Garden City Water Conservation Plan

November 2025

Prepared For:

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1. Introduction and Background

Garden City has been proactively implementing water conservation measures over the past 25 years as requested by the Governor to conserve 25% of water by the year 2045. A large part of this effort has been done by installing water meters to all the connections in the Town. The Town has also adjusted the water rate structure to encourage conservation.

The goal of this updated Water Conservation Plan is to reduce water consumption by an additional 20% over the next 10 years (2035) while delivering a cost-effective, adequate and reliable supply of high-quality water to its residents and other contracting entities. To outline the process of conservation, the Town is updating this water conservation plan. This is a step in planning and preparing to meet future needs in a proactive manner.

Water demand management, supply planning and a conservation program provide the Town of Garden City with a balanced approach to meet growth expectations and comply with Utah State Law as required by the Utah Legislature. A SCADA System, metering, pricing and other important conservation elements have been implemented incrementally as funding and other resources have been identified. This plan describes future items to further conservation, including a citizen education program addressing demand management and to better the supply planning of water.

1.1 Background

The Town of Garden City is a small community located in the top northeast corner of Utah on the western shore of Bear Lake. The site was considered a garden spot in the valley and is well known for its raspberry crops. A strong agricultural foundation exists among long-term community members, although this is gradually decreasing as new development occurs.

Garden City is now considered a resort community with a year-round population of 545, which then explodes to between 30,000 and 80,000 people during the summer months who recreate at Bear Lake. This presents a unique challenge in providing reliable, adequate and efficient infrastructure to meet summer use without placing an undue financial burden on year-round residents. In addition, the greatest growth is occurring with the construction of vacation homes, or second homes, and single-family dwellings with a corollary increase in landscape water use. The town uses an inverted rate schedule based on usage, thus having a greater impact on larger water users. Water meters have been installed and are required for all new developments and residential homes. The Town Council has been concerned about inequitable impacts to senior citizens and has implemented a “discounted water rate” for qualifying senior citizens using federal criteria that provides a monthly “lifeline” amount of water. Issues of fairness and equity are a large factor since the impact on Garden City’s water system is based primarily on

temporary, summertime users, and any policies and procedures should ensure they pay their required portion. The greater challenge, however, is that these temporary residents consider Garden City a “vacation home” and do not want government nor political intrusion.

1.2 Definitions

The following definitions are provided to clarify commonly used terms in the report:

- Average Daily Flow: The average yearly demand volume expressed in a flow rate.
- Average Yearly Demand: The total volume of water used during a calendar year.
- Demand: The required flow rate or volume to satisfy consumer use.
- Distribution System: The network of pipes, valves and bends used to deliver water to the users.
- Drinking Water: Water suitable for human consumption. Sometimes referred to as culinary water or potable water.
- Equivalent Residential Connection: A measure used in comparing water demand from nonresidential connections to residential connections.
- Fire Flow Requirements: The rate of water delivery required to extinguish a particular fire. Usually given as a rate of flow (gallons per minute) for a specific period.
- Head loss: The amount of pressure lost in a distribution system under dynamic conditions due to the wall roughness and other physical characteristics of pipes and fittings.
- Peak Day: The day(s) of the year in which a maximum amount of water is used in a 24-hour period.
- Peak Day Demand: The average daily flow required to meet the needs imposed on a water system during the peak day(s) of the year.
- Peak Instantaneous Demand: The flow required to meet the needs imposed on a water system during maximum flow on a peak day.
- Pressure Reducing Valve (PRV): A valve used to reduce undesired pressure in a water distribution system.
- Pressure Zone: The area within a distribution system in which water pressure is maintained within specified limits.
- SCADA: Supervisory control and data acquisition software and hardware that allows for remote monitoring and control of system components.
- Service Area: The area for which users participate in the ownership, planning, design, construction, operation, and maintenance of a water system.

2. Water Conservation Goal and Implementation Plan

The primary water conservation goal is to reduce per capita water consumption by 18% by the year 2030. This aligns with the regional water conservation goal set forth by the Utah Division of Water Resources for the Bear River Region. Garden City aims to reduce the average daily water use per residential connection by 18% by the year 2030. This goal will be tracked using annual water use data and will be evaluated based on a five-year rolling average to account for seasonal and annual variability. Progress will be monitored through metered residential usage and reported annually.

