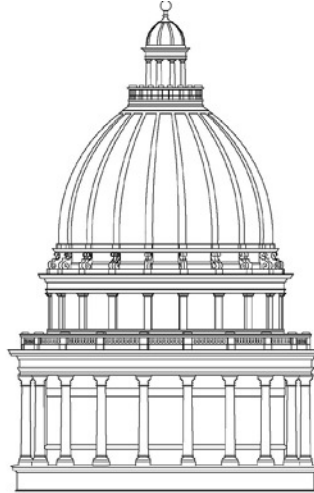


REPORT TO THE
UTAH LEGISLATURE

Number 2015-01



**A Performance Audit of
Projections of Utah's Water Needs**

May 2015

Office of the
LEGISLATIVE AUDITOR GENERAL
State of Utah



STATE OF UTAH

Office of the Legislative Auditor General

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JOHN M. SCHAFF, CIA
AUDITOR GENERAL

May 2015

TO: THE UTAH STATE LEGISLATURE

Transmitted herewith is our report, **A Performance Audit of Projections of Utah's Water Needs** (Report #2015-01). A digest is found on the blue pages located at the front of the report. The objectives and scope of the audit are explained in the Introduction.

We will be happy to meet with appropriate legislative committees, individual legislators, and other state officials to discuss any item contained in the report in order to facilitate the implementation of the recommendations.

Sincerely,

John M. Schaff, CIA
Auditor General

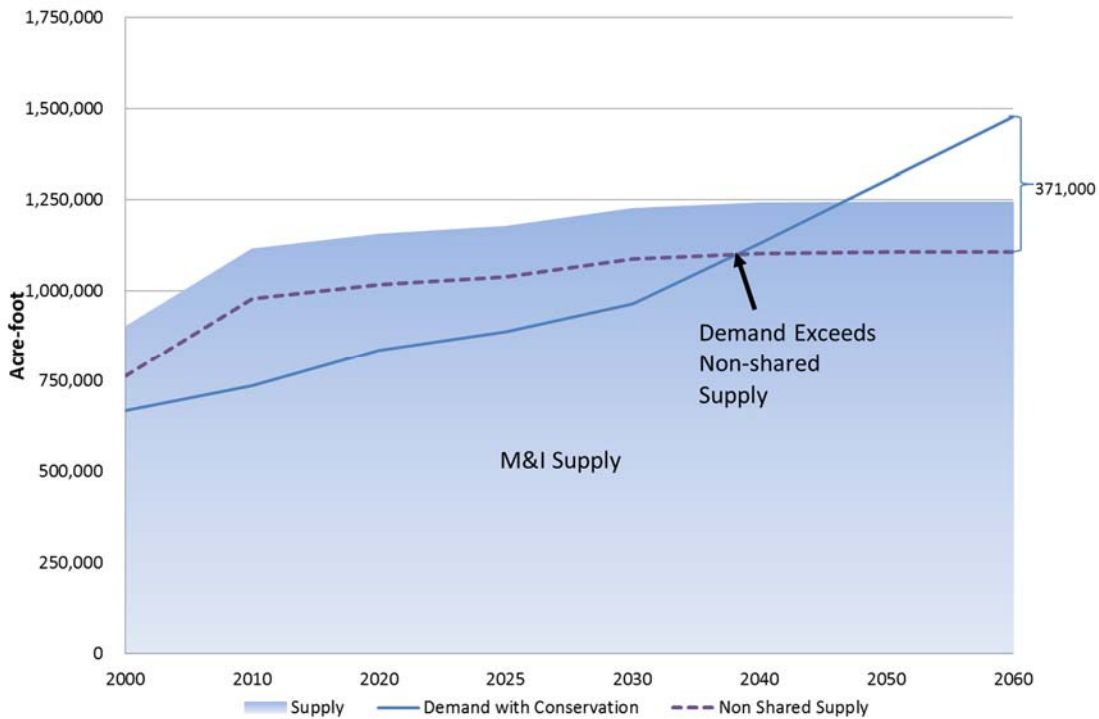
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Digest of A Performance Audit of Projections of Utah’s Water Needs

The Division of Water Resources’ projections indicate that Utah’s statewide demand for water will outstrip the currently developed supply in about 25 years. Some believe the state can address its growing demand for water through conservation and by developing local supplies, including the conversion of agriculture water to municipal use. Others believe the state’s growing demand for water will require the development of major new sources of supply that will cost billions of dollars. Considering the importance of water to the health, social and the economic well-being of our state’s residents, it is essential that the division provide the best possible data to guide water planning decisions.

Our assignment was to determine the reliability of the division’s data in the figure shown below and assess the accuracy of the division’s projections of water demand and supply. We were also asked to review options for extending Utah’s currently developed water supply.

Figure 1. Utah’s Projected Municipal and Industrial Water Demand and Supply. The division projects that the demand for water in Utah will exceed the current non-shared supply by about 2040.



