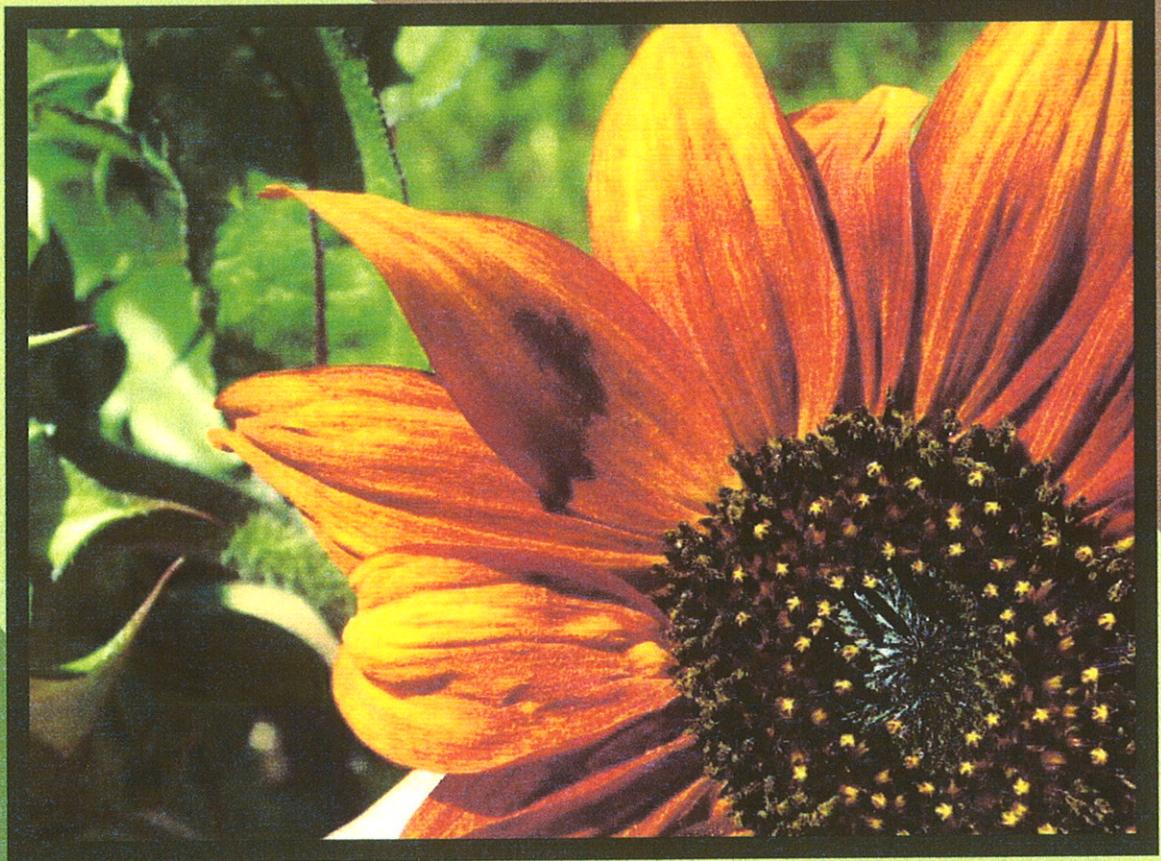


JORDAN VALLEY WATER
CONSERVANCY DISTRICT



2009 WATER CONSERVATION PLAN UPDATE



OCT 2009

2009 WATER CONSERVATION PLAN UPDATE

TABLE OF CONTENTS

LIST OF FIGURES	iii
LIST OF TABLES.....	iii
EXECUTIVE SUMMARY	ES-1
CHAPTER 1 – INTRODUCTION	1
Purpose of the 2009 Plan Update	1
Background.....	1
1999 Conservation Plan.....	2
Resolution Adopting the Plan Update	3
CHAPTER 2 – WATER CONSERVATION GOAL.....	5
History of JWCD's Water Conservation Goal	5
Definition of Per Capita Use.....	5
CHAPTER 3 – EXISTING AND FUTURE WATER USE	7
Description of JWCD	7
Agencies Served by JWCD	7
Population Projections	9
Member Agency Water Deliveries	10
Retail Water Deliveries	10
Total Water Use	11
Projected Water Demand and Supply	12
Value of Deferring Water Resource Development Projects	14
CHAPTER 4 – CURRENT WATER CONSERVATION PROGRAM	18
Public Information and Education Campaign	18
Conservation Garden Park.....	19
Administrative Building Landscaping	19
Garden Fairs.....	20
Parade of Homes	20
Horticulture Internships and Assistants.....	20
Educational Materials.....	21
Volunteers.....	21
Garden Tours.....	21
Model Water-Efficient Landscape Ordinance	21

2009 WATER CONSERVATION PLAN UPDATE

TABLE OF CONTENTS

(continued)

Ultra Low Flush Toilet Replacement Program.....	22
Residential and Commercial Water Audits.....	22
Water-Wise Landscaping Classes.....	23
Large Water-User Workshops.....	23
Water Quest: Saving by the Yard.....	23
Water-Wise Landscape Awards.....	24
Water Conservation Rate Structures.....	24
WaterSense Program.....	25
Member Agency Grant Program.....	25
Cost Effectiveness of Conservation Programs.....	27
CHAPTER 5 – EXISTING WATER SAVINGS.....	28
Estimated Water Savings.....	28
Value of Saved Water.....	29
CHAPTER 6 – ISSUES AND CONSTRAINTS.....	30
CHAPTER 7 – POTENTIAL CONSERVATION MEASURES.....	31
Conservation Measures Offered by Other Water Agencies.....	31
Best Management Practices.....	32
CHAPTER 8 – RECOMMENDATIONS.....	36
Conservation Programs for the Next Five Years.....	36
Proposed Implementation Schedule.....	41
APPENDIX	
Notice of Public Hearing of Adoption of Conservation Plan Update	
Notice of Regular Meeting/Public Hearing of the Board of Trustees of Jordan Valley Water Conservancy District	
Minutes of Public Hearing	
Written comments received concerning the 2009 Plan Update	

2009 WATER CONSERVATION PLAN UPDATE

TABLE OF CONTENTS (continued)

LIST OF FIGURES

Figure 3.1 Agencies Served by JWCD Facilities	8
Figure 3.2 JWCD's Water Supply Plan for Drought Year for Current Boundaries	17
Figure 5.1 Conservation Progress 2000-2008.....	29

LIST OF TABLES

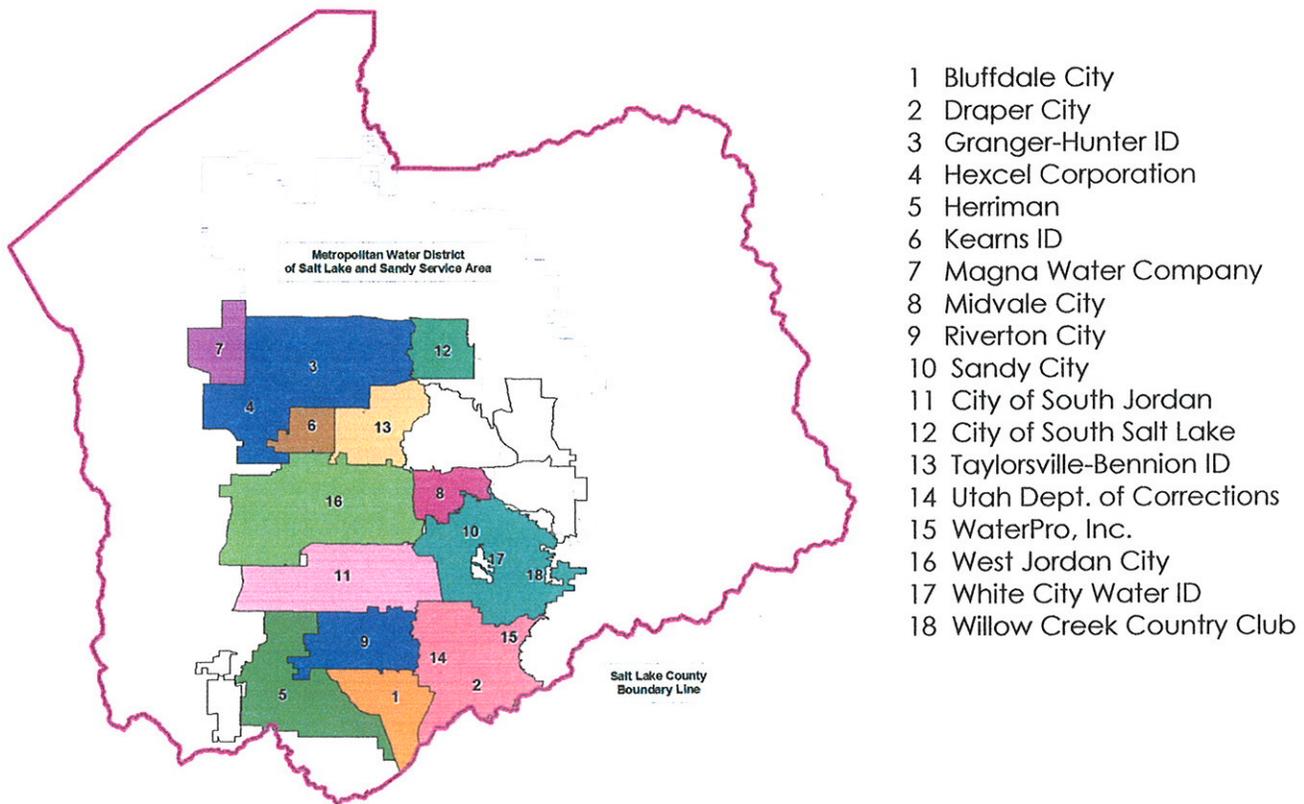
Table 3.1 Agencies Served by JWCD Facilities	7
Table 3.2 JWCD Service Area Population Projections 2010-2100.....	9
Table 3.3 JWCD Wholesale Water Deliveries to Member Agencies 2000-2008.....	10
Table 3.4 JWCD Retail Water Deliveries 2000-2008.....	11
Table 3.5 Total Water Deliveries in JWCD Service Area 2000-2008	12
Table 3.6 Current JWCD Service Area Total Potable Water Demand Projections and Estimated Conservation Potential 2000-2050 ..	13
Table 3.7 Potential JWCD Service Area Total Potable Water Demand Projections and Estimated Conservation Potential 2000-2050 ..	14
Table 4.1 JWCD Member Agency Grant Program Conservation Projects	26
Table 4.2 Estimated Costs of Water Savings of JWCD Conservation Programs.....	27
Table 5.1 JWCD Per Capita Water Use 2000-2008	28
Table 7.1 Water Agency Survey	31
Table 7.2 Types of Water Conservation Programs by Water Agencies	33
Table 8.1 Proposed 5-Year Implementation Schedule.....	41

EXECUTIVE SUMMARY

Who is Jordan Valley Water Conservancy District?

Jordan Valley Water Conservancy District (JVWCD) is a water agency that provides water to 18 member agencies in Salt Lake County. Created in 1951 as Salt Lake County Water Conservancy District, the District is primarily a wholesaler of water to

cities and improvement districts. It also has a retail service area in unincorporated areas of the county. Figure 1 is a map of the current JVWCD service area and the location of the member agencies it serves.



Member Agencies Serviced by JVWCD Facilities

FIGURE 1

Why is Water Conservation Important?

Significant growth is expected in JWCD's service area. In 2000 the population of JWCD was 464,763.

By 2050 the population is expected to grow to 985,479, a 212% increase. During the next 40 years, annexations into JWCD could increase the total population to nearly 1.2 million.

With this projected growth JWCD will need to develop additional water supplies to meet the increased demand for drinking water. In 2000 the potable water demand was 255 gallons per person per day. With that consumption rate JWCD will have to increase its water deliveries from 132,762 acre-feet per year in 2000 to nearly 282,000 acre-feet per year in 2050.

One way to reduce that demand is through water conservation. In 2002 JWCD adopted a water conservation goal to reduce per capita consumption 25% by 2025. If the conservation goal is achieved by 2025, JWCD will have reduced potable water demand by 56,000 acre-feet per year.

Demand Projections and Conservation Potential 2000-2050

TABLE 2

Year	JWCD Service Area Population	No conservation from 2000 usage rates		25% conservation by 2025 usage rates		Water Saved (AF)
		Usage Rates (gpcd)	Potable Demand (AF)	Usage Rates (gpcd)	Potable Demand (AF)	
2000	464,763	255	132,681	255	132,681	0
2010	603,345	255	172,338	229	155,104	17,234
2020	733,095	255	209,399	204	167,520	41,880
2025	787,102	255	224,826	191	168,619	56,206
2030	841,108	255	240,252	191	180,189	60,063
2040	917,434	255	262,054	191	196,540	65,513
2050	985,479	255	281,490	191	211,117	70,372

The annual savings due to conservation will grow to 70,000 acre-feet per year by 2050. The current capital cost to construct future water supply projects is about \$7,500 per acre-foot. Using that number the cost of developing 70,000 acre-feet of additional water would total \$525 million. With financing costs, the total cost of developing this amount of potable water is \$1.3 billion.

What has been accomplished so far?

