

**MUNICIPAL AND INDUSTRIAL
WATER SUPPLY AND USES
IN THE
JORDAN RIVER BASIN**

(Data Collected for Calendar Year 2005)

Prepared by

**Utah Department of Natural Resources
Division of Water Resources**

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ACKNOWLEDGMENTS

This study was conducted under the direction of Todd D. Adams, Assistant Director of the Utah Division of Water Resources, and supervised by Eric K. Klotz, Chief of the Water Conservation and Education Section. Staff members participating in the preparation of this report and/or in the data collection and analysis were: Gregory Williams, Sara Larson, and Barbara Perry. Appreciation is expressed to the various water suppliers and the Utah Division of Water Rights for supplying information for this report.

A handwritten signature in black ink, appearing to read "Dennis J. Strong". The signature is fluid and cursive, with the first name "Dennis" being more legible than the last name "Strong".

Dennis J. Strong, P.E., Director
Utah Division of Water Resources

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EXECUTIVE SUMMARY

The purpose of this report is to document the municipal and industrial (M&I) water system supplies and uses within the Jordan River Basin during the calendar year of 2005. These water systems deliver culinary (potable) and/or secondary (non-potable) water and have been separated into four categories, as defined on pages 24 and 25 of this report. The four categories are public community, public non-community, and self-supplied industrial and private domestic water systems. Water supplies, under the current hydrologic and each systematic condition, are evaluated for only potable water service in public community water systems.

The base data for both water supply and uses of public community water systems was provided by each of the water systems. Data for the other categories of water systems was compiled by also using various other agencies and references.

Normally M&I water uses, for each basin of the state, are totaled and tabulated by county. However, in this basin the Jordan River is identical to Salt Lake County.

Public Community Water Systems

Of the aforementioned categories, public community systems serve about 95 percent of all residents in the State of Utah. Within the Jordan River Basin, approximately 98 percent of the population is served by 32 public community water systems. Refer to **Figure 2** on page 5 for a location map of these systems, as well as the general boundaries of the basin.

For planning purposes, accurate and detailed current water use and supply information is invaluable in determining the ability of the basin to meet future water demands. The Division of Water Resources (DWR) uses the annual reliable potable water supply, as defined on page 9, as a tool to quantify the amount of water that can be

delivered by each public community water system to satisfy current and projected peak day demands with present water supply conditions.

In the Jordan River Basin, it was determined that the current annual reliable potable water supply is 288,653 acre-feet. Springs account for 2 percent, wells 43 percent and surface water 55 percent of this supply. The breakdown of this supply is presented in the following **Table I**.

Table I
JORDAN RIVER BASIN
Salt Lake County
Reliable Potable Water Supplies for Public Community Systems
(Acre-Feet/Year)

Springs	Wells	Surface	Total
6,069	123,119	159,465	288,653

M&I water use, within these systems, can be subdivided by two types of water: potable (culinary) and non-potable (secondary). Potable water is delivered by the public community system itself. However, secondary water can be delivered not only by the system, but also by separate irrigation companies, exclusively in some locations.

Table II on the following page shows public community system water use data for both potable and non-potable categories within the Jordan River Basin. Total public community water use in the basin is 205,954 ac-ft potable and 18,066 ac-ft secondary, for a total of 224,020 ac-ft. Categorically, the percentage of total water use is 22% residential indoor, 45% residential outdoor, 13% commercial, 16% institutional, and 4% light industrial/stock watering.

Table II
JORDAN RIVER BASIN
Salt Lake County
Water Use for Public Community Systems
(Acre-Feet/Year)

Category	Public Use
Potable Use	
Residential Indoor	66,898.8
Residential Outdoor	76,495.0
Commercial	33,543.0
Institutional	19,609.8
Industrial/Stock Water	9,407.3
Total Potable	205,953.9
Secondary Use	
Residential	12,177.7
Commercial	2,020.0
Institutional	3,867.9
Industrial/Stock Water	0.0
Total Secondary	18,065.6
TOTAL WATER USE	224,019.5

In general, and specifically for this report, all per capita water use figures refer to the water use within public community water systems only. Out of a total basin population of 970,750 in 2005, nearly all (967,150 people) were served by the public community systems. For these systems, residential potable per capita water use calculates to 132 gallons per capita per day (gpcd). Similarly, non-potable residential water use calculated to 11 gpcd. The resultant total per capita water use is 144 gpcd for residential purposes within the public community systems of the basin. With the addition of water use in the commercial, institutional and industrial categories, the per capita water use for public community systems is 190 gpcd for potable and 17 gpcd for non-potable water, for an overall water use of approximately 207 gpcd. Comparatively, in 2005, the statewide average per capita water use was 190 gpcd potable and 70 gpcd non-potable, for a total of 260 gpcd.

Salt Lake County citizens have lowered per capita use rates through extensive water conservation efforts when compared to the rest of the state. Smaller lots and very few unmetered secondary systems in this county also help to make the per capita use here lower than the rest of the state. The per capita water use values for various combinations of categories and types of water are shown in the following **Table III**.

Table III
JORDAN RIVER BASIN
Average Per Capita Water Use
(Supplied by Public Community Systems)

Category	Average Per Capita Use (Ac-Ft/Yr)	Average Per Capita Use (GPCD)
Residential Potable Use	0.148	132
Residential Potable Plus Secondary Use	0.161	144
Total Potable Use	0.213	190
Total Potable Plus Secondary Use	0.232	207

Note: Total potable categories include residential, commercial, institutional and industrial uses.

Total M&I Water Use

Table IV on the following page shows the total potable and non-potable M&I water use for all system types in the Jordan River Basin for the year 2005. As can be seen, public community systems deliver the majority of the potable water used within the basin. However, as in this basin, self-supplied industries can also use significant amounts of water. The table indicates that the total potable M&I water use in 2005 was 213,061 acre-feet. Total non-potable M&I water use in 2005 for the basin was 120,658 acre-feet. Therefore, total M&I water use for all system categories and types of water in 2005, for the Jordan River basin, was 333,719 acre-feet.

Table IV
JORDAN RIVER BASIN
Salt Lake County
Total M&I Water Use for all Categories
(Acre-Feet/Year)

Category	M&I Use
Potable Use	
Public Community Systems	205,953.9
Public Non-Community Systems	383.8
Self-Supplied Industries	6,123.2
Private Domestic	600.0
Total Potable	213,060.9
Secondary Use	
Secondary Irrigation Companies	18,065.6
Public Non-Community Systems	1,451.0
Self-Supplied Industries	101,141.7
Total Secondary	120,658.3
TOTAL WATER USE	333,719.2

M&I Water Deliveries and Depletions

On the following page, **Table V** shows both the deliveries and depletions for all the M&I water in the basin. The information contained in the table is very useful for overall water planning purposes. See pages 26 and 27 for detailed definitions of the terms used. In **Appendix B**, there is a table that contains a breakdown of all the deliveries and depletions of each public community water system, as well as all other categories of water systems, within the basin.

Table V
JORDAN RIVER BASIN
Salt Lake County
Total M&I Deliveries and Depletions
(Acre-Feet/Year)

Diversions			Depletions		
Indoor Use	Outdoor Use	Total	Indoor Use	Outdoor Use	Total
214,751.0	118,968.2	333,719.2	120,556.1	79,312.1	199,868.2

INTRODUCTION

Authority

The Utah Division of Water Resources (DWRe) has the overall responsibility for completing studies, investigations, and plans to assist the responsible development and utilization of the water resources of the state of Utah. The State Water Plan, prepared and distributed in early 1990, provided the foundation and overall direction to establish and implement the state policy framework of water management. As part of the state water planning process, detailed plans are prepared for the 11 hydrologic basins in the state. The Jordan River Basin is one of these 11 basins. A location map of the Jordan River Basin is shown as part of **Figure 1**.

Each basin water plan identifies potential conservation and development projects and describes alternatives to efficiently satisfy the water needs of that basin. As part of this effort, background data reports are completed for each river basin. These include a Water-Related Land Use Report and a Municipal & Industrial (M&I) Water Supply & Use Report.

Scope

As stated earlier, the subject of this report is a determination of the present M&I water supplies and uses within the Jordan River Basin. The data presented in all the referenced reports may be used in the State Water Plan for the Jordan River Basin, as well as other division reports and studies. Information considered for this report also includes related investigations recently completed by the DWRe and the Utah Division of Water Rights (DWRi).

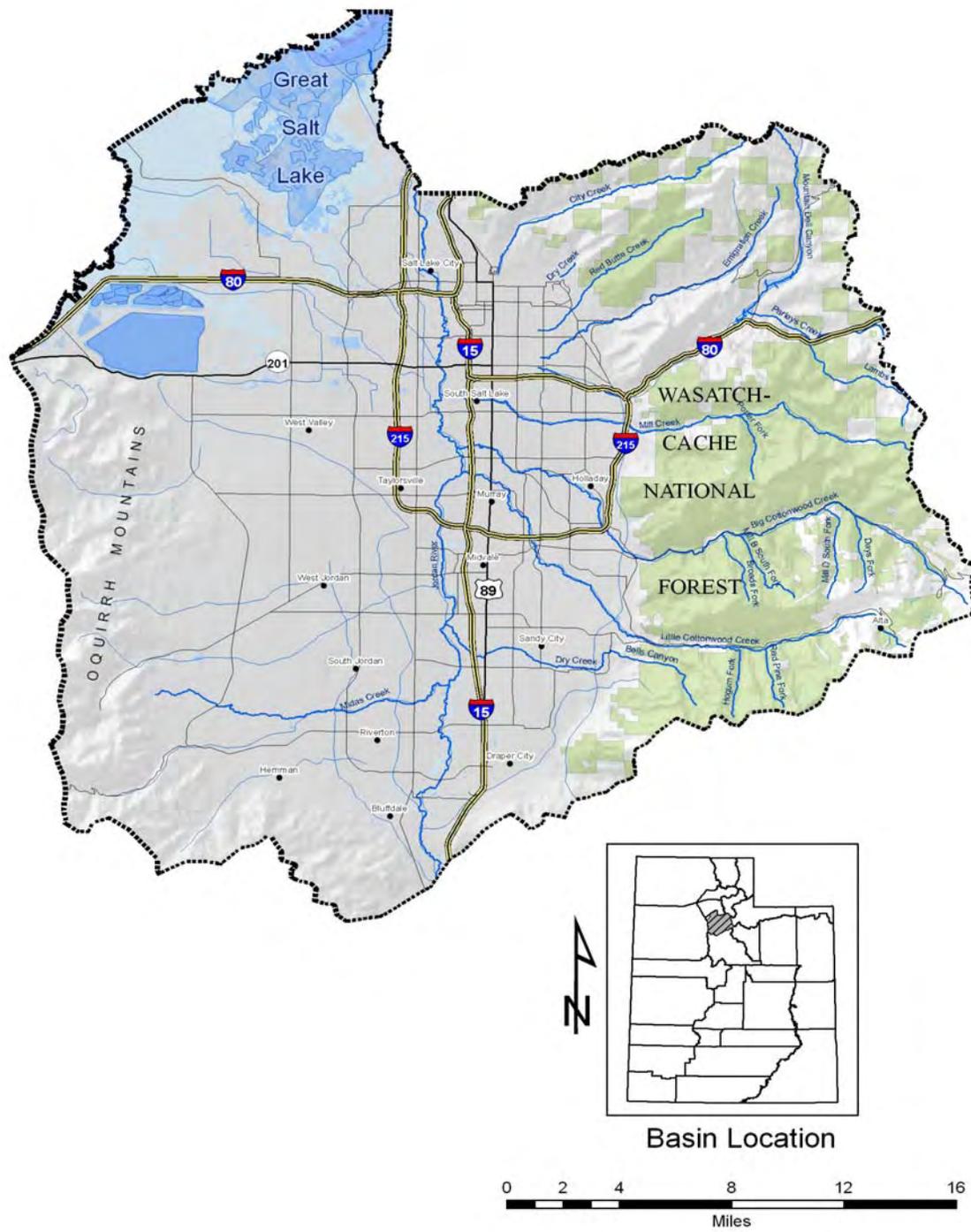


Figure 1. Jordan River Basin Map

Data Collection

This study was begun in October 2006 by DWRe staff. The 2005 *Municipal and Industrial Water Use Forms*, distributed by the DWRi in cooperation with the DWRe and the Utah Division of Drinking Water (DDW), were used as a basis for the study. In all counties, the data collection process is as described in the following section, *Water Supply and Use Methodology*. Water rights discussions and information presented herein were prepared based, in part, on information provided by John Mann, area engineer of the State Engineer's Office, who is responsible for the oversight of the water rights in the Jordan River Basin.

General Description of the Basin

The Jordan River Basin is the state of Utah's most populous basin and comprises all but a small northwest portion of Salt Lake County that lies in the Great Salt Lake. The basin is bounded on the west by the Oquirrh Mountains, on the northeast and east by the Wasatch Range, and on the south by the Traverse Mountains (See Figure 1). The basin receives runoff from these mountains and the entire Utah Lake Basin, which form the headwaters of the Jordan River. The major waterways within the basin include: Midas Creek, Dry Creek, Little Cottonwood Creek, Big Cottonwood Creek, Mill Creek, Parley's Creek, Emigration Creek and City Creek, which are all tributaries to the Jordan River. The Jordan River flows out of Utah Lake (located in the Utah Lake Basin) north through the center of the Jordan River Basin and eventually reaches the Great Salt Lake. Before reaching the Great Salt Lake, the Jordan River flows are split into a series of drainage canals. This is to reduce flooding potential in the northern portion of the basin as well as deliver water to various wetland areas and duck clubs around the southeast portion of the Great Salt Lake.

