location of future growth. Millard County encourages the efficient management and use of water resources.

B. The County also supports the development, adoption and implementation of water collection, storage, distribution and conservation plans by local municipalities, the Conservancy District and water companies.

C. The County also encourages continued cooperation among these entities as water-management decisions are made.

D. The County will take an active role in all relevant Federal and State water-resource management plans and decisions impacting the County and/or the interests of its residents.

Exhibit 6.14.1 Map of Public Water System Facilities (DEQ)



6.16 Consultation with Division of Water Resources

Millard County has consulted with the Division of Water Resources regarding regional water conservation goals. Based on these consultations and the Utah Regional M&I Water Conservation Goals report, the following specific targets have been established for the Sevier River Region, which includes Millard County:

6.16.1 Regional Conservation Targets

- Baseline (2015): 400 gallons per capita per day (GPCD)
- 2030 Goal: 321 GPCD (20% reduction from baseline)
- 2040 Goal: 301 GPCD (25% reduction from baseline)
- 2065 Goal: 302 GPCD (25% reduction from baseline)

  Note that the slight increase in per capita use from 2040 to 2065 reflects the state's modeling assumptions about practical conservation limits and the diminishing returns of additional conservation measures once baseline efficiency improvements are achieved.

The county will track progress through:

- Annual GPCD reporting in coordination with municipal water providers.
- Biennial assessment of conservation program effectiveness.
- Regular consultation with the Division of Water Resources on target adjustments.

Millard County is committed to implementing conservation measures to help achieve these regional targets. The Utah Regional M&I Water Conservation Goals report estimates that achieving these conservation goals will require significant investment. Statewide capital costs for implementing the conservation policies included in the regional goals are projected to be approximately $1.4 billion through the year 2030.

6.16.2 County-Specific Conservation Strategies

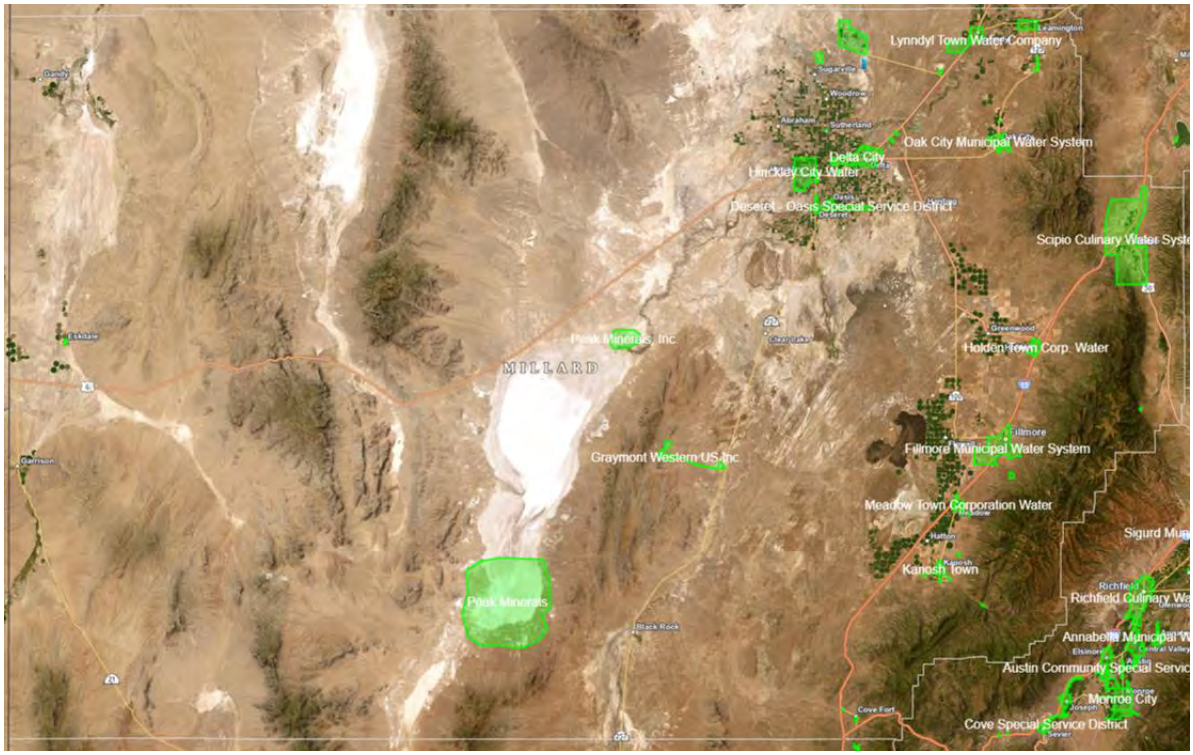
To contribute to these regional conservation targets, Millard County will:

1. Develop conservation education programs targeted to the county's largest water use sectors
2. Support improvements in irrigation efficiency through water-wise landscaping and modern irrigation technologies.
3. Consider water conservation ordinances for new development.
4. Lead by example through water-efficient practices at county facilities.
5. **Support agricultural water optimization projects through coordination with irrigation companies and water providers.**

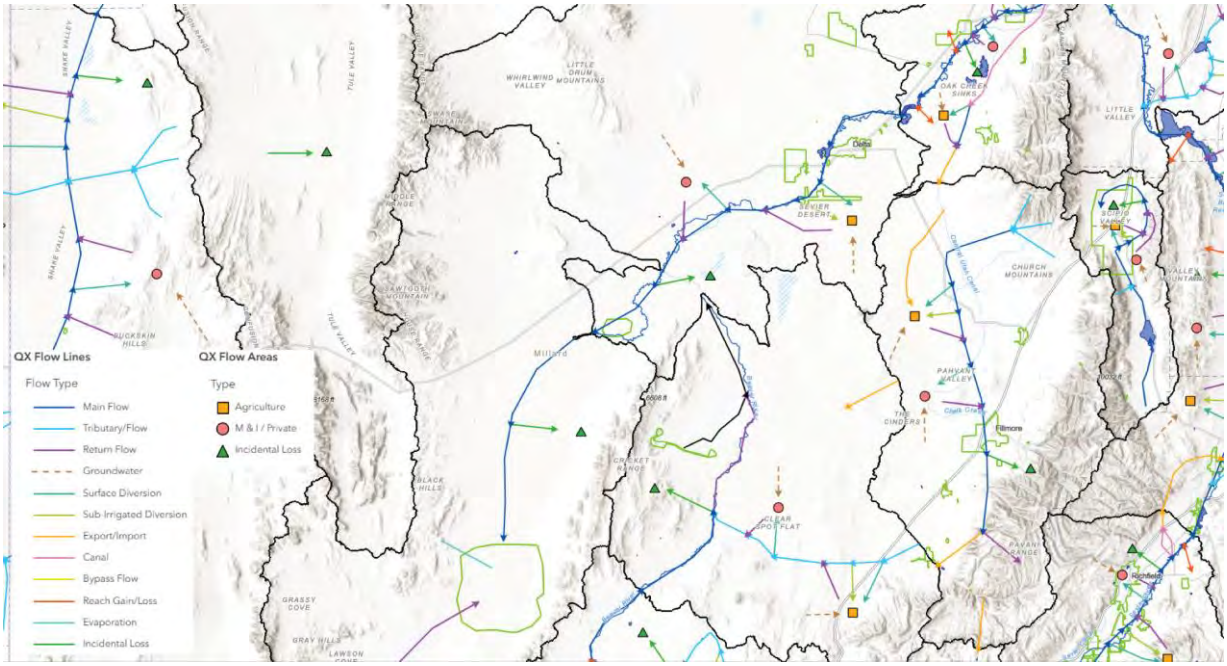
The county will track progress toward these goals through regular coordination with water providers and reporting of water use data to the Division of Water Rights.

While Millard County does not significantly affect the Great Salt Lake watershed directly, the county recognizes the importance of water conservation for overall state water resources and supports initiatives that contribute to sustainable water management throughout Utah.