3. System Profile and Supply Information

Background information and assumptions were needed to complete this conservation plan. This section addresses the service area, projected growth, state requirements, and demands used in the analysis. The state requirements and demand analyses are separated into different components of the water system including the source and storage.

3.1 Service Area

Garden City, located in Rich County, Utah is experiencing steady population growth and development, with increasing demand on its water supply and distribution systems. The Garden City culinary water system provides water to approximately 620 residents, in addition to several commercial facilities. The culinary water system supplies water for both indoor and outdoor use. In addition to substantial residential growth, Garden City is also preparing for possible commercial growth. A service area map is shown in Figure 1.

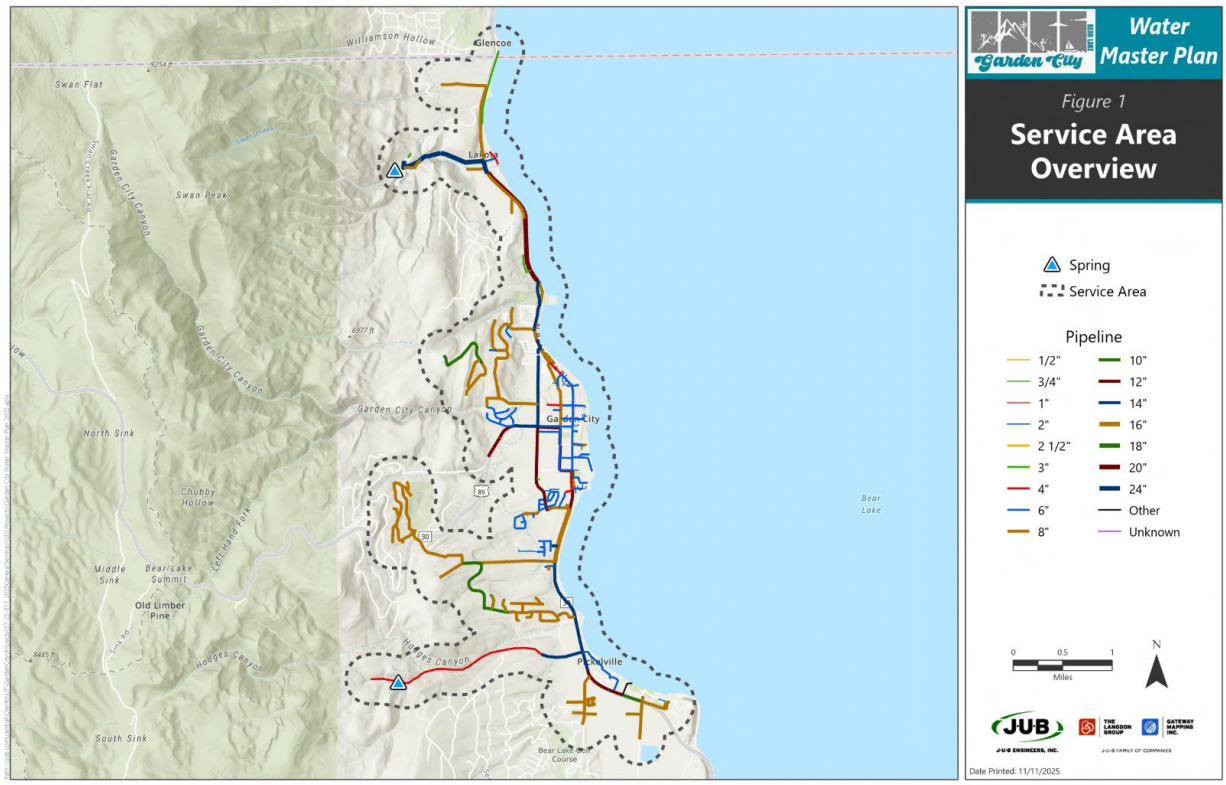

Figure 1. Service Area Overview Map

3.2 Connections

The number of residential connections is 942 while the number of commercial connections is 44 for a total of 986 connections. A summary is outlined in Table 3-1.

