



## TOWN OF HIDEOUT

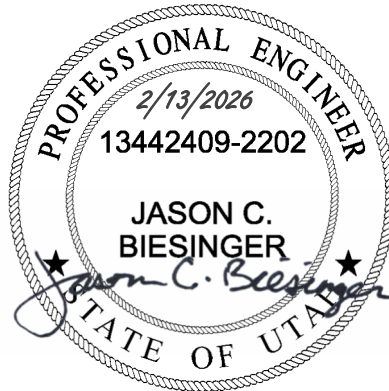
# DRINKING WATER AUDIT

(HAL Project No.: 534.13.100)

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## EXECUTIVE SUMMARY

HAL proposes a demand of 321 gallons per day (0.36 acre-feet per year) per equivalent residential connection (ERC) as the new level of service (LOS) for the Hideout drinking water system. “LOS” means the defined performance standard or unit of demand for each capital component of a public facility within a service area.

This LOS accounts for both indoor use and outdoor use. To reach this conclusion, we analyzed recent metered use data. The Town’s LOS policy is that the Town must be able to provide full-time service at 90% occupancy to every connection because every connection has the potential for full-time service. Therefore, we found an average use per typical full-time residential connection and applied 90% of it to every residential connection to simulate 90% full-time occupancy. We accounted for irrigation water use by calculating an average volume of outdoor water needed per typical residential connection based on the Town’s metered data. We added this typical irrigation water use to the typical full-time residential use. We accounted for non-revenue water by comparing supply versus customer use data. Other uncertainties in year-to-year variability and future water use were accounted for by applying a variability factor (see Appendix A).

Jordanelle Special Service District (JSSD) supplies water to the Town on a wholesale basis. We analyzed meter data from JSSD for comparison purposes. We divided the supply data by the number of residential connections (including multifamily) and found some variability in average use per connection year over year from 2022 to 2025 and included a 20% variability factor.

We applied the demand of 0.36 acre-feet per year to every ERC the Town is committed to serve. Annexations to the Town have not been included in this study. Then, we compared the total commitment to the Town’s current total water supply. We estimate a deficit to be about 32 acre-feet, which, relative to the total current supply and the projected growth rate of the Town, is small. It will take approximately 8 years until the committed-to platted subdivision demands reach the existing supply.

The Town does not have enough water for build-out conditions. To preserve an adequate water supply for the Town, all future and un-platted developments should be required to dedicate water to the Town.

## **INTRODUCTION**

The Town of Hideout's (Town) current Level of Service (LOS) for its drinking water system is 0.45 acre-feet per equivalent residential connection (ERC). Considering the increasing complexity and size of the Town's water system, the Town's plans for growth, the installation of separate recently-metered outdoor irrigation systems in other cities in Utah, and the "Per Capita Consumptive Use" Act of 2023 (Utah Code 73-5-8.5), the Town hired Hansen, Allen & Luce, Inc. (HAL) to audit its drinking water system, to revise its Level of Service (LOS), and determine the Town's present and future water needs.

## **APPROACH TO THE WORK**

HAL approached this work by:

1. determining use of a typical full-time residential connection at 90% occupancy, which includes indoor and outdoor use
2. adding outdoor common space irrigation use to a typical full-time residential connection
3. accounting for non-revenue use
4. accounting for variability by applying a variability factor
5. establishing a recommended new LOS for the Town
6. comparing the recommended new LOS to levels of service of other cities
7. determining the Town's current water surplus or deficit, based on current commitments (demand) on the Town's water system and the Town's current water supply, and
8. estimating, using growth projections, the date when the Town will need more water supply, and
9. estimating the supply of water the Town will need at when it is built out.

## **1. ACCOUNTING FOR PART-TIME RESIDENTIAL OCCUPANCIES**

The Town's LOS policy is that the Town must be able to provide full-time service to every connection at 90% occupancy because every connection has the potential for full-time occupancy while it's unlikely that the Town will ever reach 100% occupancy. Therefore, we accounted for residences that are occupied part of the year by determining a typical use of full-time residences based on the billing data. The Town's current full-time occupancy rate is 38% according to Wasatch County Tax records.