Source: Adapted from a Division of Water Resources figure.

Chapter II

Reliability of Water Use Data Needs to Improve

The Division Does Not Have Reliable Local Water Use Data. In order to effectively manage the state's water resources and plan for future water needs, accurate water use data is critical. The Division of Water Resources relies on water use data submitted by local water systems to the Division of Water Rights as the starting point for projecting future water needs. Unfortunately, we found that the submitted data contains significant inaccuracies. State water agencies as well as local water systems operators also acknowledge these inaccuracies.

The Division Needs an Improved Process for Ensuring Water Data Is Reliable. In response to the problems with water use data, the Division of Water Resources attempts to verify data accuracy and correct any mistakes by contacting all local water providers every five years. Besides this process being inefficient, we question the effectiveness of the division's efforts to validate the data. The Department of Natural Resources needs to take a leading role in coordinating efforts between Division of Water Resources and The Division of Water Rights to improve the process of gathering accurate water use data. To support this effort, the legislature should consider giving the Division of Water Resources statutory authority to validate water use information from local water systems.

We Question the Reliability of the Division's Baseline Water Use Study. We also have concerns about the 2000 water study, which the division uses as a baseline to project Utah's future water needs. We could not confirm the study's results because of the lack of documentation of the source data and the steps used to prepare the report. In addition, the 2000 water study relies on a compilation of water studies performed between 1992 and 1999, which may not be representative of the year 2000. Finally, because secondary water systems are not typically metered, much of the reported outdoor water use is based on estimates.

Chapter III

Conservation and Policy Choices Can Reduce Demand for Water

Conservation Will Lead to Less Water Use. We question the division's projected demand for water, which assumes Utah residents will consume on average 220 gallons per day through the year 2060. The accuracy of this projection appears overstated for a number of reasons. First, the projected amount of water use, 220 gpcd, is based on a 2000 baseline water study, which, as described in Chapter II, may be unreliable. Second, other western states appear to use less water than Utah, indicating Utah residents may be able to further reduce their water use. Third, ongoing trends towards conservation should continue to

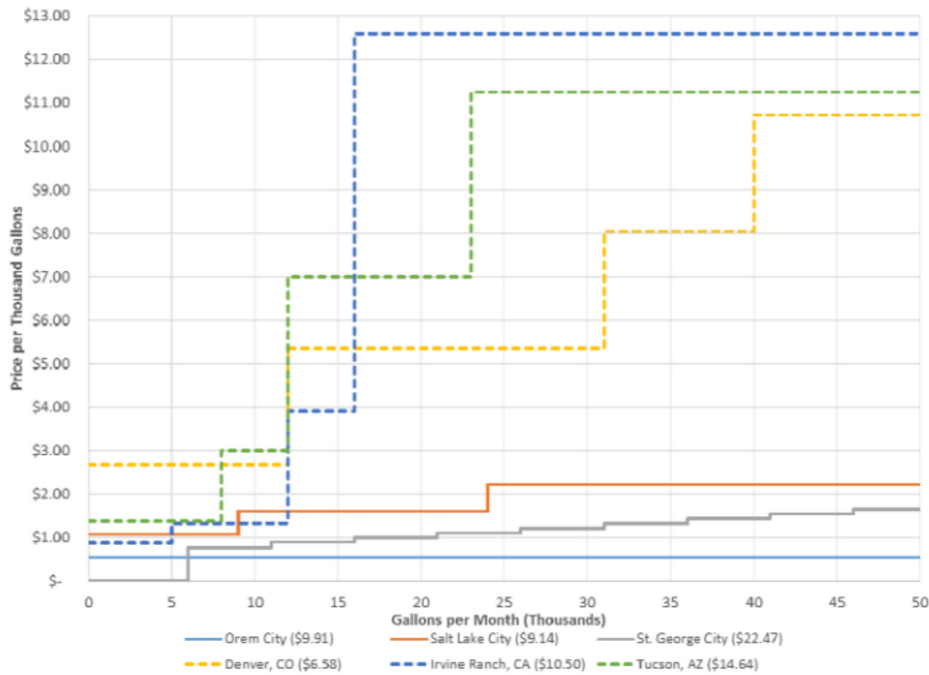
reduce per capita water use beyond the state's 25 percent conservation goal. The division stated that they intend to update the state goal once it has been met.

Some Regions Can Reduce Water Use More Than the Statewide Goal of 25 Percent. Some river basins have the ability to reduce water use well beyond the state conservation goal of 25 percent. In fact, two river basins already met that goal by 2010, and two other regions had nearly met the goal. This is another reason why we think the long-term projected use of 220 gallons statewide (as shown in Figure 1) is too high. Rather than applying the same 25 percent conservation goal to all basins, the division should work with local water providers to establish a new set of conservation goals that reflect each region's unique conditions and ability to conserve.