Table 3-1. ERC Summary Table.

Type of Service	Number of Connections	Total ERC
Residential	942	942
Commercial/Industrial	44	280
Total	**986**	**1222**

3.3 Sources

The Town has 4.08 cfs (1,831 gpm) in water rights with 3.178 cfs (1,426 gpm) in use. Garden City uses 70% of the water from Payne Spring which is reported to be 105 gpm. Current available water sources are shown in Table 3-2.

Table 3-2. Current Available Water Sources.

Source	Peak Flow (cfs)	Peak Flow (gpm)	Status
Swan Creek Spring	7.79	3,500	In Use
Payne Spring	0.22	100	In Use
Hodges Well	2.22	1,000 (estimated)	Not in Use
Total	**10.23**	**4,600 (estimated)**	

In 2020, the Public Works Department dedicated their energy to expand the water lines throughout Garden City. These efforts made the water storage capacity usable throughout the water system.

Garden City operates a state-of-the-art treatment plant near the 500,000-gallon water tank. The treatment plant is a micro filtration system, designed and constructed by Pall Corporation. Currently the treatment plant has a capacity to flow 3.5 million gallons per day (mgd), with an option to increase the size depending on need.

A new well is being developed with the appropriate infrastructure. The new well up Hodges Canyon Road has been drilled and is expected to be online in 2026. In addition to the new well, the Town Council is currently seeking other alternatives to add supply to the Town water system. The Town Council is committed to working with developments to provide additional storage capability.

3.4 Water Storage

Garden City currently has four storage tanks with a total storage capacity of 2,500,000 gallons. The Payne/Pickleville 500,000 gallon storage tank serves the south end of the water system. The Elk's Ridge storage tank has 500,000 gallons and there is another 500,000 gallons of storage near the treatment plant, 1,000,000 gallon tank in Shundahai, with a 1,000,000 gallon proposed tank at the new well site. The Town will continue to partner with new development to develop additional storage capacity to meet the increasing needs of developments higher on the mountain.

Table 3-3. Storage Capacity.

Tank	Capacity (gallons)
Payne/Pickleville	500,000
Treatment Plant Tank	500,000
Elk's Ridge	500,000
Shundahai Tank	1,000,000
Well site proposed tank	1,000,000
Total	**3,500,000**

3.5 Future Supply Projections

The Garden City Water Rights Plan indicates that an additional 15.2 ac-ft of water may be developed through water rights and wells in the northern end of the service area. Additional water rights and wells currently held by the Swan Creek Village HOA may be acquired by the Town, adding an additional 1,197.55 ac-ft of supply.

3.6 Projected Growth

Continued growth in Garden City is split between single-family housing, which may include lawns, and multi-family housing, like townhomes, which historically use less water for landscape. Projected growth rates for residential and commercial connections are shown in Table 3-4.

Table 3-4. Connection Growth Rate.

Service Connections	Current Connections	2050 Future Increase
Residential Units	942	3% annually
Commercial Units	44	3% annually

The developmental impact of single-family residences with lawns will be a significant challenge, particularly in developing an educational demand-side management program. Experience has demonstrated that a message that is effective with year-round residents has little impact on part-time residents who may have supplementary financial resources. Pricing incentives for low use water fixtures, metering and other conservation strategies will continue to be studied as part of the Town's strategy to promote water conservation.

The most recent efforts by the Town Council to encourage water subscribers to reduce usage has been through adjusting the tiered rate structure for water overages. This change went into effect, January 1, 2024. The update to increase overage rates allowed the Town the opportunity to educate property owners on proper outdoor watering strategies and ideas to encourage water conservation.

4. Billing

Approximately 82% of the current use is for residential customers, while 13.5% is for commercial customers, including motels, campgrounds, marinas, a church, etc.

Residential: An inverted monthly allocation based on the size of the hookup (3/4", etc.) is charged at a fixed rate. The minimum monthly rate is currently $54 per hookup for 15,000 gallons per month with a corollary increase based on total water usage.