The basin is one of Utah's wettest, receiving an average of 23 inches of precipitation annually. Despite being the state's most populous, as well as one of the State's wettest basins, the Jordan River Basin has only one significant reservoir within the basin (i.e., larger than 5,000 acre-feet) to capture and store runoff for M&I use – Little Dell Reservoir

(20,500 acre-feet), which was built in 1993. As a result, much of the Jordan River Basin's M&I water supply is imported from outside the basin. These imports come primarily from the Utah Lake Basin, but also include water from as far away as the Uintah Basin (part of the Colorado River drainage), and small amounts from the West Desert Basin, and the Weber River Basin. Plans are also in place to someday import water from the Bear River Basin in Northern Utah.

Public Water Systems

Within the Jordan River Basin, there are 32 public community water systems serving a total population of approximately 967,150 people (most all of the total basin population of 970,750). See **Figure 2** on the next page for the location of these systems. The basin also has 41 public non-community water systems. These systems serve Federal Forest Service campgrounds, county park facilities, isolated commercial and institutional establishments, summer home developments and ski resorts. The basin also has 16 self-supplied industries, which include large mining operations owned by Kennecott Copper and a power plant operated by Rocky Mountain Power.

Demographically the basin's population is becoming increasingly more urbanized. Areas of the basin in the southern part of Salt Lake County have become major population centers. Only a short time ago, they were in agricultural production. The Jordan River Basin is the state's most populous county. Most of the largest cities of the state are located here along with its largest employers. The Governor's Office of Planning and Budget projects the basin's population will nearly double from the current population to over 1,850,000 people by the year 2050. Accordingly, M&I water use is steadily increasing within the basin. In order to facilitate such growth, there will need to be more efficient use of current water supplies, a reduction in per capita use and additional water development.

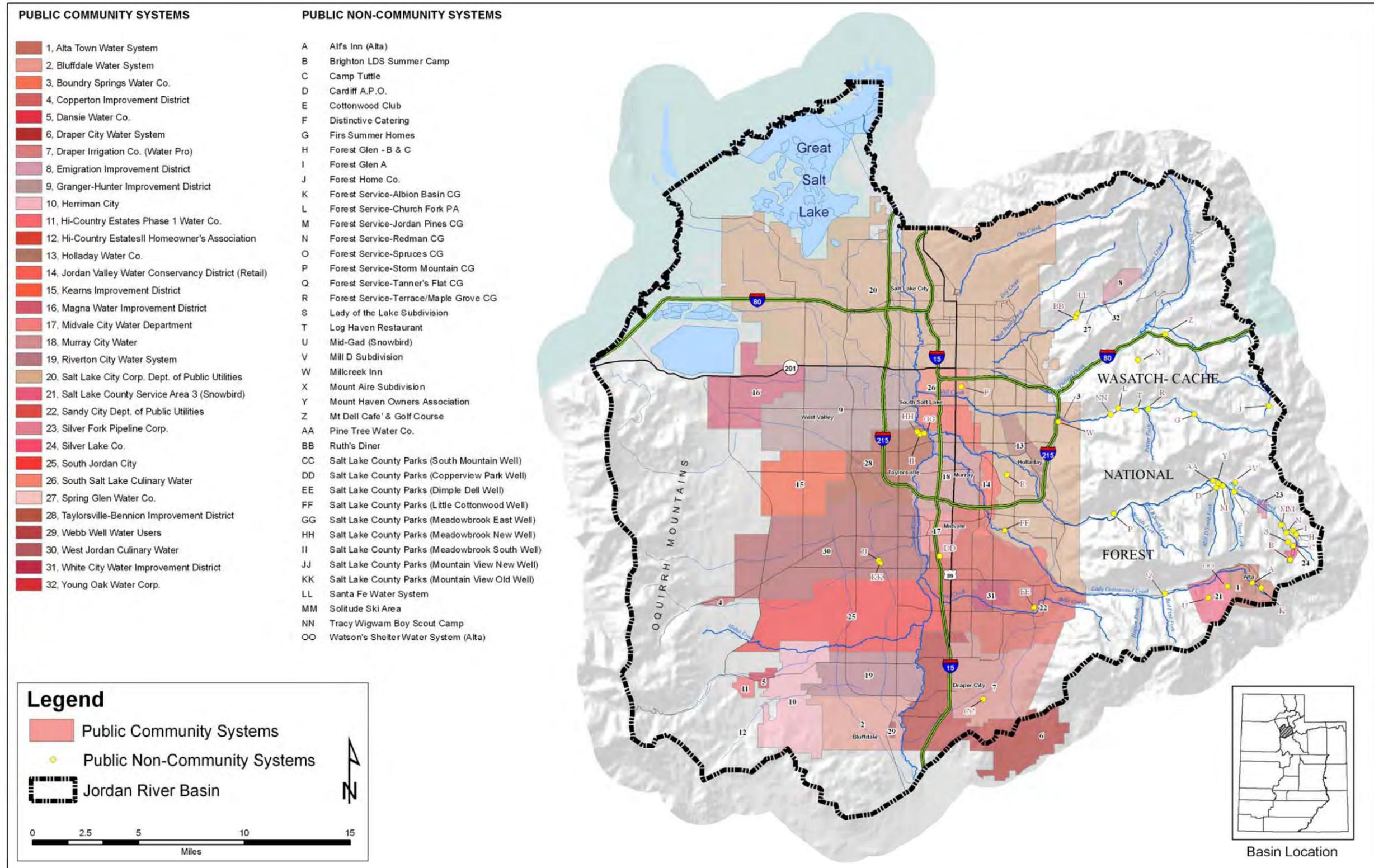


Figure 2. Location of Public Systems within the Jordan River Basin

Jordan Valley Water Conservancy District

Primarily a wholesaler of water to cities and improvement districts within Salt Lake County, the Jordan Valley Water Conservancy District (JVWCD) is a political subdivision of the state of Utah and one of the largest water districts in the state. It was created in 1951 under the Water Conservancy Act and was called the Salt Lake County Water Conservancy District until 1999. JVWCD is governed by a board of eight trustees who represent seven geographical divisions. They are nominated either by the Salt Lake County Council or a city council, depending upon the division they represent. The Governor then appoints Trustees for a four-year term from those nominated.

JVWCD also has a small retail service area primarily in unincorporated areas of the county, making up about ten percent of its deliveries. Approximately 90 percent of its M&I water is delivered on a wholesale basis to cities and water districts. JVWCD currently provides retail water service to both individual residents and businesses in portions of South Salt Lake, Murray, Midvale, and unincorporated Salt Lake County. It also provides wholesale service to almost all of the communities in the county west of the Jordan River, from West Valley City and Magna in the north to Bluffdale and Herriman in the south. JVWCD also provides wholesale service to a few communities east of the Jordan River, including South Salt Lake, Midvale, Draper and White City Water Improvement District. In addition, JVWCD treats and delivers water to Metropolitan Water District of Salt Lake & Sandy on a contractual basis for deliveries to Salt Lake City and Sandy City, even though neither city is within JVWCD's service boundary. Jordan Valley also delivers untreated water to irrigators in Salt Lake and Utah counties to meet commitments under irrigation contracts and exchanges.

JVWCD has large water right holdings and water supplies in both Salt Lake County and Utah Lake Basin. In September 2007, JVWCD completed a **DRAFT** Salt Lake County Water Demand and Supply Report. **Table 1** summarizes the findings of this report with regards to JVWCD current and future supplies.

Table 1
JORDAN RIVER BASIN
Projected Dry Year Production – JWCD
Existing and Future Sources
(Acre-Feet/Year)

Supply Category	Projected Dry Year Production – 2010	Projected Dry Year Production – 2100
<i>Potable</i>		
Member Agency Supplies	43,800	43,800
Provo River – Direct Flows	6,400	6,400
Provo River – Storage	10,800	10,800
Provo River – Surplus	0	0
Ground Water	25,000	25,000
Mountain Streams	1,900	1,900
Springs	0	400
Central Utah Project	50,000	50,000
Additional Provo River Purchases	0	1,100
Utah Lake System (CUP)	0	21,400
Southwest Ground Water Project	8,235	4,735
Central Water Project	0	11,680
Bear River	0	50,000
<i>Subtotal, Potable</i>	<i>146,135</i>	<i>227,215</i>
<i>Non-Potable</i>		
Member Agency Secondary	9,400	23,600
Waste Water Recycling	0	15,000
Kennecott Secondary	0	20,900
<i>Subtotal, Non-Potable</i>	<i>9,400</i>	<i>59,500</i>
TOTAL – ALL SOURCES	155,535	286,715

Metropolitan Water District of Salt Lake and Sandy

The Metropolitan Water District of Salt Lake & Sandy (MWDSL) is a special service district formed in 1935 by special election according to the newly passed Metropolitan Water District Act. Originally it was called the Metropolitan Water District of Salt Lake, as its primary function was to create a firm water supply for Salt Lake City. In 1990, Sandy City was annexed into the district, and it became known as Metropolitan Water District of Salt Lake and Sandy. Currently the district provides wholesale water to Salt Lake City and Sandy City, with the ability to deliver water to Jordan Valley Water Conservancy District. The district is citizen-administered through a Board of Trustees comprised of seven

individuals, five appointed by the Salt Lake City Council and two appointed by the Sandy City Council.

The history of the MWDSLS begins with the organization of the Provo River Water Users Association in May 1935 and the organization of the Metropolitan Water District of Salt Lake the following August. The formation of those entities was necessary for the negotiation of repayment contracts between the Bureau of Reclamation and the water users for the Provo River Project. The Provo River Project's main features consist of Deer Creek Dam and Reservoir, Weber-Provo Diversion Canal, Duchesne Tunnel, Jordan Narrows Siphon and Pumping Plant, Murdock Diversion Dam and Canal, and the Salt Lake Aqueduct. Deer Creek Dam and Reservoir, which became the main storage facility for MWDSLS, was completed in 1941.

In 1951, the Salt Lake Aqueduct, a gravity-fed pipeline approximately 33 miles in length, was completed. It transports water from Deer Creek Reservoir in Utah County (Utah Lake Basin) to the Little Cottonwood Water Treatment Plant (LCWTP), completed in 1960. The LCWTP began operations in June 1960 and treats water 24 hours a day, 7 days a week. The LCWTP has only been shut down for one day since its inception. Most construction and repair work has been completed while the LCWTP was in operation to insure continuous water supply for the district's customers. The LCWTP has a maximum capacity of 113 million gallons per day (MGD) and is the second largest water treatment plant in Utah.

The district's main M&I water supplies are Little Cottonwood Creek in Salt Lake County and Deer Creek Reservoir, located in the Utah Lake Basin. Irrigation water is also provided in accordance with a contract implemented in 1958 between MWDSLS and the Utah Lake Distributing Company. Through this agreement, MWDSLS was able to acquire 15,200 shares of Provo River Project water (now totaling 61.7 percent). Utah Lake water is re-conveyed through the Jordan Narrows Pumping Station, located near the Point of the Mountain at the south end of the basin, to meet these irrigation needs.

MWDSLS is a water wholesaler that provides water to Salt Lake City and Sandy City service areas. Salt Lake City Public Utilities (SLCPU) currently provides all retail water service within Salt Lake City corporate boundaries. It also provides retail service to portions of other communities on the east side of the Salt Lake Valley. This includes portions of Holladay, Midvale, Cottonwood Heights, and unincorporated Salt Lake County. It is expected that the system will continue to expand in Salt Lake City's northwest quadrant but will not extend beyond the city's current corporate boundaries. The Sandy City service area includes all of Sandy City, the Union Jordan area of Midvale City and the Creek Road area to the northwest of Sandy City. Also within the MWDSLS service area are located a number of county islands that are served by JWCDC.

MWDSLS has large water right holdings and water supplies in both Salt Lake County and Deer Creek Reservoir, located in the Utah Lake Basin. In September 2007, MWDSLS and others completed a **DRAFT** report of water demand and supply in Salt Lake County. **Tables 2, 3 and 4** summarize the findings of the report.

Table 2
JORDAN RIVER BASIN
Projected Dry-Year Production – Salt Lake City
Existing and Future Sources
(Acre-Feet/Year)

Supply Category	Projected Dry Year Production – 2010	Projected Dry Year Production – 2100
SLC Surface Water Sources	41,600*	42,022*
Base Wells and Springs	7,353	7,353
Peaking Wells	10,547	10,547
SLC Preferred Rights in MWDSLS	42,910	42,910
New Wells	0	12,000
Additional Surface Water Development	0	3,300
Wastewater Reuse	0	5,000
Utah Lake System Water	0	4,750**
Total	102,410	127,882

*Includes 16,320 ac-ft of reliable dry year production in Little Cottonwood Creek Treatment Plant owned and operated by Metropolitan Water District of Salt Lake and Sandy.

**Does not include any losses as part of PRC Enclosure.

Table 3
JORDAN RIVER BASIN
Projected Dry-Year Production – Sandy City
Existing and Future Sources
(Acre-Feet/Year)

Supply Category	Projected Dry Year Production – 2010	Projected Dry Year Production – 2100
Sandy Surface Water Sources	8,026*	8,698*
Sandy Ground Water	20,000	14,400
Sandy Preferred Storage Rights in MWDSLS	7,940	7,940
MWDSLS Storage from SLC	0	0
JVWCD	0	0
Ontario Drain Tunnel	2,664**	2,664**
Utah Lake System Water	0	3,850***
Total	38,630	37,552

*Estimated volume based on all pending change applications. Volume may be reduced depending on change application outcomes.