We based the Town's average full-time usage on actual meter usage data. We determined full-time occupancy by choosing a threshold of 2,750 gallons per month. This is based on researched indoor water use (See Appendix B), the Town's estimated average occupancy of about 2 people per residence, and census data for estimating the number of full-time residences. We assumed that connections using greater than 2,750 gallons per month on average over the year of data analyzed are occupied full-time. By using an average of 2,750 gallons per month as the threshold, we are being conservative and not underestimating the number of full-time users. There were 271 single-family residential (SFR) connections over the year of data analyzed that were found to be considered full-time. These 271 connections had an

average water use of 0.24 ac-ft per year, which includes indoor and outdoor use. At 90% occupancy, the average water use for full-time users is **0.22 ac-ft per year**.

## 2. ADDED OUTDOOR COMMON SPACE IRRIGATION USE TO A TYPICAL SFR CONNECTION

The Town does not have a dedicated outdoor irrigation system. Irrigation water is provided by the drinking water system. While the majority of connections to the water system are for residential use, thirty-three (33) connections are dedicated to outdoor irrigation.

The data for these irrigation connections was reported for December 2024 through November 2025. With a data set representing an entire year, we arrived at a total annual outdoor irrigation use of 10,655,234 gallons. We apportioned the total annual outdoor irrigation use over the total number of connections (856) to arrive at an annual use of 12,450 gallons per connection, which equates to 0.04 acre-feet per typical residential connection. Therefore, each connection will include **0.04 acre-feet per year** to account for these landscape meters.

## 3. ACCOUNTING FOR NON-REVENUE USE

Unmetered water can be attributed to a combination of many potential sources, including meters that need to be calibrated, theft, unmetered construction water, hydrant flushing, firefighting, pipe disinfection and commissioning, and leakage within the Town's distribution system. According to the JSSD supply meter data compared to the Town's use meter data, as presented in Table 1, the Town has experienced about 5 percent unmetered water use over the past year.

**TABLE 1 – JSSD METERED SUPPLY VS. TOWN METERED USE**

Month	JSSD Metered Supply (gal/mo)	Town Metered Use (gal/mo)	
		Residential	Developer/Construction
December 2024	2,859,833	2,581,038	6,500,000
January 2025	2,867,692	2,634,883	
February 2025	2,926,069	2,558,369	
March 2025	2,594,686	2,704,896	
April 2025	2,538,214	2,437,698	
May 2025	5,468,455	3,908,903	
June 2025	7,656,098	6,644,745	
July 2025	9,719,238	7,187,037	
August 2025	8,015,443	7,285,842	
September 2025	7,355,150	6,123,788	
October 2025	4,451,539	3,451,339	
November 2025	2,729,564	2,305,894	
Total	59,181,981	56,324,432	

According to the U.S. Environmental Protection Agency (EPA), national studies indicate that, on average, 14 percent of drinking water is lost to leaks. To account for non-revenue water

(including developer/construction water use) for both now and as the Town's water system ages, a water loss factor of 14% was used, which is the national average for water loss. Therefore, we recommend a **non-revenue use factor of 1.14**.

#### 4. ACCOUNTING FOR VARIABILITY

Variability accounts for the year-over-year changes in water use. The biggest factor in year-over-year change is climate, but other factors can change year-over-year water use. Table 2 shows a comparison of average water use per connection from the supply and billing data. The values found in Table 2 are for comparison purposes only, include both part-time and full-time users, and the average use per connection accounts for indoor and outdoor use. Therefore, it is expected that these numbers will be less than the required LOS because they do not include other factors.

**TABLE 2 – AVERAGE ANNUAL WATER USE COMPARISON**

Year	Total Supply/ Billed Use (gal)	Total Connections <sup>1</sup>	Average Use per Connection (gal/connection)	Average Use per Connection (AF/connection)
Supply				
2022	37,364,219	605	61,759	0.190
2023	41,385,877	678	59,420	0.187
2024	51,061,697	766	65,255	0.205
December 2024 – Nov. 2025	59,181,981	856	70,038	0.212
Billed Use				
December 2024 – Nov. 2025	56,324,432	856	65,815	0.212 <sup>2</sup>

1. The total connections represent the total average single-family residential connections plus 185 multifamily units.
2. After accounting for 5% water loss.