Commercial: A contractual agreement is in place with all commercial/industrial users greater than a ¾" connection, giving them a monthly allocation for a fixed dollar amount. The allocation is based on ERU's of the commercial establishment, with the monthly allocation based on the ERU calculation. These rates are set by the Town Council through ordinances and resolutions.

Ordinance #23-08, adopted by the Town Council December 14, 2023, updated the water overage rates that are assessed for both residential and commercial properties.

The Garden City current rate structure is as follows:
Monthly Fees: (residential only)
¾" $54.00 @ 15,000 gallons per month
Monthly fees for residential service wholesaled under a bulk meter will be charged at a ¾" monthly fee per ERU.
Monthly Fees: (commercial only)
The minimum commercial connection is one unit/ERU or one ¾" connection.
Monthly fees for commercial connections are assessed @ $54.00 per month per unit/ERU with a base gallon of 15,000 gallons.

Table 4-1. Updated Water Use Overage Charges

	Previous	Starting January 1, 2024
Tier 1	$1/1,000 gallons up to 5,000	$1/1,000 gallons up to 3,000
Tier 2	$2/1,000 gallons up to 10,000	$2/1,000 gallons 3,001 up to 6,000
Tier 3	$3/1,000 gallons above 10,000	$4/1,000 gallons 6,001 up to 9,000
Tier 4	None	$6/1,000 gallons 9,001 up to 12,000
Tier 5	None	$10/1,000 gallons 12,001 and above

Water service provided outside the Garden City limits is charged at 1.50% of the city limit rate.

These fees are based on actual costs, with monthly fees giving a gallons-per-month allocation target based on an inverted rate schedule for residents. Funding is being identified to increase storage capability, with new development working in partnership with the Town to provide storage capability.

The rate structure analysis, which was prepared by Lewis, Young, Robertson & Burningham and J-U-B Engineers, included a process to identify the potential for using a “Water Budget” based on lot size, family size and weather condition (evaporation data). This model encourages appropriate watering (whether year-round resident or temporary resident) and penalizes those who overwater. Consideration can still be given to any resident with unique constraints, including financial, considering a “lifeline” criterion.

However, it is important to understand that the Town of Garden City employs 6 full–time and 3 seasonal employees for the water department, and that financial and staffing constraints limit the ability of the Town in implementing state-of-the-art, sophisticated measures that may be possible in larger communities.

The Town Council will continue to consider a variety of options, with the goal of promoting water efficiency that is fair and equitable and maintains the beauty for which the community is well known.

5. System Water Loss

The Town shows a high amount of water loss in the data it reports to the Division of Drinking Water each year. The past three years of water loss are shown in Table 5-1. Water loss is the difference in the amount of water entering into the system through sources, and the water leaving the system through meters. The water loss in the system is assumed to be attributed to tank overflow, pipe leaks at fittings or connections, fire hydrant flushing, and malfunctioning meters.

Table 5-1, Historic Estimated Water Loss.

Year	Water from Sources (ac-ft)	Water Billed (ac-ft)	Estimated Water Loss
2022	1445.48	888.57	38.53%
2023	1344.19	937.50	30.26%
2024	1457.01	789.02	45.85%

An analysis of the water entering and leaving the system revealed a high amount of water lost in 2024. Leaks throughout the system have been identified for repair in coming years through Garden City's capital improvements plan.

All connections on Garden City's system are metered and read monthly. Garden City utilizes SCADA and radio read meters to monitor volume of water captured and used. The 3-year average of total water volume from the sources is 1415.56 ac-ft. The 3-year average of total water volume billed is 871.70 ac-ft. It is estimated that the 3-year water loss is about 543.86 ac-ft.

6. Water Use and Measurement

6.1 Annual Estimated Usage

Table 6-1 shows the billing summary for January 1st through December 31st in 2024 indicates total of gallons were metered during this period. The usage is summarized by connection type.

Table 6-1. Annual Estimated Usage.