Exhibit 6.16.3 Service Area Maps



Map showing the culinary service areas of, as hosted on the DWR website. (interactive source at this link).



This map visualizes water flows throughout the Sevier River Basin, which includes Millard County. Flow lines represent the movement of water, while colored flow areas show water use aggregations across municipalities and agricultural areas. Source: Utah Division of Water Resources. *(click for source information)*

6.18 Consultation with Department of Agriculture and Food

Millard County has consulted with the Department of Agriculture and Food to explore:

A. Potential benefits of agricultural conservation easements (see also section 2.08 of this plan).

B. Implementation of agricultural water optimization projects.

C. Strategies to balance agricultural water needs with conservation goals.

6.20 Consultation with Division of Drinking Water

Collaboration with the Division of Drinking Water has focused on:

A. Ensuring safe and reliable drinking water sources.

B. Planning for future water needs in light of population projections.

C. Addressing potential water quality concerns.

6.22 Water Budget Analysis

6.22.1 Current Water Demand:

- **Agricultural Use:** There is currently no data readily available on the current agricultural use or demand.

- **Municipal Use:** Public water systems deliver approximately 350 ac-feet annually to residential, commercial, and institutional users, with an average per capita use of approximately 317 gallons per day.
- **Industrial Use:** Industrial operations consume approximately 0.49 acre-feet annually.

6.22.2 Project Future Demand Analysis

Millard County has developed a comprehensive methodology for projecting future water demands in unincorporated areas. This approach analyzes each water system's historical connection data, population trends, and growth projections to determine realistic demand forecasts for the next 10 to 20 years.

The projection methodology utilizes actual water usage data reported annually by each system to the Division of Water Rights, rather than relying on theoretical consumption tables. This data-driven approach provides more accurate baseline information for planning purposes and ensures projections reflect actual local conditions and usage patterns.

Historical analysis of the six water systems serving unincorporated areas shows stable demand patterns with manageable system losses. This foundation supports the county's water conservation strategies while accommodating anticipated growth in designated development areas.

-
- **Current Service Baseline (2020-2024 Average):**
    - Total connections served: 337 connections
    - Total equivalent residential connections (ERCs): 349 ERCs
    - Average annual water production: 347.83 acre-feet from sources
    - Average annual retail water use: 311.72 acre-feet
    - System efficiency: 89.51% (10.49% loss rate)
- Historical water production and usage data for these systems demonstrates consistent operational patterns over the five-year analysis period:

Source Summary - Millard County Sources

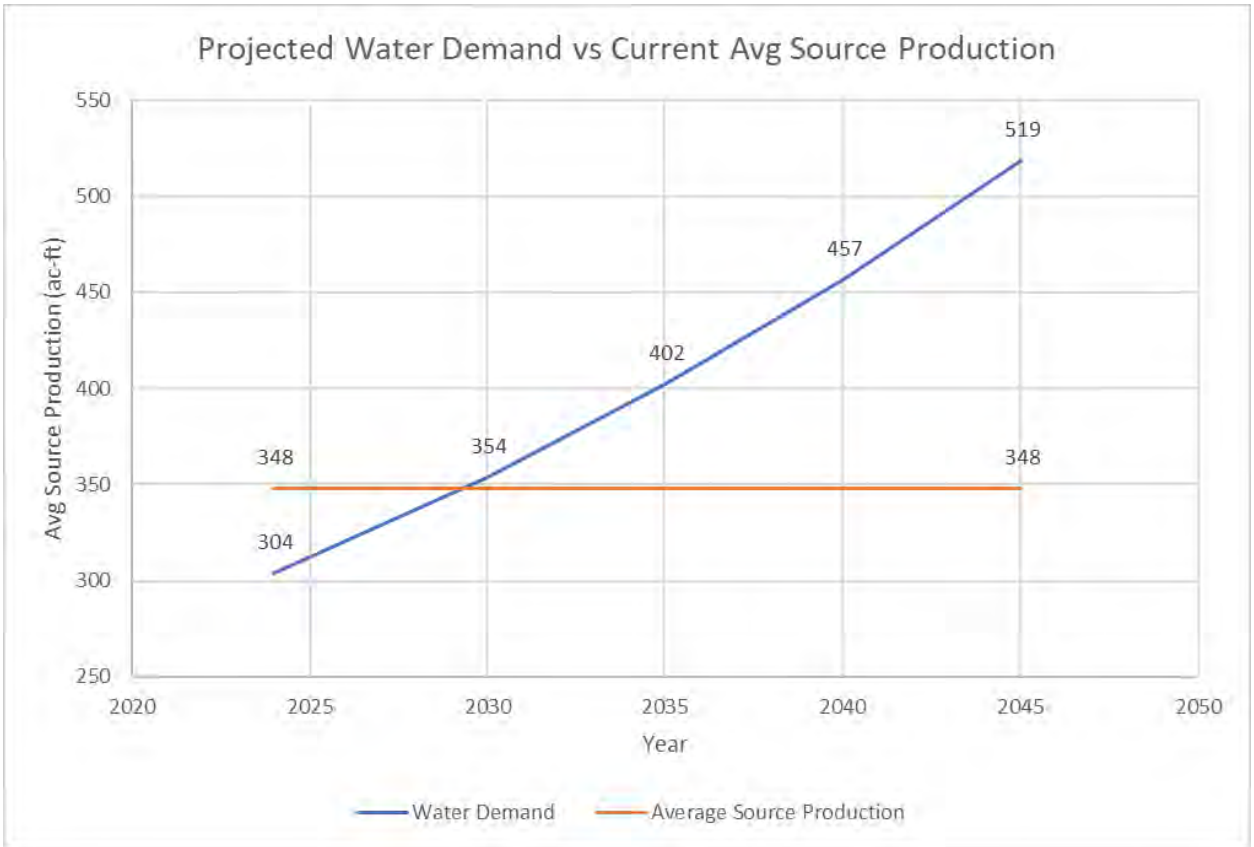
Year	Total From Sources (ac-ft)	Total Retail Use (ac-ft)	Est. Water Loss (ac-ft)	Est. Water Loss (%)
2024	376.10	353.58	22.52	5.99%
2023	332.40	292.44	39.96	12.02%
2022	339.01	288.54	50.47	14.89%
2021	327.34	295.37	31.97	9.77%
2020	364.30	328.66	35.64	9.78%
AVG	**347.83**	**311.72**	**36.11**	**10.49%**

- **Connection Type Distribution:**
    - Residential: 330 connections (1.00 ERC value, 0.92 acre-feet per connection annually)

- Commercial: 2 connections (0.05 average ERC value, 0.05 acre-feet per connection annually)
- Industrial: 1 connection (1.53 average ERC value, 0.49 acre-feet per connection annually)
- Institutional: 4 connections (4.34 ERC value, 5.10 acre-feet per connection annually)

- **Growth Projections**: Historical connection data indicates an average annual growth rate of 2.59% for residential connections and -4.17% for commercial/industrial connections. It is not realistic to account for negative growth, so a rate of 0.25% was applied for the commercial/ industrial connections. The table below shows the anticipated connections based on the projected growth rate through 2045.

Connection Type	2024	2030	2035	2040	2045
Residential	330	385	437	497	564
Commercial/ Industrial	3	3	3	3	3
Total	**333**	**388**	**440**	**500**	**567**



- **Population Growth**: The county's population is projected to increase by approximately 2.59% annually over the next 20 years, potentially increasing municipal demand over 45% by 2045.

- **Agricultural Projection**: While irrigated acreage is not expected to increase significantly, changes in crop types and climate conditions may increase per-acre water requirements by 5-10%.
- **Development Impact**: Each new residential unit adds approximately 0.92 acre-feet of annual demand to the water system.
- **Conservation Potential**: Implementation of conservation measures across all sectors could reduce overall demand by 15-20% by 2040.