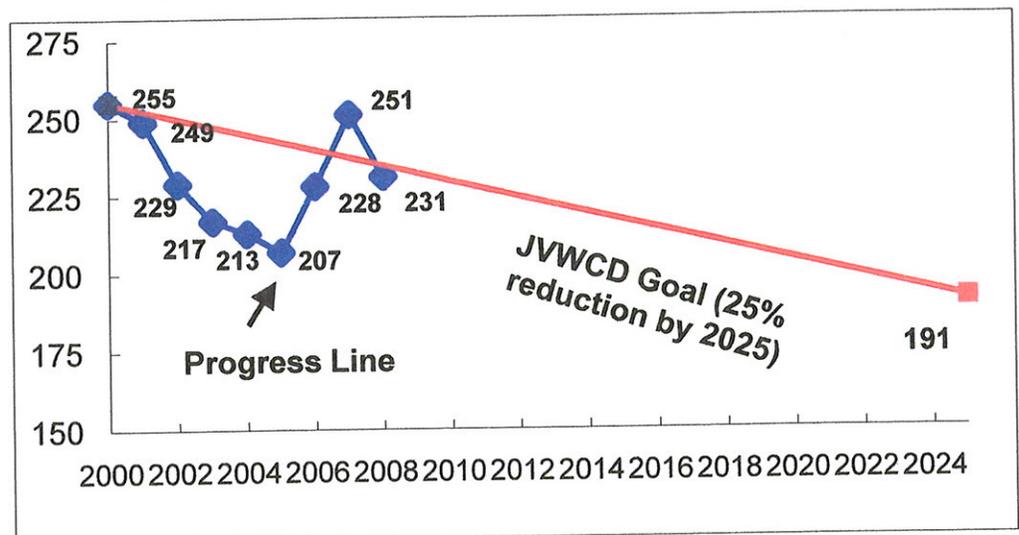
Since 1999 JWCD has aggressively implemented water conservation programs. Some of the programs implemented in the past 10 years include:

- Hiring a water conservation manager and staff,
- Establishing a public information and education campaign,
- Constructing a Conservation Garden Park,
- Developing model water-efficient landscape ordinances,
- Implementing an Ultra Low Flush Toilet Replacement Program,
- Conducting residential and commercial water audits,
- Holding Garden Fairs,
- Teaching water-wise landscaping classes,
- Conducting large water-user workshops,
- Sponsoring Water Quest: Saving Water by the Yard,
- Re-landscaping JWCD facilities,
- Giving water-wise landscape awards,
- Establishing water conservation rates, and
- Creating the Member Agency Grant Program.

The recent drought clearly had an impact on water use patterns. From the rebound in water use that occurred in 2006 and 2007 after the drought abated, it is clear the drought had a substantial impact on water use. 2007 was an unusually hot, dry summer, and the higher per capita water use is reflected. However, the summer of 2008 was more typical and the per capita water use in 2008 probably better represents post-drought water use and reflects the affects of JWCD's conservation efforts. From 2000 to 2008 per capita water use declined from 255 to 231 gallons per capita day, a 9% decrease.

**Conservation Progress
2000-2008
(gpcd)**

FIGURE 2



Where is JWCD's conservation effort going?

For the next five years it is recommended JWCD focus on the following water conservation activities:

- JWCD should continue the Water Check program. The Water Check program has been refocused on maximizing the number of audits and reducing the cost of the program,
- JWCD should work with cities that do not have a commercial landscape ordinance to adopt one and to work with cities that have adopted an ordinance to more effectively enforce it.
- With the completion of the Marketing Study, JWCD should refine and redirect its conservation messaging and education activities,
- JWCD should plan how to maximize the effectiveness of the Garden Education Building when it is completed,
- JWCD should implement conservation programs in its retail area such as conservation pricing, indoor audits and plumbing fixture rebates. JWCD is currently conducting a water rate structure study for its retail area with the purpose of implementing a water conservation rate structure that could serve as a model to its member agencies,
- JWCD should prepare an End Use Study/Model to determine what programs should be implemented in the future, and
- JWCD should encourage more active participation in water conservation by its member agencies.

When will JWCD implement its 5-year plan?

Table 3 presents a proposed implementation schedule and costs for Capital Fund conservation programs. The table shows each of

the conservation activities recommended with the year the activity could be implemented.

Proposed 5-Year Implementation Schedule for Capital Fund Conservation Programs

TABLE 3

Conservation Programs	Program Costs					5-Year Total
	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	
Water Check Program	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$450,000
Member Agency Grant Program	\$150,000	\$250,000	\$250,000	\$400,000	\$400,000	\$1,450,000
Large Water User Workshops	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$25,000
State-Wide Public Education/ Media Campaign	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$250,000
JWCD Public Education/Media Campaign	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$1,250,000
Marketing Study	\$107,000					\$107,000
End Use Study/Model		\$100,000	\$100,000			\$200,000
Construct Garden Education Bldg	\$1,900,000	\$1,900,000				\$3,800,000
Promote Landscape Ordinance	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$25,000
Pilot Programs in Retail Area	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$250,000
Total Cost	\$2,607,000	\$2,700,000	\$800,000	\$850,000	\$850,000	\$7,807,000

Note: Does not include garden operation and maintenance costs or garden fundraising services costs

CHAPTER 1

INTRODUCTION

Purpose of the 2009 Plan Update

The purpose for the *2009 Water Conservation Plan Update (Plan Update)* is to provide a planning document for Jordan Valley Water Conservancy District (JVWCD) (District) for the next five years to guide the water conservation program for the District.

Background

In 1998 the Utah State legislature passed the "Water Conservation Plan Act", House Bill 418. The law required culinary water providers and conservancy districts to prepare a water conservation plan and submit the plan to the Utah Division of Water Resources (Water Resources) by April 1, 1999. The law also requires updates to be submitted to Water Resources every five years. The act was amended in the 2004 session of the Utah legislature (House Bill 71). The act is codified as Section 73-10-32 of the Utah State Code.

The law states that:

(2)(a) Each water conservation plan shall contain:

- (i) a clearly stated overall water use reduction goal and an implementation plan for each of the water conservation measures it chooses to use, including a timeline for action and an evaluation process to measure progress.*
- (ii) a requirement that each water conservancy district and retail water provider devote part of at least one regular meeting every five years of its governing body to a discussion and formal adoption of the water conservation plan, and allow public comment on it.*
- (iii) a requirement that a notification procedure be implemented that includes the delivery of the water conservation plan to the media and to the governing body of each municipality and county served by the water conservancy district or retail water provider; and*

- (iv) *a copy of the minutes of the meeting and the notification procedure required in Subsections (2)(a)(ii) and (iii) which shall be added as an appendix to the plan.*

As required by the act, JWCD has submitted two previous conservation plans, one in March 1999 and one in April 2004.

The *2009 Water Conservation Plan Update* satisfies the requirements of the Water Conservation Plan Act as the update that is required every five years, and contains the elements set forth in the law. The Appendix of this *Plan Update* contains minutes of the public hearing where public comment was received, a copy of all written comments, both mailed and emailed by the comment deadline, and a copy of the advertisement of the public hearing.

1999 Conservation Plan

The JWCD mission statement for water conservation from the *1999 Plan* is stated below.

The water conservation goal of the Jordan Valley Water Conservancy District is to be a leader in the implementation and dissemination of water conservation activities. It is the District's desire to gain public recognition and support for a meaningful water conservation effort, and to address the implementation of an incentive-based program to conserve water. By promoting a meaningful water conservation effort, the District will be able to reduce peak demands, thereby, delaying the need for new water supply and infrastructure, and also provide for the future water needs of its customers.

In the ten years since adopting its initial Water Conservation Plan, JWCD has been faithful to its mission statement. JWCD has aggressively implemented meaningful conservation measures and has taken a leading role in educating the public about water conservation.

The *1999 Plan* adopted a water conservation goal of reducing demand District-wide by 10% by the year 2020. In May 2002, JWCD's Board of Trustees adopted a new more aggressive water conservation goal to reduce water demand within the District 25% by 2025.

The resources committed by JWCD to water conservation, in manpower and money, and the aggressive water conservation goal indicate that JWCD is strongly committed to achieving meaningful water conservation as stated in its mission statement.

Resolution Adopting the Plan Update

JWCD Board of Directors passed the following resolution adopting the *2009 Water Conservation Plan Update* on October 14, 2009.



Resolution of the Board of Trustees

Resolution 09-20

ADOPTION OF A 2009 WATER CONSERVATION PLAN UPDATE

Whereas, pursuant to § 73-10-32, Utah Code Ann. (1953) ("The Act"), Jordan Valley Water Conservancy District prepared a Water Conservation Plan in 1999, prepared an update to its Plan in 2004, and has now prepared an additional update to its Plan as provided in attached Exhibit 1 (the "Updated Plan");

Whereas, Jordan Valley has established in its Updated Plan a water conservation goal to reduce water use within its service area by twenty-five percent by 2025;

Whereas, Jordan Valley has determined that achieving this conservation goal will sustain existing water supplies, eliminate or delay more expensive water supply and infrastructure projects, and assist in providing an adequate water supply for future generations;

Whereas, the Updated Plan identifies existing and proposed water conservation measures and programs needed to continue making progress towards achieving the goal; and,

Whereas, pursuant to The Act, Jordan Valley has held a public hearing, after reasonable and advance notice, for purposes of inviting and encouraging discussion and public comment on the Updated Plan;

NOW, THEREFORE, BE IT RESOLVED by the Board of Trustees of the Jordan Valley Water Conservancy District:

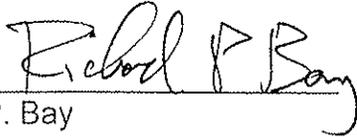
1. Jordan Valley has met the requirements of The Act in its preparation of the Updated Plan.
2. The General Manager is authorized and directed to cause a copy of the Updated Plan to be filed with the Utah Division of Water Resources and with all other persons or entities deemed appropriate.
3. This Resolution shall take effect immediately upon execution by an authorized member of the Board of Trustees.

PASSED, ADOPTED AND APPROVED this 14th day of October, 2009.



Steven L. Taggart
Chair of the Board of Trustees

ATTEST:



Richard P. Bay
Clerk

CHAPTER 2

WATER CONSERVATION GOAL

History of JWCD's Water Conservation Goal

The 1999 Plan adopted a water conservation goal of reducing demand District-wide by 10% by the year 2020.

In August 2001, Utah Governor Michael Leavitt announced a Water Conservation Initiative which included a goal of reducing consumption statewide by 25% by the year 2050. Later the State of Utah Division of Water Resources issued the *Utah State Water Plan, Planning for the Future* which formally adopted a state-wide water conservation goal of reducing per capita water use by public community water systems 12.5% by the year 2020 and by 25% by 2050.

In May 2002, JWCD's Board of Trustees adopted a new more aggressive water conservation goal to reduce water demand within the District 25% by 2025.

The year 2000 was adopted as the baseline year for measurement of JWCD's water conservation goal. Per capita water use in JWCD for 2000 was calculated to be 255 gallons per capita per day (gpcd). To achieve its goal JWCD must reduce per capita water use to 191 gpcd by 2025.

Definition of Per Capita Water Use

To date no formal definition of per capita water use has been adopted by JWCD. In 2008 California governor Arnold Schwarzenegger proposed a goal of reducing per capita water use in California by 20% by the year 2020. In December 2008 a bill was introduced to the California legislature that would mandate a reduction in per capita water use in California of 10% by December 31, 2015 and 20% by December 31, 2020. Assembly Bill 49 provides a definition of per capita water use.

The bill defines per capita water use as "the gross water use in a calendar year divided by the average number of residents during that year divided by 365 days per year". It further defines gross water use as "total volume of treated or untreated water entering the distribution system of an urban retail water supply and excludes agricultural water deliveries and recycled water use".

These definitions are adopted by this Water Conservation Plan and will be used as such. The definitions are as follows:

Gross water use – the total volume of treated and untreated water entering the distribution systems of an urban retail water supplier and excludes agricultural water and recycled water use. Pressurized secondary water systems such as those operated by Riverton City and Draper Irrigation Company are considered part of their urban retail water supply systems.

Per capita water use – the gross water use in a calendar year divided by the number of residents during that year divided by 365 days per year.

CHAPTER 3

EXISTING AND FUTURE WATER USE

Description of JWCD

Jordan Valley Water Conservancy District is a political subdivision of the State of Utah. Created in 1951 as Salt Lake County Water Conservancy District, the District is primarily a wholesaler of water to cities and improvement districts within Salt Lake County. It also has a retail service area in unincorporated areas of the county.

Agencies Served by JWCD

Currently there are 18 member agencies and two other agencies (Metropolitan Water District of Salt Lake and Sandy and Sandy City) that are served by JWCD facilities. Those agencies are shown in Table 3.1.

Table 3.1
Agencies Served by JWCD Facilities

Bluffdale City	Sandy City
Draper City	City of South Jordan
Granger-Hunter Improvement District	City of South Salt Lake
Herriman City	Taylorsville-Bennion Improvement District
Hexcel Corporation	Utah Department of Corrections
Kearns Improvement District	WaterPro, Inc.
Magna Water Company	West Jordan City
Metropolitan Water District of Salt Lake and Sandy*	White City Water Improvement District
Midvale City	Willow Creek Country Club
Riverton City	

* Receives water from facilities co-owned with and operated by JWCD

Figure 3.1 is a map of the current JWCD service area and the location of the agencies it serves.