State Policies on Metering and Pricing Can Affect Water Demand. Utah's relatively low water costs appears to contribute to higher per capita water use when compared with other states. Unless per capita water use is reduced, new, more costly sources of supply will need to be developed. As pressures on Utah's currently developed supply intensify, local and state policymakers will need to consider policy options to reduce demand, including universal metering and water pricing.

- One option is to require the metering of all water service connections including those for secondary water customers. Universal metering provides water managers with the data needed to effectively manage their systems. Metering can also be used to provide consumers with information regarding their use. Finally, metering allows water providers the ability to charge water users based on their actual use. The Legislature should consider adopting policies that will require the phasing in of universal metering.
- Policymakers should also consider the way water is priced in Utah. Utah's existing price structure does not adequately encourage conservation. For example, the use of property tax to subsidize the cost of water may lead to an increase in use. In addition, rather than using relatively flat pricing structures, water systems should adopt conservation pricing, or increasing block rates, to incentivize efficient water use. As shown in Figure 2, cities with block rate structures charge consumers an increasingly higher price as consumption increases. The Legislature should consider changes to pricing policies that will encourage efficient water use.

Figure 2. Comparison of City Water Rate Structures. A selected group of Utah Cities are shown to have flatter block rate structures when compared to those of other major western cities. More pronounced block rates tend to encourage conservation.



Source: City Water Departments.

Chapter IV Growth in Future Water Supply Should Be Reported to Policy Makers

Division Projections Should Include Expected Local Water Development. The division’s projections of future water use do not include growth in the state’s water supply beyond what was already developed in 2010, with a few exceptions. Those exceptions include the additional supply from a few new water projects. In contrast to division projections, Utah’s developed water supply will grow incrementally as agricultural water becomes available for municipal use and as municipalities develop their remaining sources of supply. By excluding much of the growth in local water supplies, the division’s projections accelerate the timeframe in which costly new water projects appear to be needed.

Good Basin Plans Should Be the Basis for Better Statewide Planning. As with the statewide projections, most of the division’s basin plans do not estimate the growth in the region’s water supply. The basin plans also understate the amount of agriculture water available for municipal use. We recommend the division update its basin plans on a more regular basis. We also recommend that they estimate the incremental growth in supply that will occur as municipalities develop additional sources of water.

REPORT TO THE UTAH LEGISLATURE

Report No. 2015-01

A Performance Audit of Projections of Utah's Water Needs

May 2015

Audit Performed By:

| | |
|------------------|------------------------------------|
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Chapter I Introduction

Water is a vital resource that is essential to the health, social and economic well-being of the every resident in the state of Utah. It is also becoming an increasingly scarce resource. By 2060, the state's population is projected to double to nearly 6 million people. This jump in population will strain our currently developed water supply, which has sparked a debate about the need and time frames for developing additional sources of supply. Careful management and planning is critical for ensuring a reliable water supply for future generations.

Although most water use in Utah is for agriculture, this report only addresses Utah's municipal and industrial (M&I) water needs. To avoid future M&I water shortages, state and local water managers project that Utah will need to spend \$33 billion¹ over the next several decades to repair existing water systems and add additional supply. These costly investments have prompted the Legislature to ask our office to evaluate the accuracy of the state's projected demand and supply for water and to investigate options for extending Utah's currently developed water supply.

Planning Utah's Water Future Is Increasingly Important

Planning is becoming increasingly important for identifying and evaluating options for meeting Utah's future water needs. The Division of Water Resources (the division) is the state's water planning authority. The division predicts that water demand by Utah's growing population will exceed the state's currently developed water supply sometime around 2040. However, questions have been raised regarding the accuracy of the division's predictions. This debate highlights the need for a more sophisticated approach to forecasting Utah's future water needs.

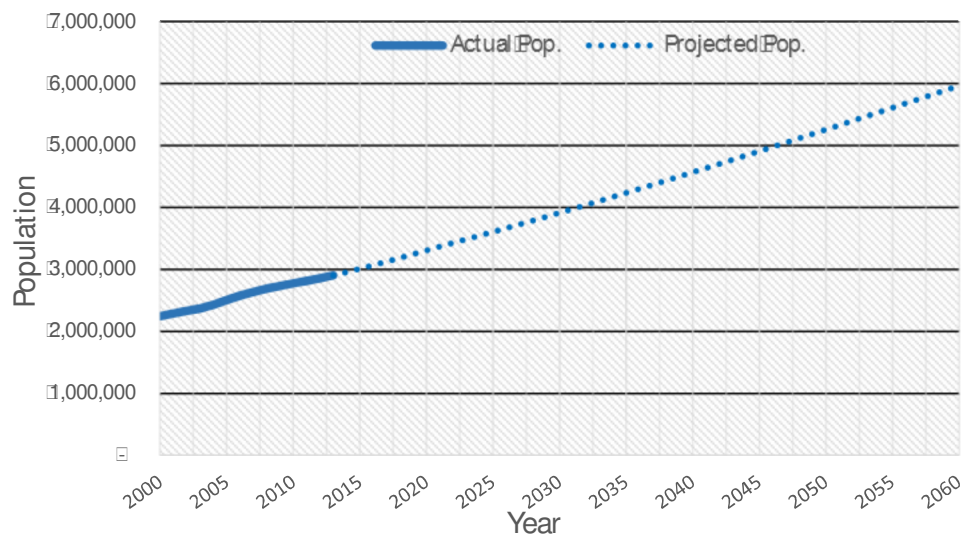
¹ Prepare 60, "Statewide Water Infrastructure Plan"

State and local water managers project that Utah will need to spend \$33 billion to repair existing water systems and add additional supply.