6.22.3 Reliable Water Supply Analysis

Water system capacity analysis indicates current infrastructure can support projected growth through 2045. Combined system data reveals:

- **Production Capacity**: Independent water systems serving unincorporated areas maintain 2,285 gallons per minute of combined production capacity from wells and springs.
    - Shiloah Wells Water Co: 650 gpm
    - Country Estates Lot Owners Association: 45 gpm
    - Fool Creek Culinary Water Co: 80 gpm
    - Oak Meadow Subdivision: 110 gpm
    - Sunset View Estates Water Company: 400 gpm
    - Deseret Oasis SSD: 1,000 gpm

The average annual production for these systems is approximately 350 acre-feet. Because most of the sources are wells, it is not anticipated to have any seasonal variations in available flow. However, drought conditions could cause the aquifer levels to drop, which would potentially require redrilling existing wells deeper into the aquifer to maintain source production. Typically, aquifer levels are monitored at each well. This would allow each system to plan for a new source if aquifer levels were to drop to concerningly low levels.

- **Storage Infrastructure**: Independent systems maintain 966,000 gallons of combined storage capacity providing approximately 3 days of average demand storage during peak usage periods.
    - Shiloah Wells Water Co: 40,000 gallons
    - Country Estates Lot Owners Association: 50,000 gallons
    - Fool Creek Culinary Water Co: 110,000 gallons
    - Oak Meadow Subdivision: 110,000 gallons
    - Sunset View Estates Water Company: 256,000 gallons
    - Deseret Oasis SSD: 400,000 gallons
- **Supply Reliability**: The 10.49% average system loss rate represents an opportunity for efficiency improvements that could extend current capacity. Reducing losses to 5% would increase effective supply by approximately 19.1 acre-feet annually without additional source development.
- **Capacity Constraints**: Analysis indicates that the existing systems are operating efficiently due to the majority of the sources being wells that are only pumped as needed. This also does not provide a true capacity for each source as the wells are only pumped as needed. A water right inventory for each system will need to be completed before a true source capacity can be determined.

6.22.4 Future Development Water Demand Projections

Each new residential connection adds an average of 0.92 acre-feet of annual demand based on actual usage data from existing systems. Commercial and industrial development creates significantly lower per-connection demands:

- **Per-Connection Demand Factors**:
    - New residential: 0.92 acre-feet annually
    - New commercial: 0.05 acre-feet annually (average)
    - New industrial: 0.49 acre-feet annually (average)
- **Development Review Thresholds:** Any new development will need to review the anticipated demands with the associated public water system to ensure there is enough source capacity to provide water to the development.
- **System Efficiency Considerations:** Current 10.49% system losses indicate that efficiency improvements could accommodate additional growth. A reduction to 5% losses would provide capacity equivalent to 21 additional residential connections without new source development.

6.22.5 Water Budget Challenges

- **Seasonal Variability**: Spring runoff is inconsistent throughout the year, which requires supplemental wells to provide the majority of annual water supply.
- **Climate Uncertainty**: Historical hydrologic patterns may not accurately predict future conditions, with potential for extended drought periods.
- **Infrastructure Efficiency**: Current delivery systems experience transmission losses, representing significant conservation potential.
- **Water Rights Allocation**: The Sevier River is fully appropriated, with complex water rights structures affecting management decisions.
- **Growth in Demand**: The current demand for agricultural, municipal, and industrial uses are anticipated to increase over time.

6.22.6 Water System Capacity Analysis

Detailed analysis of water systems serving unincorporated Millard County areas provides the technical foundation for development planning and infrastructure coordination.