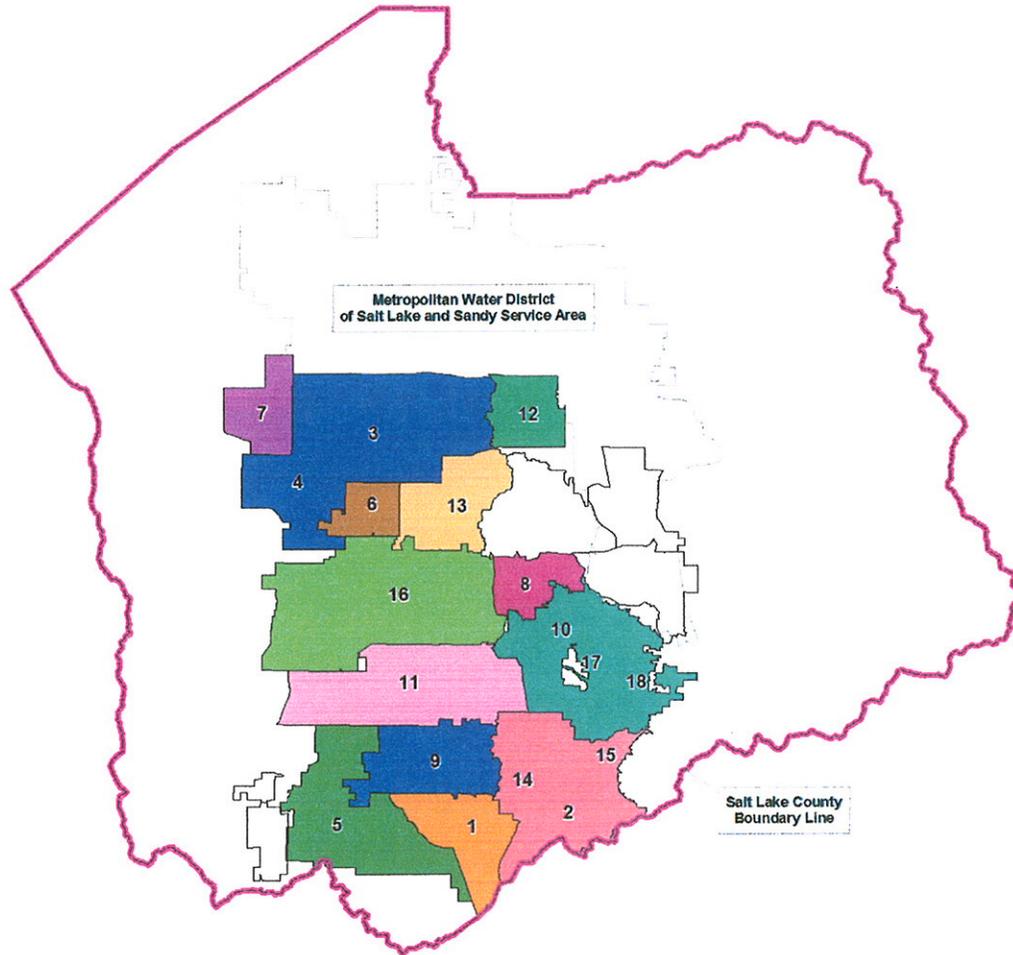


Figure 3.1
Member Agencies Serviced by JWCD Facilities

- | | |
|------------------------|-------------------------------|
| 1. Bluffdale City | 10. Sandy City |
| 2. Draper City | 11. City of South Jordan |
| 3. Granger-Hunter ID | 12. City of South Salt Lake |
| 4. Hexcel Corporation | 13. Taylorsville-Bennion ID |
| 5. Herriman City | 14. Utah Dept. of Corrections |
| 6. Kearns ID | 15. WaterPro, Inc. |
| 7. Magna Water Company | 16. West Jordan City |
| 8. Midvale City | 17. White City Water ID |
| 9. Riverton City | 18. Willow Creek Country Club |

Population Projections

The Governor's Office of Planning and Budget released its most recent population projections for Salt Lake County in 2008. The *2008 Baseline Report* includes projections through 2060. With the continued growth in Salt Lake County, there may be demand for lands in the western part of the county to annex into JWCD.

Table 3.2 shows the population projections for JWCD through 2100 for both areas; within JWCD's present boundaries and for lands outside JWCD's current boundaries with potential to annex into JWCD.

Table 3.2
JWCD Service Area Population Projections
2010-2100

Year	Total Salt Lake County	JWCD total potential service area ^(a)	Inside Current JWCD boundaries	Outside current JWCD boundaries with the potential to annex into JWCD
2010	1,079,679	603,345	603,345	n/a
2020	1,273,929	743,095	733,095	10,000
2030	1,486,615	877,108	841,108	36,000
2040	1,671,627	1,021,434	917,434	104,000
2050	1,853,891	1,168,479	985,479	183,000
2060	2,004,773	1,305,669	1,005,669	300,000
2100	2,214,686	1,508,624	1,012,472	496,152

Note:
 (a) Calculated using the same pro-rata portion of total county-wide population which was estimated in *Salt Lake County Demand & Supply Study*, September 2007. These projections are for existing and potential lands to be serviced by JWCD (Total County-MWDSLS-Murray-Holiday Water).

Member Agency Water Deliveries

Potable water deliveries in 2008 for JWCD totaled 81,846 acre-feet to its member agencies and its retail customers. Table 3.3 shows the potable water deliveries to its member agencies for 2000-2008.

Table 3.3
JWCD Wholesale Water Deliveries to Member Agencies
2000-2008

Year	Deliveries (AF)
2000	65,889*
2001	61,984*
2002	59,735
2003	63,289
2004	66,525
2005	62,815
2006	66,365
2007	75,838
2008	72,297
* Does not include Sandy City deliveries	

Retail Water Deliveries

JWCD serves retail customers in an area of unincorporated Salt Lake County. JWCD has about 8,500 retail connections including residential, commercial and industrial and institutional customers. Water deliveries to the retail area are shown on Table 3.4.

Table 3.4
JVWCD Retail Water Deliveries
2000-2008

Year	Deliveries (AF)
2000	11,412
2001	11,580
2002	10,411
2003	9,463
2004	9,302
2005	8,875
2006	9,721
2007	10,240
2008	9,549

Total Water Use

In addition to potable water deliveries by JVWCD to its member agencies, many of the agencies have their own water sources. Since 2000, agencies have reported to JVWCD water deliveries from their own sources. Combined with deliveries made by JVWCD, total water use within JVWCD's boundaries are determined. Table 3.5 shows total water deliveries within JVWCD from 2000 through 2008. The totals shown include all water sources including groundwater, secondary water, and other sources.

Table 3.5
Total Water Deliveries in JWCD Service Area
2000-2008

Year	Deliveries (AF)
2000	132,681*
2001	131,470*
2002	122,858
2003	119,725
2004	120,361
2005	120,528
2006	136,375
2007	154,061
2008	146,731
* does not include Sandy City deliveries	

Projected Water Demand and Supply

JWCD's service area has experienced rapid growth in the past 20 years. Since 1989 potable water deliveries by the District have increased from 58,281 acre-feet to 81,845 acre-feet in 2008. In 2008, JWCD member agencies supplied over 45,000 acre-feet of potable water and 19,434 acre-feet of secondary water from their own sources.

Projected water demand is calculated by multiplying the projected population times the projected per capita water use. Using the water usage rate for the base year of 2000, a water demand can be calculated that represents a water demand assuming no water conservation takes place. The per capita water use in 2000 in JWCD was 255 gallons per capita day (gpcd). If JWCD's conservation goal of reducing demand 25% by 2025 is achieved the demand is calculated using the reduced per capita use numbers. Table 3.6 compares the potential drinking water demands with and without water conservation within JWCD's existing boundaries from 2000 through 2050. The per capita usage with water conservation is assumed to remain constant after 2025.

Table 3.6
Current JWCD Service Area Total Potable Water Demand Projections
and Estimated Conservation Potential
2000-2050

Year	JWCD Service Area Population	No conservation from 2000 usage rates		25% conservation by 2025 usage rates		Amount conserved (AF)
		Usage Rates (gpcd)	Potable Demand (AF)	Usage Rates (gpcd)	Potable Demand (AF)	
2000 ^(a)	464,763	255	132,681	255	132,681	0
2010	603,345	255	172,338	230	155,104	17,234
2020	733,095	255	209,399	204	167,520	41,880
2025 ^(b)	787,102	255	224,826	191	168,619	56,206
2030	841,108	255	240,252	191	180,189	60,063
2040	917,434	255	262,054	191	196,540	65,513
2050	985,479	255	281,490	191	211,117	70,372

Notes:

a) Although JWCD served water to Sandy City in 2000, a series of contracts executed in 1990 provided for Sandy City to de-annex from JWCD with virtually all water deliveries to cease on December 31, 2001. Therefore, the population and water use data for Sandy City is omitted to provide a common comparison point for future population and water usage rates.

b) Estimated by interpolation between 2020 and 2030 estimates.

A second water demand projection is presented in Table 3.7. This demand projection is calculated using the population projections for the expanded JWCD boundaries that may occur due to annexation of additional lands in Salt Lake County.

Table 3.7
Potential JWCD Service Area Total Potable Water Demand Projections
and Estimated Conservation Potential
2000-2050

Year	JWCD Service Area Population	No conservation from 2000 usage rates		25% conservation by 2025 usage rates		Amount conserved (AF)
		Usage Rates (gpcd)	Potable Demand (AF)	Usage Rates (gpcd)	Potable Demand (AF)	
2000 ^(a)	464,763	255	132,681	255	132,681	0
2010	603,345	255	172,338	230	155,104	17,234
2020	743,095	255	212,256	204	169,805	42,451
2025 ^(b)	810,102	255	231,396	191	173,547	57,849
2030	877,108	255	250,535	191	187,901	62,634
2040	1,021,434	255	291,760	191	218,820	73,940
2050	1,168,479	255	333,761	191	250,321	83,440

Notes:

- a) Although JWCD served water to Sandy City in 2000, a series of contracts executed in 1990 provided for Sandy City to de-annex from JWCD with virtually all water deliveries to cease on December 31, 2001. Therefore, the population and water use data for Sandy City is omitted to provide a common comparison point for future population and water usage rates.
- b) Estimated by interpolation between 2020 and 2030 estimates.

Value of Deferring Water Resource Development Projects

If JWCD achieves its water conservation goal of reducing demand for drinking water 25% by 2025, this reduction in water demand will allow JWCD to defer water resource development projects that would have needed to be constructed if conservation did not take place.

JWCD has prepared water supply plans based on projected population growth both within its current boundaries and for its expanded boundaries that may occur because of future annexations of Salt Lake County lands into JWCD.

Figure 3.2 displays JWCD's recommended water supply plan for a drought year through 2100. A drought year water supply plan is shown because this is considered a 'worst case' scenario.

The figure displays the projected water demand from 2000 through 2100. The magenta curve from 2000 through 2008 displays the actual demand during those years. The rest of the figure shows two sets of future demand curves. The first set of demand curves is shown with a solid black line and a dashed black line. The dashed black line shows the projected water demand within the District's current boundaries if no water conservation occurs. The solid black line shows the water demand within the current boundaries if the District achieves its water conservation goal of reducing per capita use 25% by 2025.

The second set of curves is shown with a dashed orange line and a solid orange line. The dashed orange line shows the projected water demand for the expanded District boundaries if no water conservation occurs. The solid orange line shows the water demand for the expanded boundaries if the District achieves its water conservation goal of reducing per capita use 25% by 2025.

Without water conservation water resource development projects would have to be constructed to meet the upper demand curves shown by the dashed lines. However, with water conservation (the solid lines) the future water development projects could be deferred or eliminated. For example, the solid black line (demand with conservation for the current District boundaries) flattens out in 2060. This means that after 2060 no additional demand for water will occur within the District boundaries, and no additional water development projects will be necessary. The two water development projects shown above this demand line (the yellow block – Waste Water Recycling Phase 2 and the red block – Bear River) would not be required. These projects would not be needed. Also the magenta block, the Jordan River/Utah Lake M&I Treatment Phase 1 could be deferred 33 years, and the ULS (the blue block) could be deferred 20 years.

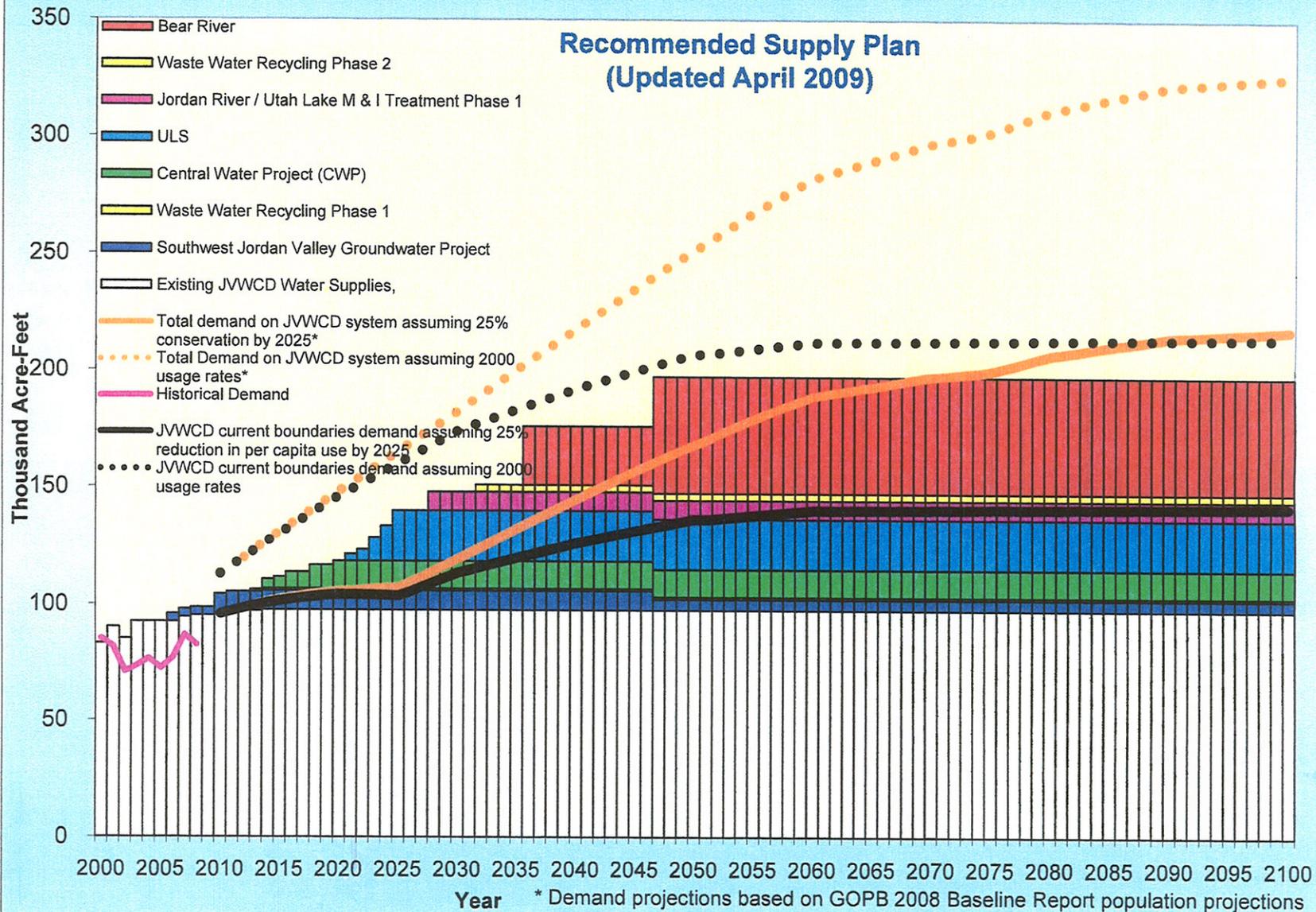
Cost savings of deferring or eliminating future water development projects is significant. If the conservation goal is achieved by 2025, JWCD will have reduced potable water demand by 56,000 acre-feet per year within its current service area boundaries. The annual savings due to conservation will grow to 70,000 acre-feet per year by 2050.