Utah's Population Is Expected To Grow to 6 Million by 2060

The division uses population projections to plan for Utah's future water needs. According to population projections prepared by the Governor's Office of Management and Budget (GOMB), Utah's population will double by 2060 to nearly 6 million people, as shown in Figure 1.1.

Figure 1.1 Utah's Projected Population. Utah's population is expected to double to 6 million by 2060.



Source: Governor's Office of Management and Budget

Much of this growth is expected to occur in urban areas along the Wasatch Front, resulting in more dense living arrangements, which could lower per capita water use. GOMB's population projections assume water availability will not constrain growth.

The Division Is the State's Water Planning Authority

Comprehensive water planning is one of the division's primary responsibilities. The Utah Code 73-10-18 describes the Division of Water Resources as "the water resource authority for the state" and gives the director authority to "make studies, investigations, and plans for the full development and utilization and promotion of water and power resources of the state." Furthermore, the division reports its mission is "to plan, conserve, develop and protect Utah's water."

Comprehensive water planning is one of the division's critical responsibilities.

The division has a challenge to balance the competing elements of its mission. To some extent promoting the full development and utilization of water in the state is at odds with promoting conservation. In fact, in a legislative committee, one member questioned whether Utah should wait to promote conservation until after the state has developed its full allocation of interstate waters. Other policymakers hold the competing view that more focused conservation efforts are needed before investing in large-scale infrastructure projects. It was beyond our audit scope to consider such issues. Instead, we focused on the division's planning role including estimates of future water demand and supply.

To fulfill this planning objective, the division has prepared a number of documents, including a statewide water plan as well as individual water plans for each of the state's eleven major hydrologic river basins. These documents identify water use trends and make projections about future water demand.

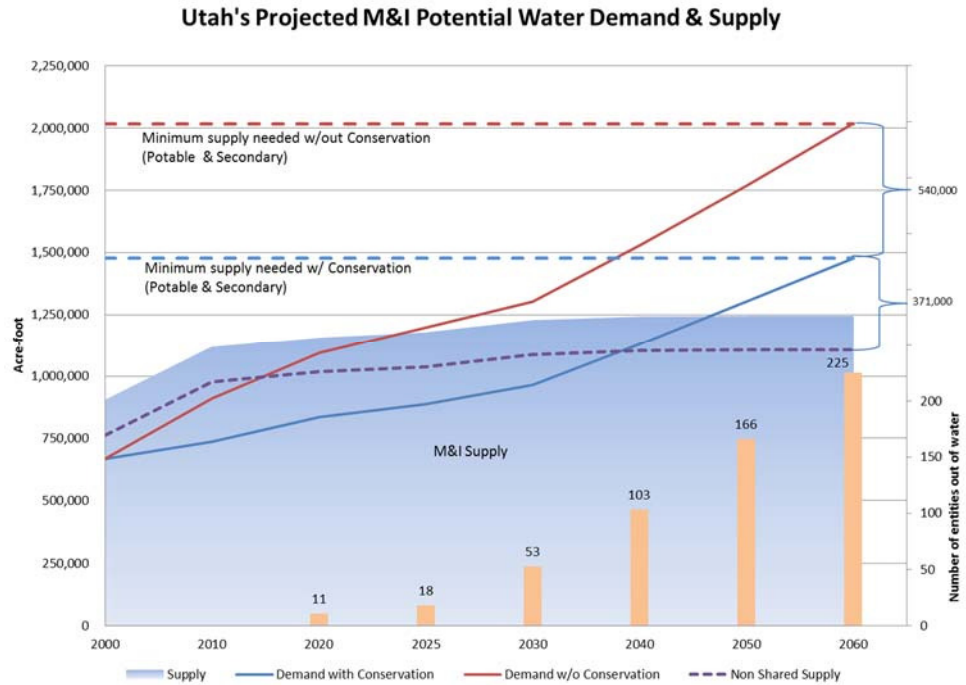
Division Projections Indicate Utah's Current Water Supply Will Not Meet Future Water Needs

The division's analysis indicates Utah's demand for water will outstrip its currently developed supply in about 25 years. Figure 1.2 shows the graphic used by the division to illustrate potential water shortages. The important aspects of Figure 1.2 are explained in the bullets below.