**Metropolitan Water District of Salt Lake and Sandy treats and delivers this source.

***Does not include any losses as part of PRC Enclosure.

Table 4
JORDAN RIVER BASIN
Projected Dry-Year Production – MWDSLS
Existing and Future Sources
(Acre-Feet/Year)

Supply Category	Projected Dry Year Production – 2010	Projected Dry Year Production – 2100
Member Agency Supplies	63,602	78,302
Little Cottonwood	23,080*	24,155*
Bell Canyon	844	863
Provo River Project	30,850	30,850
CUP Bonneville Unit – M&I	20,000	20,000
Ontario Drain Tunnel	2,664	2,664
Utah Lake System	0	7,000**
Total	141,040	163,834

*Includes 16,320 ac-ft of Salt Lake City water rights.

**Assumes 1,600 acre-feet transfer of water to CUWCD as part of PRC Enclosure.

WATER SUPPLY AND USE METHODOLOGY

Background

Over the past 45 years, the Division of Water Resources (DWR_e) has employed various procedures to obtain municipal and industrial (M&I) water use data. In recent years, these procedures have become more comprehensive. When the DWR_e began water planning in the 1960's, available data consisted mainly of supplies and uses for the state as a whole. At that time, Utah's agricultural water uses far exceeded M&I uses. M&I water use was calculated simply by multiplying estimated per capita water use rates by census population data.

By the early 1980s, M&I diversions made up a larger percent of all statewide water uses and the entire water community increased their focus on M&I water supplies and uses. The Division of Water Rights (DWR_i) and the Division of Drinking Water (DDW) launched a program to collect yearly, statewide M&I data from each public community water system. The procedure involved mailing a survey designed to query major public water suppliers about their sources of water supply. Additionally, the United States Geological Survey (USGS) began M&I water use studies. The DWR_e relied on both data sources in its planning efforts by the late 1980's.

With the preparation of the State Water Plan Basin reports, and the increasing focus on water conservation, the DWR_e saw the need to verify and improve the quality and quantity of the available data. The first method used included assisting the DWR_i and the DDW in the improvement of their M&I data collection program. Currently, the collection of water use data is a joint effort between all three divisions, administered by the DWR_i. Additionally, the DWR_e began verifying the accuracy of the data through yearly field surveys, as described in the following four sections.

Data Collection Methodology for Public Community Water Systems

Each year, the DWRe targets several hydrologic basins for M&I water supply and use analysis. The most recent water use information supplied by the DWRi is the basis used to begin the study. Prior to 2003, this information was submitted using a standard form by each water supplier. An example of the water use data form for Sandy City is found in **Appendix A**. Since 2003, the program has been updated, allowing for the water suppliers to electronically submit their data.

The DWRe staff contact the manager or operator of each community water system (as defined by the DDW) to schedule a data collection and analysis meeting. These meetings are necessary because data often is not reported (either on the water use forms or electronically) in the detail required for a complete M&I water use study. During these meetings, staff clarifies and collects additional data as needed. Total water supply and usage of the water systems are calculated based on information gathered during these meetings. When data is not available, it is necessary to estimate a part or all of the system use.

A secondary objective of these meetings is to instruct the operator or manager on how to most accurately and effectively complete the water use data form and/or submit their information electronically. This methodology has been used since 1992.

Water Supply

Potable Water - Two factors define the potable water supply for public community water systems: maximum developed potable water supply available under present conditions and reliable potable water supply. The maximum developed potable water supply available under present conditions is defined as the water resource that is presently being utilized. It is limited by a mechanical constraint (such as pump capacity or pipe size), a hydrologic constraint (such as reliable stream flow or groundwater safe yield) or a legal constraint (such as a water right or legal contract). **The lesser amount of water supply,**

due to these three constraints, is considered to be the maximum developed potable water supply available under present conditions used in this analysis.

The determination of well pump capacities, average annual spring flow estimates, treatment plant capacities and water right information aid in the calculation of this value. It should be noted that, due to the complexity of water rights, contracts, exchanges, etc., a detailed search of water right limitations associated with each entity is not within the scope of this study.

The reliable potable water supply is defined as the capacity to meet peak day demands, expressed as an annual volume. It is valuable in determining future water supply capacities of the particular community water system sources (wells, springs, etc.). **The reliable potable water supply is calculated by adding together the maximum developed water supply capacity of surface sources, one-half of the maximum yield of wells or their pump capacities (unless otherwise indicated by the system manager), and a percentage of the average annual flow of spring sources.** The percentage of spring source flow ranges between 50% and 100%. The determination of the percentage is based on information provided by the water supplier.

On page 17, **Figure 3** graphically presents the relationship between the maximum developed potable water supply and the reliable potable water supply of a system. By quantifying the maximum developed and the reliable potable water supply of a system, the total population that a system may potentially support can be determined. The current total yearly water use is the volume under the lower curve (*Present Water Use Pattern*). The future total yearly water use is the volume under the upper curve (*Future Water Use Pattern*). The latter volume is equivalent to the reliable developed potable water supply.

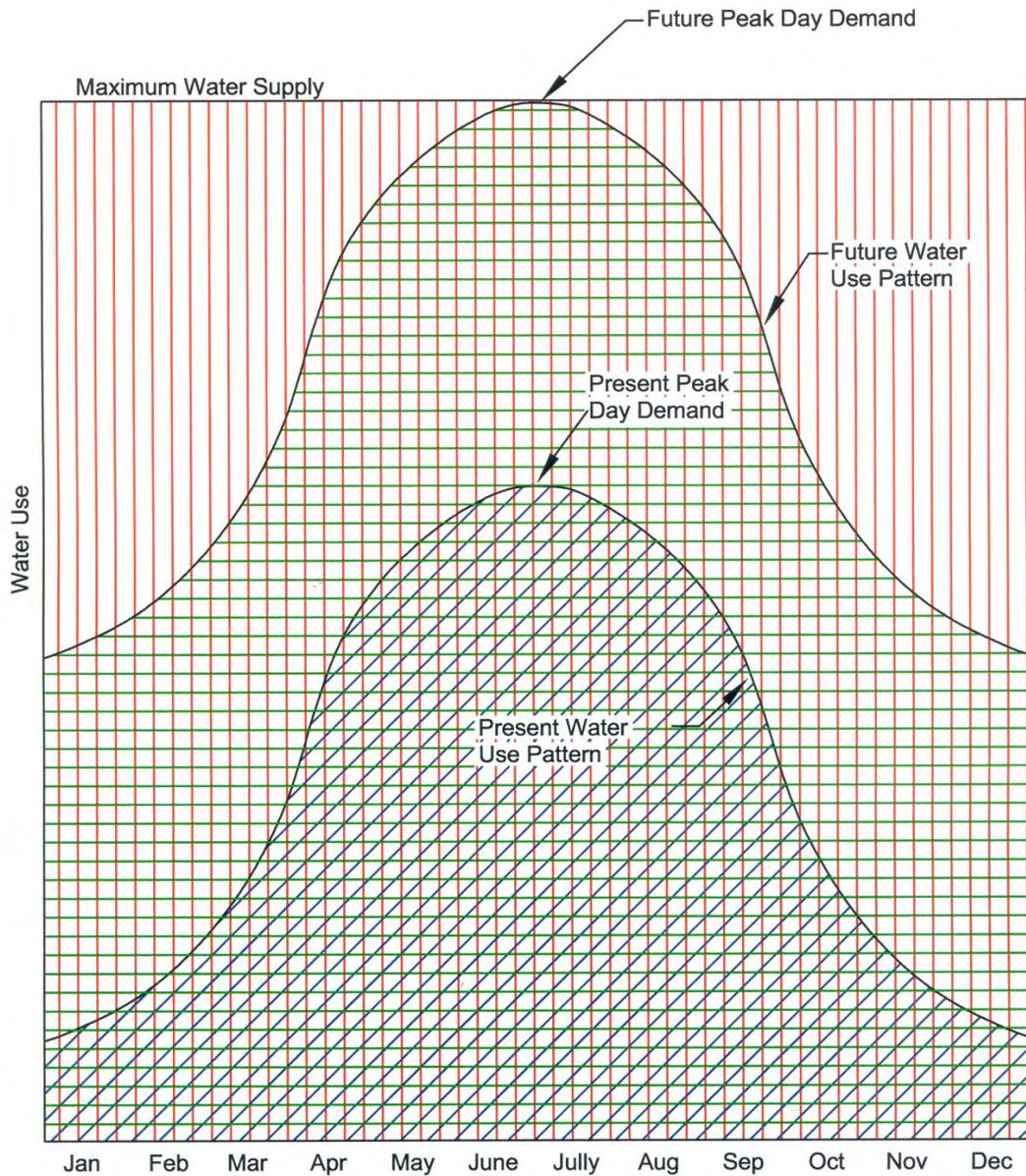
The maximum developed potable water supply under present conditions is the volume under the upper line (*Maximum Water Supply*) in **Figure 3**. This amount is a theoretical annual volume based upon a maximum daily flow rate (limited by the water right or system capacity). Consequently, the peak day demand point on the future water use

curve (*Future Peak Day Demand*) cannot exceed this upper limit. Due to the fluctuating nature of some sources (particularly springs), and the fact that most culinary water system storage tanks are designed to store only about one day of water demand, not all of the total maximum developed potable water supply is available to meet future water needs.

It is important to note that the reliable potable water supply is a theoretical annual volume based upon the current daily peak demand flow rate of any one system, under its current demand conditions. Additional supply may be made available by lowering and/or increasing the size of existing well pumps, pumping existing wells for longer durations, increasing storage capacity and/or distribution pipe sizes. However, being based only on current conditions, these systematic changes may cause operational problems during times of peak demand. Therefore, the DWRe uses the reliable potable water supply only as a reference tool to quantify the annual amount of water that can be delivered by each community water system.

For planning purposes, the reliable potable water supply is essential for estimating what population base each system can theoretically support with current demand patterns. It is also a guideline to help predict the approximate timing of future system improvements in order to meet any increase in demand.

Secondary Water – Deliveries of non-potable (secondary) water are an important component of the water use within the boundaries of public community water systems. However, quantifying the available supply of this water is difficult. In Utah, many of the secondary water systems are part of a larger agricultural irrigation system. Hence, the theoretical supply includes both agricultural and M&I water. Currently, separating M&I secondary from agricultural water is mostly estimated, due to the lack of and/or absence of metering, particularly at the level of individual property connections.



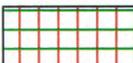
-  Present Yearly Water Use (Volume under curve)
-  Present Reliable Water Supply/Future Water Use (Volume under Curve)
 When this volume is divided by annual per capita water use, this yields the population that can be reliably served.
-  Maximum Water Supply Available Under Present Conditions (Volume under line)

Figure 3. Water Supply and Use Hydrograph

With secondary water use becoming more prevalent for outdoor landscaping, estimating the available supply of this water is becoming increasingly more important. **For planning purposes, the DWRe assumes that the supply for M&I secondary irrigation is simply equal to the current use.**

Water Use

Present water use, as defined herein, is the developed water supply that is actually delivered by the distribution system from surface or subsurface sources. Water use is divided into four categories: residential, commercial, institutional and industrial.

Residential – The staff collects data about the number of residential connections and the amount of water used by those connections from a water system representative. Water use in this category is divided into three subcategories: culinary-outdoor, culinary-indoor, and secondary-outdoor. While most systems will meter the total culinary residential water use, indoor and outdoor use are rarely metered separately. Secondary water use is rarely metered. Therefore, the DWRe usually estimates these subcategory totals.

Typically, culinary indoor use will be estimated first. One method to estimate the indoor use is to review residential meter reading totals for the system from the winter months, if available. Since outdoor watering typically does not occur during the winter months, it can be assumed that the water used in winter months is for indoor use only. The winter water use is then used to determine the total yearly indoor use.

When the above method does not yield a reasonable value for indoor use, the per capita indoor water use for a system can be estimated by using an equation that was developed in a detailed residential study, *Identifying Residential Water Use*, completed by the DWRe in 2001. The mathematical equation that was developed is as follows:

$$\text{GPCD}_{\text{Indoor}} = 90.3 / P_{\text{PH}} + 42.3$$

where:

$\text{GPCD}_{\text{Indoor}}$ = gallons per capita day (per capita indoor water use)

P_{PH} = persons per household (US Census Bureau)

The total yearly indoor water use is then calculated for the system by multiplying the result of the above equation by the current population. Outdoor culinary water use can then be estimated by subtracting the total yearly indoor water use from the given total residential culinary water use.

Because very few entities meter secondary outdoor water use, the DWRe staff estimates the outdoor secondary water use by using the average lot size, percent irrigated, percent of residences that are supplied by separate secondary (pressurized and ditch) irrigation systems, water right-duty rates (volume of water required for turf growth) in the area, and other related information for each system. In determining residential secondary use, care is taken to not include irrigation water use for small pastures or farm fields that can often be found adjacent to residences, particularly in rural communities.

Commercial – For most systems, the system operator can separate metered commercial water use data from the total water use. In cases where this data is not available, or is extremely difficult to obtain, the DWRe staff attempts to estimate commercial water use by inventorying commercial businesses in the area and using published commercial water use estimates. The DDW and the Utah State Water Lab, among others, publish these estimates. In some rural communities where there are a relatively small number of commercial connections, the businesses are visited individually by the DWRe staff and asked about their water use.