It is estimated that the current capital cost to construct future water supply projects is about \$7,500 per acre-foot. Using that number the cost of developing 70,000 acre-feet of additional water would total \$525 million. Assuming a 30-year bond financed at 5%, the total capital cost of developing this amount of water is \$1.3 billion. This cost does not include any environmental costs, water treatment costs or operation and maintenance costs.

The value of conserving water and deferring future water supply projects will exceed \$1 billion.

Jordan Valley Water Conservancy District Drought Year Water Supply Plan (With 25% Conservation by 2025)

Figure 3.2



CHAPTER 4

CURRENT WATER CONSERVATION ACTIVITIES

JVWCD adopted its first water conservation plan in 1999. Since 1999 the District has aggressively implemented water conservation programs and activities. Some of the water conservation programs implemented in the past 10 years include:

- Hiring a water conservation programs manager and staff,
- Establishing a public information and education campaign,
- Constructing a Conservation Garden Park,
- Developing model water-efficient landscape ordinances,
- Implementing an Ultra Low Flush Toilet Program,
- Conducting residential and commercial water audits,
- Holding Garden Fairs,
- Teaching water-wise landscaping classes,
- Conducting large water-user workshops,
- Sponsoring Water Quest: Saving Water by the Yard,
- Re-landscaping JVWCD facilities,
- Giving water-wise landscape awards,
- Establishing water conservation rates,
- WaterSense Program, and
- Creating the Member Agency Grant Program

The following sections are descriptions of JVWCD's conservation programs.

Public Information and Education Campaign

With the adoption of the District's Water Conservation Plan in 1999, JVWCD retained a public relations and media consultant, Vanguard Media Group, to assist in developing a water conservation information and education program. Working with JVWCD staff, the "Slow the Flow, Save H₂O" campaign was created.

A State-Wide Water Conservation Team was organized in 2001. The team members include the State Division of Water Resources, JVWCD, Central Utah Water Conservancy District, Metropolitan Water District of Salt Lake and Sandy, Weber Basin Water Conservancy District, Washington County Water Conservancy District, the Rural Water Users

Association of Utah, and the Utah Water Users Association. The team works on increasing public awareness and educating citizens on water conservation issues. The team agreed to expand JWCD's existing "Slow the Flow" campaign statewide, which provides for greater market penetration and greater awareness of water conservation on a statewide basis and provide an umbrella campaign for local conservation activities throughout the state.

Conservation Garden Park

JWCD recognized that the greatest potential for water conservation is through a reduction in outdoor water use. The Conservation Garden Park was designed and built to demonstrate water conservation principles by emphasizing proper landscape design, irrigation technologies and a wide variety of low-water-use plants. The Garden demonstrates how to have an attractive landscape suited to the Utah climate that saves water by using alternatives to the traditional bluegrass lawn. The latest phase of the Garden Park was dedicated in 2009 and includes twenty-four educational interactive exhibits.

Currently under design are phases 2 and 3 of the Garden Park expansion program. Phase 2 consists of constructing a new access road, creek crossing and parking for the Garden Park. Phase 3 is the new Community Education Building. The new building will function as the education center for the Garden and will be used to educate the public on how to achieve indoor and outdoor water conservation as well as protection of the region's important water resources.

Administrative Building Landscaping

JWCD re-landscaped its administrative headquarters site in 2000 to provide an example of a water-wise commercial landscape. An area consisting of 100% bluegrass lawn was reduced to an area of just 24% lawn. JWCD provides a model commercial landscape ordinance for cities to adopt, and the landscape around the administration building follows the criteria of the ordinance. The re-landscaping included a retrofit of the existing irrigation system, more hardscape and pathways, parking strips and other areas converted from turf to trees, shrubs and perennials. This section of the Garden is watered using a soil moisture sensor irrigation management system.

Garden Fairs

The Garden Fairs are similar to Farmer's Markets, but with an emphasis on water conservation. Two or three Fairs are held each year in the Garden Park and adjacent parking lot. Average attendance at each fair is 1,000 to 1,500 people. Non-profit organizations have participated in all of the Garden Fairs, offering water conservation recommendations and answering questions within their areas of expertise. These groups include: USU Extension Services, Utah Native Plant Society, Utah Irrigation Association, Utah Water Conservation Forum and the Center for Water Efficient Landscaping. Garden tours are given and there are demonstrations on hardscaping techniques, irrigation systems and landscape design. Vendors sell water-wise plants and products and live remotes are broadcast from local radio gardening shows such as "Joy in the Garden" and KSL's "Greenhouse Show." In 2008 JWCD held it's first "Green Festival." The festival focused on sustainable living, and was attended by 3,500 people.

Parade of Homes

In 2002 and 2003, the Conservation Garden Park was involved in the Parade of Homes and was listed as one of the sites to visit. The Garden won the Home Builder's Association's Parade of Homes Water Conservation award for 2002. In 2003, Garden Horticulturists also participated in a booth at the Parade of Homes' Show. In 2007 the District provided water-wise landscape designs for two houses in the Parade of Homes located in Herriman and at Daybreak in South Jordan.

Horticulture Internships and Assistants

Working with the Utah State University's Water-Efficient Landscaping Masters program, a full-time seasonal internship was arranged from 2002 to 2004 to assist with a variety of activities related to water conservation. Internship activities have included maintenance activities in the garden, irrigation design and repair, assisting with classes, conducting tours, working with the volunteer group, assisting with landscape designs, and participating in special events such as the Garden Fairs and live television and radio broadcasts.

Educational Materials

A series of educational water-wise gardening handouts were developed to go along with the Conservation Garden Park, covering topics from the basics of water-wise gardening to proper lawn care and lists of water-wise plants. The handouts are posted on the Garden's website (www.conservationgardenpark.org), distributed at the Garden Fairs, displayed in the lobby at JWCD and also distributed at events and classes. Attractive color pamphlets describing the Water Conservation Garden Park with a plant list and irrigation tips are stocked year-round in an outdoor literature container in the Garden.

Volunteers

Volunteers have assisted garden workers from time to time since the Garden was constructed, but in 2009 a regular and consistent volunteer program was begun through a partnership with Utah State University Extension Master Gardener Program. A docent manual is currently being developed to expand this program and make volunteering in the Garden available to all those interested.

Garden Tours

Tours of the Garden are available at any time by scheduling with the Garden Manager. The tours include a walkthrough of the Garden Park focusing on the key conservation aspects of each garden.

Model Water-Efficient Landscape Ordinances

A model Commercial Water-Efficient Landscape Ordinance and a Residential Water-Efficient Landscape Ordinance were developed in 2000-2001. The purpose of these ordinances is to have a model which cities and counties may adopt to promote water-efficient landscaping for all new and rehabilitated commercial landscapes and to provide useful conservation information for residential landscapes. These ordinances are available for cities to access and tailor to their needs and JWCD staff can assist with implementation of the ordinances.

Member agencies that have adopted the landscape ordinance include South Jordan City, West Valley City, and West Jordan City, as well as Salt Lake County.

Ultra Low Flush Toilet Replacement Program

In 2002, a Pilot Ultra Low Flush Toilet (ULFT) Replacement program was developed and implemented to replace existing high-water-use toilets with ULFTs within JWCD's retail service area. The ULFTs in this program use 0.8 to 1.6 gallons per flush (gpf), compared to 3.5 to 7 gpf in older toilets.

In the Pilot ULFT Replacement program, JWCD hired a contractor to install 275 toilets and water use monitoring equipment on approximately 15% of the installed toilets. In this study, residential toilets were replaced with 3 models of ULFTs: Caroma Tasman Dual Flush (0.8/1.6 gpf), Niagara Flapperless, and Gerber Aquasaver. Customer satisfaction of the new ULFTs was high, with an overall performance rating average of 8.4 out of 10 (10 being excellent).

Based on a preliminary evaluation of the data, a savings of 42 gallons per household per day (or 15,511 gallons per household per year) was achieved by this program. Total water savings achieved by this program is estimated to be 13.1 acre-feet (4,265,525 gallons) per year, or 262 acre-feet (85,310,500 gallons) over a 20-year period.

In 2003, a ULFT Replacement Voucher program was implemented. Costs were lower for this program because the District did not install the new ULFTs as in the pilot program; the participants were fully responsible for installation of the ULFTs. In this program, 1,045 Niagara Flapperless toilets were given to eligible residential retail customers who wanted to participate.

Residential and Commercial Water Audits

This program began offering residential Water Checks to homeowners in 1999 and was expanded to include auditing commercial, industrial and institutional landscapes in 2001. This program continues today, and targets outdoor water use. A typical water check includes determination of soil type, root depth, sprinkler pressure, distribution uniformity, and precipitation rate. The participant is left with recommendations to improve watering efficiency and a customized irrigation schedule. Water use records are obtained to track and compare water use for three years before and after a participant's Water Check.

The Water Check Program started out in Salt Lake County and has now expanded to include Juab, Utah, Summit, Uinta, Duchesne, Davis and Wasatch Counties. Salt Lake City, Murray, and Sandy are not in JWCD's service area but contribute to the Water Check program based on the proportion of Water Checks completed in their service areas. Central Utah Water Conservancy District also runs the Water Check program in counties within their service area.

Water-Wise Landscaping Classes

Free water-wise landscaping classes began to be taught at JWCD's administrative headquarters in 2003. The classes continue today ranging from "Landscape Design Basics" to "Landscaping with Utah Native Plants". The water conservation principles demonstrated in the Garden are taught in these classes, and the guest lecturers are well-known professionals in the horticulture and water conservation industry.

Large Water-User Workshops

The objective of the Large Water-User Workshops is to provide large institutional water users with tools to help them in managing large landscaped areas. The target audience is large institutional water users who have vast amounts of landscape area to oversee; groups such as public schools, churches, parks & recreation, municipalities, commercial users, property management organizations and government agencies. The one-day workshops were conducted in 2002 through 2007 and consisted of a morning classroom session followed by an afternoon field session. The workshops review the following topics: irrigation system maintenance, irrigation scheduling, turf grass management, ornamental plant maintenance, and irrigation auditing and field exercises. JWCD is considering offering the classes in the future with CEU (continuing education units) credits for contractors.

Water Quest: Saving Water by the Yard

Water Quest - Saving Water by the Yard was a program added in 2003 as an education tool for the public to learn ways to save water on their own landscapes. Homeowners within JWCD's service area were selected to have their front yard, which was mainly bluegrass lawn, retrofitted to be an attractive water-wise landscape. The retrofit included the removal of the existing bluegrass lawn and irrigation

system and the installation of a smaller section of a more water-wise lawn, drought tolerant plants and a more efficient irrigation system. The program was styled after "reality" TV and the participating family was involved throughout the design, installation and establishment of the landscape. Media interviews, site tours and other media stories took place throughout the length of the program.

A total of four homes were retrofitted between 2003 and 2005. Water use records for 3 years prior to the retrofit have been compared to water use after the retrofit and water use for the homes is being tracked.

Water-Wise Landscaping Awards

The District partnered with West Jordan City for the Water-Wise Landscape Awards program to recognize individuals and businesses in the city for water conservation. The Award encourages homeowners and businesses to implement landscape designs and techniques that save water. The West Jordan City Conservation Committee and JWCD staff accepted nominations for the Water-Wise Landscape Awards and winners were selected based on the following criteria: aesthetics, irrigation system, plant selection, use of mulches and maintenance. The awards were presented at a city council meeting and pictures of the winning landscapes are on the City's website. The program has been so successful the City is continuing the award program.

Water Conservation Rate Structures

In 2003 JWCD retained a consultant to assist it with a comprehensive financial review and water rate study. With assistance from its consultant, JWCD considered several alternative water rate structures for both retail and wholesale service areas, which would encourage the efficient use of water.