This audit focuses on the division's planning role including estimates of future water demand and supply.

Figure 1.2 DWRe Analysis of Utah’s Projected M&I Potential Water Demand and Supply. The Audit Subcommittee directed auditors to review the reliability the division’s analysis.

The statewide demand for water is projected to exceed the currently developed non-shared supply of water by 2040.



Source: Division of Water Resources

Figure 1.2 is somewhat confusing with two different vertical scales and a non-linear horizontal scale. However, the main points of interest are as follows:

- **Projected water demand.** The red line shows projected water use without conservation. It is based on estimated use of 293 gallons per capita per day (gpcd) in 2000. The blue line shows projected water use with conservation. It assumes a gradual reduction in water use to 220 gpcd in 2025 (25 percent conservation goal), with no further reductions thereafter.
- **Water supply.** The blue area shows the state’s currently developed reliable M&I supply of water. Unlike demand, growth in supply is not projected. The currently developed supply includes some growth for four large water conservancy districts. However, all other water providers’ supply is held constant at 2010 levels. The blue shaded area above the dashed purple line shows supply that cannot be shared from one region to another.

- **Projected water shortages.** The brackets on the right side of the figure show the benefits of conservation and the difference between projected demand and the non-shared supply. The figure also shows that, even with conservation, there will be a water shortfall of 371,000 acre-feet per year in 2060. The vertical bars show the estimated number of local water entities that are projected to run out of water at various times in the future.

While everyone agrees that Utah cannot afford to run out of water, the situation portrayed by the division in Figure 1.2 has led to differences of opinion regarding how to meet Utah’s future water demand. One viewpoint is that through increased conservation, the development of local water projects, and the conversion of agriculture water to municipal use, the state should be able to accommodate the water needs of its growing population. Contrasting views hold that these actions alone will not meet the states growing water needs and that major water development projects are necessary. The division has stated that conservation, agricultural conversion, and water development are needed to meet the state’s growing water demand.

In fact, the division is statutorily charged with planning for the development of two large-scale water projects: the Lake Powell Pipeline and the Bear River Project. Existing interstate compacts grant Utah more water than is currently developed so the projects contribute to the division’s goal “to defend and protect Utah’s rights to develop and use its entitlement to interstate streams.” The estimated cost of these two projects alone is \$2.5 billion. The huge expense of the proposed projects highlights the need for a reliable forecast of water demand and supply.

Detailed analysis of basin level information would have been required for us to evaluate the need for these two major water projects, which was beyond the scope of this audit. Instead, our assignment was to assess the accuracy of state-level data presented to policymakers by the division.

The division projects a water deficit of 371,000 acre-feet in 2060.

The estimated cost of Utah’s two major proposed water projects totals \$2.5 billion.

Legislators have expressed concern over the accuracy of the Division of Water Resource's projections.

Questions about Accuracy of Division's Projections Led to Audit Request

In response to requests for costly, large-scale water development projects, legislators asked for an audit of the accuracy of the division's projections of demand and supply. Specifically, House of Representatives leaders asked that we review the reliability of "data used to make predictions that look out 20 and 40 and 50 years" into the future. Senate leaders asked that we review whether the division had adjusted its projections to reflect "development being more dense than it was years ago." Other legislators asked whether the state is making adequate progress towards conservation and whether the division is considering future conversions of agricultural water to M&I use.

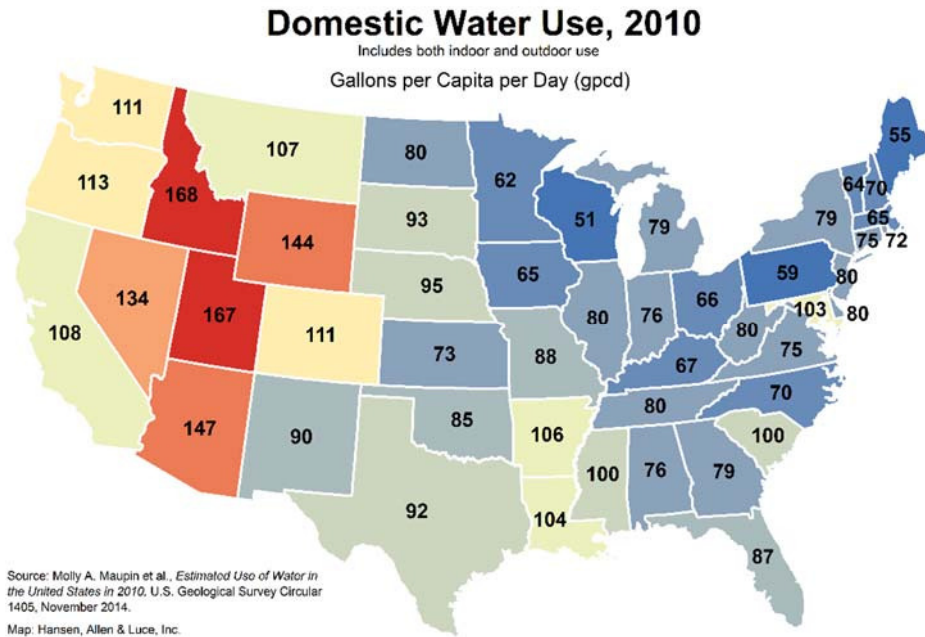
Is the Data Used to Predict Utah's Future Water Needs Reliable?