As shown in Table 2, the billing data closely corresponds to the supply data. Additionally, variability in the average annual demand per ERC can be calculated with the following equation:

$$Variability = \frac{(\text{Highest Avg. Annual Demand per ERC} - \text{Lowest Avg. Annual Demand per ERC})}{\text{Lowest Avg. Annual Demand per ERC}}$$

With the data presented in Table 2, variability can be calculated as follows:

$$\frac{(0.212 - 0.187)}{0.187} = 0.13$$



Because only four years of data were available, a variability factor slightly greater than the computed value of 13% is appropriate to account for potential future variability. For example, the total billed water use in June 2025 was 40% higher than June 2024, which is mostly attributable to weather variability. Therefore, we recommend a **variability factor of 1.2**.

## 5. RECOMMENDED LOS

Historically, many cities in Utah established their indoor water LOS based on the Utah Division of Drinking Waters' minimum annual volume of 0.45 acre-feet for domestic (inside use only) permanent (year-round) per family. But, considering the increasing complexity and size of the Town's water system, the Town's plans for growth, the installation of separate recently metered outdoor irrigation systems in other cities in Utah, and the "Per Capita Consumptive Use" Act of 2023 (Utah Code 73-5-8.5), the Town is considering a revision of its LOS.

Utah Code 11-36a-102(12) defines "LOS" as "the defined performance standard or unit of demand for each capital component of a public facility within a service area." It refers to the standard or quality of public services, like roads, water, or parks, that a local government aims to maintain for new development by charging impact fees, essentially ensuring that new residents receive the same LOS as existing residents, even as the community grows. It is determined by analyzing existing infrastructure capacity and calculating the additional cost needed to accommodate new development while maintaining the current LOS.

The term "typical SFR connection", which was intentional because that term represents specific data for a relatively short period of time. LOS requires a common denominator for use in impact-fee and water-exaction policy. That common denominator is called an Equivalent Residential Connection (ERC). An ERC is a unit of measurement that represents the average (long-term) demand of a single-family home. It is used to calculate the number of residential connections that are equivalent to the demand of a non-residential connection. To determine a LOS, we added Typical SFR Full-Time Use and Open Space Irrigation Use, multiplied them by the Non-revenue Use Factor, and multiplied the product by the Variability Factor to arrive at an ERC value that can be used in impact fee and water-exaction policy, as follows:

Typical SFR Full-Time Use	0.24 acre-feet
90% Occupancy	x <u>0.90</u>
	= 0.22
Open Space Irrigation Use	+ <u>0.04</u> acre-feet
	= 0.26 acre-feet
Non-revenue Use Factor	x <u>1.14</u>
	= 0.29 acre-feet
Variability Factor	x <u>1.20</u>
<b>LOS</b>	<b>= <u>0.36</u> acre-feet per year per ERC</b>

## 6. COMPARISON OF RECOMMENDED LOS TO OTHER CITIES

Each city and its water system is different, with varying lot sizes and water uses. But, it is

interesting to see the levels of service other cities choose to provide.

Table 3 shows the indoor and outdoor components of different cities or systems that have separate indoor and outdoor systems. The Town has one system that provides indoor and minimal outdoor use. As shown in Table 3, the Town's LOS is lower to that of other cities. The information provided in Table 3 gives a reference point as to how other cities have broken up their indoor and outdoor use components.

**TABLE 3 – LEVEL OF SERVICE COMPARISON**

<b>City / System</b>	<b>Indoor Only (ac-ft/year/ERC)</b>	<b>Outdoor Only (ac-ft/year/ irrigated ac)</b>	<b>Assumed Irrigated Acreage per ERC</b>	<b>Outdoor Only (ac-ft/year/ERC)</b>	<b>Indoor + Outdoor (ac-ft/year/ERC)</b>
Heber	0.43	Unknown	Unknown	Unknown <sup>1</sup>	Unknown
Hideout	0.22	2.37	0.063	0.14	0.36
JSSD Retail	0.45	3.0	0.18	0.54	0.99
Lindon	0.392	4.0	0.10	0.40	0.79
Mapleton	0.35	3.2	0.32	1.02	1.37
Park City	Unknown	Unknown	Unknown	Unknown	0.41 <sup>2</sup>
Payson	0.30	3.2	0.18	0.58	0.92
Salem	0.30	3.2	0.185	0.59	0.89
Santaquin	0.336	4.0	0.25	1.00	1.34
Saratoga Springs	0.30	3.13	0.24	0.75	1.05
Spanish Fork	0.45	2.77	0.163	0.45	0.90
Springville	0.30	4.0	0.15	0.60	0.90

1. Heber City is just starting to have a pressurized irrigation system.
2. Based on water use data reported to the Division of Water Rights.