On June 11, 2003, JWCD's Board of Trustees adopted seasonal water conservation rate structures for both retail and wholesale water deliveries, to become effective on July 1, 2003. The new seasonal rates are divided into winter months (November 1 through April 30) and summer months (May 1 through October 31), and are designed to be revenue neutral with a 25% differential between the winter and summer rate. This seasonal rate structure was adopted to encourage

long-term conservation and the efficient use of JWCD's water supply to sustain the expected population growth.

In 2009 JWCD selected a consultant to assist the District in conducting a rate study of the District's retail area. The rate study will look specifically at inclining block rate structures that may be appropriate for the retail area customers.

WaterSense Program

WaterSense is a voluntary partnership program created by the U.S. Environmental Protection Agency (EPA) with a goal of protecting the nation's water supply by promoting and enhancing the market for water-efficient products and services and spreading the word about water efficiency.

In their efforts to promote water conservation JWCD and Kearns Improvement District have become WaterSense partners along with 300 other organizations and utilities nationwide.

In its retail water service area and with its member agencies JWCD could encourage the use of water-efficient products. Through the Member Agency Grant Program and pilot programs it will run in its retail area, JWCD could promote WaterSense approved water-efficient products and services.

Member Agency Grant Program

JWCD implemented a grant program with their member agencies to encourage water conservation throughout the District. Under the program member agencies can apply for and receive matching grants to implement water conservation measures within their agencies. JWCD provides 80% of the cost of the program up to \$50,000, while the member agency provides the matching 20%.

Since its inception in 2006, seven member agencies have participated in the Member Agency Grant Program. Table 4.1 presents the conservation programs implemented through the Grant Program.

**Table 4.1
JWWCD Member Agency Grant Program
Conservation Projects**

Year	Member Agency	Project Name	Project Description	Project Cost		
				JWWCD	Member Agency	Total
2006	West Jordan City	Water Conservation Education & Rebate Program	- Develop 5 year Public Education Plan - 21,000 educational DVD's - 4th Grade Water-wise Program - Restaurant pre-rinse spray valves - Water-wise plant coupons - Irrigation product rebates	\$50,000	\$45,000	\$95,000
	WaterPro, Inc./Draper Irrigation Company	WeatherTrak ET Controller	Purchase and install 75 WeatherTrak ET controllers for various large water users in the service area	\$50,000	\$22,500	\$72,500*
	Kearns Improvement District (1)	ULFT Replacement Program	Replace 300 high flush toilets with ULFT's using KID staff to administer and manage the program	\$41,721	\$0	\$41,721
	Kearns Improvement District (2)	Complete Water-wise Demonstration Garden	Complete Water-wise Demonstration Garden: - lay topsoil - install plants	\$8,279.00	\$3,733.75	\$12,012.75
	Magna Water Company	Water Conservation Project	- Install soil moisture probes at four locations and telemeter information as a link to a new website - Add conservation section to website - Certified water auditor training	\$50,000	\$51,995	\$101,995
	Granger Hunter Improvement District	Public Education and Information Campaign	Public Education and Information Campaign - Customer mailings and survey	\$50,000	\$5,715	\$55,715
	South Jordan City	Water Conservation Programs	- Irrigation control system for parks and common areas - Tiered water conservation rate schedule study - Public Education and Information Campaign	\$50,000	\$30,000	\$80,000
	Bluffdale City	Bluffdale City Water Conservation Demonstration Garden Displays	Three separate water conservation demonstration garden displays within the new Bluffdale City Park. The three displays proposed are: - Turf Garden - Xeriscape Garden for Slopes - Xeriscape Perennial Garden	\$50,000	\$64,400	\$114,400
2008	West Jordan City	Water Conservation Education & Rebate Program	1. Public Education/PR/Advertising 2. Large User Program 3. 4th Grade Water-wise Program 4. Landscape Ordinance Consulting 5. Park Irrigation Upgrades	\$30,260	\$35,416	\$65,676
	Kearns Improvement District	ULFT Replacement Program	Replace 300 high flush toilets with ULFT's using KID staff to administer and manage the program	\$22,216	\$5,554	\$27,770
	Granger Hunter Improvement District	Public Education and Information Campaign	1. Customer Mailings 2. Water Conservation Calendar 3. Water Conservation Presentations	\$25,295	\$30,573	\$55,868
	South Jordan City	SMARTLine ET Based Irrigation Controllers	Rebates for "smart" irrigation controllers for customers who do not have access to secondary water.	\$923	\$6,083	\$7,006
	Bluffdale City	Conservation Plan Update, City Education Plan, Secondary Water Systems Analysis	1. Hire a consultant to update the City's Water Conservation Plan 2. Develop a water conservation education plan to implement items identified in the Conservation Plan 3. Analyze the secondary water system and prepare a scope of work to be used in the creation of a Secondary Water Master Plan	\$21,614	\$8,300	\$29,914
2009	South Jordan City	Weather Based Irrigation Controllers	1. Customer rebates up to \$250 for smart irrigation controllers and/or soil moisture sensors, plus follow up by city staff. 2. Smart controllers installed on two city parks. 3. Water saving Ecokits to be given away to customers with high water bills.	\$50,000	\$25,000	\$75,000
	West Jordan City	Public Education and Park Irrigation Upgrades	1. Provide public education to city residents (bill inserts, direct mail, TV advertising, newspaper advertising, posters, brochures, etc.). 2. Provide indoor conservation kits to 4th grade students and follow up with parents. 3. Upgrade the irrigation system on one city park. 4. Outside consultant to help with Conservation Plan Update.	\$50,000	\$50,000	\$100,000
	Granger-Hunter Improvement District	Public Education	1. Customer mailings and information kits (calendars) 2. Water conservation presentations (WestFest) 3. Hose timers (500)	\$50,000	\$62,500	\$112,500
	Kearns Improvement District	HET & Pre-Rinse Spray Valve Replacements	1. Replace 300 toilets with WaterSense labeled HET's using KID staff to administer the program. 2. Contract with a plumber to install 40 pre-rinse spray valves in commercial kitchens.	\$36,000	\$9,000	\$45,000

* This program was not implemented

Cost Effectiveness of Conservation Programs

The cost effectiveness of its water conservation activities is important to JWCD. Since the inception of its water conservation programs JWCD has measured water savings and estimated their programs' cost effectiveness. The 2004 report entitled *Water Conservation Program Cost-Effectiveness Evaluation* estimated the cost per acre-foot of water saved by the programs JWCD was then implementing.

Since then JWCD has continued to monitor the cost effectiveness of its programs. Measuring actual water savings due to some conservation efforts such as some of the District's education and media campaigns is difficult and no cost effectiveness calculations for these programs are included in the table below. Table 4.2 presents the most current estimated costs per acre-foot of savings for conservation programs JWCD has implemented that could be measured or estimated.

Table 4.2
Estimated Costs of Water Savings
of JWCD Conservation Programs

Program	Cost per Acre-feet of Savings
Model Landscape Ordinance	\$5-\$10 ¹
Conservation Garden Park	\$320 ¹
"Slow the Flow" Public Education Program ¹	\$24-34 ¹
ULFT Replacement Program	\$293 ¹
"Water Check" Audit Program	\$302 ²

Note:

¹ Conservation Garden Park Building Report to JWCD Conservation Committee, April 6, 2009

² Residential and Commercial Water Audits Report to JWCD Conservation Committee, February 9, 2009

CHAPTER 5

EXISTING WATER SAVINGS

Estimated Water Savings

Since 2000, JWCD has collected water delivery data from its member agencies. Using the water delivery data and population, an estimated annual per capita water use has been calculated. Table 5.1 shows the annual per capita water use within JWCD based on water deliveries and population from 2000 through 2008.

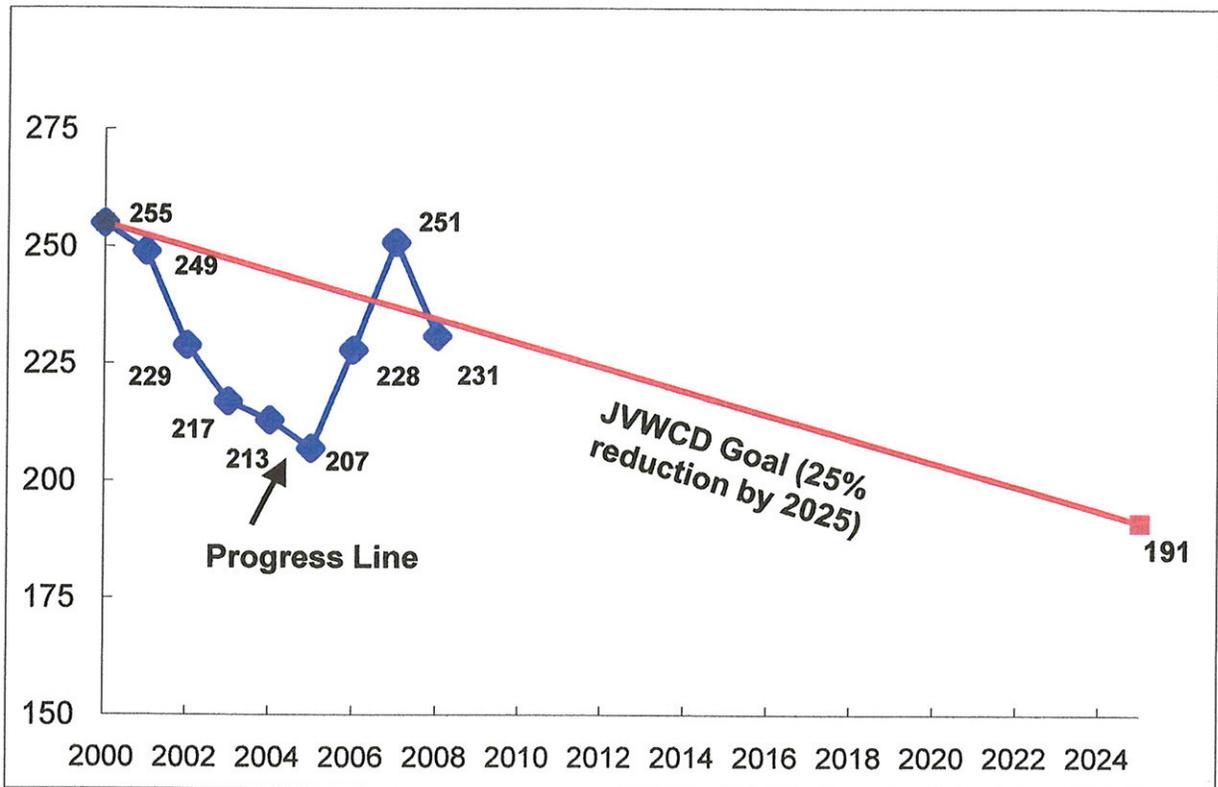
The recent drought clearly had an impact on water use patterns. The portion of per capita use reduction that was attributable to the drought and attributable to JWCD's water conservation efforts is impossible to determine. However, from the rebound in water use that occurred in 2006 and 2007 after the drought abated, it is clear the drought had a substantial impact on water use. 2007 was an unusually hot, dry summer and the higher per capita water use is reflected. However, the summer of 2008 was more typical and the per capita water use in 2008 probably better represents the water use that reflects the affects of JWCD's water conservation efforts. From 2000 to 2008 per capita water use declined from 255 gpcd to 231 gpcd, a 9% decrease.

Table 5.1
JWCD Per Capita Water Use 2000-2008

Year	Population	System Deliveries (AF)	Calculated Water Usage Rate (gpcd)
2000	464,763	132,681	255
2001	471,967	131,470	249
2002	479,161	122,858	229
2003	491,968	119,725	217
2004	505,621	120,361	213
2005	519,274	120,528	207
2006	534,151	136,375	228
2007	549,028	154,061	251
2008	567,299	146,731	231

Figure 5.1 displays the annual decrease in per capita water use from 2000 to 2008. The rebound in water use following the end of the drought in 2006 is apparent when shown graphically.

Figure 5.1
Conservation Progress 2000-2008



VALUE OF SAVED WATER

Since 2000 JWCD's water conservation expenditures have totaled \$8,524,655. The reduction in per capita use since 2000 has resulted in a water savings of 124,356 acre-feet. The cost of the savings achieved from 2000 through 2008 is \$68 per acre-foot. The average wholesale water rate from 2000 through 2008 was about \$350 per acre-foot. Compared to the cost of water, the cost of saving water has a benefit-cost ratio of 5.2. This means that for every dollar JWCD spent on water conservation between 2000 and 2008, \$5.20 was saved in water costs.

CHAPTER 6

ISSUES AND CONSTRAINTS

The primary issue facing JWCD's water conservation program is; how will the District achieve its new conservation goal? The reduction of water use by 25% by 2025 is an aggressive goal, twice as aggressive as the State's goal of 25% by 2050. To reach this goal, JWCD will have to aggressively approach implementing additional conservation measures throughout the District because JWCD's efforts to date will not likely achieve the goal.

The questions facing JWCD include the following:

- How can JWCD meet its new conservation goal by 2025?
- What can be done to improve the effectiveness of JWCD's current programs?
- What additional water conservation measures should JWCD implement to meet its goal?
- How can JWCD get its member agencies to participate more actively in water conservation?

Constraints to water conservation include the following:

- The existing 'take or pay' contracts with member agencies may discourage water conservation,
- Lack of metering on secondary water systems discourages water conservation,
- Many residents lack an understanding about efficient water use. Homeowners typically apply twice as much water to their landscapes as they need.

CHAPTER 7

POTENTIAL CONSERVATION MEASURES

Preparation of this *Plan Update* includes an analysis of potential water conservation measures that could best assist JWCD in achieving its water conservation goal. This work includes a review of alternate water conservation measures that may be appropriate for the Salt Lake Valley, and JWCD and its member agencies in particular.