Division projections of future water demand rely on the division's estimate of the state's municipal and industrial water use in 2000. This baseline study reported that the average annual amount of water used by residential, commercial, industrial, and institutional water users in the year 2000 was 293 gallons per capita per day (gpcd). Because projections of future water demand are based on 293 gpcd, it is important that this per capita water use rate is accurate. If 293 gpcd is not accurate, then it casts doubt on the reliability of the projections derived from it. For this reason, verifying the accuracy of the 2000 baseline study was one of our primary audit objectives.

Has the Division Fully Considered Water Conservation?

Data published in national sources suggest that Utah residents consume relatively large amounts of water when compared to other states. Such comparisons should be regarded with caution. According to the US Geological Survey, state water use data "will have varying levels of accuracy" due to the differences in how each state accounts for their water use. In a 2010 US Geological Survey report, Utah has the second highest rate of residential water use. Figure 1.3 describes the results of state-level water use.

Figure 1.3 United States Domestic Water Use in 2010. Utah's combined indoor and outdoor water use exceeds nearly every other state.



Utah residents consume more water than residents in other Western states.

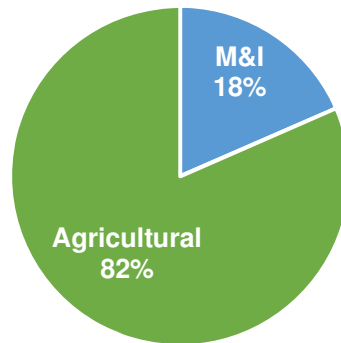
Figure 1.3 shows that Utah’s per capita residential water use (which does not include commercial, industrial, and institutional uses) was 167 gpcd in the year 2010. Utah was second only to Idaho at 168 gpcd, suggesting that our state can better manage its water use. Legislators specifically asked us to examine the state’s efforts to reduce water demand through conservation.

Is Agricultural Water Available for Alleviating Water Supply Shortages?

Agricultural water has the potential to address some of Utah’s future M&I water needs. Utah does not actively pursue a policy of transferring agriculture water rights to cities that are in need of water. However, as land is converted from farms to urban development, the water rights attached to the farmland are typically made available for M&I uses. Figure 1.4 shows that agriculture, at 82 percent, is the largest user of the state’s developed water supply.

The majority of the developed water in the state is used for agricultural purposes, a portion of which could be made available to meet future municipal water needs.

Figure 1.4 Utah’s Agricultural, Municipal, and Industrial Water Use. The vast majority of the state’s developed water is used for agricultural purposes.



Source: Division of Water Resources

Agriculture water, once made available, could become a significant source of new water for municipal and industrial use. Legislators have asked if the division’s projections fully account for this source of additional water supply.

Audit Scope and Objectives

Members of the Legislative Audit Subcommittee asked for a performance audit of the Division of Water Resources. Their primary concern was that we verify the accuracy of the division’s projections of Utah’s future water needs. The committee also requested that we investigate whether division projections account for the potential effects of water conservation and the conversion of agricultural water as options for extending and increasing our state’s water supply. Our response to these audit issues are addressed in the following chapters:

- Chapter II – Reliability of Water Use Data Needs to Improve
- Chapter III – Conservation and Policy Choices Can Reduce the Demand for Water
- Chapter IV – Growth in Future Water Supply Should Be Reported to Policy Makers

The primary audit objective was the accuracy of the division’s projections of Utah’s future water needs.

Chapter II Reliability of Water Use Data Needs to Improve

Accurate water use data is essential for water management, planning, and policy decisions. State policy makers need assurances that when they support costly, large-scale water projects, the need for additional supply is real and the state's investment is sound. The Division of Water Resources (the division) uses the Division of Water Right's data as the foundation for its analysis of the state's water use. However, water use data reported by public water systems to the Division of Water Rights contains significant inaccuracies. While the division strives to verify the accuracy of the data before using it in its planning process, a lack of documentation and changes in methodology raise doubts about the reliability of the division's water use studies.

According to Utah statute, "All waters of this state, whether above or under the ground, are hereby declared to be the property of the public." In order to protect the public's interest, the state is dedicated to a) conserving its scarce water resources, b) providing adequate water supplies, c) ensuring the availability of the state's streams for meeting its needs, and d) controlling its water resources. To meet these objectives accurate water data is critical. Unfortunately, the accuracy of Utah's water use data is not commensurate with its importance to the division's planning effort and needs to improve.