## 7. TOWN'S COMMITTED DEFICIT

### Current Water Supply

Currently, the Town has a JSSD confirmed supply of 605.07 acre-feet of water. The Town receives wholesale water from JSSD through contractual agreements. JSSD also leases 50 acre-feet of irrigation water on an annual basis to the Town to irrigate the golf course. This irrigation water is billed at a lower rate than drinking water and can be converted to drinking water upon request of the Town. Although not yet confirmed, the Town believes that it may have rights to an additional 9 acre-feet and is currently seeking to confirm this additional amount.

Wholesale drinking water is based on an annual contractual amount and billed monthly to the Town. Currently the Town has a contract with JSSD for 150 acre-feet of wholesale drinking water, which is take-or-pay, meaning the Town pays the established annual charge per acre-foot regardless of whether the water is used. The Town also has a contract for the reservation of

103 acre-feet of water, which can be converted and used as wholesale water upon request of the Town. An additional 20 acre-feet of reserved water was recently acquired by the Town.

According to an agreement between JSSD and the Town and will serve letters, there were some developers who have water reservation agreements with JSSD or dedicated water through JSSD that have been committed to their platted developments in Hideout. Those amount to 282.07 acre-feet per year. Table 4 shows the Town's current breakdown of water available through JSSD.

**TABLE 4 – WATER SUPPLY SUMMARY**

Type	Amount (ac-ft/year)
<b>2014 JSSD Agreement</b>	
JSSD Wholesale Drinking Water	150
JSSD Reserved Water	103
JSSD Irrigation Water (Convertible to Drinking Water)	50
<b>Recent Additions</b>	
Additional Reserved Water	20
<b>Additional Water</b>	
Developer-Reserved Water	242.39
Developer-Dedicated Water	39.68
<b>Total<sup>1</sup></b>	<b>605.07</b>

1. An additional 9 ac-ft/year of developer-reserved water is being reviewed, which could potentially increase the Town's total water supply to 614 ac-ft/year.

### **Current Water Demand**

For the purposes of this audit, "demand" is considered to be all current commitments to provide water regardless of whether there is a current demand.

According to the Town, there are currently 1,770 platted lots in the Town (1,262 lots without will-serve commitments, and 508 lots with will-serve commitments). This number may vary slightly as plats change or lots are combined. A will-serve is a document that states the developer's ability to supply water for its development. Table 5 includes a summary of average annual demand requirements for the drinking water system, which compares supply and demand.

**TABLE 5 – EXISTING AVERAGE ANNUAL DEMAND BASED ON PROPOSED LOS**

	ERCs	Existing Demand (ac-ft/yr) <sup>1</sup>	Existing Supply (ac-ft/yr) <sup>2</sup>	Surplus (+) or Deficit (-)
<b>Platted Lots without Will-Serve</b>	1,262 <sup>3</sup>	454.32	605.07	- 32.13
<b>Platted Lots with Will-Serve</b>	508	182.88		
<b>Total</b>	<b>1,770</b>	<b>637.20</b>	<b>605.07</b>	<b>- 32.13</b>

1. Calculated using the proposed LOS of 321 gpd/ERC (0.36 ac-ft/yr/ERC). Demand accounts for both indoor use and typical outdoor use from the drinking water system.
2. See Table 4.
3. 150 of the ERCs are being reviewed. If 150 units are not included, then there would be a total existing demand of 583.20 ac-ft/yr, and a surplus of 21.87 ac-ft/yr.