Garden City Culinary Water Usage			
	Residential	**Commercial**	**Total**
Annual Metered Usage (MG)	150.44	926.97	1,077.41

7. Water Conservation Practices

7.1 New Best Management Practices (BMPs)

1. Education: The most effective way to change the attitude of the public is through education. An education program that focuses on the joint benefit of water conservation and pollution prevention through incentive is preferred by the Town Council rather than by ordinances.
    a. Current conservation can be divided into two areas: Supply side and Demand side. Supply side conservation measures are actions taken by the Town within its source, storage and supply system. Demand side conservation takes place with the user, within homes and businesses. The Town has been actively planning supply side water conservation. An example would be “low water landscape” or zero scape, at the Town Offices. Demand side water conservation activities by the Town have been more aggressive.

       One of the primary purposes of this plan is to investigate the demand side water conservation activities that the Town could implement to reduce water demand. The Town has a water savings cost of 30 percent of total water demand by the year 2022 based on saving 20 percent in outdoor use. Using average supply condition, the 10 percent savings would also offer projects and their associated operations and maintenance costs.
    b. Literature, postings, and flyers on appropriate landscape watering are made available to all residents and include a strong emphasis on watering techniques such as watering hours, sprinkler system retrofits that reduce runoff, and encouraging low water landscaping.
    c. The Town will continue to partner with USU Extension, the Master Gardner program, and the Natural Resources Conservation Council, as well as other associated groups and individuals. Past programs at the town library have assisted in teaching children and their parents about healthy water practices and conservation.

d. School Programs: The children of Garden city residents travel several miles to school in Laketown and Randolph, Utah, and thus no local school activities are available. However, the Town will work cooperatively with other local communities to fund literature and/or other resources for use in the various schools. Likewise, we will work cooperatively with any students who are interested in doing a project within our town boundaries.
e. Landscape Ordinance: A commercial ordinance, for areas, would require developers to submit a landscape plan which would require efficiency standards in the irrigation system, low water-use plants and an attractive but water-wise design. The developer must meet the requirements of the ordinance and be approved by the Planning Commission. Currently, architectural standards, parking, and landscape must be approved by the Planning Commission.

2. SCADA System: The Town has upgraded their water system to increase storage capacity, system pressures and fire protection. As part of the project, SCADA systems were installed to monitor water supply, storage, operations and usage. This has allowed the Town to manage its water resources better and reduce waste in the system. Future sites will be built with SCADA as per new city standards.

7.2 Summary of Progress from Previous Water Conservation Plan

Garden City's previous Water Conservation plan from 2015 outlined a few BMPs. The Town accomplished the following goals:

- The Town installed telemetry systems to more effectively monitor water supply operations and usage.
- The Town amended code to prohibit the wasting of water.

7.3 Current Conservation BMP Practices

1. Leak Detection: The Town has an ongoing internal leak detection program and will continue to budget annual resources to address this issue. Increased emphasis will be placed on seepage and other diversions, working closely with Bear Lake Special Service District who monitors wastewater.
2. Metering: The town council will continue to address the issue of metering all water users as indicated in paragraph H-1 and 2 above. Town and Public Works Department have also implemented a policy of not placing residential meters larger than ¾".
3. Pricing: The uniqueness of Garden City with its significant summertime increase raises serious issues unlike many other municipalities in the state. Some areas see significant tourism during the wintertime, but that does not impact outdoor landscape water usage. Others may see increased summertime tourists who are "pass-through" only and not building summertime vacation homes. The issues of who pays, how much and why is

always a serious, politically volatile issue, but coupled with part-time residents who have less of a political and social connection to the community, an even greater effort is necessary to ensure that everyone pays for their consumption.

4. Ordinance: The Town Council updated the Waste Prohibited Ordinance December 12, 2024, to prohibit water from wastefully running from the system in amounts more than are sufficient for the purpose for which the water is being used. Citations and fees have also been added for those found violating this ordinance.
5. The town has implemented an AMI program in 2025 that will allow customers to view their usage in real time.

7.4 Contact Information

Table 7-1. Contact Information.

Name	Position	Phone	Email
Michael Leonhardt	Mayor	435-946-2901	mikel@gardencityutah.gov
Cathie Rasmussen	Town Clerk/Recorder	435-946-2901	townclerk@gardencityutah.gov
Riley Argyle	Public Works Manager	435-946-2901	rileya@gardencityutah.gov