- **Independent System Infrastructure:**

System	Source(s)	Source Capacity (gpm)	Storage	Storage Capacity (gal)
Shiloah Wells Water Co.	One Well	650	One Tank	40,000
Country Estates Lot Owners Association	One Well	45	One Tank	50,000
Fool Creek Culinary Water Co	Spring	80	One Tank	110,000

Oak Meadows Subdivision	One Well	110	One Tank	110,000
Sunset View Estates Water Co	One Well	400	One Tank	256,000
Deseret Oasis SSD	Two Wells	400	Two Tanks	256,000
Total	**6 wells, 1 spring**	**2,285**	**7 Tanks**	**966,000**

6.22.7 ERC Summary

The following table summarizes the equivalent residential connection (ERC) analysis for water systems serving unincorporated areas:

Type	Connections	ERCs	Avg ERC Value per Connection	Avg Ac-ft per Connection per Year
Residential	330	330.00	1.00	0.92
Commercial	2	0.09	0.05	0.05
Industrial	1	1.53	1.53	0.49
Institutional	4	22.31	5.58	5.10
Total	**337**	**354**		

Assuming 10% water conservation through 2045, the following table shows the projections and new average ac-ft per connection per year.

Type	Connections	ERCs	Avg ERC Value per Connection	Avg Ac-ft per Connection per Year
Residential	564	564.00	1.00	0.83
Commercial	2	0.09	0.05	0.04
Industrial	1	1.53	1.53	0.44
Institutional	4	22.31	5.58	4.49
Total	**571**	**588**		

As discussed previously, the wells are only pumped as needed. Any future development will need to discuss with the respective system to review the associated source capacity to ensure water can be provided to any new development.

6.24 Goals + Action Steps: Water Use + Conservation

Goal 6-1: Strive to achieve regional water conservation targets.		
Action #	Implementation Actions + Responsibilities	Priority

A6-1.1	Develop a county-wide water conservation education program that includes efforts such as: public awareness campaigns on water-efficient landscaping, agricultural water efficiency workshops, and municipal water conservation best practice workshops. *Staff Responsibility*: Planning and Zoning Department to lead, collaborating with local water providers. *Resources:* Allocate budget for educational materials; seek state grants for conservation programs.	Medium term
A6-1.2	Implement a water-efficient fixture rebate program. *Staff Responsibility*: Building Department to oversee, coordinating with local water providers. *Resources:* Establish a conservation fund; seek matching grants from state water agencies.	Long term
A6-1.3	Implement annual water system performance monitoring based on established baseline data from county water systems serving unincorporated areas. *Staff Responsibility:* Planning Department to coordinate with water providers for annual data collection and analysis. *Resources*: Staff time for data compilation; utilize existing reporting systems from Division of Water Rights.	Medium term

Goal 6-2: Support the optimization of agricultural water use.

Action #	Implementation Actions + Responsibilities	Priority
A6-2.1	Establish an Agricultural Water Optimization Task Force. *Staff Responsibility*: Staff Responsibility: USU Extension and Millard County to lead, partnering with local farmers and irrigation companies. *Resources:* Staff time for coordination; potential state funding for water optimization projects.	Medium term
A6-2.2	Develop new guidelines for efficient irrigation practices. *Staff Responsibility*: USU Extension and Millard County, collaborating with the Department of Agriculture and Food. *Resources:* Technical assistance from state agencies; educational workshops for farmers.	Long term

Goal 6-3: Enhance water-efficient development regulation and practice.

Action #	Implementation Actions + Responsibilities	Priority
A6-3.1	Update county building codes to require water-efficient fixtures and appliances in new construction. *Staff Responsibility*: County Agricultural Extension to lead, partnering with local farmers and irrigation companies. *Resources:* Staff time for code development; consultation with water efficiency experts.	Short term
A6-3.2	Develop a water-wise landscaping ordinance for new developments. *Staff Responsibility*: Planning Department to draft (as part of the 2024 planning initiative), in collaboration with local nurseries and landscapers. *Resources:* Staff time for ordinance development; demonstration gardens in public spaces.	Short term

Goal 6-4: Improve county government water use efficiency.

Action #	Implementation Actions + Responsibilities	Priority
A6-4.1	Conduct water audits of all county facilities. *Staff Responsibility*: Facilities Management Department to lead. *Resources:* Budget for professional water audits; staff training on water efficiency measures.	Medium term
A6-4.2	Implement a county-wide water-efficient landscaping program. *Staff Responsibility*: Parks and Recreation Department to oversee. *Resources:* Budget for landscape retrofits; training for maintenance staff on water-wise practices.	Medium term