Conservation Programs Offered by Other Water Agencies

A survey of water conservation activities by other western US wholesale and retail water agencies was conducted. Seventeen agencies were researched, and are listed in Table 7.1. The agencies offered from 1 to 18 programs with an average of nine programs per agency.

Table 7.1
Water Agency Survey

Name of Agency	Agency Type	Number of Programs
Alameda County Water District	Retailer	4
City of San Francisco	Both	5
City of San Diego	Retailer	8
Contra Costa Water District	Retailer	18
East Bay Municipal Utility District	Retailer	14
Los Angeles Dept. of Water & Power	Retailer	8
Marin Municipal Water District	Retailer	10
Metropolitan Water District of So. Cal.	Wholesaler	10
Portland Water Bureau	Both	9
San Diego County Water Authority	Wholesaler	16
Santa Clara Valley Water District	Wholesaler	11
Seattle Public Utilities	Both	16
Southern Nevada Water Authority	Both	11
City of Denver	Both	7
United Water Idaho (Boise)	Retailer	1
City of Tucson	Retailer	6
City of Phoenix	Retailer	1

Table 7.2 shows the types of conservation programs the agencies conduct. All the agencies have a water conservation education program and all but two, offer some form of commercial rebate program. The next most common programs involve multi-family residential developments, commercial water audits, high efficiency (HE) washing machine rebates, irrigation controller rebates, high efficiency (HE) toilet rebates, and conservation gardens.

Best Management Practices

The Utah Division of Water Resources has published a list of recommended water conservation practices they refer to as Best Management Practices (BMPs). They list 14 BMPs. They are as follows:

- BMP 1 – Comprehensive Water Conservation Plans
- BMP 2 – Universal Metering
- BMP 3 – Incentive Water Conservation Pricing
- BMP 4 – Water Conservation Ordinances
- BMP 5 – Water Conservation Coordinator
- BMP 6 – Public Information Program
- BMP 7 – System Water Audits, Leak Detection and Repair
- BMP 8 – Large Landscape Conservation Programs and Incentives
- BMP 9 – Water Survey Programs for Residential Customers
- BMP 10 – Plumbing Standards
- BMP 11 – School Education Programs
- BMP 12 – Conservation Programs for Commercial, Industrial and Institutional Customers
- BMP 13 – Reclaimed Water
- BMP 14 – "Smart Controller" Technology

A review of the state's recommended BMPs verifies that JWCD has or is planning to implement each of them as follows:

This *2009 Update* and the two previous water conservation plans satisfy the requirement for BMP 1.

JWCD has complied with BMP 2 and its retail area is fully metered and has meters for all its wholesale connections.

JWCD has implemented a water conservation rate schedule with its summer surcharge.

**Table 7.2
Types of Water Conservation Programs by Water Agencies**

Agency	Type of Provider	Education	Commercial program rebates	HE washers rebates	Multi-family, commercial water audits	HE toilets rebates	Irrigation controller rebates	Water Reuse	Conservation garden	Single-family residential audits	Sprinkler nozzle rebates	Synthetic turf rebates	Low water landscape rebates	Grass removal rebates	Water softener rebates
1 Alameda CWD	Retailer	x	x	x	x				x						
2 City of Portland	Both	x	x		x	x									
3 City of San Diego	Retailer	x	x	x	x	x	x	x	x	x					
4 City of San Francisco	Both	x	x	x		x		**		x					
5 City of Seattle	Both	x	x	x			x								
6 Contra Costa WD	Retailer	x	x	x	x	x	x	**	x	x					
7 EBMUD	Retailer	x	x	x	x	x	x	x	provide funds	x	x		x		
8 LADW&P	Retailer	x	x	x	x	x	x	x	*		x	x			
9 Marin MWD	Retailer	x	x	x	x	x	x	x		x	x				
10 MWDSC	Wholesaler	x	x	x	x	x	x	**	provide funds		x	x			
11 San Diego CWA	Wholesaler	x	x	x	x	x	x	**	x	x	x	x			
12 Santa Clara VWCD	Wholesaler	x	x	x	x	x	x	x	provide funds	x	x		x		x
13 Southern NV WA	Both	x	x		x		x	**	x					x	
14 City of Denver	Both	x	x	x		x	x	x	x		x				
15 United Water (Boise)	Retailer	x													
16 City of Tucson	Retailer	x	x		x	x	x				x				
17 City of Phoenix	Retailer	x						**							

* gardens in service area

** reuse occurs in service area

number of agencies with program All 15/17 12/17 12/17 12/17 12/17 12/17 12/17 10/17 7/17 8/17 3/17 2/17 1/17 1/17

BMP 4 recommends water conservation ordinances such as a time-of-day watering ordinance, a water-efficient landscaping ordinance for all new commercial developments and a landscape ordinance that encourages water conservation. As previously discussed, JWCD developed a commercial landscape ordinance and has assisted three of its member agencies, as well as Sandy City and Salt Lake County, in adopting the ordinance.

BMP 5 recommends designating a city employee as a Water Conservation Coordinator to facilitate water conservation programs. JWCD has had a conservation coordinator since 2000 and employs a staff of 4 full-time conservation employees and several seasonal employees.

BMP 6 encourages a public information program consistent with the recommendations of the Governor's Water Conservation Team such as the "Slow the Flow" program. JWCD developed the "Slow the Flow" program and participates on the Governor's Water Conservation Team.

BMP 7 recommends specific goals to reduce unaccounted-for water (non-revenue water) including an annual audit. JWCD conducts an annual audit of its water production and sales. From 2004 thru 2008 the average non-revenue water for JWCD's treatment and distribution system was 2.4%, well below the industry average. If non-revenue water ever exceeds 5% JWCD will conduct additional analysis to determine the cause of the increase in non-revenue water.

BMPs 8, 9 and 12 recommend providing incentives and programs for residential, commercial, industrial, institutional, and large landscape customers. Through its Member Agency Grant Program JWCD has implemented several incentive programs to residential, commercial, industrial and institutional users.

BMP 10 recommends identifying residences built prior to 1992 and developing a strategy to distribute indoor water saving devices. Indoor plumbing fixtures older than 1992 are high water use fixtures and replacing them with new, water-efficient fixtures will reduce water use. JWCD implemented a ULFT replacement program and has funded similar programs with its member agencies.

BMP 11 recommends the support of local water education programs for elementary students. JWCD has an education outreach program where conservation staff visit elementary schools and teach water education programs and JWCD is preparing online lessons for teachers.

BMP 13 encourages the use of reclaimed wastewater where feasible. JWCD is planning to assist its member agencies in implementing wastewater recycling. Wastewater recycling is listed by JWCD as one of its future water supplies. JWCD's Water Supply Plan shows 15,000 acre-feet per year of recycled wastewater as part of its future water supplies. The recycled water would supplant drinking water that is currently being used to water landscapes.

JWCD is working with south valley communities involved in the construction of the new wastewater treatment plant in Riverton. The new wastewater treatment plant will provide reclaimed wastewater to these communities for outdoor irrigation which will reduce the demand for treated potable water.

BMP 14 recommends the installation of "smart" controllers for irrigation of public spaces and encourages customers to install them. JWCD has implemented this BMP through its Member Agency Grant Program. South Jordan City with funding from JWCD has implemented a rebate program for "smart" controllers, and other member agencies are considering similar programs.

CHAPTER 8

RECOMMENDATIONS

This chapter presents recommendations for JWCD's water conservation activities for the next five years. JWCD is on track to accomplish its water conservation goal, however, more needs to be done to accomplish the goal.

Presented below are recommendations, which will assist the District in achieving its goal of reducing per capita water use 25% by 2025. The following summarizes the recommendations presented in each section of this chapter:

- The Water Check Program has been refocused on maximizing the number of audits for residential connections and acreage for large water users,
- JWCD should work with cities which do not have a commercial landscape ordinance to adopt one and to work with those that have adopted it to more effectively enforce it.
- With the completion of the Marketing Study & Public Education Plan the District should refine and redirect its conservation messaging and education activities,
- The District should plan how to maximize the effectiveness of the Garden Education Building when it is constructed,
- JWCD should implement conservation programs in its Retail Area,
- JWCD should prepare an End Use Study/Model of water use within the District to determine water savings that could be achieved by the implementation of future conservation measures, and
- JWCD needs to encourage more active participation in water conservation by its member agencies.

Conservation Programs for the Next Five Years

The following program recommendations are based on the evaluation of existing programs and possible new programs. The programs described represent programs that are appropriate to this region, should be popular with customers and member agencies and are cost-effective.

Program #1 – Water Checks.

The Water Check program has been in existence for several years. It is recommended to continue the program. However, during the past few years, the cost-effectiveness of the program became an issue. As a result, in 2009 the Water Check program was refocused on maximizing the number of water audits for residential connections, increasing the acreage of large water user audits, and keeping the costs of the program down. One way this was accomplished was the analysis of the data was removed from the District's consultant who is conducting the audits. JWCD staff is now responsible for performing the analysis of the audit results. This reduces the program costs.

To continue to improve the cost effectiveness of the Water Check program JWCD should encourage more large water users, such as commercial, institutional and industrial customers to participate in the Water Check program. More water savings can be generated by these large users and the program will continue to improve its cost-effectiveness.

It is recommended that the long-term goal of the Water Check program within JWCD's boundaries is to have each member agency conduct water audits for their own customers.

Program #2 – Member Agencies Adopt and Enforce Landscape Ordinances.

JWCD should work with the Bluffdale City, Draper City, Herriman City, Midvale City, Riverton City and Taylorsville City to adopt a commercial landscape ordinance that requires water-efficient landscapes and irrigation systems.

JWCD should be prepared to provide assistance and resources to cities that have adopted the ordinance so the cities can enforce the ordinance more effectively.

Program #3 – Public Education and Outreach

JWCD is currently conducting a Marketing Study and Public Education Plan. The purposes of the Marketing Study include assessing the effectiveness of its existing water conservation-based messaging

and branding, identifying and making recommendations for improvements to its public education efforts, and preparing a 5-year marketing and communications plan.

With the completion of the plan, the District will refine and redirect its public education and outreach efforts. The 5-year strategic plan will direct JWCD's water conservation marketing, messaging and education activities. The Marketing Plan will work in conjunction with this *Plan Update* to direct JWCD future water conservation activities.

Program #4 – Construct the Garden Education Building

JWCD is proceeding with the design of a community Garden Education Building. The design is scheduled to be completed in October 2009 and construction of the building should be completed by December 2010.

The Garden Education Building will serve as the focal point of the District's water conservation efforts. The District should modify its media campaign and education programs to maximize the effectiveness of the Garden Education Building. The planning should include how the building will be used for water conservation activities while it is temporarily housing other District staff.

Program #5 – Implement Programs in the Retail Area

The District should use its retail area to test water conservation programs. The retail area includes residential, commercial, industrial and institutional customers. Conservation programs that prove successful with its retail customers could then be extended to JWCD's member agencies. As a WaterSense partner, JWCD should encourage its customers to use WaterSense approved water-efficient fixtures, both indoors and outdoors.

In 2003 and 2004, JWCD implemented an Ultra Low Flush Toilet (ULFT) Replacement Program in its retail area. The program was very successful, and based on the results of that program the District funded a similar program with Kearns Improvement District. Kearns Improvement District has since extended their toilet replacement program three additional times.

JVWCD should consider water conservation programs such as conservation pricing in its retail area. Currently, the retail area has a summer surcharge, but the District has begun a rate structure study of its retail area to evaluate the advantages of implementing a rate structure that provides more incentive to conserve water. One purpose of the rate study is to prepare a water conservation rate structure that can serve as a model that could be used by its member agencies in the future.

Other types of programs could include expanding the Water Check program for its retail customers to include both indoor and outdoor water audits. The addition of indoor audits would allow JVWCD to offer indoor fixtures based on the results of the audits. JVWCD could offer free or reduced cost plumbing fixtures such as shower heads and faucets, high efficiency toilets (HETs), and outdoor fixtures such as irrigation controllers and spray heads. Programs that prove successful in the retail area could be offered to member agencies through the Member Agency Grant Program.

Program #6 – Prepare an End Use Study/Model

Ten years of water conservation activities have resulted in a reduction in per capita water use of about 10%. In order to achieve its goal of a 25% reduction, JVWCD and its member agencies will need to implement additional water conservation measures. An End Use Study/Model will allow JVWCD to more effectively plan and implement future water conservation activities.

With recent advances in determining how customers use water it is possible to prepare water savings estimates based on the end uses of water. The task of computing estimated water savings and doing cost effectiveness analysis is more accurate with the use of an end use model. The amount of effort involved in this more detailed approach to water use and potential savings is significant, but the benefits of preparing an end use model has proven to be worth the effort. As a result, many water suppliers throughout the country have prepared end use models as part of the water resource planning efforts.

An end use model is prepared by gathering water use data by customer class from billing systems and estimating the end use consumption by customer class based on local or national studies. With this information a water demand profile is created for each

population and employment data for a "base year". A model of water end use is then developed. Once calibrated the model can be used to determine future water use based on future population and employment projections. The model can then be used to predict future water demand from 10 to 30 years into the future. Using the water use model conservation measures can be evaluated to determine the amount of water savings they would generate and the benefit/costs of implementing the measures.

With an end use model JWCD could model future water demands within the District and determine which water conservation measures would be cost effective and allow JWCD and its member agencies to reduce per capita demand the additional 15% and achieve the conservation goal.