Some commercial facilities use secondary water to irrigate outside landscapes. This is especially typical for commercial golf courses. Again, it is typical that secondary water is not metered. The DWRe staff estimates this use by multiplying the size of the irrigated area by a water right-duty rate or the evapotranspiration (ET) rate with assumed application

efficiency percentage. The ET used is indicative of the amount of water, in inches, necessary for turf growth.

Institutional – Institutional water use is water used for city, county, state and federal government facilities, parks, municipal golf courses, schools, hospitals, churches, military facilities, as well as fire hydrant testing and other municipal losses in the water system. Because this water use is often not metered, the process to acquire this data is difficult. The system operator is asked to provide information about city facilities such as the number and size (irrigated acreage) of parks, schools, churches, and municipal golf courses. Water right-duty rates and/or the ET, with appropriate efficiencies, are used to calculate the amount of water that is needed to irrigate these areas. Estimates of leakage and water use for testing of system facilities are also included in this category.

Industrial – Industrial water use is defined as water used in the production of a product. Therefore, such commercial establishments as dairies, mink farms, and greenhouses, as well as stock-watering, are included in this category, provided a community water system serves them. Industrial water use within community water systems is calculated with the same process used to calculate commercial water use data discussed earlier.

Data Collection Methodology for Public Non-Community Water Systems

The DWRe staff attempts to contact each non-community system and/or make a personal visit to these systems. Non-community systems rarely meter their water use, so the DWRe staff estimate the annual water use. Questions are asked to determine the types of facilities on the system, population served, water source information, irrigation of outside areas, etc. This data, along with information found in water-related publications, is used to determine water use. The maximum and reliable water supplies for these systems are relatively small, often not available and are therefore not included in this study. However, for planning purposes, the DWRe assumes that the water supply for these systems is equal to their water use.

Data Collection Methodology for Self-Supplied Industrial Water Systems

Although self-supplied industries are included in the Non-Community Water Systems category as defined by the DDW, the DWRe has divided them into a separate category due to their importance. The category is equivalent to the DDW's Non-Community, Non-Transient category.

Water use is acquired for self-supplied industries by using data from the DWRI's Industrial Water Use Form and/or electronically submitted data. The DWRI collects annual water use data from most of the major self-supplied industrial water users in the state. This data is confidential. Therefore, the data presented in this M&I study is only presented as county totals. As with other non-community systems, the maximum and reliable water supplies are often not available and are not in the scope of this study. For planning purposes, the DWRe assumes that the water supply for these systems is equal to their water use.

Data Collection Methodology for Private Domestic Water Systems

Private domestic systems are residences that are not connected to any public community or non-community water system. They are usually supplied by individual wells. To determine the water use data for this category, the population of those served by private domestic systems is estimated. This population is estimated by subtracting the population served by community water systems from the county population data acquired from the Governor's Office of Planning and Budget (GOPB). The remainder is assumed to be the population that is served by private domestic systems. The per capita water use rate for this category is assumed to be the same as the rate for the public community system residential category for that county. To determine the total water use by private domestic systems, the estimated population is then multiplied by this rate. Again, the maximum and reliable water supplies for private wells, being relatively small, are not in the scope of this study. Similarly, for planning purposes, the DWRe assumes the water supply for these systems is equal to their water use.

DEFINITIONS OF WATER TERMS

Water is supplied by a variety of systems for many types of users. The general term supply is defined as the amount of water available. Municipalities own most of the individual water supply systems. However, in some cases the owner/operator is a private company, state or federal agency. Thus, a "public" water supply may be either publicly or privately owned and supply treated and/or untreated water.

Water Supply Terms

Maximum Developed Potable Water Supply – The annual volume of potable (culinary) water which is the lesser of the hydrologic capacity of the water source, the physical capacity of the water system, or the amount allowed by the collective water rights. (See pages 8-10 for a more detailed explanation)

Reliable Potable Water Supply – The annual volume within the maximum developed water supply that is available to meet peak demands. It is generally calculated as 100% of the maximum supply from surface water sources, 50% of the maximum yield of wells, and between 50% and 100% of the average annual spring flows. When this number is divided by the average per capita usage, the resulting number represents the theoretical maximum population that the water source can serve. (See pages 8-10 for a more detailed explanation)

Municipal and Industrial Water Supply – Includes all water (potable and non-potable) supplied for residential, commercial, institutional, light industry, and self-supplied industries. This supply is delivered by public community systems, public non-community (transient and non-transient) systems, self-supplied industrial systems, unregulated Indian water systems and private wells.

Types of Water

Potable Water – Includes water meeting all applicable Federal, State, and Local drinking water requirements for residential, commercial, institutional and industrial uses. It is also referred to as culinary water supply.

Secondary Water – Includes water not meeting safe drinking water requirements. It is also referred to as non-potable (non-culinary) water. This water is usually delivered by pressurized or open ditch systems for irrigation of privately and publicly owned landscapes, gardens, parks, cemeteries, golf courses and other open areas. Sometimes called "dual" water systems, they are installed to provide an alternative to irrigating with culinary water for these outdoor areas. Although Irrigation companies most often provide this water, public community systems may deliver this water as well. Self-supplied industries can also use secondary water for industrial processes.

Water System Categories

Public Community Water System – Provides potable and/or non-potable water by either a privately or publicly owned water system serving at least 15 connections or 25 individuals year round. Water from the public community water supplies may be used in both indoor and outdoor applications for residential, commercial, institutional, and industrial purposes.

Public Non-Community Water System – Provides potable and/or non-potable water by either a privately or publicly owned water system of one of two types: transient and non-transient. Transient systems are systems that do not serve 25 of the same non-resident persons per day for more than six months per year. Examples include campgrounds, RV parks, restaurants, convenience stores, etc. Non-transient systems are systems that regularly serve 25 of the same non-resident persons per day for more than six months per year. Examples include churches, schools and industries. This report categorizes industrial non-transient systems as self-supplied industries.

Self-Supplied Industrial System – Provides potable and/or non-potable water for use by individual privately owned industries (usually from their own wells or springs).

Private Domestic System – Provides potable and/or non-potable water from privately owned wells and/or springs for use by individual homes.

Water Use Terms

Water is used in a variety of ways and for many purposes. It is often said that water is "used" when it is diverted, demanded, withdrawn, depleted or consumed. But it is also "used" in place for such things as fish and wildlife habitat, recreation and hydropower production. **Water use in this report is defined as “delivered” water.** A table that shows the basin’s M&I water deliveries and depletions is provided in **Appendix B**.

In the previous water supply section, the word “use” can be interchanged with the word “supply” to define the current demand associated with those definitions. Some additional water use terms are as follows:

Commercial Use – Use normally associated with small business operations that may include drinking water, food preparation, personal sanitation, facility cleaning and maintenance and irrigation of facility landscapes. Examples include retail businesses, restaurants and hotels.

Industrial Use – Use associated with the manufacturing or production of products. The volume of water used by industrial businesses can be considerably greater than water used by commercial businesses. Examples include manufacturing plants, oil and gas producers, mining companies, milk farms and dairies.

Institutional Use – Use normally associated with general operation of various public agencies and institutions (i.e. schools, municipal buildings, churches) including drinking

water, personal sanitation, facility cleaning and maintenance and irrigation of parks, cemeteries, playgrounds, recreational areas, golf courses, and other facilities. The amount of water used by cities for outside irrigation of public areas typically is not metered.

Residential Use – Use associated with residential cooking, drinking water, washing clothes, miscellaneous cleaning, personal grooming and sanitation, irrigation of lawns, gardens and landscapes, and washing automobiles, driveways and other outside residential facilities. Examples include single-family homes, apartments, duplexes and condominiums.

Other Water Terms

Consumption – Water evaporated, transpired or irreversibly bound in either a physical, chemical or biological process. Consumed water results in a loss of the original water supplied.

Consumptive Use – Losses of water brought about by human endeavors when used for residential, commercial, institutional, industrial, agricultural, power generation, and recreation. Naturally occurring vegetation, fish and wildlife also consumptively use water.

Deliveries – Water already within a system that is being provided to an individual connection, whether potable or non-potable and/or metered or not. The connection can be for residential, commercial, institutional, and/or industrial uses. **For the purpose of this report, the delivered water amount is equivalent to water use.**

Depletion – Water consumed and made unavailable for return to a given designated area, river system or basin. It is intended to represent the net loss to a system. The terms consumption and depletion are often used interchangeably but are not the same. For example, water exported from a basin is depletion from the basin system but is not consumed in the basin. The exported water is available for use (consumption) in another basin or system. Water diverted to irrigate crops in a given system, but not returned for

later use, is depletion. Precipitation that falls on irrigated crops is not considered a part of the supply like surface water and groundwater diversions. For this reason, precipitation falling on and consumed by irrigated crops is not considered as being depletion from the system.

Diversion – Water diverted from supply sources such as streams, lakes, reservoirs or groundwater for a variety of purposes, including cropland irrigation, as well as residential, commercial, institutional and industrial uses.

Withdrawal – Water withdrawn from supply sources such as lakes, streams, reservoirs or groundwater. This term is normally used in association with groundwater withdrawal. The terms *diversion* and *withdrawal* are often used interchangeably.

WATER RIGHTS IN THE JORDAN RIVER BASIN

Western Salt Lake County Sources

Description – Covering the western half of Salt Lake County from Township 2 North to Township 4 South, the Western Salt Lake Valley Area (see **Figure 4**) includes the flows of Rose Canyon Creek, Butterfield Canyon Creek, Bingham Canyon Creek, and a number of intermittent streams draining from the Oquirrh Mountains to the Jordan River and eventually the Great Salt Lake. The area is bordered on the north by Great Salt Lake, on the west by the ridge of the Oquirrh Mountains, on the south by the traverse ridge, and on the east by the Jordan River. The highest point in the area is the 9,370 foot Butterfield Peaks, while the lowest is the surface of the Great Salt Lake at about 4,200 feet, giving a total relief of about 5,170 feet.

Management – Five *Proposed Determination of Water Rights* books have been published: the Northwest Subdivision in 1975, the Central and West subdivisions in 1977, and the Southwest Subdivision and a Supplemental Book in 1979. No pre-trial orders have been issued. There are several other decrees in this area. There are two state-administered distribution systems in this area. The Utah Lake-Jordan River Distribution System is administered by the Utah Lake-Jordan River Commissioner. The Lower Jordan River Distribution System is administered by the Lower Jordan River Commissioner. This area is subject to the conditions of the Utah Lake Water Distribution Plan and the Salt Lake Valley Groundwater Management Plan. [Click here to see statistics for this area.](#)

Surface Water – All surface water is fully appropriated. Development of new or different consumptive use projects involving surface water must be accomplished by change applications based on owned or acquired existing rights. Non-consumptive use applications, such as hydroelectric power generation applications, will be considered on their individual merits. Changes from surface to underground sources are not allowed in the valley fill. Fixed-time and temporary projects involving surface waters must be handled by temporary change applications. Changes based on shares of stock in irrigation

Groundwater – The ground water resources of this area are very limited. The development of other new or different consumptive use projects must be accomplished by change applications based on owned or acquired existing rights. The segregation of existing rights will be critically reviewed and may be denied. Changes from the shallow aquifer to the principal aquifer will not be approved. Changes will be restricted by the maximum allowable withdrawal amounts under the management plan. New wells must be so spaced that when pumped at the maximum authorized flow rate the resulting drawdown in any neighboring earlier priority well will not exceed 12 feet. All wells having withdrawal rights of 50 acre-feet per year or more must be equipped with meters. Those wells withdrawing more than 250 acre-feet per year must report quantity and quality data to the State Engineer annually.

Changes from surface to underground sources are not allowed in the valley fill. Fixed-time and temporary projects must be handled by temporary change applications. Changes based on shares of stock in irrigation companies and exchanges based on contracts with the Central Utah Water Conservancy District have been approved to authorize development in this closed area. Applicants are placed on notice that development should be pursued as soon as possible, and requests for extensions of time in which to file proof will be critically reviewed after an initial five year period.

Eastern Salt Lake County Sources

Description – Covering the eastern half of Salt Lake County from Township 1 North to Township 4 South (see **Figure 5**), this area includes the flows of City Creek, Red Butte Canyon, Emigration Canyon, Parley's Creek, Mill Creek, and Big and Little Cottonwood Creeks, all of which drain into the Jordan River and eventually the Great Salt Lake. The area is bordered on the north by Davis County, on the west by the Jordan River, on the south by the Utah Lake drainage, and on the east by the Weber River drainage. The highest point in the area is 11,489-foot Twin Peaks, while the lowest is the surface of the Great Salt Lake at about 4,200 feet. This gives a total relief of about 7,290 feet.