Assuming 90% full-time occupancy (instead of the current 38%) at the recommended LOS, after accounting for all platted lots, there is a committed deficit of 32.13 ac-ft per year, which is about 5.3 percent of total available supply. As stated earlier, this deficit is not a current “wet-water” deficit of demand exceeding supply. But, it reflects a deficit of supply compared to the Town’s total current commitment.

The platted lots shown in Table 5 include the Town’s multi-family units. Typically, multi-family housing, or apartments, would use less water and, therefore, warrant a lower LOS than SFR housing. In typical cities, on average, multi-family housing uses about 20 percent less water than single-family housing because, on average, less people per household live in multi-family housing and have lower occupancy compared to SFR housing. However, some multi-family housing units actually use more water than SFR units, as is the case with Hideout. Compared to Hideout’s single-family housing, we saw that multi-family units on average use more water than SFR housing. Therefore, we propose using the same LOS for multi-family housing as the LOS for SFR housing.

## **8. WHEN WILL THE TOWN NEED MORE WATER?**

As stated earlier, the Town does not have a current deficit. So, the question is: When will the Town need more water to supply the currently-committed lots?

According to the Town, there are approximately 896 Certificates-of-Occupancy (CO) as of November 30, 2025. From 2017 to 2020, there was an approximate growth rate of about 50 new COs per year. However, from 2020 until 2024, the growth rate has increased and is estimated to be around 100 new COs per year. Therefore, if an estimated growth rate of 100 units per year is assumed for future growth, and assuming 90% full-time occupancy, then the existing supply would be committed in approximately **8 years** (see Table 6).

**TABLE 6 – ESTIMATED DEMAND IN 8 YEARS BASED ON PROPOSED LOS**

<b>Approximate Number of Existing COs<sup>1</sup></b>	<b>Estimated Growth Rate (units/yr)</b>	<b>Estimated Number of Units in 8 Years</b>	<b>Estimated Demand in 8 Years (ac-ft/yr)<sup>2</sup></b>	<b>Existing Supply (ac-ft/yr)<sup>3</sup></b>
896	100	1,696	610.56	605.07

1. All units with Certificates of Occupancy issued are considered existing for purposes of annual water supply planning.
2. Calculated using 321 gpd/ERC (0.36 ac-ft/yr/ERC). Demand accounts for both indoor use and typical outdoor use from the drinking water system. This number assumes 90% full-time occupancy.
3. See Table 4.

## 9. WATER SUPPLY NEEDED WHEN THE TOWN IS BUILT OUT

It is important to plan for buildout conditions for the Town. As growth occurs, the Town must have enough water supply for the growing demands.

Table 7 shows the Town's estimated growth projections, based on the 2022 Culinary Water Capital Facility Plan and Town input.

**TABLE 7 – GROWTH PROJECTIONS**

<b>Year</b>	<b>ERCs</b>
2020	450
July 2021	509
2040	2,267

It is estimated that there will be approximately 2,267 ERCs at buildout. Annexations to the Town have not been included in this study. As shown in Table 5 above, there is a deficit in the existing system with the currently platted subdivisions. Therefore, as growth occurs, water should be turned in with each new development. Table 8 summarizes the estimated buildout demand with the existing supply.

**TABLE 8 – BUILDOUT AVERAGE ANNUAL DEMAND BASED ON PROPOSED LOS**

<b>Buildout ERCs</b>	<b>Buildout Demand (ac-ft/yr)<sup>1</sup></b>	<b>Existing Supply (ac-ft/yr)<sup>2</sup></b>	<b>Surplus (+) or Deficit (-)</b>
2,267	816.12	605.07	- 211.05

1. Calculated using the proposed LOS of 321 gpd/ERC (0.36 ac-ft/yr/ERC). Demand accounts for both indoor use and outdoor use from the drinking water system. This number assumes 90% full-time occupancy.
2. See Table 4.

At the LOS, with 90% full-time occupancy, there would be a deficit in the system at buildout conditions if additional water is not acquired. To preserve an adequate water supply for the Town, all future and un-platted developments should be required to dedicate water to the Town.

## CONCLUSIONS AND RECOMMENDATIONS

Based on analysis of recent customer water use data and a comparison of consumption data with supply data, an average yearly demand of 321 gpd/ERC (0.36 acre-feet/year/ERC) is proposed as the new level of service. This accounts for both indoor use and outdoor use.