Program #7 – Increase Member Agency Participation

To achieve its water conservation goal, JWCD has to reach the retail water users throughout the District. Since 93% of all water in the District is delivered to retail customers by JWCD's member agencies, without member agency participation, achieving the conservation goal will be impossible. Member agencies have to be more active in achieving conservation.

One way of encouraging water conservation by member agencies is by providing incentives. JWCD established the Member Agency Grant Program to help accomplish this. While this program has proven successful, during the next five years, JWCD should focus on increasing the participation in this and other water conservation programs.

One item that the Grant Program could focus on is the hiring of conservation coordinators by every member agency. Many of the member agencies do not have a designated staff member dedicated to water conservation. Without a designated water conservation coordinator, the agencies do not have the manpower to plan and implement water conservation activities within their agencies.

As part of the funding of conservation coordinators, JWCD should require adequate training of the coordinators. JWCD conservation staff should be ready to provide technical support.

Another recommendation for the Member Agency Grant Program is that the District develops a list of proven water conservation measures or activities that would qualify for grant monies. Member agencies with a conservation coordinator could then receive grant money to implement the pre-approved conservation activities within their own agencies.

Proposed Implementation Schedule

The following table presents a proposed implementation schedule and costs of Capital Fund conservation programs for the next five years. The table shows each of the conservation activities recommended with the year and cost the activity could be implemented.

**Table 8.1
Implementation Schedule and Costs of
Capital Fund Conservation Programs**

Conservation Programs	Program Costs					5-Year Total
	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	
Water Check Program	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$450,000
Member Agency Grant Program	\$150,000	\$250,000	\$250,000	\$400,000	\$400,000	\$1,450,000
Large Water User Workshops	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$25,000
State-wide Public Education/ Media Campaign	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$250,000
JVWCD Public Education Media Campaign	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$1,250,000
Marketing Study	\$107,000					\$107,000
End Use Study/Model		\$100,000	\$100,000			\$200,000
Construct Garden Education Bldg	\$1,900,000	\$1,900,000				\$3,800,000
Promote Landscape Ordinance	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$25,000
Pilot Programs in Retail Area	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$250,000
Total Cost	\$2,607,000	\$2,700,000	\$800,000	\$850,000	\$850,000	\$7,807,000

Note: Does not include garden operation and maintenance costs or garden fundraising services costs

APPENDIX

Notice of Public Hearing of Adoption of Conservation Plan Update

**Notice of Regular Meeting/Pubilc Hearing of the Board of Trustees of
Jordan Valley Water Conservancy District**

Minutes of Public Hearing held September 9, 2009

Written comments received concerning the 2009 Plan Update

NOTICE OF REGULAR MEETING/PUBLIC HEARING
OF THE BOARD OF TRUSTEES OF
JORDAN VALLEY WATER CONSERVANCY DISTRICT

PUBLIC NOTICE is hereby given that the Board of Trustees of the Jordan Valley Water Conservancy District will hold a regular meeting/public hearing at 3:00 p.m., Wednesday, September 9, 2009 at the District located at 8215 South 1300 West, West Jordan, Utah.

Agenda

1. Call to order
2. Public hearing relating to adoption of conservation plan update
 - a. Motion to open public hearing
 - b. Verification of legal notification requirements
 - c. Comments from the Conservation Committee Chair
 - d. Staff presentation on 2009 conservation plan update
 - e. Questions from Trustees
 - f. Motion to open public comment session on 2009 conservation plan update
 - g. Motion to close public comment session
 - h. Staff response and summary
 - i. Motion to close public hearing
3. Public Comments
4. Common Consent Items:
 - a. Minutes of the August 12, 2009 Board Meeting
 - b. Board of Trustees Expenses Report for August 2009
5. Consider adoption of Supplemental Resolution 09-18 authorizing the issuance of up to \$49 million aggregate principal amount of water revenue bonds and authorizing the execution and delivery of certain documents in connection with the bonds; and related matters
 - a. Summary by Fitch's Rating on new issue
 - b. Summary by Standard & Poor's on new issue
6. Engineering, Distribution and Information Systems Activities:
 - a. Consider approval of an engineering contract amendment for the 6400 West Pipeline Project
7. Reporting Items:
 - a. Legislative report
 - b. Report on draft policy revisions
 - c. CUP/CUWCD activities
 - d. Report on encroachment agreements for District easements signed by the General Manager
 - e. Engineering and construction projects status report
 - f. Report on capital fund approvals and construction change orders

JORDAN VALLEY WATER CONSERVANCY DISTRICT

NOTICE OF REGULAR MEETING /PUBLIC HEARING
OF THE BOARD OF TRUSTEES
SEPTEMBER 2009
PAGE 2

- g. Financial and Water Supply Report for July 2009
 - h. Public Affairs Report
 - i. Miscellaneous Newspaper Articles
8. Upcoming Events:
- a. Waterwise Ideas and Answers with "Joy in the Garden" September 10 at 6:00 p.m. (Joy Bossi, Garden Consultant of KNRS "Joy in the Garden")
 - b. Utah Green Festival, Saturday, September 12 from 9:00 a.m. to 5:00 p.m.
 - c. Smart and Sustainable Landscaping, Saturday, September 12, 10:00 a.m. (Kelly Kopp, Utah State University)
 - d. Utah Friendly Gardening, Saturday, September 12 at noon (Maggie Shao, Salt Lake County Extension)
 - e. AWWA Intermountain Section 51st Annual Conference, September 16-19, 2009, West Yellowstone
 - f. Member Agency meeting, Wednesday, September 30, 2009 at 10:00 a.m.
 - g. Conservation Committee Meeting, Tuesday, October 13, 3:00 p.m.
 - h. Executive Committee Meeting/Study Session, Tuesday, October 13, 3:45 p.m.
 - i. Board Meeting, Wednesday, October 14 at 3:00 p.m.
 - j. Foundation Advisory Council quarterly meeting, Tuesday, October 20, at noon
9. Closed Meeting:
- a. Discuss acquisition and sale of real property
10. Open Meeting:
- a. Consider purchase of irrigation stock
 - b. Consider purchase of property located at 8329 South 1300 West
 - c. Consider approval of a pipeline easement agreement with the Utah & Salt Lake Canal Company
11. Adjourn

Date: September 8, 2009

By: Richard P. Bay, District Clerk

Reasonable accommodation will be made for disabled persons needing assistance to attend or participate in this meeting. Please contact Marilyn Payan at 565-4300.

**MINUTES OF THE ANNUAL MEETING/PUBLIC HEARING
OF THE BOARD OF TRUSTEES OF
JORDAN VALLEY WATER CONSERVANCY DISTRICT**

Held September 9, 2009

The annual meeting/public hearing of the Board of Trustees of the Jordan Valley Water Conservancy District was held Wednesday, September 9, 2009 at 3:00 p.m. at the District office at 8215 South 1300 West, West Jordan, Utah.

Trustees Present:

Steven L. Taggart, Chair
Margaret K. Peterson, Vice Chair
J. Lynn Crane
Royce A. Gibson
W. Richard McDonald
Ronald E. Sperry
Lyle C. Summers
Gary C. Swensen

Trustee Absent:

Dale F. Gardiner

Staff Present:

Richard P. Bay, Clerk and General Manager
Bart A. Forsyth, Assistant General Manager for Water Supply/Water Quality
Alan E. Packard, Assistant General Manager/Chief Engineer
Mark G Atencio, Engineering Department Manager
Jason T. Brown, Information Systems Department Manager
L. Courtney Brown, Conservation Programs Manager
Jeffrey J. Bryant, Water Supply Department Manager
Brian Callister, Safety Manager
Neil B. Cox, Treasurer
Justin T. Cracroft, Property Manager
Margaret Dea, Legal Assistant
Reid E. Lewis, General Counsel
David D. Martin, Chief Financial Officer/Controller
Marie Owens, Water Quality Division Manager
Marilyn Payan, Executive Assistant
Debbie Petersen, Human Resource Manager
Shazelle Terry, Treatment Department Manager

Also Present:

Roxanne E. DeBiasi, Paralegal Student, Everest College
Carl Eriksson, General Manager, Kearns Improvement District
Chris Finlinson, Governmental Affairs Director, Central Utah Water Conservancy District
Doug Gilmore, Gilmore Engineering
Clint Jensen, CFO, Granger-Hunter Improvement District
Mike Kobe, Brown & Caldwell
Keith Lord, General Manager, Taylorsville-Bennion Improvement District
Keith Ludwig, Public Works Director, Midvale City
Brien Maxfield, Engineer III, Draper City
Joshua Owens, Boy Scout
Ana Paz, Associate Engineer, South Jordan City

Also Present (cont.):

Stan Postma, Vice President, MWH Engineering
David Robertson, Assistant Vice President, Lewis Young Robertson & Burningham
Scott Robertson, Principal, Lewis Young Roberson & Burningham
Richard Scott, Bond Counsel, Chapman and Cutler
Wayne Watts, Assistant General Manager, Granger-Hunter Improvement District

Call to Order

Mr. Taggart called the meeting to order at 3:01 p.m. He welcomed and introduced the visitors.

Public Hearing Procedures

Mr. Taggart noted that Jordan Valley Water Conservancy District had scheduled a public hearing relating to the adoption of the conservation plan update.

Open Public Hearing

Mr. Summers moved to open the public hearing. Following a second by Ms. Peterson, the public hearing was declared open at 3:04 p.m. by unanimous consent:

Mr. Crane – aye
Mr. Peterson – aye
Mr. Summers – aye
Mr. Taggart – aye
Mr. McDonald – aye
Ms. Sperry – aye
Mr. Swensen – aye

Legal Notification

Mr. Lewis verified that appropriate legal notice of the Public Hearing was published in the Salt Lake Tribune on August 26, September 2, and September 8, 2009, meeting the requirement of not less than 14 days prior to the Public Hearing. It also has been published continually on the Utah Public Notice Website since August 11, 2009, the District's website continually since August 13, 2009, and posted in the lobby of the District's Administrative offices since August 11, 2009.

Comments from the Conservation Committee Chair

Mr. Summers said in 1999 the State passed legislation requiring all water providers, with more than 500 connections, to create a conservation plan. He said he is somewhat familiar with plans of other districts and most cities in the State, and is firmly convinced that the District is doing as much or more than other entities. He said the District should be proud of its accomplishments. However, he said, he feels the District is now at a plateau where it must do something different in order to get to the next level. Mr. Summers said the District has come a long way, and if it is committed to reaching its goal, it can.

Staff Presentation On 2009 Conservation Plan Update

Mr. Gibson joined the meeting at 3:06 p.m.
Mr. Forsyth reviewed State legislation requiring water entities to prepare a water conservation plan update every five years. He said as a part of that requirement, a public hearing must be held allowing the public to comment on the conservation plan update.

Mr. Forsyth provided a slide presentation and said the conservation plan is a planning document that will guide the District in its conservation efforts over the next five years. Also, he said this plan is intended to help the District continue to make progress towards its 25 percent water conservation goal.

Mr. Forsyth explained that the District is primarily a wholesale water provider to most of Salt Lake County, outside of Salt Lake and Sandy cities. He said the District also provides 12-15 percent of its annual water deliveries to its retail customers, located in unincorporated parts of Salt Lake County.

Mr. Forsyth explained that the District's water conservation goal of reducing per capita water use 25 percent by 2025 has been widely publicized. He said measuring water on a per capita basis use began in 2000, with the District's per capita water use being 255 gallons per day (gpcd). In 2008 the per capita use was measured at 231 gpcd, which corresponds to about a 10 percent reduction since 2000.

Mr. Forsyth said the main purpose of water conservation efforts is to reduce the demand for water so there is enough water to meet future growth in the District's service area. He said population in Salt Lake County is expected to double by 2100, and 70 percent of Salt Lake County's total population at that time could reside in the District's service area.

Mr. Forsyth said if the District reaches its conservation goal by 2050 the savings could amount to 70,000 acre-feet of water annually. He said that amount is significant and is as much water as the District will receive from the Central Utah Project water supply on an annual basis. The cost savings associated with saving this amount of water could be as much as \$1 billion.

Mr. Forsyth said the District has made a large commitment to water conservation and has been a leader in water conservation since 1999. He said the District will continue its current conservation programs; and will pursue the following programs and efforts:

1. Refocus the water check program to make it more efficient and reduce the cost;
2. Continue working with member agencies, especially cities, to encourage adoption of the District's water efficient landscape ordinances;
3. Public education and outreach;
4. Construct the garden education building;
5. Develop retail service area programs; toilet replacement program(s), state-of-the art water conservation rate structure and others; and
6. Expand member agency assistance programs, and consider a program to assist member agencies in hiring water conservation staff that can work with the District

Mr. Forsyth summarized comments regarding the District's 2009 Conservation Plan Update received to date, from Lyle Summers and Carl Eriksson, General Manager of Kearns Improvement District. Among other things, Mr. Summers

suggested the District evaluate the cost effectiveness of its Water Quest program, which included the four residential lots that were restructured with water efficient landscaping; and consider a District-wide water loss study. Mr. Forsyth said previous results have shown that the District's unaccounted for water is much lower than the national average.

Mr. Forsyth summarized additional comments from Mr. Summers and Mr. Eriksson:

1. Identify the District as an EPA WaterSense partner;
2. Perform a detailed end-use study to help shape the future direction of water conservation programs;
3. Include plans for future wastewater reuse; and
4. Include Arizona, Idaho and Colorado in the District's survey of western states and their conservation programs.