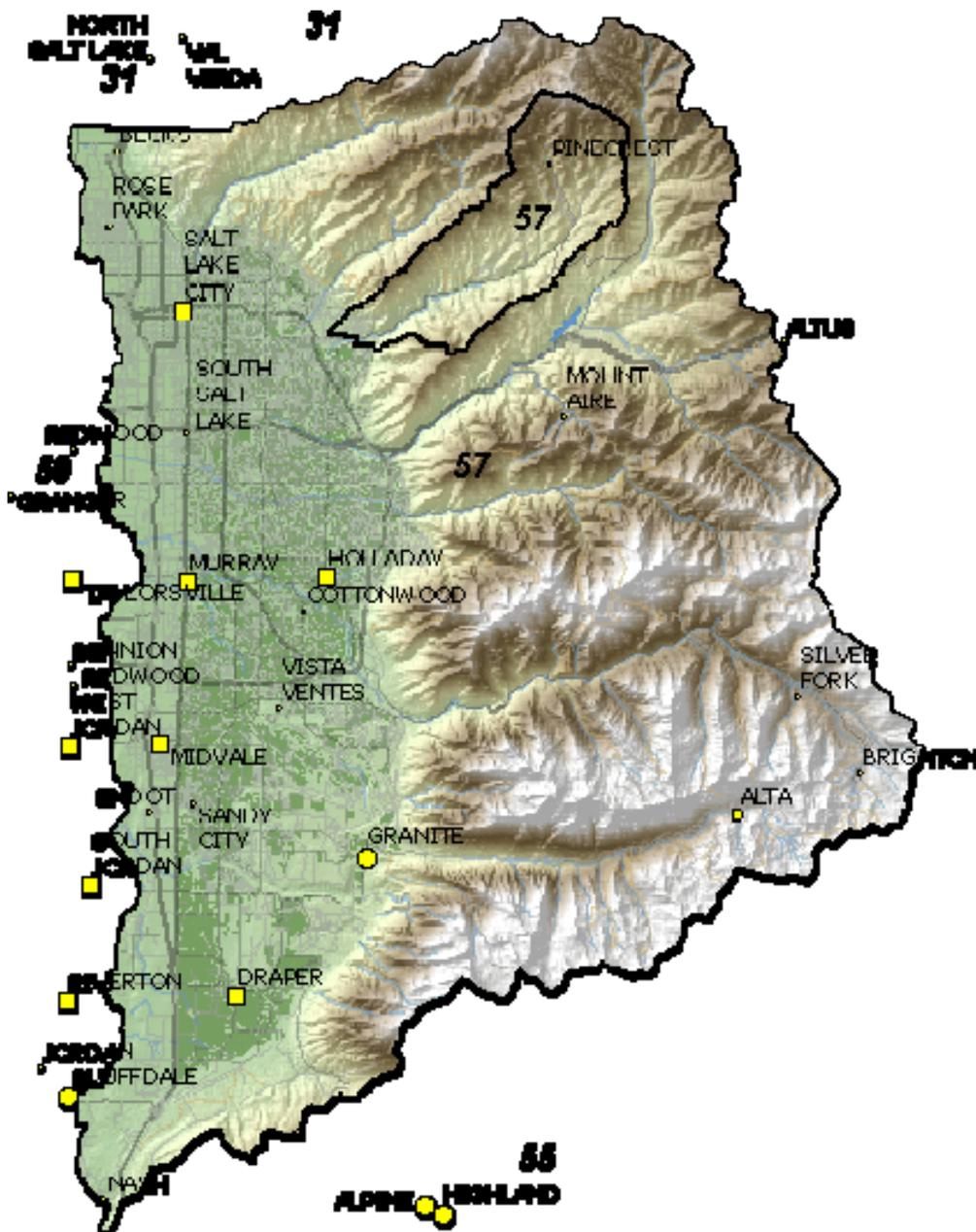


Figure 5. Eastern Salt Lake Valley Area

Management – One proposed determination of water rights book was published in 1983, *The Emigration Canyon*, and a pre-trial order was issued in 1988. A supplemental decree covering Bertagnole Rights was issued in 1990. There are several other decrees in

this area. There are three state-administered distribution systems in this area. The Utah Lake-Jordan River Distribution System is administered by the Utah Lake-Jordan River Commissioner. The Lower Jordan River Distribution System is administered by the Lower Jordan River Commissioner. This area is subject to the conditions of the Utah Lake Water Distribution Plan and the Salt Lake Valley Groundwater Management Plan. The Little Cottonwood Distribution System is administered by the Little Cottonwood Creek Commissioner.

Surface Water – All surface waters are fully appropriated. Development of new, or different, consumptive use projects involving surface water must be accomplished by change applications based on owned or acquired existing rights. Non-consumptive use applications, such as hydroelectric power generation, will be considered on their individual merits. Changes from surface to underground sources are not allowed in the valley fill. Fixed-time and temporary projects involving surface waters must be handled by temporary change applications. Changes based on shares of stock in irrigation companies and exchanges based on contracts with the Central Utah Water Conservancy District have been approved to authorize development in this closed area. Applicants are placed on notice that development should be pursued as soon as possible, and requests for extensions of time in which to file proof will be critically reviewed after an initial five year period.

Groundwater – All ground water is fully appropriated. Development of new, or different, consumptive use projects must be accomplished by change applications based on owned or acquired existing rights. The segregation of existing rights will be critically reviewed and may be denied. Changes from the shallow aquifer to the principal aquifer will not be approved. Changes will be restricted by the maximum allowable withdrawal amounts under the management plan. New wells must be so spaced that when pumped at the maximum authorized flow rate, the resulting drawdown in any neighboring, earlier priority well will not exceed 12 feet. All wells having withdrawal rights of 50 acre-feet per year or more must be equipped with meters. Those wells withdrawing more than 250 acre-feet per year must report quantity and quality data to the State Engineer annually. Changes from surface to underground sources are not allowed in the valley fill. Fixed-time

and temporary projects must be handled by temporary change applications. Changes based on shares of stock in irrigation companies and exchanges based on contracts with the Central Utah Water Conservancy District have been approved to authorize development in this closed area. Applicants are placed on notice that development should be pursued as soon as possible, and requests for extensions of time in which to file proof will be critically reviewed after an initial five year period.

General – Applications are advertised in the local large newspapers. The general irrigation diversion duty, which the State Engineer uses for evaluation purposes, is 5.0 acre-feet per acre per year (af/ac/yr), except in Emigration Canyon, where the duty is 4.0 af/ac/yr. The consumptive use requirement is determined from the publication Consumptive Use of Irrigated Crops in Utah, Research Report 145, Utah State University, 1994, unless the applicant submits other data for consideration. This area is administered by the Utah Lake-Jordan River Regional Office in Salt Lake City.

Other Requirements – The Water Right applicant is strongly cautioned that other permits may be required before any physical development of a project can begin and it is the responsibility of the applicant to determine the applicability of and acquisition of such permits. In order to avoid delays and ensure that Water Right approvals conform to applicable local ordinances, applicants should contact local governmental entities in advance to determine what ordinances are in place that affect the proposed project and to make sure that Water Right filings conform to those ordinances. The approval of a Water Right application does not imply any approval of a project by any other governmental entity. Approval of the project proposed in the Water Right application should be obtained from local governmental entities as necessary to implement a project.

SALT LAKE COUNTY M&I WATER SUPPLIES AND USES

The Jordan River Basin encompasses all of the land area within Salt Lake County. Salt Lake County is the state's most populous county and includes the incorporated communities of Alta, Bluffdale, Cottonwood Heights, Draper, Herriman, Holladay, Midvale, Murray, Riverton, Salt Lake City, Sandy, South Jordan, South Salt Lake, Taylorsville, West Jordan and West Valley City.

Within this area are 32 public community systems, 41 public non-community systems and 16 self-supplied industries. Locations of the public community systems are shown in **Figure 2** on page 5.

As shown in **Table 5** on the following page, the maximum annual potable water supply for the public community systems of Salt Lake County is 407,897 acre-feet; 8,392 acre-feet from springs, 144,231 acre-feet from wells, and 255,274 acre-feet from surface sources. The reliable potable water supply is shown in **Table 6** on page 37 to be 288,653 acre-feet, about 71 percent of the maximum supply.

Many of the public community water systems in Salt Lake County, in addition to their own water supplies, have wholesale purchase contracts with either Jordan Valley Water Conservancy District (JVWCD) or Metropolitan Water District of Salt Lake and Sandy (MWDSL). See pages 7-11 for more detailed information on these large water wholesalers. Sandy City also provides some wholesale water to Midvale City. **Table 7** on page 36 shows contracted and purchased amounts of wholesale water for each of the public community water systems in Salt Lake County.

Table 8 on page 39 presents the breakdown of the potable water use for each public community system of the county. As indicated by the table, the current total annual potable water use is 205,954 acre-feet, which is about 71 percent of the current reliable potable water supply.

TABLE 5
SALT LAKE COUNTY
Maximum Potable Supplies for Public Community Systems
(Acre-Feet/Year)

WATER SUPPLIER	Springs	Wells	Surface	Total
Alta Town Water System	0	476	0	476
Boundary Springs Water Co.	323	0	0	323
Copperton Improvement District	0	1,249	0	1,249
Dansie Water Co.	0	564	0	564
Draper Irrigation Company (Water Pro)	0	1,774	3,696	5,470
Emigration Improvement District	0	581	0	581
Hi-Country Estates Phase 1 Water Co.	0	161	0	161
Holliday Water Co.	2,800	3,530	1,099	7,429
Jordan Valley Water Conservancy District (JVWCD)	0	12,000	103,200	115,200
<i>JVWCD Member Agencies:</i>				
Bluffdale Water System	0	0	0	0
Draper City Water System	0	0	0	0
Granger-Hunter Improvement District	0	18,785	0	18,785
Herriman City	102	766	0	868
Hi-Country Estates II Homeowners Assoc.	0	105	0	105
Keams Improvement District	0	3,631	0	3,631
Magna Improvement District	0	8,615	0	8,615
Midvale City Water System	0	3,805	0	3,805
Riverton City Water System	80	12,226	0	12,306
South Jordan City	0	0	0	0
South Salt Lake City	0	6,313	0	6,313
Taylorville-Bennion Improvement District	0	14,303	0	14,303
West Jordan City Water	0	11,500	0	11,500
White City Water Improvement District	0	8,103	0	8,103
Subtotal JVWCD Member Agencies	182	88,152	0	88,334
Subtotal JVWCD incl. Member Agencies	182	100,152	103,200	203,534
Metropolitan Water District of Salt Lake & Sandy (MWDSLS)	0	3,267	105,019	108,286
<i>MWDSLS Member Agencies:</i>				
Salt Lake City Corp. Dept. of Public Utilities	2,200	9,700	42,260	54,160
Sandy City Dept. of Public Utilities	0	6,000	0	6,000
Subtotal MWDSLS Member Agencies	2,200	15,700	42,260	60,160
Subtotal MWDSLS incl. Member Agencies	2,200	18,967	147,279	168,446
Murray City Water System	1,606	16,295	0	17,901
Salt Lake County Service Area 3 - Snowbird	1,120	0	0	1,120
Silver Fork Pipeline Corporation	0	123	0	123
Silver Lake Co.	161	0	0	161
Spring Glen Water Co.	0	56	0	56
Webb Well Water Users	0	273	0	273
Young Oak Water Corporation	0	30	0	30
TOTALS	8,392	144,231	255,274	407,897

(see note 2)

Notes:

1. All values represent maximum system source capacities limited by water rights, hydrologic and/or distribution system constraints.
2. The Salt Lake Valley Groundwater Management Plan has determined the long term "safe yield" of the basin to be 165,000 acre feet of groundwater withdrawals per year. The basin is divided

TABLE 6
SALT LAKE COUNTY

**Reliable Potable Water Supplies for Public Community Systems
(Acre-Feet/Year)**

WATER SUPPLIER	Springs	Wells	Surface	Total
Alta Town Water System	0	238	0	238
Boundary Springs Water Co.	162	0	0	162
Copperton Improvement District	0	625	0	625
Dansie Water Co.	0	282	0	282
Draper Irrigation Company (Water Pro)	0	887	3,696	4,583
Emigration Improvement District	0	291	0	291
Hi-Country Estates Phase 1 Water Co.	0	81	0	81
Holliday Water Co.	1,840	2,824	1,099	5,763
Jordan Valley Water Conservancy District (JVWCD)	0	25,000	69,100	94,100
<i>JVWCD Member Agencies:</i>				
Bluffdale Water System	0	0	0	0
Draper City Water System	0	0	0	0
Granger-Hunter Improvement District	0	9,393	0	9,393
Herriman City	51	383	0	434
Hi-Country Estates II Homeowners Assoc.	0	53	0	53
Keams Improvement District	0	1,816	0	1,816
Magna Improvement District	0	4,308	0	4,308
Midvale City Water System	0	2,800	0	2,800
Riverton City Water System	40	5,000	0	5,040
South Jordan City	0	0	0	0
South Salt Lake City	0	3,157	0	3,157
Taylorsville-Bennion Improvement District	0	7,500	0	7,500
West Jordan City Water	0	3,000	0	3,000
White City Water Improvement District	0	4,052	0	4,052
Subtotal JVWCD Member Agencies	91	41,462	0	41,553
Subtotal JVWCD incl. Member Agencies	91	66,462	69,100	135,653
Metropolitan Water District of Salt Lake & Sandy (MWDSLS)	0	2,664	59,868	62,532
<i>MWDSLS Member Agencies:</i>				
Salt Lake City Corp. Dept. of Public Utilities	2,200	15,700	25,702	43,602
Sandy City Dept. of Public Utilities	0	20,000	0	20,000
Subtotal MWDSLS Member Agencies	2,200	35,700	25,702	63,602
Subtotal MWDSLS incl. Member Agencies	2,200	38,364	85,570	126,134
Murray City Water System	1,135	12,823	0	13,958
Salt Lake County Service Area 3 - Snowbird	560	0	0	560
Silver Fork Pipeline Corporation	0	62	0	62
Silver Lake Co.	81	0	0	81
Spring Glen Water Co.	0	28	0	28
Webb Well Water Users	0	137	0	137
Young Oak Water Corporation	0	15	0	15
TOTALS	6,069	123,119	159,465	288,653

Note: Most values represent reliable supplies (9 out of 10 years) adjusted for meeting peak day demands from the maximum system source capacities, which are limited by water rights, hydrologic constraints, and/or system constraints. Holliday Water Co., JVWCD, MWDSLS and Murray City Water System values represent dry year scenarios.