The Division Does Not Have Reliable Local Water Use Data

In order to effectively manage the state's water resources and plan for future water needs, accurate water use data is critical. The Division of Water Resources relies on water use data submitted to the Division of Water Rights as the starting point for projecting future water needs. Unfortunately, we found that the data submitted to the Division of Water Rights contains significant inaccuracies. State water agencies as well as local water systems also acknowledge these inaccuracies.

Chapter II reviews the reliability of Utah's water use data.

The accuracy of Utah's water use data is not commensurate with its importance to the division's planning effort and needs to improve.

Division of Water Resources Relies on Water Use Data Submitted by Water Providers to the Division of Water Rights

The Division of Water Rights collects water use data from public water providers throughout the state of Utah. This data is used by many state and federal water agencies for a variety of purposes, which includes water resource studies and water policy decisions. Our review revealed significant inaccuracies in the water use data reported by local water entities.

Division of Water Rights Is the Primary Source for Water Use Data in Utah. Each year, the Division of Water Rights submits a water data form to all 468 community public water providers throughout the state requesting information about their water use. The data form requires public water providers to submit information regarding the monthly amount of water diverted from each water source, the monthly amount of water billed, and other water system information. This water use form is the primary source of data used by the Division of Water Resources for water planning purposes.

Figure 2.1 Flowchart of Local Water Use Data. The Division of Water Rights collects water use data from public water providers and shares this data with other state water divisions as well as U.S. Geological Survey.



The Division of Water Rights collects annual water use data from all 468 public water providers in the state and shares this data with other water agencies.

As shown in Figure 2.1, data from public water providers is compiled by the Division of Water Rights and shared with the Division of Water Resources, the Division of Drinking Water, and U.S. Geological Survey for each agency’s specific data needs.

Unfortunately, the submitted data is subject to inaccuracies. The Division of Water Rights website reads, “In many cases the data submitted by water providers are estimated and the reliability of these

data are unknown.” The next section will discuss some of the data errors we encountered in our audit tests.

Local Water Use Data Contains Significant Inaccuracies

Our review of local water use data revealed significant errors. Some errors were obvious. Some local water systems reported large swings in their water use, indicating that the data was not reliable. For example, one city’s reported water use data in 2013 was more than double the amount reported for 2012. We also surveyed the data for inconsistencies and found a number of specific examples of data inaccuracies. For example, instead of reporting total metered use as recorded at each connection, the city reported its total source production at the well, which was a much higher figure. We also found several instances in which the water use data reported to the Division of Water Rights did not match the amount reported in other, internal city reports. Additionally, one city’s reported water use for 2012 was the water use of another city with an identical name in the state of New York.

After detecting the above data errors, many local and state water managers told us that they found the data submitted to the Division of Water Rights unreliable. For this reason, we concluded that it was not necessary for us to conduct a systematic review of the data. As the following section suggests, it is widely recognized that there are fundamental problems with the way the state’s water use data is gathered and submitted by local water providers.

State Water Agencies and Local Water System Operators Know Water Use Data Is Unreliable

Management in the Division of Water Rights, The Division of Water Resources, and the Division of Drinking Water validated our concerns with the reliability of the state’s water use data. They told us that the data is unreliable. Many local water system operators also reported concerns about the accuracy of the water use data.

State Water Agencies Participate in the Annual Water Use Surveys But Do Not Trust the Data. Management from all three agencies expressed concern about the accuracy of the water use data. For example, the Division of Water Resources stated, “the data received by the Division of Water Rights was simply not accurate

Our review of local water use data revealed significant errors. For example, one city’s reported water use for 2012 was sourced to a city with an identical name in the state of New York.

Division of Water Rights acknowledges that they do not have sufficient staff to monitor accuracy of water use data.

enough to make sound future water planning decisions.” For this reason, the Division of Water Resources has attempted to compile more accurate water use data since the early 1990’s.

The Division of Drinking Water stated that the data collection process invites inaccurate data. When asked about the cause of these inaccuracies, the manager responsible for overseeing the reporting function at the Division of Water Rights acknowledged that they have not devoted sufficient resources towards monitoring the accuracy of the reports, correcting mistakes, and auditing local water system data.

Local Water Systems Report Concerns with the Process for Collecting Water Use Data. We contacted staff at a number of water systems about their process for submitting water use data. These discussions revealed several reasons why local entities are not submitting accurate water use reports.

- **The purpose of the data and instructions for collecting the data are unclear.** Staff at several water systems we contacted reported that they were unclear about how the data is used. Consequently, it appears the reporting process is not always taken seriously. They also reported that the instructions are inadequate and subject to misinterpretation.
- **Feedback is not provided when errors are identified.** Water systems operators reported that they did not receive any feedback after submitting the data. As one water system operator stated, “We would like to know if the submitted data is inaccurate or incomplete.”
- **The person responsible for submitting the data does not always have the training or expertise to report the data accurately.** For example, one water system manager explained that large differences in their water use from one year to the next were due to misunderstandings by city staff regarding how to interpret the city’s water metering systems.
- **There is a perception that a city’s unused water rights may be revoked.** Municipalities may intentionally overstate their water use because they are concerned that if they do not report using their full allotment of water rights, the state engineer may someday revoke any unused rights. Although state law allows cities to retain

their unused water rights to meet future water needs, this perception could add to data inaccuracies.