Assuming 90% full-time occupancy, the Town of Hideout currently does not have enough water available for all platted developments (see Table 5). However, at 90% full-time occupancy it will take approximately 8 years until the committed-to platted subdivision demands reach the existing supply (see Table 6). Different occupancy rates impact this timeframe. As time passes, the data set will improve, and it is recommended to monitor the Town's demands and supply going forward, and to refine the policy in the future if needed.

Some water sources are currently being reserved or used for irrigation and will eventually need to be moved over to the wholesale drinking water contract. Meanwhile, it is less expensive to keep the 103 acre-feet as reserved water and the 50 acre-feet as irrigation water until it is needed for drinking water use.

The Town does not have enough water for buildout conditions, and it is recommended to require each new development or un-platted subdivision to dedicate water to the Town.

Going forward, the future water policy of the Town should include measures to conserve residential use of water in line with state and JSSD recommended best practices, while potentially identifying inexpensive new sources of well water or open market purchases.

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# APPENDIX A

## Calculations

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WATER USE REVIEW AND ERC ESTIMATION BASED ON CONSUMPTION METERED DATA

Methodology:

1. Determine use of a typical full-time residential connection at 90% occupancy (includes indoor and outdoor).

Billed sales data - residential, excluding irrigation meters and multifamily meters\*

Number of Full-Time Connections	Total Annual Use (gal)	Total Annual Use (ac-ft)	Average Indoor Use (gal/connection)	Avg Indoor Use at 100% Occupancy (ac-ft/connection)	Avg Indoor Use at 90% Occupancy (ac-ft/connection)
271	20,972,839	64.4	77,391	0.24	0.22

\*From the Town's metered water sales data, 271 residential connections were found to use at least 2,750 gal/month on average. This results in a full-time occupancy of about 37%, coinciding with Census data. See Appendix B for more information on the full-time usage threshold. 1,500 gal/month is assumed for 1 person. The Town has an average of about 2 people per household. The Town's LOS assumes a 90% full-time occupancy rate.



**2. Determine common space outdoor irrigation use per residential connection.**

**Irrigation Meter Use\***

Month	Total Billed Usage (gal/month)
December 2024	54
January 2025	27
February 2025	12
March 2025	25
April 2025	44,111
May 2025	615,454
June 2025	2,469,111
July 2025	2,779,150
August 2025	2,376,436
September 2025	1,845,441
October 2025	525,413
November 2025	0

**Calculated Irrigation Yearly Use/ERC\***

Total Irrigation Use (gal/year)	Total Irrigation Use (AF/year)	Total Avg. ERCs	Irrigation Use (AF/YR/ERC)
10,655,234	32.70	856	0.04

**Indoor & Outdoor Use Combined\***

Full Time Residential Metered Use (AF/YR/ERC)	Average Outdoor Use (AF/YR/ERC)	Combined Indoor & Outdoor (AF/year/ERC)
0.22	0.04	0.26

\*Demand accounts for both indoor use and outdoor use from the drinking water system.

**3. Account for non-revenue water.**

Total Billed (Dec. 2024 - Nov. 2025)	Total Supply (Dec. 2024 - Nov. 2025)	Town's Metered % Water Loss	EPA National Average % Water Loss	Combined Indoor & Outdoor (AF/year/ERC) + Water Loss
56,324,432	59,181,981	5%	14%	0.30

\*14% is the national average for water loss through leaks (EPA), and  
5% was calculated as the average water loss from the metered supply to the metered consumption  
from December 2024 to November 2025.  
A non-revenue water factor of 14% was used based on the EPA and to account for growth and system aging.

**4. Add a variability factor to account for variability and sustainability.**

Combined Indoor & Outdoor (AF/year/ERC) + Water Loss	Variability Factor	Combined Indoor & Outdoor (AF/year/ERC)
0.30	20%	0.36

\*A variability factor was utilized to account for non-revenue water, days of high usage, fire suppression,  
and any uncertainty in data or future water use.