TABLE 7
SALT LAKE COUNTY
Wholesale Potable Water Supplies,
Customers and Deliveries

WATER SUPPLIER / CUSTOMER	Purchased Amount (Acre Ft/Yr.)
Jordan Valley Water Conservancy District (JVWCD):	
Bluffdale City Water System	1,207.5
Draper City Water System	2,627.5
Granger-Hunter Improvement District	16,919.8
Herriman	1,212.7
Hexcel Corporation	699.3
High Country Esates Phase II	0.0
Kearns Improvement District	7,149.9
Magna Improvement District	928.5
Midvale City Water System	149.0
Riverton City Water System	620.3
Sandy City	322.5
South Jordan City	9,088.2
South Salt Lake City	613.0
Taylorville-Bennion Improvement District	5,057.2
Utah Department of Corrections	704.9
WaterPro Inc.	946.5
West Jordan City Water	15,040.3
White City Water Improvement District	0.0
Willow Creek Country Club	296.0
SubTotal JVWCD	63,583.1
Metropolitan Water District of Salt Lake & Sandy (MWDSLs):	
Salt Lake City Corp. Dept. of Public Utilities	44,330.5
Sandy City Dept. of Public Utilities	13,614.2
Jordan Valley Water Conservancy District	370.0
SubTotal MWDSLs	58,314.7
Sandy City Corp. Water	
Midvale City Water System	233.3
SubTotal Sandy City Corp. Water	233.3
TOTALS	121,897.8

Notes:

1. All values are total volumes for the calendar year 2005.
2. Metropolitan Water District of Salt Lake & Sandy sells surplus water to Jordan Valley Water Conservancy District (JVWCD) on an as available basis.
3. Contracts with JVWCD are minimum amounts to be paid, whether used or not.

**TABLE 8
SALT LAKE COUNTY
Potable Water Use for Public Community Systems**

WATER SUPPLIER	POTABLE USAGE							POTABLE PER CAPITA USAGE		
	Residential Indoor Use (Ac-Ft/Yr)	Residential Outdoor Use (Ac-Ft/Yr)	Commercial Indoor and Outdoor Use (Ac-Ft/Yr)	Institutional Indoor and Outdoor Use (Ac-Ft/Yr)	Industrial/Stockwater Indoor and Outdoor Use (Ac-Ft/Yr)	Total Potable M & I Use (Ac-Ft/Yr)	Population	Average Per Capita Water Use (Ac-Ft/Yr)	Average Per Capita Water Use (GPCPD)	
Alta Town Water System	29.8	2.0	83.8	0.5	0.0	116.1	370	0.314	280.1	
Boundary Springs Water Co.	8.1	35.0	0.0	0.0	0.0	43.1	100	0.431	384.8	
Copperton Improvement District	11.7	131.4	20.0	4.0	0.0	167.1	820	0.204	181.9	
Dansie Water Co.	8.1	70.0	0.0	0.0	4.0	82.1	100	0.821	732.9	
Draper Irrigation Company (Water Pro)	1,897.7	1,785.0	705.8	260.9	12.3	4,661.7	23,530	0.198	176.9	
Emigration Improvement District	36.3	112.5	0.0	0.0	0.0	148.8	450	0.331	295.2	
Hi-Country Estates Phase 1 Water Co.	28.2	34.2	0.0	0.0	5.4	67.8	350	0.194	172.9	
Holiday Water Co.	1,140.4	1,967.1	443.9	143.6	0.0	3,695.0	14,140	0.261	233.3	
Jordan Valley Water Conservancy District (JVWCD) -Retail	2,413.9	4,190.1	1,987.9	476.0	131.2	9,199.1	29,930	0.307	274.4	
<i>Member Agencies:</i>										
Bluffdale Water System	103.2	855.4	133.8	60.2	0.0	1,152.6	7,190	0.160	143.1	
Draper City Water System	944.4	986.2	219.6	54.9	150.0	2,355.1	11,710	0.201	179.5	
Granger-Hunter Improvement District	1,602.1	14,327.9	1,980.0	2,181.0	501.0	20,592.0	111,550	0.185	164.8	
Herriman City	177.8	1,750.0	155.1	30.0	0.0	2,112.9	12,380	0.171	152.4	
Hi-Country Estates II Homeowners Assoc.	40.3	100.8	0.0	0.0	0.0	141.1	500	0.282	251.9	
Kearns Improvement District	3,728.5	1,794.9	1,148.5	160.0	857.7	7,689.6	46,230	0.166	148.5	
Magna Water Improvement District	2,147.7	1,623.6	146.1	98.0	40.0	4,055.4	26,630	0.152	136.0	
Midvale City Water Department	1,116.2	596.3	814.2	28.0	252.6	2,807.3	13,840	0.203	181.1	
Riverton City Water System	1,973.5	397.4	229.3	1,218.4	0.0	3,818.6	24,470	0.156	139.3	
South Jordan City	3,568.8	2,056.8	1,448.1	2,014.6	0.0	9,088.3	44,250	0.205	183.4	
South Salt Lake Culinary Water	788.9	577.5	240.6	200.0	1,200.0	2,987.0	10,560	0.283	252.5	
Taylorville-Bennion Improvement District	5,296.3	4,346.6	1,293.8	1,820.9	83.9	12,841.5	65,670	0.196	174.6	
West Jordan City Water	6,483.5	3,883.0	3,797.9	356.5	2,500.0	17,020.9	80,390	0.212	189.0	
White City Water Improvement District	1,219.8	1,076.3	169.7	150.0	0.0	2,615.8	15,130	0.173	154.3	
Subtotal JVWCD Member Agencies	29,171.0	34,372.7	11,776.7	8,372.5	5,585.2	89,278.1	470,500.0	0.190	169.4	
Subtotal MWDLS	31,584.9	38,562.8	13,764.6	8,848.5	5,716.4	98,477.2	500,430.0	0.197	175.7	
Metropolitan Water District of Salt Lake & Sandy (MWDLSL)										
<i>Member Agencies:</i>										
Salt Lake City Corp. Dept. of Public Utilities	21,692.8	20,960.1	14,841.2	7,507.1	3,018.6	68,019.8	297,940	0.228	203.8	
Sandy City Dept. of Public Utilities	8,163.4	9,285.3	3,146.1	1,643.9	499.5	22,738.2	101,220	0.225	200.5	
Subtotal MWDLSL Member Agencies	29,856.2	30,245.4	17,987.3	9,151.0	3,518.1	90,758.0	399,160.0	0.227	203.0	
Murray City Water System	2,177.6	3,500.0	319.4	1,200.0	150.0	7,347.0	27,000	0.272	242.9	
Salt Lake County Service Area 3 - Snowbird	10.5	0.4	202.4	0.3	0.0	213.6	180	1.187	1,059.4	
Silver Fork Pipeline Corp.	50.0	4.1	0.8	0.0	0.0	54.9	170	0.323	288.3	
Silver Lake Co.	33.8	0.7	15.0	1.0	0.0	50.5	30	1.683	1,502.8	
Spring Glen Water Co.	4.1	7.0	0.0	0.0	0.0	11.1	60	0.185	165.2	
Webb Well Water Users	17.7	36.4	0.0	0.0	1.1	55.2	220	0.251	224.0	
Young Oak Water Corp.	3.7	1.0	0.0	0.0	0.0	4.7	40	0.118	104.9	
TOTALS	66,898.8	76,495.0	33,543.0	19,609.8	9,407.3	205,953.9	967,150.0	0.213	190.1	

Secondary water is another important aspect of M&I water use. **Table 9** on the following page shows the amount of secondary water use delivered within the public community water system's service areas. A couple of public community systems supply their own secondary water. In addition, several different canal and irrigation companies deliver secondary water to customers within several public community water system boundaries. The total secondary water use for the county is 18,066 acre-feet.

Table 10 on page 42 gives various gpcd use rates for the public community water systems of the county.

Table 11 on page 43 gives the water use for public non-community, self-supplied industries, and private domestic water systems. There are many Forest Service campgrounds, summer home developments, private businesses, a county golf course, county park facilities as well as the two ski resort areas of Brighton and Solitude that are served by public non-community water systems. There are also 16 self-supplied industries that utilize large amounts of potable and secondary water and a small amount of private domestic well use in the county.

Total M&I potable water use for all water systems in the county is about 213,061 acre-feet, while non-potable use is 120,659 acre-feet for a total overall M&I water use of 333,720 acre-feet. With a current population of about 970,750 people, the county has an overall water use rate of 307 gallons per capita per day.

TABLE 9
SALT LAKE COUNTY
Secondary Water Use within Public Community Water Systems
(Acre-Feet/Year)

WATER SUPPLIER	Residential Use	Commercial Use	Institutional Use	Industrial/ Stockwater Use	Total Secondary Use
Alta Town Water System	0.0	0.0	0.0	0.0	0.0
Boundary Springs Water Co.	0.0	0.0	0.0	0.0	0.0
Copperton Improvement District	0.0	0.0	0.0	0.0	0.0
Dansie Water Co.	0.0	0.0	0.0	0.0	0.0
Draper Irrigation Company (Water Pro)*	4,101.7	0.0	500.0	0.0	4,601.7
Emigration Improvement District	0.0	0.0	0.0	0.0	0.0
Hi-Country Estates Phase 1 Water Co.	4.0	0.0	0.0	0.0	4.0
Holiday Water Co.	185.0	0.0	0.0	0.0	185.0
Jordan Valley Water Conservancy District (JVWCD) - Retail	250.0	0.0	0.0	0.0	250.0
<i>Member Agencies:</i>					
Bluffdale Water System	252.0	0.0	4.0	0.0	256.0
Draper City Water System	840.0	0.0	520.0	0.0	1,360.0
Granger-Hunter Improvemnet District	50.0	0.0	260.0	0.0	310.0
Herriman City	170.0	0.0	4.0	0.0	174.0
Hi-Country Estates II Homeowners Assoc.	0.0	0.0	0.0	0.0	0.0
Kearns Improvement District	0.0	500.0	0.0	0.0	500.0
Magna Water Improvement District	0.0	180.0	0.0	0.0	180.0
Midvale City Water Department	0.0	0.0	0.0	0.0	0.0
Riverton City Water System *	5,800.0	0.0	0.0	0.0	5,800.0
South Jordan City	30.0	200.0	300.0	0.0	530.0
South Salt Lake Culinary Water	0.0	0.0	0.0	0.0	0.0
Taylorsville-Bennion Improvement District	30.0	120.0	0.0	0.0	150.0
West Jordan City Water	40.0	0.0	1,179.9	0.0	1,219.9
White City Water Improvemnet District	105.0	0.0	0.0	0.0	105.0
Subtotal JVWCD Member Agencies	7,317.0	1,000.0	2,267.9	0.0	10,584.9
Subtotal JVWCD incl. Member Agencies	7,567.0	1,000.0	2,267.9	0.0	10,834.9
Metropolitan Water District of Salt Lake & Sandy (MWDSLS)					
<i>Member Sgencies:</i>					
Salt Lake City Corp. Dept. of Public Utilities	10.0	440.0	800.0	0.0	1,250.0
Sandy City Dept. of Public Utilities	300.0	580.0	0.0	0.0	880.0
Subtotal MWDSLS Member Agencies	310.0	1,020.0	800.0	0.0	2,130.0
Murray City Water System	0.0	0.0	300.0	0.0	300.0
Salt Lake County Service Area 3 - Snowbird	0.0	0.0	0.0	0.0	0.0
Silver Fork Pipeline Corp.	0.0	0.0	0.0	0.0	0.0
Silver Lake Co.	0.0	0.0	0.0	0.0	0.0
Spring Glen Water Co.	0.0	0.0	0.0	0.0	0.0
Webb Well Water Users	10.0	0.0	0.0	0.0	10.0
Young Oak Water Corp.	0.0	0.0	0.0	0.0	0.0
TOTALS	12,177.7	2,020.0	3,867.9	0.0	18,065.6

*Note: Separate irrigation companies provide secondary water within the boundaries of the potable water system, unless indicated by an *.