Given the concerns raised by local water systems staff, it is not surprising that state agencies and other interested parties consider the data submitted to Division of Water Rights unreliable. The following section will discuss the validation process the division uses to improve the reliability of the state's water use data.

The Division Needs an Improved Process For Ensuring Water Data Is Reliable

In response to the problems with water use data, the Division of Water Resources attempts to verify data accuracy and correct any mistakes by contacting all water providers every five years. Besides this process being inefficient, we question the effectiveness of the division's efforts to validate the data. The Department of Natural Resources needs to take a leading role in coordinating efforts between Division of Water Resources and The Division of Water Rights to improve the process of gathering accurate water use data. To support this effort, the Legislature should consider giving the Division of Water Resources statutory authority to gather water use information directly from local water providers.

Unreliable Water Use Data Has Resulted In an Inefficient Verification Practice

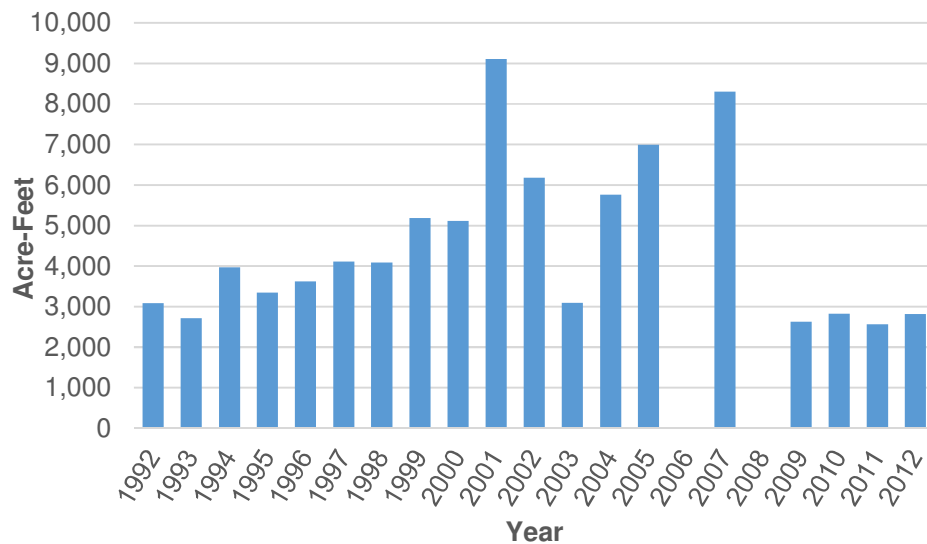
Because the Division of Water Resources cannot rely on the Division of Water Rights' water use data, they have developed a process for verifying the data. The process involves contacting nearly every regulated drinking water systems in the state, every five years, in each of the 11 hydrological basins to verify the accuracy of submitted data and to obtain data from water systems that did not submit use data. This verification process is inefficient. A better process would be to ensure that the data submitted by water providers is accurate to begin with and is reviewed on an annual basis.

The effectiveness of the division's data verification process is also a concern because much of the submitted data is accepted at face value. The division reports that if a water system states that its data is accurate and appears reasonable, then the division "has no other alternative than to accept that data." The problem with this approach

The Division of Water Resources uses an inefficient practice of contacting individual water systems to verify water use data.

is that inaccurate data can still be submitted. Another concern is that by verifying the data every five years, the division is unable to perform annual trend analysis, which would help in detecting inconsistencies in water use from year to year. The following figure illustrates the value of annual data.

Figure 2.2 One City Reported Large Differences in Water Use From One Year to the Next. Over a period of just a few years, one city’s reported water use went from 9000 acre-feet to just 3000 acre-feet. This type of information led us to question the reliability of the data submitted to the Division of Water Rights.



Source – Division of Water Rights.

Figure 2.2 shows how annual water use data can help the division to identify inconsistencies in the data from year to year. This city’s large swings in water use indicated something was wrong with their data. We asked the city’s Public Works Director to explain the extreme volatility in his city’s water use numbers. He told us that for several years before he was hired there were serious problems with the way the staff were reporting the city’s water use. He recommended that we not trust any of the data submitted prior to the year 2009. Nonetheless, the division did not recognize the problems with the data and used it in their 2000, 2003, 2005 and 2010 M&I studies. Had the division reviewed the data year by year, they too would have been alerted to the problems with the data. The following section discusses the need for the division to work with local entities to improve the accuracy of the data they submit.

One city reported large swings in its water use indicating something was wrong with their data.