**COMPARISON OF JSSD SUPPLY DATA WITH TOWN'S BILLING DATA**

**Methodology: Divide JSSD supply data by total number of connections.**

**Jordanelle Special Service District (JSSD) Metered Wholesale Water\***

2022				
2022 JSSD Total Supply (gal)	2022 Total Connections	Use/Connection (gal/connection)	gpd/connection	acft/yr/connection
37,364,219	605	61,759	169	0.190

2023				
2023 JSSD Total Supply (gal)	2023 Total Connections	Use/Connection (gal/connection)	gpd/connection	acft/yr/connection
41,385,877	678	61,014	167	0.187

2024				
2024 JSSD Total Supply (gal)	2024 Total Connections	Use/Connection (gal/connection)	gpd/connection	acft/yr/connection
51,061,697	766	66,695	183	0.205

December 2024 to November 2025				
JSSD Total Supply (gal)	Total Connections	Use/Connection (gal/connection)	gpd/connection	acft/yr/connection
59,181,981	856	69,154	189	0.212

\*The total number of connections are based on the average number of residential connections and multifamily units. These numbers compare an average indoor + outdoor use per connection.

**Town Metered Billing Data\***

December 2024 to November 2025					
Total Billed (gal)	Total Connections	Use/Connection (gal/connection)	gpd/connection	acft/yr/connection	(Add 5% water loss)
56,324,432	856	65,815	180	0.20	0.212

\*The total number of connections are based on the average number of residential connections and multifamily units. These numbers compare an average indoor + outdoor use per connection.

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# **APPENDIX B**

## **Full-Time Use Supporting Research**

Supporting Research for the Occupancy Factor calculation  
Defining a threshold for minimum indoor water use for full-time users (1,500 gallons/month)

**References:**        <https://www.epa.gov/watersense/statistics-and-facts>  
                         [https://suwater.stanford.edu/sites/g/files/sbiybj19876/files/media/file/top\\_water\\_fixtures.pdf#:~:text=An%20easy%20and%20effective%20way%20to%20attain,showers%2C%20washing%20full%20loads%20of%20laundry/dishes%2C%20etc.\)](https://suwater.stanford.edu/sites/g/files/sbiybj19876/files/media/file/top_water_fixtures.pdf#:~:text=An%20easy%20and%20effective%20way%20to%20attain,showers%2C%20washing%20full%20loads%20of%20laundry/dishes%2C%20etc.))

The EPA states that "We can all use at least 20 percent less water by installing water-efficient fixtures and appliances."

Therefore, newer developments like Hideout have more water-efficient fixtures and appliances, meaning that less indoor water is used, by "at least 20 percent" as compared to values below from older publications.

**Reference:**        "2009 Residential Water Use - Survey Results and Analysis of Residential Water Use For Seventeen Communities in Utah" by the Utah Department of Natural Resources Division of Water Resources

"The statewide indoor use was estimated to be 60 gpcd."  
"An additional analysis was conducted on 110 randomly surveyed residents in Salt Lake City... It was found that half of those surveyed... used 30 percent less water indoors. They had implemented more conservation practices in their home such as water efficient washing machines, aerator facets, low-flow shower heads and toilets."

Daily indoor use for one person =	60 gal/day (indoor use for 1 person)
Monthly indoor use for one person =	1440 gal/month (accounting for 20% less water use due to efficient fixtures)

**Reference:**        <https://19january2017snapshot.epa.gov/www3/watersense/pubs/indoor.html>

WaterSense (An EPA Partnership Program) states that "The average American family of four uses 400 gallons of water per day. On average, approximately 70 percent of that water is used indoors..."

70% of 400 gallons/day for 4 people =	280 gal/day (indoor use for 4 people)
Daily indoor use for one person =	70 gal/day (indoor use for 1 person)
Monthly indoor use for one person =	1680 gal/month (accounting for 20% less water use due to efficient fixtures)

**Reference:** <https://watercalculator.org/footprint/indoor-water-use-at-home/>

"On average in the US, water use at home (water from the tap, toilet, dishwasher, etc.) adds up to about 138 gallons per household per day, or 60 gallons per person per day."  
"Switching to water-saving fixtures and appliances can reduce indoor water use by twenty percent."

Daily indoor use for one person =	60 gal/day (indoor use for 1 person)
Monthly indoor use for one person =	1440 gal/month (accounting for 20% less water use due to efficient fixtures)