TABLE 10
SALT LAKE COUNTY
Average Per Capita M&I Water Use for Public Community Systems
(Gallons Per Capita per Day)

WATER SUPPLIER	Service Population	Residential Water Use			CII Water Use*			TOTAL WATER USE		
		Potable	Non-Potable	Sub Total	Potable	Non-Potable	Sub Total	Potable	Non-Potable	TOTAL
Alta Town Water System	370	77	0	77	203	0	203	280	0	280
Boundary Springs Water Co.	100	385	0	385	0	0	0	385	0	385
Copperton Improvement District	820	156	0	156	26	0	26	182	0	182
Dansie Water Co.	100	697	0	697	36	0	36	733	0	733
Draper Irrigation Company (Water Pro)	23,530	140	156	295	37	19	56	177	175	351
Emigration Improvement District	450	295	0	295	0	0	0	295	0	295
Hi-Country Estates Phase 1 Water Co.	350	159	10	169	14	0	14	173	10	183
Holiday Water Co.	14,140	196	12	208	37	0	37	233	12	245
Jordan Valley Water Conservancy District (JVWCD) - Retail	29,930	197	7	204	77	0	77	274	7	282
<i>Member Agencies:</i>										
Bluffdale Water System	7,190	119	31	150	24	0	25	143	32	175
Draper City Water System	11,710	147	64	211	32	40	72	180	104	283
Granger-Hunter Improvemnet District	111,550	127	0	128	37	2	39	165	2	167
Herriman City	12,380	139	12	151	13	0	14	152	13	165
Hi-Country Estates II Homeowners Assoc.	500	252	0	252	0	0	0	252	0	252
Kearns Improvement District	46,230	107	0	107	42	10	51	148	10	158
Magna Water Improvement District	26,630	126	0	126	10	6	16	136	6	142
Midvale City Water Department	13,840	110	0	110	71	0	71	181	0	181
Riverton City Water System	24,470	86	212	298	53	0	53	139	212	351
South Jordan City	44,250	113	1	114	70	10	80	183	11	194
South Salt Lake Culinary Water	10,560	114	0	114	139	0	139	253	0	253
Taylorsville-Bennion Improvement District	65,670	131	0	131	43	2	45	175	2	177
West Jordan City Water	80,390	115	0	116	74	13	87	189	14	203
White City Water Improvemnet District	15,130	135	6	142	19	0	19	154	6	161
Subtotal JVWCD Member Agencies	470,500	121	14	134	49	6	55	169	20	189
Subtotal JVWCD incl. Member Agencies	500,430	125	13	139	51	6	56	176	19	195
Metropolitan Water District of Salt Lake & Sandy (MWDSLS)										
<i>Member Agencies:</i>										
Salt Lake City Corp. Dept. of Public Utilities	297,940	128	0	128	75	4	79	203	4	207
Sandy City Dept of Public Utilities	101,220	154	3	157	47	5	52	201	8	208
Subtotal MWDSLS Member Agencies	399,160	134	1	135	68	4	72	203	5	207
Murray City Water System	27,000	188	0	188	55	10	65	243	10	253
Salt Lake County Service Area 3 - Snowbird	180	54	0	54	1,005	0	1,005	1,059	0	1,059
Silver Fork Pipeline Corp.	170	284	0	284	4	0	4	288	0	288
Silver Lake Co.	30	1,027	0	1,027	476	0	476	1,503	0	1,503
Spring Glen Water Co.	60	165	0	165	0	0	0	165	0	165
Webb Well Water Users	220	220	41	260	4	0	4	224	41	265
Young Oak Water Corp.	40	105	0	105	0	0	0	105	0	105
TOTALS	967,150	132	11	144	58	5	63	190	17	207

*Note: CII category includes commercial, institutional and industrial uses.

TABLE 11
SALT LAKE COUNTY
Water Use for Non-Community Systems,
Self-Supplied Industries and Private Domestic Systems
(Acre-Feet/Year)

WATER SUPPLIER	POTABLE USAGE					Total Secondary Water Use
	Residential Use	Commercial Use	Institutional Use	Industrial/ Stockwater Use	Total Potable Use	
Non-Community Systems:						
Alf's Inn (Alta)	0.0	2.5	0.0	0.0	2.5	0.0
Brighton LDS Summer Camp	0.0	0.0	1.0	0.0	1.0	0.0
Camp Tuttle	0.0	0.0	0.5	0.0	0.5	0.0
Cardiff A.P.O.	5.0	0.0	0.0	0.0	5.0	0.0
Cottonwood Club	0.0	44.5	0.0	0.0	44.5	0.0
Distinctive Catering	0.0	0.8	0.0	0.0	0.8	0.0
Firs Summer Homes	1.3	0.0	0.0	0.0	1.3	0.0
Forest Glen - A	2.2	0.0	0.0	0.0	2.2	0.0
Forest Glen - A & B	5.7	0.0	0.0	0.0	5.7	0.0
Forest Home Co.	0.1	0.0	0.0	0.0	0.1	0.0
<i>Forest Service Systems:</i>						
Albion Basin CG	0.0	0.0	0.3	0.0	0.3	0.0
Church Fork PA	0.0	0.0	1.5	0.0	1.5	0.0
Jordan Pines CG	0.0	0.0	1.0	0.0	1.0	0.0
Redman CG	0.0	0.0	0.8	0.0	0.8	0.0
Spruces CG	0.0	0.0	120.0	0.0	120.0	0.0
Storm Mountain CG	0.0	0.0	1.8	0.0	1.8	0.0
Tanners Flat CG	0.0	0.0	10.4	0.0	10.4	0.0
Terrace/Maple Grove CG	0.0	0.0	0.5	0.0	0.5	0.0
Subtotal Forest Service Systems	0.0	0.0	136.3	0.0	136.3	0.0
Lady of the Lake Subdivision	0.7	0.0	0.0	0.0	0.7	0.0
Log Haven Restaurant	0.0	1.0	0.0	0.0	1.0	0.0
Mid-Gad (Snowbird)	0.0	1.5	0.0	0.0	1.5	0.0
Mill D Subdivision	0.0	0.0	0.0	0.0	0.0	0.0
Millcreek Inn	0.0	0.5	0.0	0.0	0.5	0.0
Mount Aire Subdivision	20.2	0.0	0.0	0.0	20.2	0.0
Mount Haven Owners Association	20.2	0.0	0.0	0.0	20.2	0.0
Mountain Dell Café & Golf Course	0.0	0.0	9.0	0.0	9.0	417.2
Pine Tree Water Company	2.1	0.0	0.0	0.0	2.1	0.0
Ruth's Diner	0.0	4.1	0.0	0.0	4.1	0.0
Salt Lake County Parks & Recreation (9 systems)	0.0	0.0	0.0	0.0	0.0	1,033.8
Sante Fe Water System	0.0	5.1	0.0	0.0	5.1	0.0
Solitude Ski Resort	0.0	115.7	0.0	0.0	115.7	0.0
Tracy Wigwam Boy Scout Camp	0.0	0.0	3.0	0.0	3.0	0.0
Watson Shelter Water System (Alta)	0.0	0.8	0.0	0.0	0.8	0.0
SubTotals	57.5	176.5	149.8	0.0	383.8	1,451.0
Self Supplied Industries*	0.0	0.0	0.0	6,123.2	6,123.2	101,141.7
Private Domestic	600.0	0.0	0.0	0.0	600.0	0.0
TOTALS	657.5	176.5	149.8	6,123.2	7,107.0	102,592.7

* Officially called Non-Community Non-Transient systems which include Camp Williams, Church of Jesus Christ and Latter day Saints, Daily Foods, Geneva Rock Products, Granite School District, Hexcel Corp., Interstate Brick, Kennecott Lands Corp., LDS Hospital, Ruston Family Partnership, SLV Solid Waste Facility, Tesoro Petroleum, Utah Power (Gadsby), Varian X-Ray Products, Westlakes Industries and Winder Dairy

APPENDIX A

**Sandy City Water Use
Data Form**

Information jointly requested by:
 Utah Division of Water Resources, 538-7264
 Utah Division of Drinking Water, 536-4200; and
 Utah Division of Water Rights, 538-7392.

UTAH WATER USE DATA FORM DATA FOR 2005

Return completed form to:
 Utah Division of Water Rights
 PO Box 146300
 Salt Lake City, UT 84114-6300

System Name: Sandy City Corporation Water
 Address: 10000 Centennial Parkway
 Sandy, UT 84070

Population Served: 90,000 DEQ#: 16028
 County: Salt Lake
 E-Mail Address: _____

Contact Person: Scott Arnold
 Form filled out by: _____

Phone Number: (801) 568-7282
 Phone Number: _____

I. STORAGE INVENTORY: Total treated storage capacity: 32,400,000 in gallons. Number of Tanks: 10 **FEB - 9 2006**

II. SOURCE INVENTORY:

1 Source Name: 114 th S. (purchased water) Type: Drain Location: Sec , T, R, B&M WR Number: _____
 Method of Measurement: [] Master Meter, [] Estimate, [] Other
 Units of Measurement: _____

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Yield of Well													

2 Source Name: Alta Canyon Village Well Type: Well Location: Sec 10, T3S, R1E, SUB&M WR Number: 57-8793 57-6646
 Method of Measurement: [] Master Meter, [] Estimate, [] Other
 Units of Measurement: _____
 Date of Last Pump Test: _____
 Rated Pump Capacity: [] gpm, [] cfs

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Yield of Well													

3 Source Name: Bicentennial (Wallin) Type: Well Location: Sec 06, T3S, R1E, SUB&M WR Number: 57-8100 57-2750 57-8506 57-2742
 Method of Measurement: [] Master Meter, [] Estimate, [] Other
 Units of Measurement: _____
 Date of Last Pump Test: _____
 Rated Pump Capacity: [] gpm, [] cfs

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Yield of Well													

Entered 1/9/06

SANDY CITY PUBLIC UTILITIES WATER PRODUCTION FOR CALENDER YEAR 2005

IN ACRE FEET

Source Name	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	Total
7500 South (Robinson)	0.00	0.00	0.00	0.00	0.00	26.93	88.62	74.96	44.00	0.00	0.00	0.00	234.51
Alta Canyon Village	246.83	150.77	27.52	85.20	72.17	78.78	134.69	111.77	35.84	0.00	0.00	0.00	943.57
Bicentennial (Wallin)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bhg Canyon	0.00	0.00	0.00	0.00	8.41	17.34	102.38	96.52	35.69	0.00	0.00	0.00	260.34
Brandon Canyon Park	0.00	0.00	0.00	0.00	0.00	0.00	80.55	0.00	60.20	0.00	0.00	0.00	140.75
Canyon Village	0.00	0.00	0.00	0.00	23.16	101.52	130.26	0.00	2.53	0.00	0.00	0.00	257.47
Cemetery	0.00	0.00	0.00	0.00	41.56	97.72	180.92	157.87	15.66	0.00	0.00	0.00	493.73
City Hall	0.00	0.00	0.00	0.00	0.00	0.00	29.00	0.00	0.00	0.00	0.00	0.00	29.00
Copperview	0.00	0.00	0.00	0.00	0.00	17.16	6.82	31.42	10.07	0.00	0.00	0.00	65.47
Dimple Dell	0.00	186.25	141.43	0.00	113.46	150.10	535.84	543.16	358.00	0.00	0.00	0.00	2028.24
Falcon Park (Palmer)	0.00	0.00	0.00	0.00	0.00	82.55	199.79	0.61	0.00	0.00	0.00	0.00	282.95
Flat Iron	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grambling Way (Severson)	0.00	0.00	0.00	0.00	0.00	0.00	134.56	30.20	0.00	0.00	0.00	0.00	164.76
Granite Mesa	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Little Cottonwood	0.00	0.00	0.00	0.00	0.00	0.00	40.16	117.48	95.89	0.00	0.00	0.00	253.53
Lone Hollow	190.48	115.45	100.16	0.00	51.69	122.67	204.86	163.00	96.15	19.78	0.00	0.00	1064.24
Paradise Valley	0.00	0.00	0.00	115.55	79.63	153.12	245.90	219.11	25.52	0.00	0.00	0.00	838.83
Pepperwood	0.00	0.00	0.00	95.55	0.00	88.38	213.90	163.88	60.76	0.00	0.00	0.00	622.47
Prowswood	0.00	0.00	0.00	0.00	2.09	2.48	44.19	14.48	0.00	0.00	0.00	0.00	63.24
Richards Ditch	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.63	0.00	0.00	0.00	25.63
Small Canyon	0.00	0.00	0.00	0.00	0.00	15.32	67.96	15.39	5.83	0.00	0.00	0.00	104.50
Union Fort (Phillips)	0.00	0.00	0.00	0.00	0.00	0.00	37.49	57.97	6.68	0.00	0.00	0.00	102.14
Wildflower	238.82	207.49	239.05	160.89	0.00	178.25	234.10	236.13	207.18	245.25	230.25	238.12	2415.53
Total Wells	676.13	659.96	508.16	457.19	392.17	1132.32	2711.99	2033.95	1085.63	265.03	230.25	238.12	10390.90
Crowton Springs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Deer Hollow (Davidson)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Sandy City	676.13	659.96	508.16	457.19	392.17	1132.32	2711.99	2033.95	1085.63	265.03	230.25	238.12	10390.90
Purchased Water													
Metro	149.76	62.91	324.69	458.19	1463.56	2055.85	2355.99	2304.74	1945.68	1204.24	602.42	686.21	13614.24
114TH S. WATER	0.00	0.00	0.00	0.00	0.00	71.96	368.76	366.00	310.86	0.00	0.00	0.00	1117.58
JYWCD	4.21	2.71	0.00	0.00	0.00	0.00	0.00	0.00	47.36	190.21	77.97	0.00	322.46
Total Purchased	153.97	65.62	324.69	458.19	1463.56	2127.81	2724.75	2670.74	2303.90	1394.45	680.39	686.21	15054.28
Total into System	830.10	725.58	832.85	915.38	1855.73	3260.13	5436.74	4704.69	3389.53	1659.48	910.64	924.33	25445.18

III. WATER USE BREAKDOWN: (Please use sum of the readings from individual meters, not master meter readings at source. If quantities are not known, please estimate. See instructions for definition of uses shown in bold).
 Units of Measurement: thousands of gallons