Mr. Swensen asked how the District will perform an end-use study. Mr. Forsyth explained that the District would evaluate every account in its service area and find out what percentage of its water is being used by residential, commercial, institutional, and industrial water users. He said the District would provide special monitoring equipment on a statistically representative group of water connections to find out where water is being used. More specifically, the District would determine how much water is used for toilets, dishwashers and washing machines in homes. Then a detailed analysis would be prepared of all water use within its service area. Based on how much water is being used in these different areas, the District could develop specific programs to reduce water use among various user classes. Mr. Forsyth said the analysis has been performed by many agencies across the west, including in Southern California and Nevada, but would be new to Utah. He said the cost would be approximately \$200,000.

Mr. Forsyth said that comments provided in today's public hearing, as well as Mr. Summers' and Mr. Eriksson's comments, will be incorporated into the District's 2009 Conservation Plan Update as appropriate and then presented to the Board in October for its approval consideration.

Public Comment Session

Mr. Gibson moved to open a public comment session on the District's 2009 Conservation Plan Update. Following a second by Mr. Crane, the public comment session was declared open at 3:26 p.m. by unanimous consent:

Mr. Crane – aye
 Mr. McDonald – aye
 Mr. Sperry – aye
 Mr. Swensen – aye

Mr. Gibson – aye
 Ms. Peterson – aye
 Mr. Summers – aye
 Mr. Taggart – aye

Mr. Taggart asked for comments or questions from the public. None were given.

Ms. Peterson moved to close the public comment session. Following a second by Mr. Swensen, the public comment session was closed by unanimous consent:

- | | |
|--------------------|--------------------|
| Mr. Crane – aye | Mr. Gibson – aye |
| Mr. McDonald – aye | Ms. Peterson – aye |
| Mr. Sperry – aye | Mr. Summers – aye |
| Mr. Swensen – aye | Mr. Taggart – aye |

Close Public Hearing

Mr. Summers moved to close the public hearing. Following a second by Mr. Sperry, the public hearing was closed:

- | | |
|--------------------|--------------------|
| Mr. Crane – aye | Mr. Gibson – aye |
| Mr. McDonald – aye | Ms. Peterson – aye |
| Mr. Sperry – aye | Mr. Summers – aye |
| Mr. Swensen – aye | Mr. Taggart – aye |

Ms. Peterson asked staff to use a competitive proposal process to begin an end-use study. Mr. Bay said yes.

Public Comments

Mr. Taggart invited comments from the public. None were given.

Common Consent Items

Mr. Taggart presented the Common Consent Items: Minutes of the August 12, 2009 Board meeting and the Trustees Expenses Report for August 2009.

Mr. Taggart moved to approve the minutes of the August 12, 2009 Board meeting and the Trustees Expenses Report for August 2009. Following a second by Mr. Summers, the motion was unanimously approved:

- | | |
|--------------------|--------------------|
| Mr. Crane – aye | Mr. Gibson – aye |
| Mr. McDonald – aye | Ms. Peterson – aye |
| Mr. Sperry – aye | Mr. Summers – aye |
| Mr. Swensen – aye | Mr. Taggart – aye |

Engineering, Distribution and Information Systems Activities

Consider Approval of an Engineering Contract Amendment for the 6400 West Pipeline Project

Mr. Packard presented an amendment to a contract with Bowen Collins and Associates. He explained that Bowen Collins and Associates is working on a preliminary engineering design for a new transmission pipeline between 11800 South and 10200 South. He said the initial scope of the contract assumed that the pipeline would go in a street near 6400 West on property owned by Kennecott Land. However, Kennecott was unable to develop its planning sufficiently to commit to an exact location of a street.

Mr. Packard said the District had to consider two options: acquire an easement from Kennecott Land which would increase the cost; or choose a different alignment within the Mountain View Corridor, which would save acquiring an easement and the associated costs. He recommended that additional funds be authorized for Bowen Collins and Associates to complete

the preliminary design for a new alignment within the Mountain View Corridor. He said the pre-design surveying, geotechnical work and additional modeling for this new alignment will increase the contract with Bowen Collins and Associates by \$79,478.

Mr. Crane asked if this change in alignment will have any effect on the delivery of water to higher elevations. Mr. Packard referred to a map outlining different pressure zones. He said the pressure zone that will be served by the 6400 West pipeline is Zone C. He said the District plans to ultimately build additional transmission and pumping facilities, and eventually storage on 11800 South further to the west. But this shift in alignment will not change areas that are immediately served with Zone C deliveries. He said the District has already completed the pipeline west to approximately 6000 West 11800 South, and that will be the primary point of delivery to Herriman City near the high school.

Mr. Crane asked if the District has long-range plans to take a line southward along U111 or even west to more economically deliver water to Zone D.

Mr. Packard said the District does plan to have an interconnect between Zone D facilities on 10200 South and future Zone D facilities on 11800 South.

Mr. McDonald moved to approve an engineering contract amendment for the 6400 West Pipeline Project. Following a second by Ms. Peterson, the motion was unanimously approved:

Mr. Crane – aye

Mr. Gibson – aye

Mr. McDonald – aye

Ms. Peterson – aye

Mr. Sperry – aye

Mr. Summers – aye

Mr. Swensen – aye

Mr. Taggart – aye

Consider Adoption of Supplemental Resolution 09-18

Mr. Bay said the District continues to pursue its capital improvements program, funded in part by capital funds generated each year from operating reserves and in part from borrowed funds through bonding. He reported that two months ago the Board issued notice to the public of the District's intent to issue bonds, in the form of a parameters resolution. Again in August the Board held a public hearing in pursuing that bonding.

Today, Mr. Bay said the action before the Board is adoption of the final supplemental bond resolution that has the details of the amounts and marketed rates of these fixed rate bonds. He said approximately three weeks ago, he, Mr. Gibson, Messrs. Scott and David Robertson, Mr. Cox, and Mr. Martin visited two credit rating agencies, Standard & Poor's and Fitch Ratings. He referred to the published reports from both agencies affirming the District's credit ratings. He said both agencies commented on four items that affected their opinion on rating the District:

1. Solid financial performance;
2. Strong debt service coverage ratios;
3. Strong liquidity position with reserve funds; and
4. Aggressive but well managed capital improvements plan

Mr. Bay acknowledged and thanked Scott Robertson and David Robertson from Lewis Young Robertson & Burningham, the District's financial advisor, as well as Richard Scott and Eric Hunter, bond counsel from Chapman and Cutler, and John Crandall and Chuck Canepa from George K. Baum, the finance team that has worked on this issue. He said the team has worked to ensure the issue was structured properly and has resulted in an outstanding interest rate for the District for long-term fixed rate bonds.

David Robertson reviewed a pricing booklet prepared for the District, summarizing the market and how the District fared in the market and the final steps of the funding.

Mr. Bay acknowledged Richard Scott of Chapman and Cutler. Mr. Scott recommended the Board authorize adoption of supplemental Resolution 09-18 for Series 2009 A, tax exempt bonds, and the 2009B taxable Build America Bonds.

Mr. Gibson moved to adopt Resolution 09-18 authorizing the issuance of water revenue bonds and authorizing the execution and delivery of certain documents in connection with the bonds. Following a second by Mr. Summers, the motion was unanimously approved:

- | | |
|--------------------|--------------------|
| Mr. Crane – aye | Mr. Gibson – aye |
| Mr. McDonald – aye | Ms. Peterson – aye |
| Mr. Sperry – aye | Mr. Summers – aye |
| Mr. Swensen – aye | Mr. Taggart – aye |

Reporting Items

Mr. Taggart referred to the Reporting Items.

Closed Meeting

It was proposed to go into a closed meeting to discuss acquisition of real property and anticipated litigation. Mr. Crane moved to go into closed meeting at 4:04 p.m. Following a second by Mr. Swensen, the motion was unanimously approved:

- | | |
|--------------------|--------------------|
| Mr. Crane – aye | Mr. Gibson – aye |
| Mr. McDonald – aye | Ms. Peterson – aye |
| Mr. Sperry – aye | Mr. Summers – aye |
| Mr. Swensen – aye | Mr. Taggart – aye |

The closed meeting continued with the Trustees, Mr. Bay, General Manager, Mr. Forsyth and Mr. Packard, Assistant General Managers, Reid Lewis, General Council, Jeff Bryant, Department Manager, Neil Cox, Treasurer, Justin Cracroft, Property Manager, Margaret Dea, Legal Assistant, and Marilyn Payan, Executive Assistant.

Open Meeting

Mr. Crane moved to return to open meeting at 4:56 p.m. Following a second by Mr. Summers, the motion was unanimously approved:

- | | |
|--------------------|--------------------|
| Mr. Crane – aye | Mr. Gibson – aye |
| Mr. McDonald – aye | Ms. Peterson – aye |
| Mr. Sperry – aye | Mr. Summers – aye |
| Mr. Swensen – aye | Mr. Taggart – aye |

No actions or votes were taken in the closed meeting.

**Consider
Purchase of
Irrigation Stock**

Mr. Bay said the District routinely purchases stock from Provo Reservoir Water Users Company. He said the District is interested in a stock purchase agreement with Harley Gillman that would involve interest-only payments once a year for ten years, and with a single balloon payment ten years from now.

Mr. Forsyth presented the stock purchase agreement and said that it included purchasing 26 shares of Provo Reservoir Water Users Company irrigation stock at a price of \$28,000 per share. He said that the District would receive the water now and be able to make interest-only payments for ten years, with a lump sum principal payment due at the end of the ten year period.

Mr. Forsyth emphasized that there is not a lot of Provo River water remaining for purchase. He said that acquiring this stock would be less expensive than developing future water supply sources, with the exception of limited additional groundwater development.

Mr. Forsyth recommended approval of the purchase of irrigation stock.

Ms. Peterson moved to approve the purchase of irrigation stock. Following a second by Mr. Crane, the motion was unanimously approved:

- | | |
|--------------------|--------------------|
| Mr. Crane – aye | Mr. Gibson – aye |
| Mr. McDonald – aye | Ms. Peterson – aye |
| Mr. Sperry – aye | Mr. Summers – aye |
| Mr. Swensen – aye | Mr. Taggart – aye |

**Consider
Purchase of
Property Located
at 8329 South 1300
West**

Mr. Packard recommended approval of a real estate purchase contract to purchase approximately 1.21 acres of property adjacent to and south of the District's Headquarters site for \$256,075.

Mr. Summers moved to approve the purchase of property located at 8329 South 1300 West for \$256,075. Following a second by Ms. Peterson, the motion was unanimously approved:

- | | |
|--------------------|--------------------|
| Mr. Crane – aye | Mr. Gibson – aye |
| Mr. McDonald – aye | Ms. Peterson – aye |
| Mr. Sperry – aye | Mr. Summers – aye |
| Mr. Swensen – aye | Mr. Taggart – aye |

**Consider Approval
of a Pipeline
Easement
Agreement with
the Utah & Salt
Lake Canal
Company**

Mr. Packard recommended approval of a pipeline easement agreement with the Utah & Salt Lake Canal Company. He said the easement covers approximately 10 miles of the canal right-of-way between 6300 South and 9200 West.

Mr. Packard recommended the General Manager and General Counsel be authorized to make minor modifications to the agreement prior to execution. However, due to time constraints, should there be more substantial revisions, he recommended authorizing the General Manager to consult with the Executive Committee for its approval, and then bring it back to the Board in October for ratification.

Mr. Crane moved to approve the pipeline easement agreement with the Utah & Salt Lake Canal Company, as described by Mr. Packard.

Mr. McDonald asked if the District no longer needs the easement would the District still be obligated for the maintenance costs. Mr. Packard said no, the District could terminate the agreement and stop future annual maintenance payments to Utah & Salt Lake Canal Company.

Following much discussion, Ms. Peterson, Mr. Crane and Mr. Sperry encouraged Mr. Packard, as a sitting member of the canal company's board of directors, to request the company to beautify the canal corridor.

Following a second by Mr. Gibson, the motion was unanimously approved:

- | | |
|--------------------|--------------------|
| Mr. Crane – aye | Mr. Gibson – aye |
| Mr. McDonald – aye | Ms. Peterson – aye |
| Mr. Sperry – aye | Mr. Summers – aye |
| Mr. Swensen – aye | Mr. Taggart – aye |

Adjourn

The meeting adjourned by unanimous consent at 5:19 p.m.

Steven L Taggart, Chair

Richard P. Bay, Clerk



BOARD OF TRUSTEES
Rodney W. Bushman
Royce A. Gibson
George Sadowski
GENERAL MANAGER
Carl R. Eriksson, P.E.



Serving the Public Since 1957

August 26, 2009

Richard P. Bay
General Manager, CEO
Jordan Valley Water Conservancy District
8215 S 1300 W
West Jordan, UT 84088-0070

Dear Richard,

Subject: Water Conservation Plan

I have three suggestions for you to consider including in your Water Conservation Plan update.

1. Both Jordan Valley and Kearns are partners in the WaterSense program, sponsored by EPA. It would seem appropriate to bring attention to that fact, and emphasize the value of using their programs and offerings to achieve reductions in per capita usage of water.
2. I found no mention of reuse water in your plan. Kearns is actively pursuing a reuse program that would result in a reduction of about 10%, or 700 AF per year, of the water we currently purchase from Jordan Valley. In my opinion, water reuse is the most powerful tool available to us for conserving our limited supplies of water, and must, at some point, be implemented by most, if not all, of your member agencies...
3. Your Table 7.2 fails to address two important issues. First, it doesn't include any reference to water reuse, and second, with the exception of Southern Nevada Water Authority, it includes no desert areas, such as we live in. Arizona and Idaho ought to be looked at. Also, Colorado has many progressive water agencies that are actively pursuing a wide variety of conservation issues. Most of the agencies listed are Pacific coastal communities, which have drastically different climates and water demands than Utah.

I believe that addressing these issues in your update will bring you in line with the more progressive advocates of water conservation.

Sincerely,

Carl R. Eriksson, P.E.
General Manager