Residential: Annual quantity of water delivered for residential purposes 5,685,791 Total number of residential connections 25,500
 Meter readings at individual connections or Estimated
 Number of connections serving multiple units (apartments) from a single connection 492 Units per connection (avg) 2
 Commercial: Annual quantity of water delivered for commercial purposes 1,025,081 Total number of commercial connections 1,070
 Meter readings at individual connections or Estimated
 Industrial: Annual quantity of water delivered for industrial purposes _____ Total number of industrial connections _____
incl w/ Commercial Meter readings at individual connections or Estimated
 Institutional: Annual quantity of water delivered for institutional purposes 525,029 Total number of institutional connections 169
incl w/ City (incl w/) Meter readings at individual connections or Estimated
 Stockwatering: Annual quantity of water delivered for stockwatering purposes _____ Total number of stockwatering connections _____
 Meter readings at individual connections or Estimated
 Wholesale: Annual quantity of water delivered for wholesale purposes _____ Please attach a listing of these supplied.
 Meter readings at individual connections or Estimated
 Other Uses: Annual quantity of water delivered for other purposes 162,751 Total number of other connections 229
 Meter readings at individual connections or Estimated
 Describe other uses Landscaping only - Not including Parks
 Unmetered: Annual estimate of water delivered by unmetered connections _____ Total number of unmetered connections _____
 Unmetered connections used for _____

Total annual quantity of water delivered for all purposes 7,408,762 Total number of all connections 27,048
 Of this total, how many connections are active 26,708

IV. IRRIGATION SYSTEM (Lawn and garden irrigation, whether controlled by the drinking water supplier or not)
 Average Residential Lot Size (Acres) _____ Average Amount of Lot Irrigated (\$) _____
 Is any of your area served by a separate ditch or pipe fed irrigation water system? Yes, No If yes, please provide the following information:
 What percent of your customers are served by a separate irrigation system? _____ %
 of these customers, what percent are served by ditch? _____ %
 What percent are served by pressurized-pipe? _____ %
 Do you operate and maintain the separate lawn and garden irrigation water system? Yes, No
 If the separate irrigation system is operated by other entities, please give name of companies, contact person & phone number:

APPENDIX B

**2005 JORDAN RIVER BASIN
M&I DELIVERIES AND DEPLETIONS**

2005 JORDAN RIVER BASIN MUNICIPAL AND INDUSTRIAL DEPLETION TABLE (Acre-Feet/Year)

WATER SUPPLIER	Potable Residential Indoor Use	Potable Residential Outdoor Use	Potable Commercial Use	Potable Institutional Use	Potable Industrial/ Stock Water Use	Total Potable Use	Secondary Water Use	Total Indoor Use	Total Outdoor Use	Res. Indoor Return Flow	Commercial Indoor Return Flow	Institutional Indoor Return Flow	Industrial/ Stock Water Indoor Return Flow	Total Indoor Return Flow To Treatment Facility	Pond Evaporation	Treatment Facility Outflow (Indoor) Return Flow	Outdoor Return Flow	Total Return Flow	Total Deliveries	Total Depletions
SALT LAKE COUNTY																				
Alta Town Water System	29.8	2.0	83.8	0.5	0.0	116.1	0.0	96.9	19.2	29.2	65.7	0.1	0.0	95.0	0.0	93.1	6.4	99.5	116.1	16.6
Boundary Springs Water Co.	8.1	35.0	0.0	0.0	0.0	43.1	0.0	8.1	35.0	7.9	0.0	0.0	0.0	7.9	0.0	7.8	11.7	19.4	43.1	23.7
Copperton Improvement District	11.7	131.4	20.0	4.0	0.0	167.1	0.0	28.5	138.6	11.5	15.7	0.8	0.0	27.9	0.0	27.4	46.2	73.6	167.1	93.5
Dansie Water Co.	8.1	70.0	0.0	0.0	4.0	82.1	0.0	12.1	70.0	7.9	0.0	0.0	0.0	7.9	0.0	7.8	23.3	31.1	82.1	51.0
Draper Irrigation Co. (Water Pro)	1,897.7	1,785.0	705.8	260.9	12.3	4,661.7	4,601.7	2,526.8	6,736.6	1,859.7	553.3	51.1	0.0	2,464.2	0.0	2,414.9	2,245.5	4,660.5	9,263.4	4,602.9
Emigration Improvement District	36.3	112.5	0.0	0.0	0.0	148.8	0.0	36.3	112.5	35.6	0.0	0.0	0.0	35.6	0.0	34.9	37.5	72.4	148.8	76.4
Hi-Country Estates Phase 1 Water Co.	28.2	34.2	0.0	0.0	5.4	67.8	4.0	33.6	38.2	27.6	0.0	0.0	0.0	27.6	0.0	27.1	12.7	39.8	71.8	32.0
Holiday Water Co.	1,140.4	1,967.1	443.9	143.6	0.0	3,695.0	185.0	1,524.2	2,355.8	1,117.6	348.0	28.1	0.0	1,493.8	0.0	1,463.9	785.3	2,249.1	3,880.0	1,630.9
Jordan Valley Water Cons. District (JVWCD) - Retail	2,413.9	4,190.1	1,987.9	476.0	131.2	9,199.1	250.0	4,230.6	5,218.5	2,365.6	1,558.5	93.3	0.0	4,017.4	0.0	3,937.1	1,739.5	5,676.6	9,449.1	3,772.5
<i>Member Agencies:</i>																				
Bluffdale Water System	103.2	855.4	133.8	60.2	0.0	1,152.6	256.0	222.3	1,186.3	101.1	104.9	11.8	0.0	217.8	0.0	213.5	395.4	608.9	1,408.6	799.7
Draper City Water System	944.4	986.2	219.6	54.9	150.0	2,355.1	1,360.0	1,281.1	2,434.0	925.5	172.2	10.8	0.0	1,108.4	0.0	1,086.3	811.3	1,897.6	3,715.1	1,817.5
Granger-Hunter Improvement District	1,602.1	14,327.9	1,980.0	2,181.0	501.0	20,592.0	310.0	4,123.3	16,778.7	1,570.1	1,552.3	427.5	0.0	3,549.9	0.0	3,478.9	5,592.9	9,071.8	20,902.0	11,830.2
Herriman City	177.8	1,750.0	155.1	30.0	0.0	2,112.9	174.0	307.9	1,979.0	174.2	121.6	5.9	0.0	301.7	0.0	295.7	659.7	955.4	2,286.9	1,331.5
Hi-Country Estates II Homeowners Assoc.	40.3	100.8	0.0	0.0	0.0	141.1	0.0	40.3	100.8	39.5	0.0	0.0	0.0	39.5	0.0	38.7	33.6	72.3	141.1	68.8
Kearns Improvement District	3,728.5	1,794.9	1,148.5	160.0	857.7	7,689.6	500.0	5,537.0	2,652.6	3,653.9	900.4	31.4	0.0	4,585.7	0.0	4,494.0	884.2	5,378.2	8,189.6	2,811.4
Magna Water Improvement District	2,147.7	1,623.6	146.1	98.0	40.0	4,055.4	180.0	2,324.2	1,911.2	2,104.7	114.5	19.2	0.0	2,238.5	0.0	2,193.7	637.1	2,830.8	4,235.4	1,404.6
Midvale City Water Dept.	1,116.2	596.3	814.2	28.0	252.6	2,807.3	0.0	2,025.8	781.5	1,093.9	638.3	5.5	0.0	1,737.7	0.0	1,702.9	260.5	1,963.5	2,807.3	843.8
Riverton City Water System	1,973.5	397.4	229.3	1,218.4	0.0	3,818.6	5,800.0	2,400.6	7,218.0	1,934.0	179.8	238.8	0.0	2,352.6	0.0	2,305.6	2,406.0	4,711.5	9,618.6	4,907.1
South Jordan City	3,568.8	2,056.8	1,448.1	2,014.6	0.0	9,088.3	530.0	5,130.2	4,488.1	3,497.4	1,135.3	394.9	0.0	5,027.6	0.0	4,927.0	1,496.0	6,423.1	9,618.3	3,195.2
South Salt Lake Culinary Water	768.9	577.5	240.6	200.0	1,200.0	2,987.0	0.0	2,201.4	785.6	753.5	188.6	39.2	0.0	981.4	0.0	961.7	261.9	1,223.6	2,987.0	1,763.4
Taylorville-Bennion Improvement District	5,296.3	4,346.6	1,293.8	1,820.9	83.9	12,841.5	150.0	6,779.4	6,212.1	5,190.4	1,014.3	356.9	0.0	6,561.6	0.0	6,430.4	2,070.7	8,501.1	12,991.5	4,490.4
West Jordan City Water	6,483.5	3,883.0	3,797.9	356.5	2,500.0	17,020.9	1,219.9	12,093.1	6,147.7	6,353.8	2,977.6	69.9	0.0	9,401.3	0.0	9,213.2	2,049.2	11,262.5	18,240.8	6,978.3
White City Water Improvement District	1,219.8	1,076.3	169.7	150.0	0.0	2,615.8	105.0	1,385.6	1,335.2	1,195.4	133.0	29.4	0.0	1,357.8	0.0	1,330.7	445.1	1,775.8	2,720.8	945.0
Subtotal JVWCD Member Agencies	29,171.0	34,372.7	11,776.7	8,372.5	5,585.2	89,278.1	10,584.9	45,852.1	54,010.9	28,587.6	9,232.9	1,641.0	0.0	39,461.5	0.0	38,672.3	18,003.6	56,675.9	99,863.0	43,187.1
Subtotal JVWCD	31,584.9	38,562.8	13,764.6	8,848.5	5,716.4	98,477.2	10,834.9	50,082.7	59,229.4	30,953.2	10,791.4	1,734.3	0.0	43,479.0	0.0	42,609.4	19,743.1	62,352.5	109,312.1	46,959.6
Metropolitan Water District of Salt Lake & Sandy (MWDSLS)																				
<i>Member Agencies:</i>																				
Salt Lake City Corp. Dept. of Public Utilities	21,692.8	20,960.1	14,841.2	7,507.1	3,018.6	68,019.8	1,250.0	38,085.8	31,184.0	21,258.9	11,635.5	1,471.4	0.0	34,365.8	0.0	33,678.5	10,394.7	44,073.2	69,269.8	25,196.6
Sandy City Dept. of Public Utilities	8,163.4	9,285.3	3,146.1	1,643.9	499.5	22,738.2	880.0	11,508.6	12,109.6	8,000.1	2,466.5	322.2	0.0	10,788.9	0.0	10,573.1	4,036.5	14,609.6	23,618.2	9,008.6
Subtotal MWDSLS Member Agencies	29,856.2	30,245.4	17,987.3	9,151.0	3,518.1	90,758.0	2,130.0	49,594.3	43,293.7	29,259.1	14,102.0	1,793.6	0.0	45,154.7	0.0	44,251.6	14,431.2	58,682.8	92,888.0	34,205.2
Murray City Water System	2,177.6	3,500.0	319.4	1,200.0	150.0	7,347.0	300.0	2,823.1	4,823.9	2,134.0	250.4	235.2	0.0	2,619.7	0.0	2,567.3	1,608.0	4,175.2	7,647.0	3,471.8
Salt Lake County Service Area 3 - Snowbird	10.5	0.4	202.4	0.3	0.0	213.6	0.0	172.5	41.1	10.3	158.7	0.1	0.0	169.0	0.0	165.6	13.7	179.4	213.6	34.2
Silver Fork Pipeline Corp.	50.0	4.1	0.8	0.0	0.0	54.9	0.0	50.6	4.3	49.0	0.6	0.0	0.0	49.6	0.0	48.6	1.4	50.1	54.9	4.8
Silver Lake Co.	33.8	0.7	15.0	1.0	0.0	50.5	0.0	46.0	4.5	33.1	11.8	0.2	0.0	45.1	0.0	44.2	1.5	45.7	50.5	4.8
Spring Glen Water Co.	4.1	7.0	0.0	0.0	0.0	11.1	0.0	4.1	7.0	4.0	0.0	0.0	0.0	4.0	0.0	3.9	2.3	6.3	11.1	4.8
Webb Well Water Users	17.7	36.4	0.0	0.0	1.1	55.2	10.0	18.8	46.4	17.3	0.0	0.0	0.0	17.3	0.0	17.0	15.5	32.5	65.2	32.7
Young Oak Water Corp.	3.7	1.0	0.0	0.0	0.0	4.7	0.0	3.7	1.0	3.6	0.0	0.0	0.0	3.6	0.0	3.6	0.3	3.9	4.7	0.8
Total Community Systems	66,898.8	76,495.0	33,543.0	19,609.8	9,407.3	205,953.9	18,065.6	107,062.5	116,957.0	65,560.8	26,297.7	3,843.5	0.0	95,702.1	0.0	93,788.0	38,985.7	132,773.7	224,019.5	91,245.8
Non-Community Systems, etc.	52.5	5.0	176.5	149.8	0.0	383.8	1,451.0	223.7	1,611.1	51.5	138.4	29.4	0.0	219.2	0.0	214.8	537.0	751.8	1,834.8	1,083.0
Self Supplied Industries	0.0	0.0	0.0	0.0	6,123.2	6,123.2	101,141.7	107,264.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	107,264.9	107,264.9
Private Domestic Systems	200.0	400.0	0.0	0.0	0.0	600.0	0.0	200.0	400.0	196.0	0.0	0.0	0.0	196.0	0.0	192.1	133.3	325.4	600.0	274.6
COUNTY TOTALS	67,151.3	76,900.0	33,719.5	19,759.6	15,530.5	213,060.9	120,658.3	214,751.0	118,968.2	65,808.3	26,436.1	3,872.9	0.0	96,117.2	0.0	94,194.9	39,656.1	133,851.0	333,719.2	199,868.2

Color Code: Potable Use Data
Secondary Use Data
Indoor/Outdoor Use Data
Return Flow Data
Delivery Data
Depletion Data

Treatment Facility Key:

Regular = Sewage Treatment Plant
Bold = Facultative ponds/Lagoons
Bold/Italics = Septic System/Tanks

